

**UNIVERSITY  
OF MINNESOTA  
BULLETIN 1974-76**

**College of Liberal Arts**

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College  
of Liberal Arts

UNIVERSITY OF MINNESOTA

## Where to Find Information About CLA and the University

This bulletin provides information about CLA courses, major programs, special opportunities, degree and other requirements, and procedures.

Because the bulletin is biennial, updated information (course, degree, and procedure changes and the like) is made available in supplements published when changes have been substantial. Advisers and college and department offices are the sources for information about current changes. Most departments provide statements of their major requirements.

**Class Schedule**—Distributed each quarter with registration materials (the fall *Class Schedule* lists all three quarters). It shows new courses as well as class hours, rooms, instructors, and prerequisites. It also provides registration instructions and final examination schedules.

**Official Daily Bulletin**—A regular column in the *Minnesota Daily* with up-to-date University announcements about courses, study opportunities, and activities. You are expected to be aware of any of its contents that affects you.

**Other Bulletins**—At your right as you enter Morrill Hall's main lobby is a rack with a file of current University bulletins. You may get copies of those you need for planning your undergraduate program from the nearby Information Window. The *Graduate School Bulletin* is to be obtained from the Graduate School; the *CLA Bulletin* does not list graduate-credit-only (8xxx-level) courses.

**Advising Services**—Essential in education planning is the college advising system. Every student in the college is assigned to an adviser—a junior or senior faculty member who helps with questions a student cannot answer himself. More about advisers and the advising system on page 5.

# College of Liberal Arts

## I. GENERAL INFORMATION

### Liberal Education, CLA, and Its Students

An education properly called "liberal" helps those who experience it to see the world in many perspectives; it clarifies complexities, penetrates barriers between fields of knowledge, leads toward valid judgments. It introduces the student to the broad creative and intellectual accomplishments of civilization and to the sweep of human history. It helps the historian to see the truths in technology, the medical scientist to ask informed questions about what the French Impressionists were saying. The search for such perceptions underlies the University's belief that grounding in the several broad areas of learning is necessary in every degree program.

The College of Liberal Arts is at the heart of the University. It provides educational services and enrichment to every part of the institution. Its primary concern is in the studies and degree programs of its own students; but it bears the responsibility for making liberal education opportunities accessible to those in other colleges as well. It is a catalyst, a blender of knowledge and experience.

Partly because of its breadth of offerings, the college makes it possible for every CLA student to tailor his own education—to plan a study program duplicated by nobody else. And because the college moves with its times, constantly enriching its programs, no former student had quite the educational experience you will have.



How do you plan a "liberal education?"

It isn't easy. The very wealth of CLA paths to learning makes selection hard. Most students look not only for broad education but also for specialization in a chosen field that will guide them to productive, satisfying lives. The problem is the integration of breadth and specialization—a problem that can be solved.

Most CLA degree programs ask you to select work in four basic areas of knowledge. Your area of concentration lies in one of them; the other three support it; all work together to refine your special emphasis. In the specialization you acquire intellectual tools to take you beneath the surface of knowledge and relationships that you expect to shape your life. These tools, and the knowledge that goes with them, often have vocational as well as academic rewards. You may choose your special field among some 50 established majors and a broad range of interdepartmental majors.

Some of the CLA degree programs prepare students for specific occupations or professions; many do not. A growing number of students later take additional academic work—in graduate schools or in schools of law, medicine, social work, and public administration, for example. Other students, aided by the college's Placement Office, find employers who prefer broadly trained to specialized graduates. The student who acquires the intellectual outlooks and skills that liberal education instills acquires at the same time the qualities sought and needed in every area of American society. Men and women in a multitude of careers who have entered them on the solid base of liberal arts background attest to that.

Your use of the college's opportunities and the profit you take from them are your own responsibility. The college's staff and advisers help you in many ways; but in the end you chart your own course.



## General Information

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In Section I of this bulletin is information about college regulations and procedures. Section II lists all University courses that have been approved for credit toward CLA degrees, as well as major requirements. Section III describes CLA preparation for professional education in other divisions of the University.

## How the College Functions

The College of Liberal Arts (CLA) is organized to give its students—15,000 to 16,000 undergraduates, some 2,600 graduate students—the most profitable educational experiences attainable with its staff, money, and other resources.

The college is administered in three divisions—Humanities and Fine Arts, Social Sciences, and Natural Sciences—that make most curricular decisions; those of an all-college nature, such as degree requirements, are made by the All-College Council. CLA includes some 40 departments, schools, and programs; among them they offer more than 50 majors for Bachelor's degrees. Each teaching unit has general autonomy in faculty and operational concerns; budget decisions are reviewed at college and University levels. Proposals for new courses and majors, usually originating in these units though sometimes coming from students, go for consideration to the Divisional Councils, which are student-faculty bodies.

Student contacts with the college beyond the principal one, instruction and learning, take place largely in two settings: designated college offices, for registration and other official procedures; and the college advising or major advisers' offices, for academic and other types of counsel.

## THE COLLEGE OFFICES

Every student is assigned to one of the college offices. These offices maintain official collegiate records, issue registration materials, and provide information about new courses, distribution and other requirements, and changes in college procedures as well as advisory and other services. The college offices are:

**Premajor Advising Offices** (for freshmen, preprofessional students, and students who have not chosen majors)—30 (373-2912), 126 (373-5086), 220 (373-2880) Johnston Hall.

**Divisional Offices** (for sophomores, juniors, and seniors who have declared majors)

Humanities and Fine Arts—206 Folwell Hall (373-5245)

Natural Sciences, Interdepartmental, Journalism, Social Welfare—223 Johnston Hall (376-4533)

Social Sciences—West Bank, 122 Social Sciences Building (373-4237); East Bank, 120 Elliott Hall (376-3941)

**Specialized Advising Offices**

Adult Special, Nondegree, and Part-time Students—51 Johnston Hall (376-4515)

Bachelor of Elected Studies (for students admitted to the B.E.S. program)—49 Johnston Hall (376-7467)

Honors (for students admitted to the Honors program)—201 Wesbrook Hall (373-5116)

Martin Luther King (for students served by the MLK program)—115 Johnston Hall (373-9739)

**Special Learning Opportunities** (for students planning independent study or credit by examination)—201A Wesbrook Hall

## THE ADVISING SYSTEM

The advising services provide individual help for every CLA student, both in planning study programs and in meeting other concerns of college life. If you are a freshman, a sophomore who has not declared a major, or a student in a special program, you go to your college office (one of those listed above) for advice on course selection, registration planning, vocational and personal decisions, financial problems, and participation in student activities. After your freshman year, if you have decided on your major, you select an adviser on the staff of your major department. You usually continue with this adviser until you have completed your degree program. Your college records will move to the appropriate college office, which will be your "second home."

College office advisers may be changed by arrangement at 214 Johnston Hall. To change a major adviser, consult your major department.

Wise use of the advising system is likely to make your college experience easier and more productive. You should take to an adviser all pertinent records, and you should come to program planning discussions with preliminary suggestions about your course desires and program goals. It is necessary to know this bulletin well enough to use it readily.

**Career Advice**—Major advisers and counselors in college offices help students to identify vocational objectives and plan appropriately-oriented degree programs. They also aid in designing undergraduate programs leading toward graduate education. The CLA Health Science advising office assists with plans for careers in the health and medical fields. A CLA Office for Career Planning (225 Johnston Hall, 373-4878) is provided to help students choose educational goals. The Student Counseling Bureau (101 Eddy Hall, 373-4193) also provides professional vocational guidance. The CLA Placement office (see page 26) offers career choice and employment assistance.

## STUDENT ORGANIZATIONS

**Student Intermediary Board**—Student participation in and communication about CLA affairs channel through the Student Intermediary Board (CLA Board), a 25-member council of elected and appointed undergraduates. Under the college constitution, a prime board responsibility is nomination of student members of college committees.

The board is officially designated as the agent of student proposals for course changes, new courses, and improvement of educational practices and opportunities (individual students also may make such proposals to the college administration). In recent years the board's comments and suggestions on curricular, instructional, procedural, and student personnel issues have been of increasing significance in college progress.

An additional board responsibility is maintenance of liaison with departmental student organizations. These organizations function in most CLA departments in the same way the board does in the college setting; the college encourages appropriate student participation at all levels.

Any student who wishes to contribute to the S.I.B.'s or the college's effectiveness may declare his interest at the board office, 101 Johnston Hall.

**Student Ombudsman Service**—"SOS," from its office in 102 Johnston Hall, provides "instant aid" with student problems. Its all-student staff answers questions, furnishes services, assists in meeting personal or curricular problems, investigates complaints, and seeks to correct misunderstandings in University or college relations with students. SOS (telephone 373-9788) is open from 8 a.m. to 4 p.m.

## General Information

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each school day for visits or queries from all students. It has served thousands of students since it was initiated in 1968 by the Student Intermediary Board.

**Honors Students and the Honors Program**—Honors students participate in all phases of the development and management of the College Honors Program. They hold representation, with faculty members, on Honors program operational bodies and on some departmental honors committees. Here they take part in course evaluations and suggest new or changed opportunities for honor students. They have arranged social and educational events with faculty members, and have initiated efforts to acquaint high school students with the program. (See page 21 for information about admission.)

## Regents' Human Rights Policy

The Board of Regents has committed itself and the University of Minnesota to the policy that there shall be no discrimination in the treatment of any person because of race, creed, color, sex, or national origin. This is a guiding policy in the admission of students in all colleges and in their academic pursuits. It is also to be a governing principle in University-owned and University-approved housing, in food services, student unions, extracurricular activities, and all other student and staff services. This policy must also be adhered to in the employment of students either by the University or by outsiders through the University and in the employment of faculty and civil service staff.

## Admission

The College of Liberal Arts admits qualified applicants at all undergraduate levels. Admissions depend upon the applicants' prior educational achievement and objectives and the state in which they reside (non-Minnesotans must satisfy higher academic standards).

Admission materials and information may be requested from the University Office of Admissions, 6 Morrill Hall, by mail, phone, or in person. A \$10 non-refundable credentials examination fee, payable to the University of Minnesota, must accompany the admission application.

Students may enroll in any quarter to begin college work. New students may enter during Summer Session and earn credits toward degrees, but they are not formally admitted to the college until later quarters.

Applications should be submitted by July 15 for fall admission, November 15 for winter admission, and March 15 for spring admission. Every effort will be made to process applications received later than these dates, but the Admissions Office cannot guarantee that those received very late will be acted upon in time for applicants to enroll for the quarter requested. Earlier application is advisable; high school students are urged to apply between November 15 and April 15 for the following fall. Summer Session enrollment and registration instructions are in the *Summer Session Bulletin*, available by April 1; students may register in advance, beginning in late May.

## FRESHMAN ADMISSION

High school graduates who have no college work or who have completed less than one year of college enter as freshmen. Those in the top 10 percent of their high school graduating classes are automatically admissible. Others are considered for admission on the basis of their high school percentile rank and scores on a college aptitude test. For students entering fall 1974, the score on the Minnesota

Scholastic Aptitude Test (MSAT) and high school percentile rank are averaged to produce a College Aptitude Rating (CAR). Students with CARs of 50 or higher are admissible. Exceptions may be made for other applicants on the basis of relevant supplementary information; recommendation of their high school counselors is important among these considerations.

Before fall 1975 applicants for admission as freshmen who have no college work must take the tests of the American College Testing (ACT) Program; scores must be reported to the Office of Admissions before the application is complete. Tests are necessary to insure correct placement in some introductory courses. ACT tests should be taken at the earliest test date during senior year in high school (information about dates is available from high schools or from the ACT Central Registration Unit, Box 168, Iowa City, Iowa 52240). A \$6.50 fee is charged.

**New Test Program**—Beginning in fall 1975, applicants for freshman admission must submit scores from either the Preliminary Scholastic Aptitude Test/National Merit Scholarship Qualifying Test (PSAT/NMSQT) or the American College Testing Program (ACT). No applicant is required to take both tests. The PSAT, administered through the Minnesota Statewide Testing Program, is taken in junior year in high school; the ACT in either junior or senior year. Test scores should be reported to the Admissions Office, 6 Morrill Hall, University of Minnesota, Minneapolis 55455.

Admission standards will not change under the new program; separate PSAT-plus-high-school-rank and ACT-plus-rank formulas define admissibility. Exceptions may be made as described above (see the current *General Information Bulletins* for more specific information).

**Advanced Placement**—High school students may earn college credit by participating in the College Entrance and Examination Board Program in high schools that offer it.

## ADMISSION BEFORE HIGH SCHOOL GRADUATION

Outstanding high school students may sometimes begin college work before high school graduation. The principal patterns are these:

**Concurrent High School-University Registration**—Some students, usually seniors, may enroll for courses while completing high school work.

**Summer Session Registration**—Students with exceptional records may register during the summer between junior and senior years for courses that meet specific needs, upon high school counselors' recommendation.

**Early Full Admission**—Outstanding students who have not completed high school are occasionally admitted, usually after completion of junior year of high school. Thorough interviews and testing and recommendations from high school principals and parents are taken into account.

**Older Non-High School Graduates**—Older students who have not completed high school but wish to seek CLA degrees may be considered on the basis of test scores.

## ADVANCED STANDING ADMISSION

Students with a year or more of college work are considered for admission with advanced standing. Admissibility is usually based on demonstration of successful earlier college performance (C average, 2.00, or better), the student's educational objectives, and his patterns of course work. Students who have completed

## General Information

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2 years (84 transferable college credits) of C or better work in Minnesota community colleges are automatically admissible.

**Transfers of Credit**—All courses accepted by CLA as college-level liberal arts course work may apply toward the student's degree. Credits of A, B, C, or S will transfer fully. Credits of D normally do not count in the total required for graduation, but some D-credit courses may meet other graduation requirements (see Use of D Grades, page 18). Credits earned through standardized testing programs (such as CLEP; see page 24) will be accepted if the scores meet CLA requirements. A limited number of college credits of non-CLA course work can be accepted toward the Bachelor's degree (see Other Degree Requirements, page 12).

### **PART-TIME AND NON-DEGREE STUDENTS— ADULT SPECIAL ADMISSION**

Opportunities for men and women to study for personal growth and enrichment are open through the adult special category. Adult specials are usually 24 or older or are holders of Bachelor's degrees. Flexible admission standards take into account the needs and experience of individual students. Most adult specials register for part-time study, though full programs are not prohibited.

Advising services for CLA adult specials center in the Adult Special office, 51 Johnston Hall. Advisers aid in adjusting class programs to "outside demands" and in selection of course work to take best advantage of the college's rich resources.

Credits earned as an adult special may later, upon admission to a degree program, be used toward the Bachelor's degree. Only the first quarter's work may be submitted for credit in Graduate School. Generally, adult special work may not be used to improve scholastic averages for admission to other programs.

Applications for admission are made at the Office of Admissions, 6 Morrill Hall.

### **Orientation**

New students participate in orientation programs scheduled shortly before the opening of their first quarter. These programs (1 or 2 days) introduce students to college procedures and facilities and explain academic responsibilities, the adviser system, and use of other aids and opportunities. Students' first meetings with their advisers take place during the orientation period, as does initial registration. Upper-class students and college personnel explain and demonstrate the workings of the University.

Information about orientation periods is mailed to newly admitted students in time for them to make plans to participate. A *Handbook* distributed to students contains detailed information about registration and other procedures and suggestions to aid with course selection, study practices, and a variety of personal problems.

### **CLA Degrees — Standards, Requirements**

The College of Liberal Arts offers three 4-year Bachelor's degrees available to all students, the bachelor of arts (B.A.), the bachelor of fine arts (B.F.A.), and the bachelor of science (B.S.); and a fourth degree open to a limited number of students, the bachelor of elected studies (B.E.S.). A 2-year degree, associate in

liberal arts (A.L.A.), is also offered. Many degree requirements are common to all 4-year degrees—the chart on page 10 shows uniformities and differences. Additional information appears in the following pages.

### **BACHELOR OF ARTS DEGREE**

This degree is available through majors in most CLA departments and programs. It stresses breadth and richness in general education as a basis for an understanding of life as well as for later specialization. Several professional majors are offered in CLA; interdepartmental B.A. degrees are also available.

### **BACHELOR OF FINE ARTS DEGREE**

The Departments of Music, Theatre Arts, and Studio Arts provide this degree for students who demonstrate superior professional promise. Progress of accepted candidates is reviewed annually. Information about admission and degree requirements can be obtained from department offices or from the B.F.A. booklet available in the Humanities and Fine Arts Office, 206 Folwell Hall.

### **BACHELOR OF SCIENCE DEGREE**

Four departments offer this degree: Communication Disorders, Economics, Social Welfare, and Urban Studies. The B.S. degree provides opportunity for heavier major concentration than the B.A. and does not require language study. It is expected that additional B.S. programs will become available.

### **BACHELOR OF ELECTED STUDIES DEGREE**

Introduced as an experiment in giving students maximum latitude to design individual degree programs, the B.E.S. program admits up to 500 students a year. CLA students may enter it at designated enrollment periods of any quarter after their admission to CLA and before they have exceeded 135 credits or 9 quarters (preference is given to freshmen and sophomores). When applications exceed the program's capacity, selection is by lot. The B.E.S. office, with program advisers and other student aids, is in 49 Johnston Hall (376-7467).

### **ASSOCIATE IN LIBERAL ARTS DEGREE**

The A.L.A. provides recognition of completion of 2 years of work in CLA for those who are not certain of further educational plans. It is an evidence of achievement in general liberal arts education; it is advantageous as preparation for additional professional or general education.

### **ENGLISH COMPOSITION REQUIREMENTS**

All students must have English placement classification before entering any composition course. Unless exempt, a freshman must complete Engl 1001-1002 or Comm 1001-1002 (some students must first complete a remedial composition course). The courses may not be used to satisfy distribution requirements.

## CLA BACHELOR'S DEGREE REQUIREMENTS

Type of Requirement	Bachelor of Arts	Bachelor of Science	Bachelor of Fine Arts	Bachelor of Elected Studies (experimental)
TOTAL CREDITS	180	180	180	180
CLA CREDITS	45 awarded by college	45 awarded by college	Last 45 awarded by college	45 awarded by college
UM CREDITS	30 in senior year	30 in senior year		30 in senior year
3xxx- or 5xxx- LEVEL CREDITS	75 total 30 outside major	75 total	Usually at least 75	75 total
QUALITY STANDARDS	Grades of A, B, C, or S in 180 CLA credits, in 75 3xxx- or 5xxx-level credits, and in the minimum number of 3xxx- or 5xxx-level credits required by the major department (credits of D earned at Minnesota or other institutions after the summer of 1972 will count toward all requirements except those listed above). Up to 12 credits of D may be compensated by credits of A or B for work outside the major; or if department allows, within the major.			Same as for other degrees, except that no major is required
ENGLISH COMPOSITION	Comp 1001-1002 or Comm 1001-1002 or exemption	Comp 1001-1002 or Comm 1001-1002 or exemption	Comp 1001-1002 or Comm 1001-1002 or exemption	
FOREIGN LANGUAGE	Completion of stated language requirement (see pages 11 and Section IV)			
GROUP DISTRIBUTION	See pages 11 and Section IV	See pages 11 and Section IV	See B.F.A. distribution requirements	
MAJOR	Completion of program approved by department	Completion of program approved by department	Completion of program approved by department	

## THE LIBERAL EDUCATION DISTRIBUTION PLAN

Choice of a portion of the degree work to assure the balance and breadth that are part of any University of Minnesota program is guided through the "distribution plan." CLA offerings are so broad in scope that you will be able not only to meet the plan's requirement but also to satisfy your own interests, to enrich your understanding, and to enter a deeper exploration of your world and your community.

Though it is wise to spread your distribution choices over your 4 years of college, most students elect a considerable portion of such work in their first 2 years—introduction to a well-chosen variety of fields will make your last 2 years' work more fruitful. Most such courses are prerequisite to 3xxx-5xxx-level course requirements or elective work. Taking them, you gain perspective that will aid you in your fields of concentration.

B.A. and B.S. degree candidates meet these breadth-and-balance requirements by completing at least 48 credits distributed thus:

**Group A—Communication, Language, Symbolic Systems**

8 to 10 credits (normally two courses)

**Group B—Physical and Biological Sciences**

12 to 15 credits (at least three courses of 4-5 credits each, one course or more to include laboratory). Credit by examination does not satisfy the laboratory requirement.

**Group C—Man and Society**

16 to 20 credits (normally four courses)

**Group D—Artistic Expression**

12 to 15 credits (normally three courses)

**Course Distribution by Groups**—Two indicators of assignment of courses to the four distribution groups appear in this bulletin: Designations at the end of most course descriptions (e.g., GrA) and a list of group assignments in Section IV. This list is available in college advising offices, updated once a quarter.

## B.A. FOREIGN LANGUAGE REQUIREMENTS

Two "routes" are available to meet this requirement. Route I is designed to equip a student to use a foreign language with basic proficiency; Route II puts less emphasis on language use but requires supplementary study of the cultures and societies in which the chosen languages are the principal communication medium.

Knowledge of a foreign language gained before entering CLA may be used to meet part or all of the language requirement. Students who are unsure of their proficiency may consult a language department or an adviser for placement assistance. With adviser approval, students may repeat for credit language taken in high school.

Foreign students whose primary language is not English are exempted from the requirement. They may not earn college credits in proficiency courses in their primary languages.

Route I and Route II requirements, with a list of courses that meet part of the Route II requirements, are stated in Section IV.

## General Information

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**Examinations to Meet Language Requirement**—Qualified students may meet part or all of the requirement by passing examinations arranged with appropriate departments. Examinations may be for credit, or to demonstrate proficiency without credit. See Examination Programs, page 24.

## OTHER DEGREE REQUIREMENTS

A minimum of 180 credits acceptable to the college is required for all CLA degrees. All credits graded A, B, or C and a restricted number of S grades (see Credits and Grades, page 17) are acceptable. There is a marginal acceptability for credits of D (see Credits and Grades).

Degree candidates must complete at least 45 CLA credits (excluding credits by examination) while enrolled in CLA. At least 30 of the last 45 credits must be taken in University of Minnesota courses, though not necessarily in CLA. "CLA credits" are those earned in University of Minnesota courses and approved for credit by the college for use toward a CLA degree. (All courses described in Section II of this bulletin, with a few noted exceptions, carry CLA credit.)

No more than 8 non-CLA credits may be used toward degree requirements except those for the B.E.S., which permits up to 30 such credits.

**Required Preparatory Courses**—Most major programs under departmental headings in Section II of this bulletin suggest or require preparatory or "background" courses. Freshman and sophomore programs should include a considerable number of these, since they qualify students for entrance to advanced and major work. Most of them satisfy some of the distribution requirements.

**Outside-of-Major Requirements**—All degree programs except those composing interdepartmental majors and B.E.S. programs must include 30 or more 3xxx-5xxx-level credits outside the major department. No "minors" are offered or required.

**Major Sequence**—More than 50 major sequences—fields of junior-senior concentration, often career-oriented, based on adequate (often prescribed) preparation—are offered in the college; Section II of this bulletin describes them. Since their requirements change from time to time, you should check with your adviser, your college office, or your departmental office for up-to-date information (you can obtain from any of these the most recent "major requirements" sheet).

**Departmental Majors**—These majors, which appear in Section II under the heading B.A. or B.S. Major Sequence, are designed as integrated programs of concentration. Each represents the judgment of its department as to what constitutes appropriate initial study, at the undergraduate level, of its discipline. Departmental majors may be modified by department or major adviser.

Students may take "double majors" by completing background and major requirements for two concentration areas, as well as other degree requirements. They usually declare double-major programs at the beginning of senior year, but should start to meet basic requirements earlier. Such students need not meet the B.A. "30 credits outside major" requirement.

**Individually-Designed Interdepartmental Majors**—This plan permits students to design unique B.A. programs to meet individual needs and purposes. Such a program resembles the departmental major in providing balance and unity; but its area of concentration is defined by selections from several CLA departments (usually three or more). It ordinarily prepares for a student's "senior project," a major paper reflecting study and research related to the central themes of the program.

The degree requirements are substantially those of the "regular" B.A. program, except that the major as defined must include 80 credits, 60 or more of them at

the 3xxx-5xxx level. Advising and program approval services are provided in the Interdepartmental Major office, 114 Johnston Hall. Faculty members in related disciplines assist in program development.

**Established Interdepartmental Majors**—These majors are offered in American studies, East Asian studies, humanities, international relations, Latin-American studies, preparation for theology, religious studies, social welfare, and urban studies. These majors, detailed under appropriate headings in Section II, are subject to individual modifications.

**Second B.A. Degrees**—Students who have earned B.A. degrees at other institutions may earn CLA degrees with different majors by completing all major requirements, including 45 CLA credits. CLA graduates may earn second degrees in different majors by earning 45 additional CLA credits, or a total of 225 credits, and all requirements for the second degree.

**B.A. Degrees Earned While Registered in Other Colleges**—Students registered in other Twin Cities Campus colleges may earn CLA degrees, except the B.E.S., by completing all CLA degree requirements for the desired degrees except the CLA enrollment requirement.

**Degree Requirements for "Old" Students**—Students absent from CLA for more than 2 years, if they have fewer than 75 credits, must complete the graduation requirements in effect at the time they reenter. Those with 75 or more credits at the time of last attendance may elect either current requirements or those in effect when they last attended.

## ASSOCIATE IN LIBERAL ARTS DEGREE REQUIREMENTS

Requirements for the A.L.A. degree are:

1. 90 credits acceptable to CLA, 45 of them on A-N grading.
2. At least 45 University of Minnesota credits.
3. CLA English composition requirement.
4. Four of the following: a. Foreign language through the third-quarter college level, or exemption by examination, or 3 years of high school work in one language; b. 8 to 10 credits in Distribution Group A; c. 12 to 15 credits in Group B; d. 16 to 20 credits in Group C; e. 12 to 15 credits in Group D.

If you meet these requirements and apply for the degree, it will be awarded even though you plan to continue work in CLA or in a professional school. Applications go to Window 14, 105 Morrill Hall.

## Registration

Registration is the process of signing up for the courses you are to take in the coming quarter. Registration periods ordinarily begin in mid-August for fall classes, mid-November for winter classes, mid-February for spring classes, and late May and late July for the two summer terms.

Registration is like making a contract: The college agrees to make specified learning opportunities available to you, and you agree to work responsibly to take advantage of them. Your first responsibility is proper registration. Mistakes, tardy registration, failure to observe established procedures, or unneeded changes could

## General Information

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be costly to your educational planning and sometimes place impositions on others. Full CLA registration instructions appear in each *Class Schedule*.

### HOW TO REGISTER

Major steps in registration (details below) are these:

1. Get registration materials, including registration permit.
2. Plan a tentative course program that suits your needs, both educational and noncurricular.
3. Consult your adviser (some registrations require instructor, department, or Scholastic Committee approval).
4. Reserve places in classes whose size is controlled.
5. Turn in registration materials and get fee statement.
6. Pay fees. *Registration is not complete until fees are paid.*

**Registration Materials and Permits**—New CLA students, both entering freshmen and those transferring from other institutions, receive initial registration materials through the mail; they receive additional materials and instructions when they come to campus for their orientation-registration programs. Continuing students get materials from the college offices to which they have been assigned.

Students transferring from University of Minnesota colleges should apply for authorization to change college at the Admissions office, 6 Morrill Hall, or at similar offices on other University campuses. For initial registration in CLA, they usually obtain registration permits from the colleges they are leaving.

Students returning to the college after absences obtain registration permits at Window 10 or 14, 105 Morrill Hall. They then proceed to their CLA offices for other materials and information.

**Alphabetized Registration**—Order of registration for continuing students is based on a rotating last-name alphabetical schedule that provides every student one early registration date each year. The tentative schedule for 1974-76 appears following Section IV. See also the *Official Daily Bulletin* and current *Class Schedule*.

New students register during their orientation periods.

**Course Levels**—Courses numbered in the 1xxx series (example: Clas 1001, 1002, 1003) are open to all students, often without prerequisites. Courses at the 3xxx level are open to juniors, seniors, and graduate students (without graduate credit), and usually to sophomores with C averages. Courses at the 5xxx level are open to juniors, seniors, and graduate students and to third-quarter sophomores with instructor and Scholastic Committee approval. Those in the 8xxx series are graduate courses, not open to undergraduates and not listed in this bulletin.

**Adviser Approval**—Beyond the freshman year, adviser signatures are needed on registration cards when advisers so stipulate. Students are urged to consult advisers well ahead of registration periods if they are in doubt or wish to alter their plans; time is limited during formal registration periods.

**Independent Study Registrations**—All independent study registrations, as well as those for directed study, directed instruction, and extra credit, must have both instructor and department approval. Your registration materials provide full information on how to make such registrations. Approvals must precede turning materials in at the fees office.

**Course Reservations, Closed Sections**—Many CLA courses are "controlled" to hold classes at optimum size or because of classroom capacity; these courses are

listed in blackface type in the *Class Schedules*. You reserve places in such courses by presenting registration and identification cards (ID cards) at the Class Reservations Office, 12 Johnston Hall. You will be given entry cards for the courses you have chosen (none are necessary for courses listed in lightface type in the *Class Schedule*). Instructor or departmental permission (indicated in the *Class Schedule* and in this bulletin by # or  $\Delta$ ) is required for some courses. When a course you want is closed, you can sometimes procure written permission to enter from the instructor or department.

**Closed-Section Information**—Information updated several times daily as to which courses or sections remain open is available during the controlled-registration period in college offices and at several locations in Johnston Hall.

**Fee Statements**—You obtain your fee statement by presenting all registration materials, including any class entry cards you have obtained, at 18 Johnston Hall during the “alphabetical” registration periods, or later at Window 10 or 14, 105 Morrill Hall. All cards and forms must be completed before submission.

**Fee Payment**—Payment of fees completes registration (no grades will be granted and no course work officially accepted until fees are paid). Paying fees by mail is often convenient, especially at peak registration periods. Presentation of a paid fee statement is necessary to obtain a number of University services, such as those of the Library and Health Service.

The *General Information Bulletin* contains full information on fees and expenses.

## ADULT SPECIAL REGISTRATION

The Adult Special office, 51 Johnston Hall, provides advising assistance, approves quarterly programs for adult special students, and makes appropriate exceptions to CLA regulations. Regular college procedures are followed.

CLA adult specials may elect one course or more, usually from the courses listed in this bulletin. Students are expected to complete all courses they attempt. Departmental approval is required to take any 8xxx-level course. Only the first quarter's work may be substituted, by petition, for Graduate School credit.

CLA graduates apply for adult special status in 51 Johnston Hall; others go first to the Office of Admissions, 6 Morrill Hall. See page 8 for further information.

## LIMITS ON REGISTRATION

**Maximum and Minimum Credit Loads**—Most students register for three or four courses a quarter—12 to 16 credits. Enrollment for more than 19 credits must have Scholastic Committee approval.

**Non-CLA Credits**—Courses described in Section II of this bulletin are open for CLA credit as indicated. CLA students may enroll in some courses in other University of Minnesota colleges—courses not listed in this bulletin—with permission from the Scholastic Committee and the other college. Such permission will not usually be granted when CLA offers comparable courses (this principle applies also to enrollment of CLA students in General College courses).

**Repeating Courses**—You may repeat for credit any course you have not completed satisfactorily (including courses with D grades). Both grades will appear on the University's operational records, but only successfully completed work will be recorded on official transcripts (credits of D will appear on the external tran-

## General Information

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script; when A, B, C, or S grades have been awarded for repeated work, both grades will be shown. See Student Records, page 19). Repetition for credit of other courses for which you have already earned credit is usually not allowed.

**Repetition of High School Work**—Students in CLA normally enroll for mathematics and foreign language courses for which high school work makes them eligible. If you think you are not prepared to continue at such a level in a foreign language, consult your adviser or the language department about appropriate course selection. You may repeat high school language for credit under either A-N or S-N grading.

Foreign language credit may be earned through special examination if it is beyond the level of your high school study or if your competence has been gained outside high school.

Trigonometry may be repeated for credit without approval. Students whose fourth year of high school mathematics includes calculus may be qualified to earn 5 mathematics credits through special examination.

**Audited Courses (no credit)**—Enrollment in courses without credit is open to those who register as visitors. Visitor registration does not authorize participation in classroom or other activities, nor the taking of examinations. No credit may be awarded, and no grade assigned. Other conditions are as follows:

Scholastic Committee permission is required.

Registration may take place only after the controlled registration period has ended.

The course may not later be taken for credit.

The regular course fee is assessed.

The course appears on the grade record with the symbol V.

**Limits on Informal Attendance**—Under college rules, instructors are asked to exclude from class activities anyone who is not registered. Limited unregistered attendance is permitted, however, during the first several meetings of a class, when students are seeking information about the nature of a course. Occasional, but not regular, visiting may be permitted by an instructor later in a quarter.

**Other No-Credit Registrations**—Under some conditions students may gain Scholastic Committee permission to take full part in a course and receive a grade through no-credit registration; the grade does not count. Students sometimes use this arrangement for review purposes.

**Continuing Education and Extension**—To enroll in evening or extension TV courses, a student in CLA must have college office approval. Approval is contingent upon total study and work load.

**Credits in Graduate School**—If you lack no more than 9 credits of the 180 required for a Bachelor's degree, you may petition to take a limited amount of work for graduate credit. Graduate School approval is necessary. Such work will not count toward a Bachelor's degree.

With Scholastic Committee and Graduate School approval, students lacking no more than 6 credits for a Bachelor's degree may be registered in Graduate School as well as in CLA.

## CHANGES OF REGISTRATION — CANCEL-ADD PROCEDURE

Students may cancel courses, or add them, after initial registration in a quarter, to make adjustments in their programs. "Cancel-adds" may be made after the

end of the controlled registration period and through the first 10 class days of a quarter. No fee is involved.

A student is held responsible for completing courses for which he has registered, unless registration changes are completed through the procedures described below.

1. Get an official cancel-add form from your college office.
2. Obtain adviser's and instructor's approval, and Scholastic Committee approval when required.
3. Check with the Class Reservations office, 12 Johnston Hall, for either canceling or adding within the first 2 weeks of the quarter (unless the course is not reserved).
4. Turn in the cancel-add form at Window 10 or 14, 105 Morrill Hall.
5. If your credit load after the cancel-add action moves above or below 12 credits, get a revised fee statement (same windows).

Each of these steps must be carried out to change a program. Informal arrangements with adviser or instructor, ceasing to attend class, or failure to complete course assignments will not alter your registration contract.

**Limits on Cancel-Adding**—Course cancellations are allowed freely until the end of the first 10 class days of a quarter. Course entry after the first 5 days, however, requires written permission from instructor and approval of the Scholastic Committee. Late entry causes difficulties and is seldom permitted beyond the tenth day of class. For this reason a cancellation after 10 days may leave you with an unbalanced schedule.

Cancellation after the first 10 days, permitted only with Scholastic Committee approval, may normally take place once each academic year. It may be made at any time before the final examination period begins. Additional cancellations must show compelling circumstances—usually causes beyond your control.

**Canceling Out of College**—To leave the University during a quarter, you must cancel all current registration. You should notify your college office, consult your adviser about your plans, complete and submit the cancel-add form, and check your financial status at Window 10 or 14, 105 Morrill Hall. (This may be done by letter or telephone to the CLA records clerk, Office of Admissions and Records, if you are unable to do it in person.)

## Credits and Grades

**Credit Value**—A credit is earned, by University Senate definition, through "about 3 hours of academic work a week"—30 hours in a 10-week quarter. A 4-credit course represents 120 hours of acceptable work. The time may be spent in varying combinations of class, laboratory, library, or off-campus work and homework.

**Grades**—University academic achievement is graded under two systems: A-B-C-D-N and S-N. Most CLA courses may be taken under either system, by choice indicated on registration blanks (changes may not be made after the tenth day of classes). Some courses may be taken under only one system or the other (limitations are shown in course listings), and most departments restrict S-N registration in required major courses (consult major department).

**The A-B-C-D-N System**—Under this system course accomplishment is rated on a graduated scale. The grade A describes achievement considered *outstanding* relative to course standards; B, achievement *significantly above* the necessary

## General Information

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level; C, work that *fully meets but does not exceed* such level; D, work which, though not entirely up to standard, meets some degree requirements. N (no credit) signifies failure to complete a course.

**The S-N System**—The grade S records work *satisfactory* to the instructor, under standards he has described. Standards may differ from course to course.

Students considering later graduate school or professional study should note that credits graded S are sometimes not accepted for graduate school admission and that it is not always possible to obtain redefinition of S grades in A-B-C-D terms. Students presenting many S credits, especially in their major or related fields, are likely to face a disadvantage in their applications.

**Course Standards**—Instructors in all courses have the responsibility to define their standards and grading procedures early in each quarter. Students should ask for such explanations if there is doubt.

**Additional Grading and Record Symbols**—The CLA system uses several additional symbols:

The symbol I, *incomplete*, is a temporary grade, assigned when the instructor has "reasonable expectation" that a student can successfully complete unfinished work in a course before the end of his next quarter in the college. Student and instructor should arrive at clear understanding, in advance, as to whether the student may receive an I and what the conditions will be. Instructors may set dates and conditions for makeup work. If a course is not completed as prescribed, the grade becomes N and the I is removed from the record. A student may, however, make up the missing work, if the instructor approves, to change the N to a passing grade.

The symbol W is recorded when a student officially *withdraws* from a course after the tenth day of class (prior withdrawals are not recorded). A student must file a cancel-add form to assure that the W will go on his record.

The symbol V indicates registration as a *visitor* or an auditor which permits attendance but not participation in a course's activities. No credit or grade may be earned; attendance without registration is not authorized.

The letter T indicates a grade *transferred* from another college or institution.

An X, recorded in a continuation course to indicate that a student may continue work in the sequence though first- or second-quarter grades have not been assigned, is changed to a permanent letter grade upon completion of the sequence.

**Limitation on S Credits Toward Degrees**—A student must earn at least half of his Minnesota credits toward a degree with A-B-C grades (never fewer than 45). The other half may include S grades.

**Use of D Grades**—The grade D has limited acceptability toward a CLA degree. Courses with D grades may be used to fulfill distribution requirements, prerequisites, or, with departmental approval, specific major course requirements. Credits of D, to a maximum of 12, may be used toward the 180-credit degree minimum, if they are balanced by an equal number of A or B credits in appropriate courses at the same or higher levels.

D credits in the major, if accepted, must be compensated by A or B credits in major courses. D grades from any institution, including Minnesota, may be offset only by CLA A's and B's.

**"Satisfactory Progress"**—A CLA student is expected to make "satisfactory progress" toward his degree. This usually means grades of A, B, C, or S in most courses and completion of courses undertaken.

If *you* are dissatisfied with your progress, early consultation with instructors or an adviser is recommended.

**Acceptance of S Grades in Other Colleges**—Academic units other than CLA do not always accept S credits. The University of Minnesota Graduate School asks for written evaluations or letter grades for such credits in courses that bear on a student's proposed field of specialization. The Graduate School may request additional information, such as test results of the Graduate Record Examination. Most major graduate schools and many professional schools follow similar policies. You should consult appropriate college bulletins or your adviser.

**"Old" Grade and Credit Requirements**—The regulations and procedures described above have been in effect since fall 1972. Credits and grades earned before that date will be accepted toward graduation under the rules in effect when they were earned. Specifically, all credits completed before fall 1972 count toward graduation; and a grade point average of C in such credits—overall, in major courses, and in courses at 3xxx or 5xxx levels—will qualify them toward CLA degrees. Information about these requirements may be obtained from your college office.

## Student Records, Transcripts

Students who entered CLA as freshmen in or after fall 1972, and those who entered as new students in or after fall 1973, are included under the "new" computer record system. For these students, two computer records are maintained.

1. The *official transcript* that shows all work completed (courses graded A, B, C, D, S; symbols V and T). On a student's written request, this record may be released outside his college.
2. The *operational record*, which reports all registrations and their outcomes. This is an internal document, to be released only within the college and to the student at his request. In addition to the grades on the transcript, it shows the symbols W, I, N, and X. A copy of it is mailed to each student at the end of the academic year. (Fall and winter grades are reported before the ensuing quarters on grade slips that students pick up at designated locations. See the *Official Daily Bulletin*.)

For other students in CLA the "old" transcripts will be maintained until conversion to the computer system is feasible.

## Probation, Suspension, Readmission

**Scholastic Probation**—Students are expected to complete 50 percent or more of each quarter's credits, and 75 percent of each year's, with grades of A, B, C, or S. The percentages apply to credits for which students are registered after the tenth day of class each quarter.

Students who fail to attain the required completion percentages are subject to "probation"—the signal that academic progress is not satisfactory. Students on probation who do not improve their records may be suspended from the college. If a heavy load of outside work, campus activity, or other distraction interferes with academic achievement, students are expected to make immediate adjustments and seek whatever assistance is indicated.

Students are taken off probation when academic work has improved enough to promise continuous progress toward a degree.

**Suspension from CLA**—Accumulation of an excess of substandard work usually means that a student is jeopardizing his likelihood of graduation from CLA or of

## General Information

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transferring to another institution. Since continuance in the college in this circumstance is not likely to serve his interests, he may be suspended.

The Scholastic Committee decides in each individual case, on the basis of all the evidence, whether to suspend a student. Appeals may be brought by students who think added information presented to the committee may modify the decision. Suspensions are usually rescinded only when the committee is convinced that changes in the student's academic performance are probable. Representatives of the committee are always available for consultation on alternatives to college requirements, transfer to other institutions, and the prospects for eventual re-admission to CLA.

**Readmission to the College**—Students suspended from the college may return only upon approval of the Scholastic Committee. Strong assurance that the factors that caused suspension have been corrected must be advanced to obtain approval, together with convincing prospect that improved work will follow. Reaccepted students are on probation, and they are subject to immediate suspension if their work becomes unsatisfactory.

Petitions for readmission are more favorably considered after an interval of 1 year.

College courses completed while a student is suspended from CLA, either in Continuing Education and Extension or another college, must receive Scholastic Committee approval to gain credit in CLA.

## Class Attendance, Examinations, Other Regulations

**Class Attendance**—As a CLA student, you are responsible for class attendance and for ascertaining the particular requirements for attendance in each class or department. You should also learn each instructor's policies concerning makeup work for absences and illness. Instructors and students may consult with the Scholastic Committee about the validity of such policies or decisions.

**Final Examinations**—Students are required to take final examinations at the times shown in the *Class Schedule*. If a student has examination conflicts or three exams within a 16-hour period, he may request adjustment in his college office. Such a request must be presented at least 2 weeks before the examination period begins.

If a student misses a final, an I or N (no credit) is recorded, depending upon his or her standing at the time. Instructor's permission to make up the examination must be obtained.

**Exemption from College Regulations**—You may discuss exemption from college regulations—concerning late registration, course withdrawal, examination scheduling, or other matters—with a staff member in your college office. Exemptions are granted from time to time to aid students to achieve educational goals in nonregular ways. Sometimes a petition to the Scholastic Committee is necessary; often your needs may be met through consultation with a committee representative. The receptionist in the office can usually direct you to appropriate procedures.

**Appeals and Suggestions**—Staff advisers in the college offices are competent sources of interpretation of college procedures or regulations, and they may be able to suggest suitable alternatives. The Student Ombudsman Service (102 Johnston Hall, 373-9788) is another channel.

Usually if you are dissatisfied with college or departmental procedures, you

should go to the person or office at the problem's source. Departments have grievance committees, as does the college—all with student and faculty membership. Advice from your college office may be helpful.

## Honors Opportunities

The Honors Program brings to intellectually promising and highly motivated students special educational opportunities; its purpose is to broaden the scope of their learning, encourage full use of their potential, and recognize their accomplishments. Among its advantages are honors courses at all levels, small discussion groups for freshmen and sophomores, seminars for juniors and seniors, special advisers and registration privileges, departmental honors plans, graduation with honors, and opportunities for advanced research and individual study. Any student in CLA, whether an honors candidate or not, may obtain permission to register for honors sections of courses and to enjoy other honors privileges.

**Honors Courses**—Honors courses or special honors sections of regular courses are typically small and are taught by selected teachers. Though grading standards are comparable to those of other courses, topics and materials are approached in greater depth than in regular courses. (All such courses are identified as honors courses; honors sections of regular courses add the letter H to the course number.)

**Freshman-Sophomore Colloquia**—These seminar-size discussion groups are led by faculty or students and others with exceptional competencies. They are open to all University freshmen and sophomores. Topics change each quarter; vigorous student participation is the pattern. Field trips and other exceptional learning methods often characterize the colloquia. They carry no credit. They ordinarily meet weekly in 2-hour sessions. Among recent topics were "The Silent Film," "Acupuncture," "Sport in America," "Smart Politics/Dirty Politics: The Meaning of Watergate," "The Arts as Therapy," and "Women in America."

**Honors Seminars**—CLA honors seminars open new doors to students whose major concentrations may limit exploration into learning areas for which they have little background. Open to juniors and seniors, the seminars often treat subjects not offered in regular CLA curricula. Recent topics have included "Ancient Mythology and Modern Man," "Noise as a Hazard," "Freud and Literature," "Energy Policy and the Energy Crisis," "The Chomskyan Revolution," and "Taoism and the Chinese View of Nature."

**Honors Contract Registration**—By individual arrangement with an instructor at the beginning of a term, a student may register for honors credit in a non-honors course. The written "contract" specifies standards and obligations individually tailored to a student's needs to help him achieve depth of understanding worthy of special recognition.

**Freshman-Sophomore Honors Program**—Students in their first 2 years of work, including entering freshmen, gain a number of advantages by admission to this program. Specially qualified advisers, in a student's major field when possible, are assigned for those admitted, and a number of prerogatives in course selection are often possible.

Admission requirements are flexible. All interested students may apply at any time, though entering freshmen are urged to apply by June 1.

**Junior-Senior Honors Programs**—Upper class opportunities combine honors curricula in major concentrations with a variety of possibilities and services, among them the College Honors Seminars. Special library privileges, research

## General Information

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opportunities and services, senior thesis projects, scholarship and fellowship aids, and special advising are open to students in these programs.

Students are assisted in scholarship and fellowship matters, especially for graduate work, and have access to experienced counsel about graduate and professional study. Those undertaking research projects are given the honors library loan privilege that permits them to retain books for a quarter and to get materials through interlibrary loan. Grants often are available to help meet costs of projects.

For admission to the program, juniors and seniors usually must present college grade records with half of their credits graded A. Students who at the end of junior year have not completed two "honors opportunities" or those whose grade records are below the graduation-with-honors level may be denied continuation in the program.

**Departmental Honors Curricula**—Most CLA major concentrations provide special honors opportunities, accompanied by special requirements. Information about these programs may be obtained from department or program offices or from the Honors office. Information about graduation with honors may also be obtained from departments or from the Honors office.

**Honors Program Office**—In this office (201 Wesbrook Hall, 375-5116) the Honors Program activities are coordinated. All students admitted to honors programs obtain registration materials and information here, where advising and other services are available.

## Special Learning Opportunities

Independent study and other out-of-class learning advantages channel through the Office for Special Learning Opportunities (OSLO), 201 Wesbrook Hall, 373-7550. Specially qualified advisers in OSLO help you to plan individual study to meet your particular needs. Similar departmental advice and assistance are available.

## INDEPENDENT AND DIRECTED STUDY

Most departments offer opportunities for individual study, guided or on-your-own, in regular courses or in subjects not covered in the regular curriculum. Among these opportunities are:

*Y Registration*, which permits you to enroll for established courses you plan to study in your own way, without class attendance. You must meet such course conditions as examinations and other work on which you and the instructor agree. The usual fees, deadlines, grade systems, and so on apply. Instructor and departmental permission are required.

*X Registration*, a way of earning 1 to 3 extra credits in a course you have taken or are taking, by exploring more deeply a topic related to the course's content. You need the instructor's permission and planning counsel, and departmental permission.

*Directed Studies* (3970 or 5970) provides opportunity to undertake and complete academic work of your own design. You need the advance approval and guidance of an instructor and of the department to whose field the course is relevant. You work largely on your own initiative and at your own speed. Credit assignments vary, and normally each credit requires 30 hours of work a quarter. Regular evaluation and grading procedures apply.

*Directed Research* (usually 5990) permits guided research under conditions and procedures similar to those that govern directed studies.

*Directed Instruction* (3980) provides opportunity to learn more about a subject you have studied by assisting in teaching it to others. Instructor and departmental permission are required. Credits range from 1 to 5 a quarter; a maximum of 8 are applicable toward a degree.

*Interdepartmental Study* (ID 3970, LFA 3970, NSci 3970, SSci 3970) allows you to earn credit in a subject area that crosses department subject-matter lines. Normally you work with more than one instructor. Information about these courses is available at OSLO.

## CROSS-DISCIPLINARY SEQUENCES

These sequences establish for groups of students and faculty with similar academic interests a framework for coordination of course work that might otherwise remain unrelated in students' programs. Designed especially for freshmen and sophomores, each sequence consists of a group of regular introductory courses chosen for their relation to a central theme or subject.

**Student "Communities"**—One group of students varying from 30 to 150 remains together throughout a sequence, thus facilitating personal interchange and enrichment that grow from more than casual acquaintanceships. In a Commons Room for each sequence, students gather with faculty and teaching assistants for informal discussion or study. The sequence adviser, a graduate student specializing in the area of the year's theme, keeps office hours in the Commons Room.

**Coordination of Courses**—Faculty coordinators conduct sequence symposia and direct faculty planning to integrate the several courses. A sequence symposium, offering 1 credit a quarter, becomes a weekly forum for discussions centering around the sequence theme. A syllabus describing sequence courses and requirements and offering study questions helps a student plan his work for the entire year.

Among advantages of the sequence plan are: Flexibility to accommodate a wide diversity of student interests; preparatory courses for major work in several fields; inclusion of courses that help a student meet the CLA distribution requirements.

Information about the program and its sequences, some of which change annually, may be obtained from 106 Johnston Hall (373-4571). Sequence syllabi are available.

## EXPERIMENTAL COURSES

These courses are newly-designed offerings, often inter- or cross-disciplinary, that draw on the entire University. When they are introduced, they are usually listed under Literature and the Fine Arts (LFA), Natural Science and Technology (NSci), and Social Science (SSci) (see Section II). They are offered for 1 to 3 years as experimental courses; when appropriate, they may become regular CLA offerings, either under LFA, NSci, or SSci, or under department or program auspices. Changes in them are frequent, and students should check the current *Class Schedule* for information about them, or ask in the Experimental Courses Advisory Committee office, 106 Johnston Hall.

**Student Initiation of Courses**—Students often suggest new courses for experimental inclusion in the college curriculum. The usual starting point for such pro-

## General Information

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posals is the Experimental Courses office, 106 Johnston Hall. The Student Intermediary Board, as a channel for transmission of proposals to the college, can aid in their preparation.

### STUDY ABROAD

CLA credit for study abroad may be earned through a number of special programs. Among them:

The SPAN program, which grants 12 credits for preparatory study and summer study abroad in selected countries, plus language credits in some cases (see page 114).

A program under World Affairs Center and Continuing Education and Extension auspices for CLA and other courses in London, in fall 1974, spring 1975, and possibly later quarters. Subject areas are English, history, political science, and theatre arts. Information may be obtained from the World Affairs Center, 306 Westbrook Hall (373-3799).

Study at the University of Erlangen-Nuernberg, Germany, from September 1974 through July 1975, and in a February-through-June program in Costa Rica, under a cooperative arrangement with the University of Kansas. Information is available from OSLO, 201 Westbrook Hall (373-7550) or the Study Abroad Committee, 221 Folwell Hall (373-2572).

French, German, Spanish, and occasionally other language study courses in their native settings, usually in summers. Information is available from the department offices.

Practical field experience in archaeology in Greece, Turkey, Italy, and other Mediterranean areas. Information is available from the Classics Department.

A no-credit course, FoSt 0900, permits CLA students to work abroad on pre-arranged projects (see page 114).

### EXAMINATION-FOR-CREDIT PROGRAMS

Several opportunities to gain credits, exemptions, or advanced placement are available: Special examinations for credit, foreign language placement, advanced placement, and credit for armed services educational experience. Information about examinations or accreditation of work validated in non-University standardized exams is available from OSLO, your adviser, or department offices.

Credits by examination may not be used toward the 45 CLA credit minimum required for a degree.

**Special Examinations for Credit**—Students who believe their knowledge of a subject is equal to that required to complete a particular course may apply to the Scholastic Committee for a credit examination. If review of an application and the applicant's background lead to approval, arrangements can be made with an appropriate instructor to take the exam (a \$20 fee is assessed for each examination after the first quarter of enrollment). Usually no grade is assigned. Only currently enrolled students are eligible.

**Special Examination for Proficiency**—To meet a prerequisite or satisfy a requirement, you may ask Scholastic Committee permission for an examination to demonstrate proficiency (no credit, no fee).

**College-Level Examination Program (CLEP)**—By passing one or more of the standardized examinations prepared by the College Entrance Examination Board,

a student may—any time after initial registration—earn up to 32 credits (without grade). A number of “subject examinations” available through CLEP also earn credit. Information about CLEP tests may be obtained from OSLO.

## College Services

### SCHOLASTIC COMMITTEE

Most CLA students, at one time or another, find occasion to consult the Committee on Student Scholastic Standing (the Scholastic Committee). Representatives of the committee may be consulted in all CLA advising and divisional offices.

The committee is made up of faculty, students, and administrators whose charge is interpreting and enforcing college and university regulations dealing with academic affairs. It is empowered to make exceptions in cases in which regulations work to the educational disadvantage of a student; it seeks to maintain the spirit of the regulations in as flexible a manner as possible.

You are urged to consult a committee representative on almost any kind of problem, but especially those that you think interfere with your attainment of your academic objectives. Adjustments are possible in many kinds of circumstances.

### SCHOLASTIC CONDUCT COMMITTEE

The Committee on Student Scholastic Conduct, comprising student and faculty membership, investigates charges of academic dishonesty referred to it by the CLA faculty. When charges are upheld, the committee may place students on disciplinary probation, fail them in courses, suspend them from the college, or take other action it thinks justified.

A CLA faculty member may take action in a case involving a CLA student in his classes; but such action may not exceed modification of a course grade. The instructor must report any action to the committee, and the student will be informed of the right to ask a committee hearing. The committee secretary is located in 19 Johnston Hall.

Disciplinary or conduct cases that are nonacademic in nature or that involve two or more colleges are referred to the All-University Committee on Student Behavior.

### GRIEVANCE PROCEDURES

Grievance procedures exist in CLA at both college and departmental levels. A student with a justifiable complaint about a grade or a classroom procedure is expected to confer about it with the course instructor. If no satisfactory solution is reached, the complaint may be represented to the department, program, or school head. Should these informal processes fail satisfactory resolution, the department's committee on academic freedom and responsibility, a student-faculty group, can be assembled to hear the evidence. Further appeals go to college-level and University-level committees.

The CLA Scholastic Committee (see above) interprets, enforces, and considers petitions concerning application of academic regulations.

## **CONFIDENTIALITY OF STUDENT RECORDS**

College as well as University regulations provide full protection of the confidentiality of student records. Most information in department and college records is released only upon the written consent of the students concerned. Data about periods and areas of enrollment, degrees earned, majors, and honors are considered public information; grades, conduct records, and the like are not.

## **MARTIN LUTHER KING PROGRAM**

A wide range of special services to students in need of significant academic or financial assistance is provided by the CLA office of the Martin Luther King program (19 Johnston Hall, 373-9739). Financial grants, loans, and work-study opportunities administered by the Office of Student Financial Aid may be sought through the program; tutoring, academic advice, and personal counseling are provided. Admission to the program is not limited by a student's racial or ethnic background, but centers on those with severe financial needs or severe educational disadvantages. The aim of the program is to provide as much support as possible to MLK students as they move toward degrees.

## **AIDS FOR DISABLED STUDENTS**

Assistance to disabled CLA students is provided through the Scholastic Committee representative in 220 Johnston Hall (373-2880). Among the services possible are early registration and selection of course sections, provision of Braille course materials, facilitation of adviser accessibility and classroom positions for students who use wheelchairs, and arrangement for specific resource aides.

Other services for disabled students are made available by the Rehabilitation Services Office, N588 Elliott Hall (376-3143).

## **SCHOLARSHIPS, AWARDS, FINANCIAL AIDS**

Among CLA departments that have annual scholarships and awards available are Classics, German, History, Journalism, Linguistics, Mathematics, modern languages, Philosophy, Political Science, and Sociology. Department offices provide information about these opportunities. All-University aids, including loans, are administered by the Office of Financial Aid (107 Armory, 373-4021). The Minnesota Student Association maintains a "small-grants program" to assist students in independent study projects (1818 Fourth Street S., 373-2414). A number of opportunities for scholarship study abroad are available through the International Reciprocal Exchange Program (376-7540).

## **CLA PLACEMENT SERVICES**

Assistance to prospective graduates in finding the kind of employment they want is provided both by major departments and advisers and the College Placement Office (17 Johnston Hall, 373-2818). The Placement Office counsels students about career selections, offers advice on conduct of job interviews, and provides a "vocational library" with data about many kinds of employers and employment. It also arranges interviews with scores of recruiters for businesses, professions, and government agencies who visit the campus each year, usually in winter quarter. Students sign up in the office for such interviews.

An aid to placement services is the "Appraisal Form" available in college offices and the Placement Office. Students present these forms to their advisers and instructors for evaluation of characteristics; the filled out forms are returned to the student's college office and are used as the basis for letters of recommendation, along with data from personal interviews and college records.

Students are advised to register with the Placement Office, and learn of its facilities, not later than the beginning of senior year; much earlier registration is to be preferred.

## University Services

A wide range of personal counseling and community services is available for all students. A Directory of Services in the early pages of the *Student-Staff Directory* lists many of these (they include emotional counseling, health services, employment, housing, financial aids, and emergency services). See also the *General Information Bulletin*.

Other areas of opportunities or services are also available:

**Evening and Correspondence Courses**—Continuing Education and Extension, Westbrook Hall (373-3195)

**Foreign Student Assistance**—Foreign student adviser, 717 East River Road S.E. (373-4094)

**Fraternities and Sororities**—Student Activities Center, 317 17th Avenue S.E. (373-3955)

**Handicapped Student Assistance**—Rehabilitation Services, N-588 Elliott Hall (376-3143)

**Parking**—Parking services, Police Department (373-4190)

**Religious Activities**—Religious Activities Office, 327 Walter Library (373-4076)

**Speech and Hearing Difficulties**—Speech and Hearing Clinic, 110 Shevlin Hall (373-4116)

**Student Activities**—Student Activities Center, 317 17th Avenue S.E. (373-3955)

**Study Skills Improvement**—Reading and Study Skills Center, 101 Eddy Hall (373-4193)

**Vocational Counseling**—Student Counseling Bureau, 101 Eddy Hall (373-4193)

## II. COURSE DESCRIPTIONS— MAJOR SEQUENCES

### COURSE NUMBERING SYSTEM

Course numbers in the University system provide information about course level, course sequence, and repetition of courses for credit. The key:

- 0xxx ..... No credit
- 1xxx ..... Introductory level—primarily for freshmen and sophomores
- 3xxx ..... Intermediate level—primarily for juniors and seniors, but open to others with C average overall and in prerequisites
- 5xxx ..... Advanced level—open to juniors, seniors, and graduates, and to third-quarter sophomores by Scholastic Committee approval (arranged in college advising offices). Carry graduate credit for graduate students.
- 8xxx ..... Graduate level. Rarely open to undergraduates; not listed in this bulletin.
- xxx0 ..... May be repeated for credit, if a CLA course. (Course numbers in other University divisions do not always follow this system.)
- 3970 or 5970 ... Directed studies courses
- 3980 or 5980 ... Directed instruction courses
- 3990 or 5990 ... Directed research courses

Courses completed under the numbering system used before fall 1970 usually may not be repeated for credit. Old course numbers may be found in the *Course Numbers Conversion* brochure, available in college offices.

### SYMBOLS AND ABBREVIATIONS

- Prefixes ..... 3- or 4-letter department designator (e.g., Engl for English).
- f,w,s,su ..... Fall, winter, spring quarter, summer term.
- Credits ..... First number following course title: credits per quarter.
- 1011, 1012, 1013 Series courses separated by commas may be entered any quarter.
- 1011-1012-1013 .. Series courses separated by hyphens must be taken in order shown.
- † ..... Credit awarded only when all courses preceding dagger are completed.
- § ..... Credit not granted if equivalent course listed after section mark has been taken for credit.
- ¶ ..... Course preceded by paragraph mark may be taken concurrently.
- # ..... Consent of instructor required for registration.
- Δ ..... Consent of department required for registration.
- H ..... Honors section of regular course.
- x ..... Course offered more than one quarter.

## ACCOUNTING

See College of Business Administration.

## AEROSPACE STUDIES

See Reserve Officers' Training Corps.

## Afro-American Studies (Afro)

### Staff

*Chairman*, Geneva H. Southall, 214 Social Sciences Building

*Professors*: King, Ward

*Associate Professors*: Jemie, Taborn

*Assistant Professors*: Coifman, Orwenyo, Tucker

*Instructors*: Buckner

*Lecturer*: Masongo

Studies in the Afro-American areas are designed to provide a comprehensive understanding of the Black experience in the broadest geographical and chronological settings. The department's interdisciplinary course work bears upon the Black experience in the United States, Africa, and Latin America.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1025, 1301, 1441, 1442

#### Major Requirements

A. Humanities—16 cr, including one African and one African-U.S.A. course, plus two Afro courses; *African-U.S.A.*: 3055, 3081, 3082, 3101, 3102, 3105, 3108, 5201; *Engl* 5593, 5596, 5597; *Spch* 3402; *Th* 5181, 5182; *African*: 3301, 5301; *Fren* 5289; *Hum* 3045, 3046

B. Social sciences—16 cr, including one African and one African-U.S.A. course, plus two Afro courses; *African-U.S.A.*: 3061, 3062, 3072, 3075, 3076, 3091, 3092, 3098, 5001, 5002, 5101, 5401, 5402; *Hist* 3864, 3865; *African*: 3001, 3002, 3003, 3011, 3012, 3340, 3455, 5551, 5552, 3021, 3022; *Hist* 3431, 3432, 3433, 3401, 3402, 5429, 5431, 5432, 5433, 5434, 5435, 5447

C. 5900 (senior research project)

**1015f,w,s. BLACK PROTEST FROM COLONIAL TIMES TO THE PRESENT.** (5 cr) Ward  
History of Black protest movements. (GrC)

**1025f,w,s. BLACK AMERICANS: SOCIALIZATION, PERSONALITY, AND BEHAVIOR.** (4 cr) Taborn  
Development of the Black psyche and of the Black person and his culture. (GrC)

**1036f,w,s. BLACK PARTICIPATION IN AMERICAN POLITICS.** (4 cr)  
Participation of the American Black in administrative, judicial, electoral, and confrontation politics in the United States. (GrC)

**1101f, 1102w, 1103s. RHETORICAL IMAGES IN BLACK WRITING.** (4 cr per qtr) Shreve, Stanley

*1101*: Personal consciousness in Black literature. *1102*: Social consciousness in Black literature. *1103*: Contemporary Black social and political movements and thought. (GrA)

**1221f-1222w-1223s. BEGINNING SWAHILI.** (5 cr per qtr) Masongo  
*1221*: Beginning grammar and vocabulary; conversational drill. *1222*: Grammar and vocabulary; reading and writing. *1223*: Reading and discussion of simple texts; additional conversation and writing.

**1301f. THE MUSIC OF BLACK AMERICANS.** (4 cr) Buckner  
Lectures, discussion, demonstration of Black music in America. (GrD)

- 1441f, 1442w. AFRO-AMERICAN HISTORY AND CULTURE.** (4 cr per qtr) King  
1441: To 1865. 1442: Since 1865. (GrC)
- 3001f, 3002w, 3003s. INTRODUCTION TO WEST AFRICAN HISTORY.** (4 cr per qtr) Coifman  
Similarities and dissimilarities in the historical experience of several West African peoples. 3001: Early times to ca. 1600. 3002: Ca. 1600-1800. 3003: 1800 to present. (GrC)
- 3011f,s-3012w. AN INTRODUCTION TO EAST AFRICAN HISTORY.** (4 cr per qtr) Orwenyo  
The history of East Africa from prehistory, its peopling to gaining of independence and after. State formation, long distance trade, the emergence of nationalism, independence; the search for new paths of development. 3011: Until 1875. 3012: Since 1875. (GrC)
- 3021f,s-3022w. AN INTRODUCTION TO AFRICAN STUDIES.** (4 cr per qtr) Orwenyo  
A multidisciplinary study of diverse elements of the African Studies curriculum—content and methodology. 3021: Overview in historical perspective and material content. 3022: Current trends and discussions. (GrC)
- 3055. FOLKLORE: THE AFRICAN IN AMERICA.** (4 cr; prereq #)  
Afro-American folkways; origin and continuity of patterns of behavior peculiar to the Black life style. Group character, oral traditions, music, rituals, tales, stories, riddles. (GrD)
- 3061f,s, 3062w. THE BLACK FAMILY.** (4 cr per qtr; prereq 1442 or Hist 3865 or #) Tucker  
3061: Historic overview of the Black family up to the present. 3062: The contemporary Black family. (GrC)
- 3072f,w,s. BLACK REEDUCATION AND HUMAN RELATIONS.** (4 cr) Taborn  
Historical and contemporary miseducation of Black people; philosophical bases of oppressor-oppressed relations through the institution of education. Through didactic and inductive learning, students develop models for Black reeducation in contemporary society. (GrC)
- 3075f-3076w†. BLACK PEOPLE AND THE WELFARE SYSTEM.** (4 cr per qtr; prereq #) Tucker  
The welfare system and its effect on Black participants. Investigations, interviews, evaluation of collected data. Field experience required. (GrC)
- 3081-3082†. BLACK PHILOSOPHY.** (5 cr per qtr)  
The history, culture, and social thought of Blacks in the United States as basis for development of a system of logical reasoning. The clarity and continuity that link past, present, and future. The variables and the constant. (GrC)
- 3091w-3092s†. DEVELOPMENT OF A BLACK POLITICAL STRATEGY.** (5 cr per qtr; prereq 1036 or Pol 1001 or Pol 1027 or # for 3091...3091 for 3092)  
Political strategies developed by Black philosophers and activists, American and non-American. (GrC)
- 3098s. COMMUNITY POWER STRUCTURE AND AMERICAN BLACKS.** (4 cr)  
Research seminar. Sources of power and influence in the community; relationships of power and its possessors in the Black community. (GrC)
- 3101f, 3102w. AFRO-AMERICAN LITERATURE.** (4 cr per qtr) Jemie  
A survey of Afro-American prose, poetry, and drama. 3101: To 1939. From slave narratives and folklore to the end of the Harlem Renaissance. 3102: Since 1939. Richard Wright to Amiri Baraka and the Black Arts Movement. (GrD)
- 3105f,w,s. BLACK MUSIC PRIOR TO WORLD WAR I.** (5 cr, \$Mus 3708) Southall  
Musical contributions and achievements of Black Americans in the United States during the 19th and early 20th centuries. (GrD)
- 3108w. BLACK MUSIC: A HISTORY OF JAZZ.** (4 cr; prereq 1301, 3105 or 3301) Buckner  
Origins, growth, and development of jazz; the economic and sociological factors that influenced its musical development. (GrD)
- 3225f-3226w. INTERMEDIATE SWAHILI.** (4 cr per qtr; prereq 1223 or # for 3225...3225 for 3226) Masongo  
3225: Swahili short stories. Vocabulary and grammar. 3226: Expansion of vocabulary and comprehension of written Swahili. (GrA)
- 3253s. INTRODUCTION TO SWAHILI LITERATURE.** (4 cr; prereq 3226) Masongo
- 3301f,w. AFRO-CARIBBEAN, AFRO-HISPANIC, AND AFRO-BRAZILIAN MUSIC.** (4 cr, \$Mus 3709) Southall  
Transmissions and links between the musical culture of Africa, the Caribbean, and South and Central America. (GrD)

## Course Descriptions—Major Sequences

- 3340s. TOPICS IN WEST AFRICAN HISTORY: THE HISTORY OF INDIVIDUAL STATES.** (4 cr; prereq 3001 or Hist 1431 or 3431 or #) Coifman, Kaba  
Historical developments in specific West African countries. Organization of the communities; social change from early time to the present. Oral traditions and written materials. Content of course will change from year to year. (GrC)
- 3401. HISTORY OF PAN-AFRICANISM FROM 1900 TO THE PRESENT.** (4 cr) Orwenyo  
Describes and analyzes the thoughts of major figures, including DuBois, Garvey, Cesaire, C. L. R. James, Nkrumah, Fanon, Malcolm X, and Stokely Carmichael, in relation to the events of their time. (GrC)
- 3455. FANON: HIS LIFE AND IDEAS.** (4 cr; prereq #)  
Fanon's life and his development as a thinker, writer, and revolutionary. (GrC)
- 3970f,w,s. DIRECTED STUDIES.** (1-15 cr; prereq #) Staff
- 5001f,w. LAW AND SOCIETY: A MINORITY POINT OF VIEW.** (5 cr; prereq Pol 1001 or #) Ward  
Afro-American history; American constitutional development as it relates to the American Black community. (GrC)
- 5002s. LAW AND SOCIETY: A MINORITY POINT OF VIEW—RESEARCH.** (5 cr; prereq 5001) Ward  
(Continuation of 5001) Research seminar. Emphasis on a major scholarly investigation. (GrC)
- 5101s, 5102, 5103. BLACK WOMEN.** (4 cr per qtr) Tucker  
The thoughts, feelings, and needs of Black women in their environments; the forces acting upon them. (GrC)
- 5201s. THE BLACK COMPOSER: HIS CONTRIBUTIONS TO WESTERN MUSIC AND CULTURE.** (4 cr; prereq 1301 or 3105, or 3301, Mus 3708 or 3709, or #) Southall  
Musical achievements of Black Americans in the lesser-known academic art forms. (GrD)
- 5301s. AFRICAN LITERATURE.** (4 cr) Jemie  
Literature of continental Africa, from oral traditions to contemporary writings in English, French, and the vernacular. All readings in English. (GrD)
- 5401w. THE INSTITUTIONALIZATION OF RACISM, 1877-1900.** (5 cr) King  
Social, political, and economic forces that resulted in the imposition of second-class citizenship on Black Americans. (GrC)
- 5402s. THE INSTITUTIONALIZATION OF RACISM, 1877-1900—RESEARCH.** (5 cr; prereq 5401, grad and #) King  
Research seminar focusing on the social, political, and economic forces between 1877 and 1900 as they related to Black Americans. (GrC)
- 5551f-5552w. USE OF ORAL DATA IN AFRO-AMERICAN HISTORY.** (4 cr per qtr) Coifman  
Kinds of oral data available for reconstructing Afro-American history; how to gather, analyze, and utilize these data. 5551: Oral data and methodology developed in Africa; Afro-American sources. 5552: Methodology developed in Africa, applied to Afro-American oral data. (GrC)
- 5553s. USE OF ORAL DATA IN AFRO-AMERICAN HISTORY: PRACTICUM.** (4 cr; prereq 5551 and 5552, #) Coifman  
Collection of oral testimony from persons knowledgeable about the Afro-American past, including African, Caribbean, etc. informants. Committing this information to written form. Analyzing and utilizing this information in conjunction with other sources (written) when topic and time permit. (GrC)
- 5595. BLACK POETRY, 1947-1939.** (4 cr, §Engl 5596) Jemie  
The work of Phillis Wheatley, Jupiter Hammon, Frances Harper, Paul Laurence Dunbar, Claude McKay, Countee Cullen, Jean Toomer, James Weldon Johnson, Langston Hughes, and Sterling Brown. (GrD)
- 5597. CONTEMPORARY BLACK POETRY.** (4 cr, §Engl 5597) Jemie  
Afro-American poetry since 1939, including Langston Hughes, Melvin Tolson, Robert Hayden, Gwendolyn Brooks, Amiri Baraka, Don Lee, Nikki Giovanni, Sonia Sanchez, and The Last Poets. (GrD)
- 5800. AFRICAN STUDIES INTERDISCIPLINARY SEMINAR.** (4 cr)  
Seminar is staffed by cooperating faculty from the social sciences and humanities. Emphasis varies with faculty interests but is placed on themes which benefit from interdisciplinary analysis.
- 5900s. SENIOR SEMINAR.** (2-4 cr; prereq jr, sr, or grad) Staff  
Students will study and hear important scholars in Afro-American Studies and develop research projects for presentation to the seminar. (GrC)

5970f,w,s. **DIRECTED STUDIES.** (1-6 cr; prereq ‡; qualified sr and grad students may register with ‡ for work on tutorial basis) Staff

## AKKADIAN

See Middle Eastern Languages.

## American Indian Studies (AmIn)

### Staff

*Acting Chairman,* W. Roger Buffalohead, 810 Social Sciences Building

*Assistant Professors:* Dunnigan, Raymond

*Instructor:* Voights, Gawboy

### Adjunct Faculty

*Professor:* Morrison (Studio Arts)

Courses in the Department of American Indian Studies contribute to broad as well as specialized knowledge of many academic and professional fields by providing understanding of past and contemporary Indian life. The department serves as a resource to both Indian and non-Indian communities.

The department curriculum, open to students from other colleges as well as CLA students, consists of core courses and courses in General College. Information about the program and supporting courses can be obtained from the department office.

## B.A. MAJOR SEQUENCE

### Required Preparatory Courses

16 or more cr from 1021-1022-1023, 1031-1032-1033, 1101, 1102, 3041; Anth 1002; Hist 1301, 1302; GC 1211, 1811, 1812, 1813

### Major Requirements

20 or more cr from 3024-3025, 3034-3035, 3061, 3970, 3980, 5112, 5121, 5131, 5141, 5142, 5211, 5212, 5570, 5920, 5960

12 or more cr from Anth 3211, 5212, 5222; Geo 5102; Hist 5334, 5335; Hum 3045; SSci 3203, 3503; SW 3001, 3002 (see department for a current list of approved courses in supporting fields.)

3900

**1021f,w-1022w,s,-1023s,f. BEGINNING OJIBWE.** (5 cr per qtr) Staff

Acquisition of speaking skills in Ojibwe. Cultural materials defining Ojibwe heritage. (GrA)

**1031f,w-1032w,s-1033s,f. BEGINNING DAKOTA.** (5 cr per qtr) Staff

Acquisition of speaking skills in Dakota. Cultural materials defining Dakota heritage. (GrA)

**1101w, 1102s. AMERICAN INDIAN HISTORY: A SURVEY.** (4 cr per qtr; prereq Anth 1002 or an introductory social science course or ‡)

Pluralistic beginnings, Indian-white contacts, the impact of federal Indian policy, the persistence and change in American Indian cultures. (GrC)

## Course Descriptions—Major Sequences

- 3024f,w-3025w,s. **INTERMEDIATE OJIBWE.** (5 cr per qtr; prereq 1023) Staff (GrA)
- 3034f,w-3035w,s. **INTERMEDIATE DAKOTA.** (5 cr per qtr; prereq 1033) Staff (GrA)
3041. **LINGUISTIC STRUCTURES OF NATIVE AMERICA.** (4 cr, §1041; prereq Ling 3001 or §)  
Distribution of American Indian language families; linguistic structures of selected languages. (GrC)
3061. **AMERICAN INDIANS IN THE MODERN WORLD.** (4 cr; prereq 1101, 1102 or Anth 1002 or §)  
Indian-white relations and the impact of federal Indian policy on American Indians. Persistence and adaptation of Indian cultures in modern times. (GrC)
3900. **SENIOR SEMINAR.** (2-6 cr; prereq majors with jr or sr standing) Staff  
For majors writing senior theses.
3970. **DIRECTED STUDIES.** (Cr ar; prereq §) Staff
3980. **DIRECTED INSTRUCTION.** (5 cr; prereq §) Staff  
Seminar on teaching skills for undergraduates assisting in the instruction of introductory courses.
5112. **INDIANS OF THE SOUTHWEST.** (4 cr; prereq 3061 or §) Dunnigan  
Relationships between Indians and other ethnic groups in the southwestern United States and northwest Mexico from an ethnohistorical perspective. (GrC)
5121. **URBAN INDIANS IN THE UNITED STATES.** (4 cr; prereq 3061 or Anth 1002 or Anth 3211 or §) Buffalohead  
Social science and historical analysis of the rapid cityward Indian migration since World War II. (GrC)
5131. **INDUSTRIALIZATION, EMPLOYMENT, AND THE AMERICAN INDIAN.** (4 cr; prereq 3061 or §)  
Sources of unemployment on Indian reservations; efforts to promote industrialization and economic development; employment and economic problems of urban Indians. (GrC)
5141. **AMERICAN INDIAN MEDICINE.** (4 cr; prereq 3061 or §)  
Relationship between man and nature in American Indian cultures as expressed in ceremonialism and religious rites of curing. (GrC)
5142. **THEORIES OF DISEASE AND TREATMENT IN NON-URBAN SOCIETIES.** (4 cr, §Anth 5187; prereq Anth 1502 and jr standing or §)  
Disease and treatment of the ill in tribal and folk societies. (GrC)
5211. **THE ARTS OF THE AMERICAN INDIAN.** (4 cr; prereq 3061 or 3 cr in art history or §)  
Visual arts of North American Indians; other arts and art traditions in Central and South America. (GrD)
5212. **AMERICAN INDIAN CRAFTS.** (4 cr; prereq 5211 or §)  
Research in the traditional arts of different tribes. Each student will pursue a project in American Indian crafts. (GrD)
5570. **EDUCATION AND THE AMERICAN INDIAN.** (Cr ar, §EdAd 8239; prereq 3061 or §) Buffalohead  
Undergraduate seminar: The education of Indian children and youth. Topics selected on a year-to-year basis. (GrC)
5920. **SEMINAR: AMERICAN INDIAN STUDIES.** (Cr ar; prereq will be stated in the *Class Schedule*)  
Seminar: American Indian history. Topics selected on a year-to-year basis.
5960. **TOPICS IN AMERICAN INDIAN STUDIES.** (Cr ar; prereq 3061 or §)  
Various aspects of American Indian studies. Topics will be listed in the *Class Schedule*.

## American Studies (AmSt)

### Staff

*Chairman*, Mary C. Turpie, 225 Main Engineering

*Associate Professor*: Delattre

**Adjunct Faculty**

**Professors:** Anderson (English), Beck (History and Philosophy of Education), Berman (History), Bowron (English), Chambers (History), Cooperman (Sociology), Gillmor (Journalism), Hage (Journalism), Johnson (Sociology), Kwiat (English and Humanities), Loehr (History), Murphy (History), Noble (History), Riedel (Music), Sibley (Political Science), Spencer (Anthropology), Stekert (English), Stone (Sociology), Torbert (Art History), Turpie (English), Vecoli (History), Wilson (History of Medicine)

**Associate Professors:** Bagley (History and Philosophy of Education), Bales (English), Brauer (History), Carroll (History), Green (History), Griffin (English), Howe (History), Modell (History), Roth (English), Spear (History), Stuewer (Physics)

**Assistant Professors:** Buffalohead (American Indian Studies), Geffen (English), Ward (Communication and Journalism)

American Studies provides a framework within which a student may explore many aspects of American life, past and present, and the relationships among them.

**B.A. MAJOR SEQUENCE**

**Required Preparatory Courses**

12 credits from 1101, 1102, 1103, 3111, 3112, 3113

**Major Requirements**

The major is offered under interdepartmental major provisions (see page 12)

44 credits in adviser-approved courses, 8 to 12 in each of four fields: American history, American literature, American art and philosophy, social sciences in the United States (courses in participating departments accepted for the degree are listed in the bulletin *Program in American Studies* and in the annually revised list of approved courses, both obtainable in the program office, 225 Main Engineering).

3301-3302

12 credits in courses dealing with foreign civilizations chosen in consultation with adviser.

**1101f, 1102w, 1103s. AMERICAN LIFE.** (4 cr per qtr)

Each quarter is organized around a topic such as individualism in American life and thought, religious and philosophic attitudes in relation to American civilization, or rise of American nationalism and its place in the modern world. (GrC,D)

**3111f, 3112w, 3113s. INTRODUCTION TO AMERICAN CIVILIZATION.** (4 cr per qtr)

Each quarter is organized around a topic, a period, or a region. (GrC,D)

**3301-3302. PROSEMINAR: AMERICAN STUDIES.** (4 cr per qtr; prereq sr, #)

Each quarter is organized around a problem presented by some representative theme, figure, or period. (GrC,D)

**3970. DIRECTED STUDIES.** (1-15 cr; prereq #, Δ) (GrC,D)

**3980. DIRECTED INSTRUCTION.** (1-4 cr; prereq #) (GrC,D)

**5101f, 5102w. RELIGION IN AMERICA.** (4 cr per qtr) Delattre

Not a survey, but a representative profile of religion in America, past and present, organized each quarter around a theme or problem. (GrC,D)

## Anatomy (Anat)

### Medical School

For the list of courses in human anatomy, see the *Medical School Bulletin*.

1004f,s. **ELEMENTARY ANATOMY.** (4 cr; prereq students in paramed fields, 1 qtr college biology)

3970. **DIRECTED STUDIES.** (1-5 cr; prereq #)

## Anthropology (Anth)

### Staff

*Chairman*, Elden Johnson, 219 Ford Hall; *Director of Undergraduate Studies*, Janet Spector, 254 Ford Hall

*Professors*: Gerlach, Johnson, Miller, Murrill, Rowe, Spencer

*Associate Professors*: Gudeman, Ingham, Kiste, Ogan (on leave, 1974-75), Sarles

*Assistant Professors*: Cassidy, Gibbon, Puleston

Anthropology is the study of human cultural, social, and biological groupings, past and present. It analyzes the nature of these groupings and their processes of change, emphasizing cross-cultural comparisons.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1002, 3501, 3502

#### Major Requirements

Minimum of six 3xxx-5xxx-level courses to include:

Group I: 10 cr in theory and topics courses (31xx or 51xx)

Group II: 5 cr in archaeology (55xx), 5 cr in ethnography (32xx or 52xx)

10 cr of electives from any group

Anth 3211 and 5511 are open to sophomores with grades of C or higher in 1002.

**General Education**—1002, concerning human culture in all times and places, is singularly appropriate for general and liberal education. 3131, 5131, 5141, 5151, 5161, and all ethnography and archaeology courses in Group II are particularly appropriate for the nonmajor.

**1002. INTRODUCTION TO ANTHROPOLOGY.** (5 cr; CCTV; 4 lect and 1 discussion sec per wk). Spencer

Origin of man and development of human cultures from earliest times to present. Varieties and range of human behavior as revealed through comparative study of cultures in all parts of the world. (GrC)

**1002H. HONORS COURSE: INTRODUCTION TO ANTHROPOLOGY.** (5 cr; prereq GPA 3.00 or #) Staff

**3501. PRINCIPLES OF BIOCULTURAL EVOLUTION.** (5 cr; prereq 1002 and soph standing or #) Cassidy, Puleston, Spector

Introduction to evidence and interpretative structures for human biological and cultural evolution. Evolutionary theory, fossil record, evidence for ongoing evolution, and selected archaeological cultural sequences. (GrC)

**3502. PRINCIPLES OF SOCIAL AND CULTURAL ANTHROPOLOGY.** (5 cr; prereq 1002 and soph standing or #) Staff

Theory and concepts of social and cultural anthropology, in the light of classic statements of anthropological theory and classic ethnographic accounts. (GrC)

- 3960. ANTHROPOLOGY PROSEMINAR.** (Cr ar; prereq #) Staff  
Course varies according to staff interests and student suggestions. Focus on significant theoretical problems in anthropology. (GrC)
- 3970. DIRECTED STUDIES.** (Cr ar; prereq #) Staff (GrC)
- 3980. DIRECTED INSTRUCTION.** (5 cr; prereq #) Spencer  
Teaching seminar for undergraduates assisting in instruction of introductory anthropology courses. Students lead discussion sections. (GrC)
- 3991. HONORS SEMINAR.** (5 cr; prereq admission to anthropology honors program or #)  
Problems of theory and method in various branches of anthropology. (GrC)
- 5910,5920. TOPICS IN ANTHROPOLOGY.** (Cr ar; offered by visiting professors when available; whenever offered, topic and prerequisites will be listed in *Class Schedule*)  
Special courses in all branches of anthropology. (GrC)

**GROUP I**

- 3101. HISTORY OF ANTHROPOLOGY.** (5 cr; prereq 3502 and 15 cr in 3xxx-5xxx-level courses) Kiste  
Beginnings of anthropology as a discipline; associated intellectual climate and context. Developments within subfields of archaeology, ethnology, physical anthropology, and linguistics. (GrC)
- 3131. RELIGION AND CULTURE.** (5 cr [no cr for majors]; prereq 1002) Kiste  
Comparative study of religion in its cultural context. (GrC)
- 5112. SOCIAL ANTHROPOLOGY: KINSHIP AND MARRIAGE.** (5 cr; prereq 3502 or #)  
Gudeman, Ogan  
Systems of kinship and marriage in cross-cultural perspective; relationship to economic, religious, and political institutions; significance of kinship studies for theory and methods in social anthropology. (GrC)
- 5114. STRUCTURAL ANTHROPOLOGY.** (5 cr; prereq 3502 or #)  
Assumptions, methods, and problems of structural anthropology; structural analysis of kinship, myth, and social organization. (GrC)
- 5115. ECONOMIC ANTHROPOLOGY.** (5 cr; prereq 3502 or #) Gerlach, Gudeman  
Analysis and comparison of systems of production and distribution, especially in non-industrial societies. Relationship among economic and social, political, religious, psychological, and environmental factors. (GrC)
- 5116. CULTURAL ECOLOGY.** (5 cr; prereq 1002 and 10 cr of ethnology) Puleston  
Survey of the literature on cultural ecology; emphasis on biological approach to ecosystems and population studies. (GrC)
- 5131. ANTHROPOLOGY OF RELIGION AND FOLKLORE.** (5 cr; prereq 3502 or #) Kiste, Spencer  
Varieties and range of religious beliefs and practices. Relation of religion to other aspects of culture. Comparative analysis of folklore, myth, and oral literature. (GrC)
- 5132. SYMBOLIC ANTHROPOLOGY.** (5 cr; prereq 3502 and 5112 or #) Staff  
The study of culture as a system of symbols. (GrC)
- 5141. CULTURE AND PERSONALITY.** (5 cr; prereq 3502 or # [waived for majors in public health, nursing, psychology, sociology, and social work]) Ingham, Rowe, Sarles  
Role of culture in formation of personality. Problems of individual adjustments to demands of culture. Psychological approach to culture. (GrC)
- 5145. ANTHROPOLOGY AND EDUCATION.** (5 cr, \$HEd 5170; prereq 1002) Dobbert  
Cross-cultural perspectives in examining educational patterns; implicit and explicit cultural assumptions underlying them. Methods and approaches to cross-cultural studies in education. (GrC)
- 5146. INNOVATION IN HIGHER EDUCATION.** (5 cr; prereq 5145 or 5151 or #) Miller  
Social organization and cultural values of educational institutions. Role of decision making in the process of innovation. Specific changes in higher education. (GrC)
- 5147. THE DYNAMICS OF PEDAGOGY IN HIGHER EDUCATION.** (5 cr; prereq #) Sarles  
Cognitive, interactional, and performance aspects of teaching will be demonstrated and discussed. Topics will include credibility, dialogue, the nature of idea flow, and continuity. Course will also serve as a forum for discussion of the "art of teaching." (GrC)

## Course Descriptions—Major Sequences

- 5151. CULTURAL CHANGE AND DEVELOPMENT.** (5 cr; prereq 1002 or #) Kiste, Miller, Ogan  
Processes of cultural change; invention, diffusion and acculturation. Effects of colonialism, urbanization, and modernization. Analysis of developing societies. Applied anthropology. (GrC)
- 5152. ANTHROPOLOGY OF SOCIAL MOVEMENTS.** (5 cr; prereq 1002 or #) Gerlach  
Cross-cultural study of nature, process, and function of social, political, and religious movements of change. Examination of theories and case studies including Christianity, Islam, Asia, Africa, United States. (GrC)
- 5153. URBAN ANTHROPOLOGY.** (5 cr; prereq 1002 or #) Rowe  
Structure and process in non-Western urban centers; the role of rural migrants, relationship of urbanism to political and economic development, role of voluntary associations, adjustment of kinship groups to urban life. (GrC)
- 5154. ANTHROPOLOGY OF COLONIALISM.** (5 cr; prereq 1002 or #) Kiste, Ogan, Rowe  
Social, structural, symbolic, and psychological aspects of the societies of colonizers and the colonized; emphasis on South Asia, Oceania, and Puerto Rico. (GrC)
- 5155. ANTHROPOLOGY AND SOCIAL ISSUES.** (5 cr; prereq 1002) Miller  
Anthropological views about poverty, racism, the myth of the melting pot, the Third World, and the social responsibilities of anthropologists. (GrC)
- 5158. ANTHROPOLOGICAL ANALYSIS OF AMERICAN CULTURE.** (5 cr; prereq 3502 or #) Rowe  
Anthropological perspectives on contemporary American culture and society; study of values, family organization, socialization and kinship, education and community integration. (GrC)
- 5161. LANGUAGE AND CULTURE.** (5 cr; prereq 1002 or #) Sarles, Spencer  
Relation of language to behavior; languages as systems of thought, logic, and orientation and their impacts on cultures; analysis of selected linguistic and cultural systems; glottochronology. (GrA)
- 5162-5163†-5164. KINESICS.** (5 cr per qtr; prereq # for 5162 and 5163, 5163 for 5164)  
Sarles  
Human communication in micro and macro perspectives; nonverbal aspects of interaction within and across cultures. Use of video and cinematic methods of observation; discussion of kinesiology, animal communication, the body as an information transmitting/handling device. (GrC)
- 5165. PERSPECTIVES IN HUMAN BEHAVIOR.** (5 cr; prereq #) Sarles  
A number of approaches to human behavior will be discussed by professionals from a wide variety of disciplines. Topics will include similarities and differences in assumptions, approaches, goals. General aim will be toward an integrated interdisciplinary view. (GrC)
- 5171. METHOD AND THEORY IN ARCHAEOLOGY.** (5 cr; prereq 3501) Johnson, Puleston, Gibbon  
Field methods, systems of data recording, analytical methods, and their conceptual bases. Abstract theory integrated with specific case material. Laboratory exercises in application of artifact analysis. (GrC)
- 5173. PREHISTORIC SOCIAL SYSTEMS: FOOD PRODUCING SOCIETIES.** (5 cr; prereq 3501 or #) Puleston  
Problems faced by prehistoric food producing societies; the nature of cultural solutions and failures. Interpretation of archaeological data, particularly in application to the dynamics of prehistoric food production. (GrC)
- 5174. PREHISTORIC SOCIAL SYSTEMS: URBAN SOCIETIES.** (5 cr; prereq 3501 or #) Gibbon  
Comparative analysis of prehistoric urban societies. Recurring urban social systems and the processes leading to their development and transformation. (GrC)
- 5175. ETHNOARCHAEOLOGY.** (5 cr; prereq 3501) Spector  
The ethnohistoric and direct historic approach in archaeology. Archaeological methods used to study the nature and consequences of interaction between North American Indians and Euro-American populations during the 15th to 19th centuries. (GrC)
- 5176. ENVIRONMENTAL ARCHAEOLOGY.** (5 cr; prereq 3501) Johnson, Spector  
Archaeological field and laboratory techniques used to reconstruct past environmental conditions. Paleocological interpretation in archaeology. (GrC)
- 5181. PRIMATE AND HUMAN EVOLUTION.** (5 cr; prereq 1002) Murrill  
Origins and relationships of extinct forms of nonhuman primates and humans. (GrC)

- 5182. HUMAN BIOLOGY.** (5 cr; prereq 3501 or introductory course in biology or genetics)  
Murrill, Cassidy  
Evolutionary processes in modern humans, including consideration of simple genetic traits and polygenic traits. The concept of race. Possible directions of future human evolutionary development. (GrC)
- 5183. HUMAN PHYSICAL GROWTH AND DEVELOPMENT.** (5 cr; prereq 1002 [waived for majors in child development]) Murrill  
Period of growth—prenatal, birth, infancy, childhood, and adolescence. Sex differences in growth, skeletal maturation. Development and growth of the head. Growth and eruption of teeth. (GrC)
- 5185. MEDICAL ANTHROPOLOGY.** (5 cr; prereq an introductory course in biology and one in social science or #) Cassidy  
Man in health and disease, from biological and cultural points of view. The origins of human disease, relationship of disease to subsistence technique (hunter-gatherer to industrial), notions of disease causation; medical care in Western and non-Western societies; effects of the introduction of Western medicine on non-Western societies. (GrC)
- 5187. THEORIES OF DISEASE CAUSATION AND TREATMENT IN NONURBAN SOCIETIES.** (5 cr; prereq an introductory course in biology and one in social science or #) Cassidy  
Concepts of disease and treatment of the ill in tribal and folk societies around the world. (GrC)

## GROUP II

### North America

- 3211. INDIANS OF NORTH AMERICA.** (5 cr; prereq 1002; open to sophomores with C grades in 1002) Johnson, Spencer  
Aboriginal cultures of North America. Effects of culture contact. Contemporary problems of Indian reservations and communities. (GrC)
- 5511. ARCHAEOLOGY OF NORTH AMERICA.** (5 cr; prereq 1002; open to sophomores with C grades in 1002) Gibbon, Johnson  
Prehistoric archaeology of North America north of Mexico. Techniques, methods, and goals of prehistoric archaeology. (GrC)

### Latin America

- 5221. INDIANS OF SOUTH AMERICA.** (5 cr; prereq 1002) Gudeman, Ingham  
Ethnographic survey. Prehistory of various areas. Spanish and Portuguese contact and adjustment of various tribes to modern conditions. (GrC)
- 5222. PEOPLES AND CULTURES OF MIDDLE AMERICA.** (5 cr; prereq 1002 or #) Gudeman, Ingham  
Indian-Spanish-speaking peoples of Middle America. Processes of acculturation that have produced contemporary cultures of Mexico and Central America. (GrC)
- 5223. PEOPLES AND CULTURES OF THE CARIBBEAN.** (5 cr; prereq 1002 or #) Hendricks  
Island and littoral cultures of the circum-Caribbean. Emphasis on social structure, cultural pluralism, continuity, and change. (GrC)
- 5521. ARCHAEOLOGY OF MIDDLE AMERICA.** (5 cr; prereq 1002) Puleston  
Developmental stage survey of major features of prehistoric cultures of Mexico and Central America. (GrC)

### Africa and Near East

- 5224. ANTHROPOLOGICAL PERSPECTIVES IN MODERN EUROPE.** (5 cr; prereq 3502 [waived for majors in other social sciences])  
Social structural and symbolic aspects of cultural groupings in modern Europe; case studies of changing rural and urban communities within a comparative anthropological perspective. (GrC)

## Course Descriptions—Major Sequences

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- 5241. PEOPLES AND CULTURES OF AFRICA.** (5 cr; prereq 1002 or #) Gerlach  
Describes, analyzes, and compares key aspects of society, culture, and ecological adaptation of representative peoples in Africa, south of the Sahara. Social, economic, political, and religious systems, aesthetic expression. Theoretical problems in African anthropology. (GrC)
- 5251. ISLAMIC CULTURE SPHERE.** (5 cr; prereq 1002 or #) Gerlach, Spencer  
Mohammed and founding of Islam. Development and spread of Islamic religion, law, government, and other institutions in Middle East, Africa, and Asia. Culture and society in contemporary Middle East. (GrC)
- 5531. PALEOANTHROPOLOGY.** (5 cr; prereq 1002) Johnson  
Archaeological record of human cultural origins and developments in Pleistocene and early recent periods in Africa, Europe, and Asia. (GrC)
- 5532. OLD WORLD PREHISTORY: EUROPE-NEAR EAST-EGYPT.** (5 cr; prereq 1002)  
Gibbon  
Recent period prehistory stressing the origins, development, and dispersion of systems of food production; the origins of urbanism. (GrC)

### Asia

- 5261. INDIAN CULTURE AND SOCIETY.** (5 cr; prereq 3502 or #) Rowe, Spencer  
Tribes, caste, and culture history in South Asia. Cultural influences from India in Southeast Asia. (GrC)
- 5263. MODERN INDIA: TOWNS AND CITIES.** (5 cr; prereq 3502 or #) Rowe  
Development of Indian towns and cities from anthropological perspective; urban life, city growth, and urban migration. (GrC)
- 5281. CULTURE AND SOCIETY IN CHINA AND JAPAN.** (5 cr; prereq 1002 or #) Gerlach  
Development of Chinese institutions and other cultural manifestations. Their influence on cultures of Japan, Korea, and Vietnam. Analysis of and comparison between contemporary Chinese and Japanese societies. (GrC)
- 5533. SOUTH ASIAN PREHISTORY.** (5 cr; prereq 1002) Johnson  
Origins and developments of major Asian cultural traditions. (GrC)

### Oceania

- 5291, 5292. ETHNOLOGY OF OCEANIA.** (5 cr per qtr; prereq 1002 or #) Kiste, Ogan  
South Pacific cultures. Comparative ethnology of Polynesia and Micronesia (5291), and Melanesia (5292). Impact of Western culture on island societies; significance of Oceania ethnology of anthropological theory. (GrC)
- 5591. PREHISTORY OF OCEANIA.** (5 cr; prereq 1002) Puleston  
Prehistory of Oceania, with major emphasis on archaeological evidence. Polynesia, Micronesia, Melanesia, Australia, and, when pertinent, Southeast Asia and the Americas. (GrC)

### GROUP III

- 3376su. FIELD RESEARCH IN ARCHAEOLOGY.** (5-10 cr; prereq 3501) Johnson (GrC)
- 5377. LABORATORY TECHNIQUES IN ARCHAEOLOGY.** (5 cr; prereq 3501 and #) Staff  
Basic laboratory techniques in archaeology. Artifact analysis, preservation, cartography, photography, faunal and floral analysis, writing of site reports. (GrC)
- 5386. METHODS IN PHYSICAL ANTHROPOLOGY.** (5 cr; prereq 1002) Murrill  
Comparative osteology of man and anthropoid apes. Variations related to sex, age, and race. Observations and measurements on the skeleton. (GrC)
- 5387. METHODS IN HUMAN BIOLOGY.** (5 cr; prereq 5182 and #) Cassidy  
Methods for study of past and extant populations. Topics in a quarter will vary with the interests of the class. (GrC)

### ARABIC

See Middle Eastern Languages.

## ARAMAIC

See Middle Eastern Languages.

## Architecture, Landscape Architecture

*Institute of Technology*

### ARCHITECTURE (Arch)

#### Staff

*Head*, Ralph Rapson, 110 Architecture; *Director of Undergraduate Studies*, John S. Myers; *Director of Graduate Studies*, Walter K. Vivrett

*Professors*: Cerny, Clemence, Michelson, Myers, Parker, Rapson, Stageberg, Vivrett, Winterowd

*Associate Professors*: Abrahamson, Bender, Graffunder, Grebner, Hodne, Iskander, Rauma, Thompson

*Assistant Professors*: Bennett, Blair, Diedrich, Dittmar, Fishman, Holloway, Hysell, Lockhart, Morrill, Thorbeck

*Lecturers*: Allan, Geiger, Johnson, Kodet, Lavine, Mulfinger, Schimke, Tollefson, Weeks

Architecture is an art and science that gives physical expression to the capacities, accomplishments, and ideas of the people and their times. It is concerned with the total environment and, most importantly, the built environment. The architect seeks to plan, design, and construct both enclosed and open space to encourage and promote man's activities and heighten his aspirations.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

Phys 1014-1024, 1015-1025 or 1121-1122; math, pre-calculus and Math 1211-1221; ArtS 1107, 1108, 1109 or 1101, 1102; Arch 1021.

#### Major Requirements

Arch 3081-3082-3083, 3091-3092-3093

Three courses chosen from 5051, 5052, 5053, 5054, 5055, 5056, 5057

**Curriculum Alternatives**—The 4-year CLA program, leading to a B.A., is primarily preprofessional training for admission to the Institute of Technology for 2 additional years of work toward the professional degree, bachelor of architecture, or 3 additional years of work for the master of architecture. Students who intend to seek professional degrees should include AEM 3092-3093,\*\* ArtS 3140, and CE 3600-3601.\*\* Also desirable are Arch 3061-3062\*\* and 3067.\*\* Students wishing a degree of specialization in environmental design should take Arch 1001, 1002, 1003, 1022, and 1023.

The *Institute of Technology Bulletin* lists requirements for the B.Arch. degree; the *Graduate School Bulletin* lists those for the M.Arch.

\*\* These courses do not carry CLA credit.

## Course Descriptions—Major Sequences

- 1001f. ENVIRONMENTAL DESIGN: MAN AND ENVIRONMENT.** (4 cr, §LA 1001)  
Interaction of man and his environment using the natural and social sciences and the arts as background for readings, lecture, discussion, and workshop sessions. (GrC)
- 1002w. ENVIRONMENTAL DESIGN: TOOLS AND PROCESSES.** (4 cr, §LA 1002; prereq 1001)  
Nature and the effects of various tools and processes of environmental change, ranging from buildings and landscapes to economic policies, climate, and myths. Readings, lectures, discussions, and workshop sessions. (GrC)
- 1003s. ENVIRONMENTAL DESIGN: IMPLEMENTATION AND EVALUATION.** (4 cr, §LA 1003; prereq 1002)  
Design projects, discussions, and readings exploring personal abilities to implement and evaluate environmental change. (GrC)
- 1021f. HISTORY OF ENVIRONMENTAL DEVELOPMENT: ARCHITECTURE.** (4 cr, §LA 1021; 4 lect hrs per wk)  
Introduction to architecture; philosophy and principles of architecture as an art; survey of architectural history; development of contemporary architecture from its 19th-century roots to the present. (GrD)
- 1022w. HISTORY OF ENVIRONMENTAL DEVELOPMENT: LANDSCAPE ARCHITECTURE.** (4 cr, §LA 1022; prereq 1021; 4 lect hrs per wk)  
Introduction to landscape architecture. Forces and individuals that shaped the form of landscape in 19th- and early 20th-century America. (GrD)
- 1023s. HISTORY OF ENVIRONMENTAL DEVELOPMENT: PLANNING.** (4 cr, §LA 1023; prereq 1022; 4 lect hrs per wk)  
Introduction to urban planning. Rise and history of cities as centers of civilization. Collaboration among various disciplines for improving the quality of the urban environment and of human life in cities. (GrD)
- 3061-3062. BUILDING SYSTEMS.** (5 cr per qtr [does not carry cr toward the BA]; 4 lect hrs per wk)  
Building systems, subsystems, and components; principles of structural theory; materials and methods used in building; new and developing technologies.
- 3067. INTEGRATED DESIGN SYSTEMS.** (4 cr [does not carry cr toward the BA]; 2 lect and 2 seminar hrs per wk)  
Integrated design systems; systems approach to defining environmental problems and managing multidisciplinary inputs; analysis and evaluation of alternative solutions; computer graphics, elements of equipment, interactive modes of use.
- 3081-3082-3083†. ARCHITECTURAL DESIGN.** (6 cr per qtr; prereq 2nd yr for IT students, jr for CLA students and Δ; 18 lab hrs per wk)  
Perceptual and conceptual aspects of the physical environment. Fundamentals of architectural design and design methodology. Architectural drawing. Model making.
- 3091-3092-3093‡. ARCHITECTURAL DESIGN.** (6 cr per qtr; prereq 3083; 18 lab hrs per wk)  
Development of structures as an integral part of design; site planning.
- 3970. DIRECTED STUDIES.** (Cr ar; prereq #)  
Individual programs to meet objectives not served in regular courses.
- 5051. ANCIENT ARCHITECTURE.** (4 cr; prereq 1021; 3 lect and 1 seminar hrs per wk)  
History of development of architecture and urban design in Egypt, Mesopotamia, Crete, Mycenae, and Classical Greece and Rome before Christianity. (GrD)
- 5052. EARLY MEDIEVAL ARCHITECTURE.** (4 cr; prereq 1021; 3 lect and 1 seminar hrs per wk)  
History of architecture and urban design during Early Christian, Byzantine, Islamic, Carolingian, and Romanesque periods in the Near East and Western Europe until 1150. (GrD)
- 5053. GOTHIC ARCHITECTURE.** (4 cr; prereq 1021; 3 lect and 1 seminar hrs per wk)  
History of architecture and urban design in Western Europe from 1150 until 1400. (GrD)
- 5054. RENAISSANCE AND BAROQUE ARCHITECTURE.** (4 cr; prereq 1021; 3 lect and 1 seminar hrs per wk)  
History of architecture and urban design in Italy, Spain, France, Germany, and the Low Countries from 1400 until the French Revolution. (GrD)
- 5055. ENGLISH AND EARLY AMERICAN ARCHITECTURE.** (4 cr; prereq 1021; 3 lect and 1 seminar hrs per wk)  
Pre-Columbian civilizations and development of architecture and urban design in America and England from 1500 until the Civil War. (GrD)

- 5056. MODERN ARCHITECTURE.** (4 cr; prereq 1021; 3 lect and 1 seminar hrs per wk)  
Development of architecture and urban design from early 19th-century sources in Europe and America to the present. (GrD)
- 5057. ASIAN ARCHITECTURE.** (4 cr; prereq 1021; 3 lect and 1 seminar hrs per wk)  
History of development of traditional architecture and urban design of West, South, and East Asia.
- 5101, 5102, 5103. TUTORIAL WORK IN HISTORY OF ARCHITECTURE.** (4 cr per qtr; prereq #; 1 conf and 5 research hrs per wk)  
Reading and written reports on historical problems.
- 5104. SEMINAR: EUROPEAN ARCHITECTURE.** (4 cr; prereq 5056 or #; 4 seminar hrs per wk)  
Contemporary architecture from the beginning of the modern movement to the present; the contributions of August Perret, Peter Behrens, Walter Gropius and the Bauhaus, Le Corbusier, and the early work of Mies van der Rohe.
- 5105. SEMINAR: SCANDINAVIAN ARCHITECTURE.** (4 cr; prereq 5056 or #; 4 seminar hrs per wk)  
Scandinavian architectural history; the origin and development of modern architecture in Denmark, Finland, Norway, and Sweden.
- 5106. SEMINAR: AMERICAN ARCHITECTURE.** (4 cr; prereq 5056 or #; 4 seminar hrs per wk)  
Contemporary United States architecture from the period of Henry Hobson Richardson to the present; the contributions of Louis H. Sullivan, Frank Lloyd Wright and his "Prairie School" contemporaries, Eliel and Eero Saarinen, and the later works of Walter Gropius and Mies van der Rohe. Field trip.
- 5111-5112-5113. ARCHITECTURAL DESIGN.** (6 cr per qtr; prereq 3093; 18 lab hrs per wk)  
Advanced architectural problems of complex requirements, involving thorough study and detailed solution; electrical and mechanical equipment and structure as integral parts of design; research techniques. Individual effort and group collaboration.
- 5115-5116. STRUCTURE AND FORM IN ARCHITECTURE.** (4 cr per qtr; prereq AEM 3092; 2 lect and 3 seminar hrs per wk)  
Form as an interface between programmatic requirements for environmental change and the physical means available to the architect; concentration on physical parameters of statics, mechanics of solids, and three-dimensional manipulation of material to arrive at logical solutions for problems of enclosing space; architectural morphology covered through contemporary and ancient examples and experimental work on models; modular and proportional relationships.
- 5121-5122. ARCHITECTURAL DESIGN.** (9 cr per qtr; prereq 5113 and CE 5601; 27 lab hrs per wk)  
Urban building design and development. Individual and collaborative effort; analysis of urban problems, reporting and preparation of large-scale proposals.
- 5130. PLANNING: THE DEVELOPMENT OF URBAN FORM.** (3 cr; prereq #; hrs ar)  
Physical development of urban place from early Middle East urban revolution to the Industrial Revolution, as a manifestation of changes in social, political, and economic forces and of planning theories, if any, to which they gave rise.
- 5134, 5135, 5136. PLANNING.** (3 cr per qtr; prereq #)  
Tutorial work in community facilities and housing.
- 5137. PLANNING: URBAN FUNCTION AND STRUCTURE.** (4 cr; prereq #)  
Economic, technological, and social factors that underlie the location, distribution, and internal structure of urban settlements. Quantitative and qualitative analysis of social, economic, and physical problems or consequences of contemporary urbanization.
- 5138. PLANNING: THEORY AND METHODOLOGY.** (4 cr; prereq 5137 or #)  
Logic of a planning process as a method of decision making. Formulation of goals and evaluation of alternative courses of action, standards, and requirements for specific planning objectives (housing, transportation, and community facilities). Legal, administrative, and fiscal devices for plan implementation. The planning function in government; the role of citizens and private groups.
- 5150. INSTITUTIONAL PLANNING.** (2 cr; prereq 5113 and #)
- 5151, 5152, 5153. THEORY OF ARCHITECTURE.** (2 cr per qtr; prereq #)  
Architecture in a philosophical and theoretical context.
- 5170. CITYSCAPE.** (3 cr; prereq 3093 or #; hrs ar)  
The city and its components as aesthetic elements. Factors that have helped to generate urban form.

## Course Descriptions—Major Sequences

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**5171, 5172. URBAN FORM.** (3 cr per qtr; prereq 5113 and 5138)  
Principles and techniques involved in city design.

**5970. DIRECTED STUDIES.** (Cr ar; prereq #)  
Individual programs to meet objectives not served in regular courses.

## LANDSCAPE ARCHITECTURE (LA)

### Staff

*Chairman of Faculty,* Roger B. Martin, 110 Architecture

*Professors:* Hard, Martin, White

*Associate Professor:* Mullin

*Assistant Professors:* Forsyth, Robinette

*Lecturer:* Wood

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

5 cr chemistry, Math 1111, 10 cr biology, 5 cr geography, Geo 1001, Arth 1001, Arts 1107-1108-1109, LA 1001-1002-1003 or 1021-1022-1023

#### Major Requirements

3081-3082-3083, 3091-3092-3093, 5115-5116, Arch 5056

Landscape architecture focuses on the problems of relating man and the land. The landscape architect is concerned with wise use of land and natural resources as well as the effects of their use on man. His goal is to attain optimal relationships between open space and its many developments, to assure both utility and beauty.

Men and women entering landscape architecture should have active interest in nature, enjoy observing the patterns and qualities of landscapes, and possess interest in drawing and art.

**Curriculum Alternatives**—The CLA major leads to the nonprofessional degree in landscape architecture. This work may be extended into the advanced professional program in the Institutes of Technology and Agriculture (1-year minimum). Students planning to enter this program should add basic courses in sociology and economics and Hort 1021 and 1022 to the CLA major. Also desirable are AgEn 1400 and LA 3071-3072-3073\*\* (these credits only apply toward advanced degrees).

**Admission**—Applications should be made to the Landscape Architecture office, 110 Architecture or 396 Horticulture before June 1 of the year in which the applicant wishes to begin design work. Application forms may be obtained from the Architecture or Horticulture office or the Office of Admissions and Records. Applications should be accompanied by examples of an applicant's previous work. Admissions take into account a student's scholastic record, maturity, and experience and the availability of work space and instructional facilities.

**1001f. ENVIRONMENTAL DESIGN: MAN AND ENVIRONMENT.** (4 cr, §Arch 1001)

Exploration of interaction of man and his environment, using natural and social sciences and the arts as background.

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\*\* These courses do not carry CLA credit.

- 1002w. ENVIRONMENTAL DESIGN: TOOLS AND PROCESSES.** (4 cr, §Arch 1002; prereq 1001)  
The nature and effects of various tools and processes of environmental change, ranging from buildings and landscapes to economic policies, climate, and myths.
- 1003s. ENVIRONMENTAL DESIGN: IMPLEMENTATION AND EVALUATION.** (4 cr, §Arch 1003; prereq 1002)  
Design projects, discussions, and readings exploring personal abilities to implement and evaluate environmental change.
- 1021f. HISTORY OF ENVIRONMENTAL DEVELOPMENT: ARCHITECTURE.** (4 cr, §Arch 1021; 4 lect hrs per wk)  
Introduction to architecture; philosophy and principles of architecture as an art; survey of architectural history, development of contemporary architecture from 19th-century roots to the present: (GrD)
- 1022w. HISTORY OF ENVIRONMENTAL DEVELOPMENT: LANDSCAPE ARCHITECTURE.** (4 cr, §Arch 1022; prereq 1021; 4 lect hrs per wk)  
Investigation of forces and individuals that shaped the form of landscape in 19th- and early 20th-century America.
- 1023s. HISTORY OF ENVIRONMENTAL DEVELOPMENT: PLANNING.** (4 cr, §Arch 1023; prereq 1022; 4 lect hrs per wk)  
Rise and history of cities as centers of civilization. Collaboration among various disciplines for improving the quality of the urban environment and of human life in cities.
- 1024. LANDSCAPE THEORY.** (4 cr; 3 lect and 3 lab hrs per wk)  
Design elements and forms involving direction, shape, proportion, and color, and their function in design; a study of perception and man's relationship to his environment and of the social effects and psychological basis for design.
- 1025. BASIC VISUALIZATION.** (4 cr; prereq LA major; 2 lect and 6 lab hrs per wk)  
Perspective drawing, landscape sketching, visual analysis of landscape materials, presentation techniques for plans, sections, elevations, and diagrams.
- 1031. INTRODUCTION TO LANDSCAPE ARCHITECTURE.** (4 cr; 4 lect hrs per wk)  
Design potential of materials of the landscape; critical assessment of land developments and detail landscapes; the role of the landscape architect in shaping the natural and cultural environment; historical review of site developments.
- 3071-3072-3073. LANDSCAPE TECHNOLOGY I.** (4 cr per qtr; prereq CE 3100 or AgEn 1400 and LA 3083...LA 3091 for 3072; 2 lect and 6 lab hrs per wk)  
Ground form manipulation, earthwork, computation, and drainage techniques; layout of circulation and landscape utilities systems; land analysis procedures and techniques.
- 3081-3082-3083. BASIC DESIGN.** (6 cr per qtr; prereq LA student; 1 lect and 15 lab hrs per wk)  
Design potential of environment; processes and graphic techniques for problem solving; methods of presenting ideas verbally and visually. Design of small-scale site systems with simple variables.
- 3091-3092. INTERMEDIATE DESIGN.** (6 cr per qtr; prereq 3083; 2 lect and 12 lab hrs per wk)  
Design potential of natural land materials, exploration of landscape survey and analysis techniques, assessment of the elements of environment as they condition design potential, methodologies for solving design problems, methods of expressing landscape form both graphically and through models; design of site systems with simple variables.
- 3093. DETAIL SITE DESIGN.** (6 cr; prereq 3092)  
Design of small-scale site systems with complex variables.
- 3096. SPECIAL PROBLEMS IN LANDSCAPE ARCHITECTURAL HISTORY.** (1-6 cr; prereq #)
- 3097. SPECIAL PROBLEMS IN LANDSCAPE ARCHITECTURAL THEORY.** (1-6 cr; prereq #)
- 3098. SPECIAL PROBLEMS IN LANDSCAPE ARCHITECTURAL DESIGN.** (1-6 cr; prereq #)
- 3099. SPECIAL PROBLEMS IN LANDSCAPE ARCHITECTURAL TECHNOLOGY.** (1-6 cr; prereq #)
- 3101. COMMUNICATING LANDSCAPE QUALITY.** (4 cr; prereq 3082 and 1025; 2 lect and 6 lab hrs per wk)  
Drawing techniques focused on developing graphic skills for designers working predominantly with exterior environments.

## Course Descriptions—Major Sequences

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- 5010. PRINCIPLES OF OUTDOOR RECREATION DESIGN AND PLANNING.** (4 cr; 4 lect hrs per wk)  
For advanced students associated with design, management, and planning of recreation facilities. Planning and design principles related to recreational land use and development: parks, campsites, water areas, highways, summer and winter recreational facilities.
- 5101-5102. SITE PLANNING AND DESIGN I AND II.** (6 cr per qtr; prereq 3093; 2 lect and 12 lab hrs per wk)  
Case study analysis and design of site organizational systems.
- 5103-5104. URBAN LANDSCAPE DESIGN I AND II.** (6 cr per qtr; prereq 3093; 2 lect and 12 lab hrs per wk)  
Case study analysis and design of urban environments.
- 5105-5106. RECREATIONAL PLANNING AND DESIGN I AND II.** (6 cr per qtr; prereq 5010; 2 lect and 12 lab hrs per wk)  
Development and presentation of landscape design solutions for diverse recreational land use.
- 5107-5108. REGIONAL LANDSCAPE DESIGN.** (6 cr per qtr; prereq 3092; 3 lect and 12 lab hrs per wk)  
Study of large-scale land areas. Development potential and evolving solutions for integration of divergent land use patterns—agricultural, residential, commercial, industrial, and recreational.
- 5110. ADVANCED LANDSCAPE PLANNING AND DESIGN.** (6 cr; prereq 3rd-qtr sr; 2 lect and 12 lab hrs per wk)  
Advanced studies in area of student's option.
- 5115-5116. THEORY OF LANDSCAPE FORM AND STRUCTURE.** (2 cr per qtr; prereq 3091 or §; 4 discussion hrs per wk)  
Landscape perception; application of abstract design principles to the assessment of land developments; psychological and social implications of land developments; design potential of landscape materials; contemporary problems in all scales and types of land uses.
- 5121-5122. LANDSCAPE ARCHITECTURAL DESIGN.** (6 cr per qtr; prereq §; 1 lect and 15 lab hrs per wk)  
Research analysis and design of large-scale land development problems. Urban design and regional design collaboratives with fellow design professions and technical disciplines.
- 5124. LANDSCAPE ARCHITECTURAL SEMINAR.** (1 cr; prereq sr)  
Design principles and design goals in modern society. Review of current site development projects. Investigation in depth into specific areas of land development.
- 5131-5132-5133. SELECTED PROBLEMS IN LANDSCAPE ARCHITECTURE.** (Cr ar; prereq §)
- 5262. HISTORY AND LITERATURE OF LANDSCAPE ARCHITECTURE.** (4 cr; prereq 1022; 4 lect hrs per wk)  
A search for design principles as expressed in landscape created by man from ancient times to the contemporary period. Analysis of the visual form of environments as outgrowths of geographical, cultural, and technological determinants.

## Art History (ArH)

### Staff

*Chairman*, Carl D. Sheppard, 108A Jones Hall (on leave, winter 1974-75); *Director of Undergraduate Studies*, Frederick Cooper, 203 Jones Hall

*Professors*: Canedy, Nelson (on leave, fall and winter 1974-75), Sheppard, Simon, Torbert (on leave, spring 1974-75), Waldfogel

*Associate Professors*: Asher (on leave, 1974-75), Cooper, McNally (on leave, 1974-75), Poor, Stones (on leave, winter and spring 1974-75)

*Assistant Professor*: Stoughton

*Instructor*: Steyaert

The objective of the Department of Art History is to give students awareness

and knowledge of their visual environment through the examination of the world's architecture, sculpture, painting, and other related arts.

For students interested in advanced work in art history, the department offers professionally oriented courses leading to a B.A. degree. M.A. and Ph.D. degrees in the history of art and an M.A. in museology are also offered.

## B.A. MAJOR SEQUENCE

### Required Preparatory Courses

4 studio arts cr; 5 qtrs or equiv in a foreign language (Route II does not satisfy this requirement)

### Major Requirements

3008, 3009, 3011, 3012, 8 additional art history cr at the 3xxx level, 12 art history cr at the 5xxx level

- 1001. INTRODUCTION TO THE VISUAL ARTS.** (4 cr, §3001; 3 lect hrs per wk and 1 lab hr alt wks) Torbert  
Basic problems of art. Examples from major visual arts as basis for examination of the nature of art, problems of design, materials and techniques, presented topically rather than chronologically. (GrD)
- 1008. CONCEPTS IN ANCIENT ART.** (4 cr, §3008) McNally  
The art of Egypt, Mesopotamia, Greece, and Rome. Visual analysis, problems of style as a cultural phenomenon, and methods and standards of criticism. Individualized instructional units. (GrD)
- 1015. ART IN WESTERN CIVILIZATION.** (4 cr; 3 lect hrs per wk and 1 lab hr alt wks) Waldfogel  
Major achievements of Western man in the arts in their historical and cultural settings. Sir Kenneth Clark's 13 hour-length films entitled "Civilisation" take the place of lectures. Strongly interdisciplinary. (GrD)
- 1016. INTRODUCTION TO ASIAN ART.** (4 cr, §3013; 3 lect hrs per wk and 1 lab hr alt wks) Asher, Poor  
Selected major themes of Indian and Far Eastern art. (GrD)
- 1016H. HONORS COURSE: INTRODUCTION TO ASIAN ART.** (4 cr, §3013) Asher, Poor  
See 1016. (GrD)
- 1017. THE WESTERN TRADITION.** (4 cr; 3 lect hrs per wk and 1 lab hr alt wks) Sheppard  
Contrasts of Far Eastern, Islamic, and primitive cultural traditions to those of the Western world. (GrD)
- 3001. PRINCIPLES OF THE VISUAL ARTS.** (4 cr, §1001) Torbert  
Similar to 1001, with expanded reading and contact with works of art. (GrD)
- 3008. HISTORY OF ANCIENT ART.** (4 cr, §1008) Asher, Cooper, McNally  
Architecture, sculpture, and painting of selected early cultures, with stress on those contributing to the development of Western art. (GrD)
- 3009. HISTORY OF MEDIEVAL ART.** (4 cr) Sheppard, Steyaert, Stones  
Medieval architecture, painting, and sculpture from Early Christian to Gothic period. Lectures or individualized instructional units. (GrD)
- 3011. HISTORY OF RENAISSANCE AND BAROQUE ART.** (4 cr) Canedy, Simon, Stoughton  
Major monuments in architecture, sculpture, and painting from the early 14th century through the Baroque period. (GrD)
- 3012. HISTORY OF 19TH- AND 20TH-CENTURY ART.** (4 cr) Cooper, Nelson  
Major monuments and concepts of the modern period: sculpture, architecture, painting, and prints. (GrD)
- 3013. INTRODUCTION TO FAR EASTERN ART.** (4 cr, §1013, §1016) Asher, Poor  
Selected major themes of Far Eastern art. The arts of China and Japan (not an inclusive historical survey). (GrD)

## Course Descriptions—Major Sequences

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- 3014. ART OF INDIA.** (4 cr) Asher  
Indian sculpture and architecture from the prehistoric Indus Valley civilization through the major historical periods. Emphasis on Hindu and Buddhist art from 300 B.C. to 1200 A.D. (GrD)
- 3053. HISTORY OF LANDSCAPE PAINTING.** (4 cr) Waldfogel  
Western landscape sensibility and painting from ancient times to the modern period. (GrD)
- 3142. ART OF EGYPT AND THE ANCIENT NEAR EAST.** (4 cr) Asher  
Egyptian art; the art of ancient Mesopotamia and Persia. (GrD)
- 3152. GREEK ART.** (5 cr, §Clas 3152; offered alt yrs) Cooper, McNally  
The classical style of ancient Greece: its origins, characteristics, and importance to later culture. (GrD)
- 3162. ROMAN ART AND ARCHAEOLOGY.** (5 cr, §Clas 3162; prereq 3008 or 3152) Cooper, McNally  
Roman art and material culture: how it came into being; examination of the degree of change, of continuity, of "progress" or "decay" in the later Empire. (GrD)
- 3212. PATRONS, DOCUMENTS, AND MEDIEVAL ART.** (4 cr; prereq 4 cr of art history or medieval history; offered alt yrs) Stones  
A limited number of specific artistic objects and buildings studied in relation to written evidence about the historical circumstances of their production. (GrD)
- 3224. GOTHIC ART.** (4 cr) Steyaert  
Basic concepts of Gothic style as manifested in architecture, sculpture, and painting. Relevance of Gothic to later Western art. (GrD)
- 3303. BAROQUE AND ROCOCO PAINTING IN FRANCE.** (4 cr) Stoughton  
French painting of the 17th and first half of the 18th centuries. (GrD)
- 3313. PRACTICE AND THEORY IN ITALIAN RENAISSANCE ART.** (4 cr; prereq 3011; offered alt yrs) Canedy  
Italian Renaissance art history, techniques, iconology, artist/patron relationships. Practices and theories of the visual arts between 1400 and 1600. (GrD)
- 3448. THE VISUAL ARTS IN AMERICA.** (4 cr; offered alt yrs) Torbert  
American architecture, sculpture, painting. Decorative and industrial arts from early Colonial days to mid-20th century. (GrD)
- 3466. THE ORIGINS OF MODERN ART.** (4 cr; prereq 4 cr of art history; offered when feasible) Simon  
The sources of modernism: Impressionism, Post-impressionism, Symbolism, Arts and Crafts Movement, Aestheticism, and Art Nouveau. (GrD)
- 3467. MODERN ART.** (4 cr) Cooper, Simon  
Major directions in late 19th- and 20th-century art in all media. The influence of advertising mass media and advanced technology on the development of modern art. (GrD)
- 3654. SCANDINAVIAN ART FROM RENAISSANCE TO THE PRESENT DAY.** (4 cr; offered alt yrs) Nelson  
Painting, sculpture, architecture, and decorative arts of the upper classes in Scandinavia; special attention to the 17th and 18th centuries. (GrD)
- 3909. SURVEY OF ISLAMIC ART.** (4 cr; offered when feasible)  
Architecture, painting, and minor arts of the Islamic world. (GrD)
- 3921-3922-3923. ART OF THE FILM.** (4 cr per qtr; offered when feasible)  
The motion picture as an art form. Films of exceptional merit or interest; films of such categories as narrative, poetic, documentary, experimental. (GrD)
- 3960. HONORS SEMINAR.** (5 cr; prereq # of Art History honors adviser)  
Detailed investigation of a selected problem. (GrD)
- 3970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq #) (GrD)
- 3980. DIRECTED INSTRUCTION.** (4 cr [may be repeated for max 8 cr]; prereq #) (GrD)
- 3999. TRANSFER COURSES.** (GrD)
- 5102. GREEK SCULPTURE.** (4 cr, §Clas 5102; prereq jr or #) Coulson  
Greek sculpture from the archaic period through the 4th century B.C. Sculptors and styles of schools throughout Greece, Sicily and southern Italy, and Asia Minor. (GrD)
- 5103. HELLENISTIC ART AND ARCHAEOLOGY.** (4 cr, §Clas 5103; prereq jr or #) Coulson  
Greek architecture, sculpture, ceramics, painting, and minor arts from the 4th century B.C. to the end of the Hellenistic period. City planning, public buildings, and topography of such sites as Athens, Olynthos, Corinth, Priene, Pergamon. (GrD)

- 5104. ROMAN ARCHITECTURE.** (5 cr, §Clas 5104; prereq 1008 or 3008 or 3162) Cooper, McNally  
Types and techniques of buildings in Rome and throughout the Empire from the 5th century B.C. to the 4th century A.D. Major archaeological sites. (GrD)
- 5105. ROMAN PAINTING AND MOSAICS.** (5 cr, §Clas 5105; prereq 1008 or 3008 or 3162) McNally  
Roman painting and mosaics; specific problems; sites such as Pompeii and Antioch. (GrD)
- 5106. GREEK PAINTING.** (5 cr, §Clas 5106; prereq 5102 or 5103; offered every third year) McNally  
Methods of research and analysis in classical art applied to study of vases; original objects and sources. (GrD)
- 5107. ROMAN SCULPTURE.** (4 cr, §Clas 5107; prereq 1008 or 3008 or 3162) Cooper, McNally  
Sculpture from Rome and its provinces from the 1st century B.C. to the 4th century A.D.; the role of sculpture in Roman politics and religion. (GrD)
- 5108. GREEK ARCHITECTURE.** (4 cr, §Clas 5108; prereq 1008 or 3008 or 3152) Cooper, McNally  
Archaic and classical examples of religious and secular architecture and their setting in major archaeological sites. (GrD)
- 5109. INTRODUCTION TO ETRUSCAN ART AND ARCHITECTURE.** (4 cr, §Clas 5109; prereq jr or §) Coulson  
Architecture, sculpture, painting, and minor arts of Etruscans. Political, religious, and social setting. Methods of Etruscan archaeology. (GrD)
- 5111. BRONZE AGE ART AND ARCHITECTURE IN GREECE, CA. 3000-1100 B.C.** (4 cr; prereq one ancient art or archaeology course)  
Principal artistic and architectural forms as they appear in the Neolithic period in the Aegean area and culminate in the Cycladic, Minoan, and Mycenaean cultures.
- 5203. EARLY MEDIEVAL ART.** (5 cr; prereq 4 cr of art history, grad or §) Sheppard  
Architecture, sculpture, painting, and minor arts of the Mediterranean world and Western Europe from Early Christian to Romanesque period. (GrD)
- 5213. INTERNATIONAL GOTHIC PAINTING AND SCULPTURE.** (5 cr; prereq 4 cr of medieval art history or §; offered alt yrs) Stones  
Patronage in major centers of culture (Prague, London, Milan, Paris, and Burgundy) in relation to the artistic production of the late 14th and early 15th centuries. (GrD)
- 5214. GOTHIC ARCHITECTURE.** (5 cr; prereq 4 cr of medieval art history or §; offered alt yrs) Sheppard, Stones  
Gothic architecture from the mid-12th to the early 16th century in France, Germany, England, Italy, and Spain; later regional variants. (GrD)
- 5215. ROMANESQUE AND GOTHIC PAINTING.** (5 cr; prereq 4 cr of medieval art history or §; offered alt yrs) Stones  
Wall and panel painting, mosaics, and manuscript illumination in France, Germany, England, Italy, and Spain from the 11th to the 14th century. (GrD)
- 5234. EARLY AND HIGH GOTHIC SCULPTURE.** (5 cr; prereq 3009, grad or §) Steyaert  
Style and iconography of Gothic sculpture, especially in France and Germany. (GrD)
- 5252. BYZANTINE ART.** (5 cr; prereq 5203 or §) Sheppard  
Architecture, sculpture, and painting in the Eastern Christian regions from the founding to the fall of Constantinople in the 15th century; impact on the West. (GrD)
- 5253. ROMANESQUE SCULPTURE.** (4 cr; prereq 9 cr of art history or §) Sheppard  
Sculpture in France and Italy in the 11th century manifested throughout Europe in the 12th and early 13th centuries. (GrD)
- 5261. THE ILLUMINATED BOOK.** (5 cr; prereq 4 cr of medieval art history or §; offered alt yrs) Stones  
Techniques in production of illuminated books in the Middle Ages; evolution in types of books, decorative schemes, and style. (GrD)
- 5306. ITALIAN ART OF THE 14TH CENTURY.** (4 cr; prereq one art history course or §; offered alt yrs) Canedy  
Emergence of Italian painting and the proto-Renaissance; subsequent counterdirections during the periods of the Black Death and International Style. (GrD)

## Course Descriptions—Major Sequences

- 5307. 15TH-CENTURY ITALIAN ARCHITECTURE, SCULPTURE, AND PAINTING.** (4 cr; prereq 3011 or #) Canedy  
Early Renaissance art from Brunelleschi to Bellini; development of the "repertory" of monument types that survived to modern times. (GrD)
- 5313. ITALIAN HIGH RENAISSANCE ARCHITECTURE, SCULPTURE, AND PAINTING.** (4 cr; prereq 3011, grad or #) Canedy  
Works of Leonardo da Vinci, Michelangelo, Raphael, and Titian and lesser artists working in Florence, Rome, Venice, and northern Italy. Painting emphasized. (GrD)
- 5314. LATER 16TH-CENTURY ITALIAN ARCHITECTURE, SCULPTURE, AND PAINTING.** (4 cr; prereq 5313, grad or #; offered alt yrs) Canedy  
Mannerism and other trends from the High Renaissance to the Baroque. (GrD)
- 5315. DRAWINGS AND GRAPHICS OF THE RENAISSANCE.** (4 cr; prereq 5307 or 5313 or grad or #; offered alt yrs) Canedy  
Drawings and graphics from the early Renaissance to the Baroque. Original works utilized. (GrD)
- 5323. LATE GOTHIC AND RENAISSANCE SCULPTURE IN NORTHERN EUROPE.** (4 cr; prereq 3009 or 3011, grad or #) Steyaert  
Sculpture in Germany, France, and the Netherlands from the 14th to the 16th century. (GrD)
- 5324. 15TH-CENTURY PAINTING IN NORTHERN EUROPE.** (5 cr; prereq 3009 or 3011, grad or #) Steyaert  
Painting in the Netherlands, France, and Germany during the late Gothic period; its influences. (GrD)
- 5326. 16TH-CENTURY PAINTING IN NORTHERN EUROPE.** (4 cr; prereq 3011, grad or #; offered alt yrs) Steyaert  
Northern Renaissance painting in Germany, the Netherlands, and France. (GrD)
- 5346. BAROQUE ART IN ITALY AND SPAIN.** (5 cr; prereq 3011, grad or #; offered alt yrs) Stoughton  
Italian sculpture, painting, and architecture and Spanish painting of the 17th century. (GrD)
- 5347. BAROQUE ART IN ENGLAND, FRANCE, AND LOWLANDS.** (5 cr; prereq 3011, grad or #; offered alt yrs) Stoughton  
French architecture, painting, and sculpture, Flemish and Dutch painting, and English painting and architecture of the 17th century. Major artists: Rembrandt, Rubens, Poussin, Jones. (GrD)
- 5357. 18TH-CENTURY ART IN FRANCE.** (4 cr; prereq 3011, grad or #; offered alt yrs) Stoughton  
Rococo and neoclassical painting, sculpture, and architecture in France. (GrD)
- 5358. 18TH-CENTURY ART IN ITALY, GERMANY, AUSTRIA.** (4 cr; prereq 3011, grad or #) Stoughton  
Italian painting, sculpture, and architecture; German and Austrian architecture. (GrD)
- 5441. EARLY 19TH-CENTURY EUROPEAN PAINTING.** (5 cr; prereq 3 cr of art history, 19th-century history, literature or #; offered alt yrs) Waldfogel  
Neoclassicism: the impact of the new understanding of the past, personality, and nature on art and the artist's response to technology and new social and political structures. (GrD)
- 5442. TOPICAL STUDIES IN EARLY 19TH-CENTURY EUROPEAN PAINTING.** (5 cr; prereq 5441; offered alt yrs) Waldfogel  
Selected themes from 5441. (GrD)
- 5443. LATER 19TH-CENTURY EUROPEAN PAINTING.** (5 cr; prereq 3 cr of art history, 19th-century history, literature or #; offered alt yrs) Waldfogel  
Realism and aestheticism; Ruskinian and French realism, socialism, and urbanism; avant-garde and art for art's sake as a program; fin de siècle and escapism. (GrD)
- 5444. TOPICAL STUDIES IN LATER 19TH-CENTURY EUROPEAN PAINTING.** (5 cr; prereq 5443; offered alt yrs) Waldfogel  
Selected themes from 5443. (GrD)
- 5463. EARLY 20TH-CENTURY PAINTING.** (5 cr; prereq one American or modern art course or #) Simon  
Topics and/or movements in modern painting, mainly before the mid-1920's. (GrD)
- 5464. LATER 20TH-CENTURY PAINTING.** (5 cr; prereq one American or modern art course or #; offered alt yrs) Simon  
Modern painting after the mid-1920's. (GrD)

- 5465. MODERN SCULPTURE.** (5 cr; prereq 3012 or two art history courses; offered when feasible) Simon  
Modern sculpture from Rodin to the present. Major trends and monuments. (GrD)
- 5466. THE AVANT-GARDE.** (5 cr; prereq 3012 or 5463 or §; offered alt yrs) Simon  
History and theory of the "avant-garde" as applied to contemporary art. Contributions of the thought of McLuhan, Buckminster Fuller, Cage, Greenberg, Sontag, and of rock music. Influence of the "counterculture." (GrD)
- 5468. MODERN ART CRITICISM I.** (5 cr; prereq 3012 or 3467 or 5463 or 5465 or §) Simon  
Major critics of visual art from the late 18th century to World War II, from Diderot to Herbert Read. (GrD)
- 5469. MODERN ART CRITICISM II.** (5 cr; prereq 3012 or 3467 or 5463 or 5465 or §) Simon  
Major critical approaches to modern art from World War II to the present; works of influential contemporary working critics. Criticism workshop. (GrD)
- 5521. 20TH-CENTURY ART IN THE UNITED STATES.** (4 cr; prereq 4 cr of art history) Cooper  
Contemporary movements in American painting and sculpture beginning in early 20th century with the emergence of "The Eight" and the Armory Show, 1913. (GrD)
- 5535. ART IN THE UNITED STATES.** (5 cr; prereq 4 cr of art history or §; offered alt yrs) Torbert  
Painting and sculpture in the United States. Selected key works and artists from early settlement to the early 20th century. (GrD)
- 5536. TOPICAL STUDIES: ART IN THE UNITED STATES.** (5 cr; prereq 5535, §; offered alt yrs) Torbert (GrD)
- 5545. AMERICAN ARCHITECTURE.** (5 cr; prereq sr, grad or §; offered alt yrs) Torbert  
American building; European traditions that influenced it from earliest settlement through revivals, to about 1890. (GrD)
- 5547. MODERN AMERICAN AND EUROPEAN ARCHITECTURE.** (5 cr; prereq sr, grad or §; offered alt yrs) Torbert  
Development of modern architecture on the international scene; influence on work in United States (Sullivan, Wright, Behrens, Gropius, Mies, Le Corbusier, Perret, Saarinen, Brewer, Nervi, Torroja, Candela, etc.). (GrD)
- 5641. SCANDINAVIAN ART OF THE 19TH AND 20TH CENTURIES.** (5 cr; prereq 3012 or 3467, grad or §) Nelson  
Painting, sculpture, architecture, and decorative arts; the rise of expressionism in the fine arts and on "Scandinavian Modern" in design. (GrD)
- 5643. PREHISTORIC ART OF NORTHERN EUROPE.** (4 cr; prereq 4 cr of art history or §) Nelson  
Art north of the Alps from the Ice Age through the Celtic period. Cave painting, sculpture, funerary architecture, ceramics, and metalwork. (GrD)
- 5644. MEDIEVAL ART OF SCANDINAVIA.** (4 cr; prereq 3009, grad or §) Nelson  
Migration, Viking, and Christian art in Scandinavia from the 5th through the 15th centuries. Architecture, sculpture, painting, and metalwork. (GrD)
- 5645. FOLK ARTS OF SCANDINAVIA.** (4 cr; prereq 4 cr of art history or §; offered alt yrs) Nelson  
Wood carving, metalwork, decorative painting, weaving, stitchery, and domestic architecture of rural Scandinavia; origins in pagan and medieval art. (GrD)
- 5725. CERAMICS IN THE FAR EAST.** (4 cr; offered alt yrs) Poor  
Ceramic art in the Far East: China, Korea, and Japan, from Neolithic times to the present. (GrD)
- 5765. EARLY CHINESE ART.** (5 cr; offered alt yrs) Poor  
Ancient ceramics and ritual bronzes, early Buddhist sculpture, and early Chinese painting. (GrD)
- 5766. CHINESE PAINTING.** (5 cr; offered alt yrs) Poor  
Major works from the 4th to the 17th centuries. Development of the landscape tradition and the literary genre of later Chinese painting. (GrD)
- 5767. JAPANESE PAINTING.** (4 cr; offered alt yrs) Poor  
Japanese pictorial arts from earliest to modern times; works that best exemplify development of indigenous traditions. (GrD)
- 5769. CONNOISSEURSHIP IN ORIENTAL ART.** (5 cr; prereq §; offered alt yrs) Poor  
Direct examination of Oriental art objects in local collection. (GrD)

## Course Descriptions—Major Sequences

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- 5775. EARLY INDIAN ART.** (4 cr; prereq 4 cr of art history or #) Asher  
Sculpture and architecture of India from the Indus Valley civilization through the Kushana period. (GrD)
- 5776. LATER INDIAN ART.** (4 cr) Asher  
Sculpture and architecture of India from the Gupta period through the 12th century. (GrD)
- 5777. PAINTING OF INDIA.** (4 cr) Asher  
Indian painting, beginning with the early tradition of mural painting; miniature painting from the 12th century onward. (GrD)
- 5895. METHODOLOGY I.** (4 cr; prereq art history major or #)  
Use of bibliographies of various art historical periods. Work with all types of reference and source materials. Proseminar. (GrD)
- 5911. ARCHITECTURE AND SCULPTURE IN PRE-COLUMBIAN MESOAMERICA.** (5 cr; prereq sr, grad or #; offered alt yrs) Torbert  
Pre-Hispanic monuments in Mexico and Guatemala with emphasis on Olmec, Teotihuacan and Maya cultures. (GrD)
- 5921-5922-5923. ART OF THE FILM.** (4 cr per qtr; prereq #; offered when feasible)  
Aesthetics of the film. Editing, montage, sound, use of the camera, etc. (GrD)
- 5970. DIRECTED READINGS.** (1-5 cr per qtr; prereq sr, #) Staff (GrD)
- 5990. DIRECTED RESEARCH.** (1-5 cr per qtr; prereq sr, #) Staff (GrD)
- 5999. TRANSFER COURSES.** (GrD)

## Arts, Studio (Arts)

### Staff

*Chairman*, Karl E. Bethke, 208 Art Building; *Director of Undergraduate Studies*, William Roode, 223 Art Building; *Coordinator of Undergraduate Advising*, 204 Art Building (376-3214); *Director of Graduate Studies*, Herman Rowan (on leave, 1974-75)

*Professors*: Busa, Downs, Hendler, MacKenzie, Morrison, Myers, Nash, Priede, Rowan

*Associate Professors*: Bethke, Hoard, Somberg

*Assistant Professors*: Baldwin, Caglioti, Cowette, Feinberg, Gray, Hallman, Potratz, Roode, Rose, Warkov

The Department of Studio Arts provides facilities and instruction in drawing and painting, sculpture, printmaking, photography and film, ceramics and glass-working, emphasizing the development of visual awareness through involvement in the creative process.

Part of the cost of expendable materials used in most studio arts courses is covered by fee cards purchased by students from the bursar by the end of the second week of classes.

## B.A. MAJOR SEQUENCE

### Required Preparatory Courses

One art history course at the 1xxx level, ArtS 1401, 1101, 1301, or 1302  
12 cr from 1102, 1104, 1301, 1302, 1510, 1520, 1701, 1801

### Major Requirements

At least 28 cr, but no more than 40, in studio courses at 3xxx-5xxx levels  
8 3xxx-5xxx-level art history cr

**B.F.A. MAJOR SEQUENCE**

This program, leading to a 4-year professional degree, offers high concentration in studio arts work. It is oriented toward professional work or admission to the M.F.A. program.

**Admission**—Usually limited to students with 3.00 average in studio arts courses. Applicants, either CLA or transfer, apply for admission no earlier than their final sophomore quarters. Applications are to be made on the form available at the Studio Arts or Humanities and Fine Arts offices. Admission will be based on a student's scholastic record, a portfolio or slides of his work, and the recommendations he offers. It is expected that transfer students will present at least 15 credits in beginning studio experience, or the equivalent, at application.

Accepted candidates are subject to review, and candidacy may be terminated if performance is unsatisfactory. In case of termination, a candidate may transfer to a B.A. program.

**Required Preparatory Courses**

- 1401, 1101, 1104, 1301 or 1302, 1510 or 1520, 1701, 1801
- 12 additional 1xxx-level studio arts elective cr
- 12 art history cr

**Major Requirements**

- 28 cr in one studio arts field of specialization
- 24 additional 3xxx-5xxx-level studio arts elective cr (especially recommended: 5400)

A detailed statement of program requirements is available from the department.

**General Education**—1401 introduces the student to the concerns, media, and environment of the practicing artist, and to concepts of visual art making in contemporary and historical context. 3130 and 3150 offer studio work for nonmajors, with lectures and discussions on theory and practice of contemporary art.

The second digit in a course number indicates area of study as follows:

- 4—Crosses all subject matter lines (x4xx)
- 1—Drawing/Painting (x1xx)
- 3—Sculpture (x3xx)
- 5—Printmaking (x5xx)
- 7—Photography/Film (x7xx)
- 8—Ceramics/Glass (x8xx)

**1401f,w,s,su. INTRODUCTION TO STUDIO ARTS. (4 cr) Hendler, Somberg**

A course designed for students of all interests. Concepts of visual art making in contemporary and historical context. The concerns, media, and environment of the practicing artist. Aesthetic foundation for entering beginning courses. Understanding of the creative process, visual expression, and criteria. (GrD)

**1101f,w,s,su. DRAWING I. (4 cr) Caglioti, Cowette, Feinberg, Gray, Roode, Somberg**

Introduction to studio work; contemporary and traditional methods. Work from nature, various drawing mediums. (GrD)

**1102f,w,s,su. DRAWING II. (4 cr; prereq 1101) Caglioti, Cowette, Feinberg, Gray, Roode, Somberg**

Work from life and nature; color and pictorial structure. (GrD)

**1104f,w,s,su. COLOR. (4 cr; prereq 1101) Rowan, Feinberg, Somberg**

Color and its visual implications. (GrD)

**1105f,w,s,su. BEGINNING PAINTING. (4 cr; prereq 1104) Caglioti, Cowette, Feinberg, Gray, Roode, Somberg**

Contemporary and traditional painting media. (GrD)

## Course Descriptions—Major Sequences

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- 1301f,w,s,su. SCULPTURE.** (4 cr) Nash, Baldwin, Potratz, Rose  
Structure; emphasis on form and space. Direct construction in metal. (GrD)
- 1302f,w,s,su. SCULPTURE.** (4 cr) Nash, Baldwin, Potratz, Rose  
Structure; emphasis on form and space. Clay, plaster, wood. Mold making and casting. (GrD)
- 1510f,w,s,su. PRINTMAKING: INTAGLIO.** (4 cr per qtr [8 cr max]) Bethke  
Intaglio printing processes. Etching, engraving, and collagraphic techniques in creative context. (GrD)
- 1520f,w,s,su. PRINTMAKING: LITHOGRAPHY.** (4 cr per qtr [8 cr max]) Priede  
Planographic printing processes from stones and metal plates. Image making, processing, printing, and presentation in the creative context. (GrD)
- 1701f,w,s,su. PHOTO MEDIUM.** (4 cr) Hallman, Warkov  
Contemporary and historical use of photography. Use of camera, film development, enlarging. The creative process. (GrD)
- 1801f,w,s,su. CERAMIC PROCESSES.** (4 cr) MacKenzie, Hoard  
Clay work by hand and forming on potter's wheel. Ceramics as creative expression. Technical considerations of clays, glazes, and kilns. Pottery and sculptural approaches. (GrD)

## Intermediate Courses

- 3100f,w,s,su. WATER COLOR.** (4 cr per qtr [12 cr max]; prereq 1101, 1104, and §) Myers  
Transparent water color; gouache, casein, tempera. Figure, still life, landscape, abstract design. (GrD)
- 3110f,w,s,su. DRAWING.** (4 cr per qtr [12 cr max]; prereq 1102) Morrison, Cowette, Gray, Roode  
From model, still life, and nature. Principles of anatomy. (GrD)
- 3120f,w,s,su. PAINTING.** (4 cr per qtr [12 cr max]; prereq 1105 and 8 cr of 3110 or §) Morrison, Hendler, Caglioti, Feinberg, Roode, Somberg  
Media and problems in painting. Individual projects and instruction. (GrD)
- 3301f,w,s,su. DIRECT METAL SCULPTURE.** (4 cr; prereq 1301, 1302) Nash  
Welding and brazing. (GrD)
- 3302f,w,s. PLASTICS MEDIA: WOOD, STONE CARVING.** (4 cr; prereq 1301, 1302) Rose  
(GrD)
- 3303f,w,s,su. CAST METAL SCULPTURE.** (4 cr; prereq 1301, 1302) Potratz  
Lost wax and sand casting in bronze, aluminum, iron. (GrD)
- 3304f,w,s,su. CONSTRUCTIONS, KINETICS, ELECTRONICS SCULPTURE.** (4 cr; prereq 1301, 1302) Baldwin (GrD)
- 3510f,w,s,su. PRINTMAKING: INTAGLIO.** (4 cr per qtr [12 cr max]; prereq 4 cr of 1510 or §) Myers  
Intaglio techniques on metal and collagraph. Embossing. (GrD)
- 3520f,w,s,su. PRINTMAKING: LITHOGRAPHY.** (4 cr per qtr [12 cr max]; prereq 4 cr of 1520 or §) Priede  
Planographic techniques on stones and plates. (GrD)
- 3701f,w,s. FILM MAKING.** (4 cr) Downs  
Practical aspects of making films. (GrD)
- 3710f,w,s,su. PHOTOGRAPHY.** (4 cr per qtr [8 cr max]; prereq 1701 or Jour 1301 or §) Hallman, Warkov  
Photographic controls and processes. Related photosensitive media. Creative processes suited to individual interests and requirements. (GrD)
- 3720f,w,s. FILM WORKSHOP.** (4 cr per qtr [12 cr max]; prereq §) Downs  
The motion picture as an art form. Production of descriptive and experimental work. (GrD)
- 3810f,w,s,su. CERAMIC DESIGN.** (4 cr per qtr [8 cr max]; prereq 1801 or §) MacKenzie, Hoard  
Wheel throwing. Advanced design problems, glaze and clay experimentation. Personal expression in ceramic medium. (GrD)

**Advanced Courses**

- 5110f,w,s,su. DRAWING.** (4 cr per qtr [12 cr max]; prereq 12 cr of 3110 or equiv) Busa, Hender  
Drawing in all mediums from life. (GrD)
- 5120. PAINTING.** (4 cr per qtr [12 cr max]; prereq 12 cr of 3120, #) Busa, Rowan  
Various media. Individual problems. (GrD)
- 5310f,w,s. DIRECT METAL SCULPTURE.** (4 cr per qtr [16 cr max]; prereq 3301) Nash  
(GrD)
- 5320f,w,s,su. PLASTICS MEDIA: WOOD, STONE CARVING.** (4 cr per qtr [16 cr max];  
prereq 3302) Rose (GrD)
- 5330f,w,s,su. CAST METAL SCULPTURE.** (4 cr per qtr [16 cr max]; prereq 3303) Potratz  
(GrD)
- 5340f,w,s,su. CONSTRUCTIONS, KINETICS, ELECTRONICS SCULPTURE.** (4 cr per qtr  
[16 cr max]; prereq 3304) Baldwin (GrD)
- 5510f,w,s,su. PRINTMAKING: INTAGLIO.** (4 cr per qtr [12 cr max]; prereq 12 cr of 3510  
or #) Myers  
Color processes, intaglio and combined techniques. (GrD)
- 5520f,w,s,su. PRINTMAKING: LITHOGRAPHY.** (4 cr per qtr [12 cr max]; prereq 12 cr of  
3520 or #) Priede  
Specialized work in color printing and planographic techniques. (GrD)
- 5710f,w,s. PHOTOGRAPHY.** (4 cr per qtr [12 cr max]; prereq #) Hallman, Warkov  
Individual work in photographic controls, processes; related photosensitive media. (GrD)
- 5720f,w,s. FILM MAKING.** (4 cr per qtr [12 cr max]; prereq #) Downs  
Individual projects, film techniques. (GrD)
- 5810f,w,s,su. CERAMICS.** (4 cr per qtr [12 cr max]; prereq #) MacKenzie  
Aesthetic awareness and development; techniques and materials. (GrD)
- 5820f,w,s. GLASS WORKING.** (4 cr per qtr [8 cr max]; prereq #) Hoard  
Forming glass from its molten state. Creative expression with technical understanding.  
(GrD)
- 5821f,w,s. CERAMIC MATERIALS ANALYSIS.** (4 cr; prereq #) MacKenzie, Hoard  
Glaze analysis and calculation; glaze types, formulation, materials. Investigation of  
unidentified materials. (GrD)

**Advanced Entrance Courses**

These courses provide technical background in specific media to advanced students in other areas. They are intended for graduate students in studio arts and in other departments and colleges, for junior and senior nonmajors, and for transfer students. Registration in more than one section of each course, each with different subject matter, is possible.

- 5190. DRAWING AND PAINTING.** (4 cr undergrad per qtr, 3 cr grad per qtr [16 cr max];  
prereq #) (GrD)
- 5390. SCULPTURE.** (4 cr undergrad per qtr, 3 cr grad per qtr [16 cr max]; prereq #) (GrD)
- 5590. PRINTMAKING.** (4 cr undergrad per qtr, 3 cr grad per qtr [16 cr max]; prereq #)  
(GrD)
- 5790. PHOTOGRAPHY AND FILM MAKING.** (4 cr undergrad per qtr, 3 cr grad per qtr [16  
cr max]; prereq #) (GrD)
- 5890. CERAMICS AND GLASSWORKING.** (4 cr undergrad per qtr, 3 cr grad per qtr [16  
cr max]; prereq #) (GrD)

**Seminars**

- 5400. 20TH-CENTURY ART THEORIES.** (2 cr; prereq #) (GrD)
- 5100. 20TH-CENTURY ART THEORIES IN PAINTING.** (2 cr; prereq #) (GrD)

## Course Descriptions—Major Sequences

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5300. 20TH-CENTURY ART THEORIES IN SCULPTURE. (2 cr; prereq #) (GrD)  
5500. 20TH-CENTURY ART THEORIES IN PRINTMAKING. (2 cr; prereq #) (GrD)  
5700. 20TH-CENTURY ART THEORIES IN PHOTO AND FILM. (2 cr; prereq #) (GrD)  
5800. 20TH-CENTURY ART THEORIES IN CERAMICS. (2 cr; prereq #) (GrD)

### Special Courses

3130. DRAWING AND DESIGN. (4 cr per qtr [12 cr max]; not open to studio arts major; 2 studio sessions, 1 lect per wk)  
Studio work in varied media; lectures and discussions on theory and practices of contemporary art. (GrD)  
3150. PAINTING. (4 cr per qtr [12 cr max]; not open to studio arts major; prereq 1101 or #) Morrison, Hendler, Caglioti, Feinberg, Roode, Somberg  
Oil and acrylic painting. (GrD)  
3970. DIRECTED STUDIES. (1-5 cr; prereq #) (GrD)  
3980. DIRECTED INSTRUCTION. (1-5 cr; prereq #)  
Students assist in teaching courses they have completed. (GrD)  
5970. DIRECTED STUDIES. (1-5 cr; prereq #) (GrD)

### Workshop Courses

*Workshops are offered primarily through Continuing Education and Extension in all studio arts areas. Area designation follows course number and title, e.g., ArtS 3420, Workshop: Ceramics.*

1420. WORKSHOP. (1-5 cr) (GrD)  
3420. WORKSHOP. (1-5 cr) (GrD)  
5420. WORKSHOP. (1-5 cr) (GrD)

### Honors Courses

3401. INTERDISCIPLINARY HONORS SEMINAR: MUSIC, STUDIO ARTS, THEATRE.  
(2-4 cr, §Mus 3401, §Th 3401; prereq jr, sr honors candidate, #) (GrD)  
3402. INTERDISCIPLINARY HONORS SEMINAR: MUSIC, STUDIO ARTS, THEATRE.  
(2-4 cr, §Mus 3402, §Th 3402; prereq jr, sr honors candidate, #) (GrD)  
3403, 3404w,s. WORKSHOP. (2-4 cr per qtr; prereq honors candidate)  
Studio art workshop for honors candidates in studio arts; coordinates all areas in the department. (GrD)  
3405, 3406. HONORS THESIS. (2-4 cr per qtr; prereq #) (GrD)

### Courses for Architecture Students

- 1107f. DRAWING. (2 cr) (GrD)  
1108w. DRAWING. (2 cr; prereq 1107) (GrD)  
1109s. DRAWING AND PAINTING I. (2 cr; prereq 1108) (GrD)  
3140f,w,s. DRAWING AND PAINTING II. (2 cr per qtr [6 cr max]; prereq 1109) (GrD)

## ASTRONOMY

See Physics and Astronomy.

## BEHAVIORAL BIOLOGY

See Ecology and Behavioral Biology.

**BENGALI**

See South Asian Languages.

**Biochemistry (BioC)**

*College of Biological Sciences*

**Staff**

*Head*, LaVell M. Henderson, 140 Gortner Laboratory of Biochemistry; *Director of Undergraduate Studies*, Henderson

*Professors*: Bloomfield, Dagley, Gander, Glass, Henderson, Jenness, Kirkwood, Liener, Warner

*Associate Professors*: Anderson, Chapman, Lovrien

*Assistant Professors*: Fuchs, Nelsestuen, Woodward

Biochemistry is the study of the molecules, especially macromolecules such as proteins and nucleic acids, which occur in living organisms.

See also listings under Biology.

A departmental major leading to the B.S. is available through the College of Biological Sciences.

**1301f,s. ELEMENTARY BIOCHEMISTRY I. (5 cr, §Chem 3301; prereq Chem 1005)**

Survey of organic chemistry and biochemistry; chemistry of carbon compounds that occur in nature. Composition, structures, and properties of the major components of plant, animal, and bacterial cells. (GrB)

**1302w. ELEMENTARY BIOCHEMISTRY II. (4 cr; prereq 1301)**

Reaction of organic compounds in the living cell. Metabolic pathways, energy considerations, and biosynthetic processes with emphasis on aspects essential to understanding plant and animal nutrition and physiology. Weekly laboratory. (GrB)

**Biol 3021f,w,s,su. BIOCHEMISTRY. (4 cr; prereq Biol 1011, Chem 3302) Anderson, Kirkwood, Liener, Fuchs**

Biochemistry and biophysics of cells; enzyme catalysis, cellular energetics, biosynthesis of cellular constituents, and cellular regulatory mechanisms. (GrB)

**Biol 3025f,s. LABORATORY IN BIOCHEMISTRY. (1 cr; prereq 3021 or ¶3021)**

Laboratory course to accompany Biol 3021. (GrB)

**3094. UNDERGRADUATE SEMINAR. (1 cr; prereq sr biochemistry major)**

Discussion and reports. (GrB)

**3990. UNDERGRADUATE RESEARCH. (1-3 cr; prereq sr biochemistry major)**

Research problems for B.S. thesis (optional). (GrB)

**5001w-5002s. INTRODUCTION TO BIOCHEMISTRY. (4 cr per qtr; prereq Chem 3302 or ¶; students with grade of A or B in Biol 3021 and 3025 may be exempted from 5001; 3 lect and 3 lab hrs per wk)**

Composition, chemical properties, reactions, and interactions of biological materials; laboratory exercises. (GrB)

**5522f. BIOPHYSICAL CHEMISTRY: STRUCTURE. (4 cr, §Chem 5522; prereq 2 qtrs physical chemistry...BioC 5741 or 5002 desirable)**

Methods of structure determination of biological macromolecules. Molecular weight determination, hydrodynamics, scattering and diffraction, optical and magnetic resonance spectroscopy. Application to proteins, nucleic acids, polysaccharides, and synthetic analogs. (GrB)

**5523w. BIOPHYSICAL CHEMISTRY: ENERGETICS. (4 cr, §Chem 5523; prereq 2 qtrs physical chemistry...5741 or 5002 desirable)**

Energetics of biochemical reactions. Titration, binding, and folding stabilization in macromolecules. Conformational changes and cooperative behavior. Coupling and energy gradients in transport. (GrB)

## Course Descriptions—Major Sequences

- 5524s. BIOPHYSICAL CHEMISTRY: DYNAMICS.** (4 cr, §Chem 5524; prereq 2 qtrs physical chemistry...5741 or 5002 desirable)  
Application of thermodynamics, statistical mechanics, and chemical kinetics, solvent effect structure-function relation. (GrB)
- 5741f-5742w-5743s. GENERAL BIOCHEMISTRY.** (3 cr per qtr, §MdBc 5741-5742-5743; prereq Chem 3303, 1 qtr physical chemistry or ¶physical chemistry or §)  
Chemical nature, properties, biochemical reactions, and intermediate metabolism of components of biological systems. Offered jointly by Departments of Biochemistry in College of Biological Sciences and Medical Sciences. (GrB)
- 5745f-5746w. GENERAL BIOCHEMISTRY LABORATORY.** (3 cr per qtr; prereq ¶5741-5742, cr in analytical chemistry and §)  
Laboratory course to accompany 5741-5742. (GrB)
- 5970. DIRECTED STUDIES.** (1-3 cr; prereq §, Δ)  
Offered to enable students to make up certain deficiencies in background work. (GrB)

## College of Biological Sciences

Courses in six biological science areas are open for CLA credit through departments in the College of Biological Sciences. The B.A. degree is available in biology. See the separate listings in this bulletin under Biochemistry,\*\* Biology,\*\* Botany,\*\* Ecology and Behavioral Biology, Genetics and Cell Biology, and Zoology.\*\*

## Biology (Biol)

*College of Biological Sciences*

### Staff

*Dean*, Richard S. Caldecott, 123 Snyder Hall; *Associate Dean*, Norman S. Kerr, P190 Kolthoff Hall; *Director of Student Services*, Jeanne T. Lupton, P190 Kolthoff Hall; *Degree Program Adviser*, Donna Smith, P190 Kolthoff Hall; *College of Biological Sciences departmental faculties*

Biologists concern themselves with the fundamental properties of living things. Their studies range from the interactions of molecules unique to life through the maintenance and integration of organisms to the interactions of populations in space and time.

## B.A. MAJOR SEQUENCE

### Required Preparatory Courses

Biol 1011 or Δ; Chem 1004-1005; Math 1211-1221-1231; Phys 1104-1105-1106 or 1271-1281-1291 with 1275-1285-1295

### Major Requirements

Chem 3301, 3302 and 4 additional credits  
Two courses chosen from Biol 3011, 3012, 3013  
Biol 3021, 3032, 3041

15 additional 3xxx-5xxx-level cr, including at least two courses with laboratory work in biological sciences and one of the following: Bot 3131, 5141, MicB 5321, Zool 5104, 5114. Courses chosen from any of the following areas are considered courses in the major: anatomy, biochemistry, biology, botany,

\*\* Offers B.S. degree through the College of Biological Sciences.

ecology and behavioral biology, genetics and cell biology, microbiology, physiology, zoology.

**General Education**—Courses especially appropriate for nonscience and non-biology majors include 1011, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 3051; Bot 1009, 1012, 3003, 3071; EBB 3001, 3111; GCB 3002, 3201.

**1011f,w,s,su. GENERAL BIOLOGY.** (5 cr)

Introduction to biology's importance and relationship to the life of man. (GrB)

**1011f,w,s,su. HONORS COURSE: GENERAL BIOLOGY.** (5 cr)

For description, see 1011. (GrB)

**1101f,w,s. HEREDITY AND HUMAN SOCIETY.** (4 cr, §GCB 3002; no cr if taken after 3032 or GCB 3022; for students in programs not directly related to biological sciences) Fan, Woodward

Principles of heredity and their social and cultural implications. (GrB)

**1102w,s. MICROBES AND MAN.** (4 cr)

Microorganisms in relationship to man and his environment in the processing and preservation of food, waste disposal, and environmental factors; bacterial products of industrial and pharmaceutical importance; role of microorganisms in recycling elements of the biosphere; microorganisms and disease. (GrB)

**1103f,w,s,su. GENERAL BOTANY.** (5 cr, §3012; prereq 1011) Wetmore, Charvat

Levels of organization of plants, plant function, plant growth and development, plant reproduction. (GrB)

**1104s. ECOLOGY AND MAN.** (4 cr; prereq 1011) Megard, Siniff

Basic concepts of ecology; man's increasing impact and exploitation of the environment; the biosphere's limits with respect of energy, resources, and space. (GrB)

**1105w. INTRODUCTION TO EVOLUTIONARY BIOLOGY.** (4 cr; prereq 1011 or 1101) Birney

History and basis of evolutionary thought; the history and future of man. (GrB)

**1106f,w,s,su. GENERAL ZOOLOGY.** (5 cr; prereq 1011) Olson, Schmid, Underhill

Survey of animal phyla; structure, function, behavior, adaptation, and evolutionary relationships. (GrB)

**1107s. BEHAVIOR OF ANIMALS.** (4 cr; prereq 1011) Hopkins

Central ideas in behavior: control of movement, ontogeny, hormone and sensory systems, behavioral evolution, social behavior. Behavior of primates. (GrB)

**1951f-1952w-1953s. BIOLOGY COLLOQUIUM.** (2/1-2/1-2 cr; for prospective majors; S-N only; prereq 1011 or ¶1011, §)

Encourages and allows active participation in education. Provides an orientation to the biological sciences as well as the opportunity for interaction with other biology students and faculty.

**3011f,w,s,su. ANIMAL BIOLOGY.** (5 cr; prereq 1011, Chem 1005) Barnwell, Gilbertson, Goldstein, Herman

Types of animals; varied ways in which different animals have solved similar problems. (GrB)

**3012f,w,s,su. PLANT BIOLOGY.** (5 cr; prereq 1011, Chem 1005) Pratt, McLaughlin, Koukari

Plant diversity and evolution; structure and function of the plant cell and of the whole organism; growth and development of plants. (GrB)

**3013f,w,s. MICROBIOLOGY.** (4 cr, §MicB 3103, §MicB 5105; prereq 3021) Dworkin, Chapman

Taxonomy, anatomy, physiology, biochemistry, and ecology of microbes. Molecular structure in relation to bacterial function. (GrB)

**3021f,w,s,su. BIOCHEMISTRY.** (4 cr; prereq 1011, Chem 3302) Anderson, Kirkwood, Liener, Fuchs

Biochemistry and biophysics of cells; enzyme catalysis, cellular energetics, biosynthesis of cellular constituents, and cellular regulatory mechanisms. (GrB)

**3025f,s. LABORATORY IN BIOCHEMISTRY.** (1 cr; prereq 3021 or ¶3021)

Laboratory course to accompany Biol 3021. (GrB)

**3032f,w,s. GENETICS AND CELL BIOLOGY.** (5 cr, §5602, §GCB 3022; prereq 3021)

Johnson, Herman, Sheppard, Snyder, Woodward, Cunningham, Deppe, Hooper  
Principles of heredity and cell biology; procaryotic and eucaryotic organisms. (GrB)

## Course Descriptions—Major Sequences

- 3041f,w,s,su. ECOLOGY.** (5 cr; prereq biology major, Math 1231 or #,  $\Delta$ ) Corbin, McColl, Taylor  
Interactions of plant and animal populations and their environments. Organization, functioning, and development of ecological systems; population growth and regulation. Modern man's impact on the biosphere. (GrB)
- 3051f,s,su. BIOLOGY AND THE FUTURE OF MAN.** (4 cr; S-N only) Pratt, Gorham  
Nontechnical discussion of biological factors affecting the quality of life, e.g., pollution, chemical and biological warfare, population growth, food supply, resource sufficiency, value of wilderness, genetics and eugenics, public health, aging, behavior control, and biological aspects of ethics, morals, and societal organization. (GrB)
- 3950f,w,s. UNDERGRADUATE SEMINAR.** (1-5 cr; prereq  $\Delta$ , #) (GrB)  
Different members of the faculty lead groups of seniors in discussions of topics of current interest (GrB)
- 3980. DIRECTED INSTRUCTION.** (1-5 cr; prereq  $\Delta$ , #) (GrB)
- 5061w,s. DEVELOPMENTAL BIOLOGY.** (3 cr; prereq 3032) McLaughlin, McKinnell  
Developing systems and control mechanisms of development from the molecule to the organism. (GrB)
- 5065w,s. LABORATORY IN DEVELOPMENTAL BIOLOGY.** (2 cr; prereq 5061 or ¶5061) McLaughlin, McKinnell  
Laboratory course to accompany 5061. (GrB)
- 5501s. BIOCHEMICAL EVOLUTION.** (4 cr; prereq 5 cr biochemistry) Jenness, Kirkwood, Seal  
Molecular evolution, covering prebiotic evolution and the phylogeny of functional molecules and biochemical systems in living organisms. (GrB)
- 5602. CELL BIOLOGY.** (3 cr, §3032; prereq 1011) Cunningham  
Organization and functions of plant, animal, and bacterial cells; fine structure, composition, assembly and metabolic interactions, and cytogenetics. (GrB)
- 5605w,s. CELL BIOLOGY LABORATORY.** (2 cr; prereq 3032 or ¶3032 or GCB 5051 or ¶GCB 5051 or #) Cunningham, Hooper, Johnson  
Experimental approaches to cell structure, function, and replication—microscopy, autoradiography, cell fractionation, and molecular and chemical analyses. (GrB)
- 5606f,s. BIOLOGICAL ELECTRON MICROSCOPY.** (2 cr; prereq 3032 or GCB 5051 or #) Cunningham  
Theory and operation of transmission and scanning electron microscopes. Preparation techniques for biological material—freeze-etching, autoradiography, thin sectioning, negative staining, cytochemistry, and metal shadowing. (GrB)
- 5890su. RESEARCH PROBLEMS AT ITASCA IN ECOLOGY AND BEHAVIORAL BIOLOGY; OR ENTOMOLOGY, FISHERIES, AND WILDLIFE; OR PLANT PATHOLOGY; OR SOIL SCIENCE; OR ZOOLOGY.** (Cr ar; prereq #) Staff  
Students may develop a short-term research project in any departmental area listed above during one or both terms.
- 5950. SPECIAL TOPICS IN BIOLOGY.** (1-5 cr; prereq  $\Delta$ ) (GrB)
- 5951w. THE BIOLOGIST AS SCIENTIST, EDUCATOR, AND CITIZEN.** (3 cr; prereq 15 cr biological sciences) Cunningham, Hooper  
Role of the scientist in decision making and persuasion; teaching methods in biology; organizational structure of academic and governmental worlds. (GrB)

## Biometry (PubH)

*School of Public Health*

### Staff

*Director*, Marcus O. Kjelsberg, 1226 Mayo Memorial Hospital; *Director of Undergraduate Studies*, Glenn E. Bartsch, 1203 Mayo Memorial Hospital

*Professors*: Ackerman, Bearman, Johnson, McHugh

*Associate Professors*: Bartsch, Boen, Gatewood, Kjelsberg

*Assistant Professors*: Jeffries

Biometry, an interdisciplinary field in the biological and health sciences, interrelates biomedical statistics, health computer science, and mathematical biology in the study of quantitative concepts and research procedures of the life and health sciences.

The biometry program leading to the B.A. prepares the student for a variety of careers: (1) bioscience and health science research; (2) pharmaceutical and related industry; (3) voluntary and governmental health agencies at local, state, national, and international levels. A student interested in a career as a professional biometrician or in teaching should plan for a graduate program, available at Minnesota and other universities.

## B.A. MAJOR SEQUENCE

### Required Preparatory Courses

Math 1211-1221-1231 or 1311-1321-1331 or 1611-1621 (premedical students taking 1111, 1142 may substitute that sequence); Chem 1004-1005, Biol 1011

### Major Requirements

PubH 5430, 5450, 5451, 5452, 5453

14 additional cr chosen from biometry courses (PubH x4xx) numbered 5410 or above

Stat 5121-5122 or 5131-5132-5133

*Note:* Biometry courses listed below are offered in the School of Public Health (PubH).

- 3400. DIRECTED STUDIES.** (Cr or [may be repeated for cr]; prereq #) Staff  
Individual study or research under guidance of a staff member.
- 5400. INTRODUCTION TO QUANTITATIVE METHODS IN THE LIFE SCIENCES.** (3 cr; primarily for premedical students and students majoring in biological sciences; prereq Biol 1011, Chem 1004-1005, Math 1231 or equiv, #) Johnson  
Basic quantitative methods for the design and analysis of clinical and laboratory studies in biology and medicine. (GrA)
- 5411. INTRODUCTION TO MATHEMATICAL DEMOGRAPHY.** (3 cr, §Soc 5561; prereq #) McHugh  
Basic demographic measures and concepts of fertility, mortality, and migration. Stable population methods and demographic estimates from incomplete data.
- 5412. SURVEY SAMPLING IN SOCIAL AND HEALTH SCIENCE RESEARCH.** (3 cr; prereq #) McHugh  
Probability sampling in social and health science surveys. Analysis and application of simple random, stratified, systematic, multi-stage, and cluster sampling.
- 5430-5431-5432. BIOMEDICAL COMPUTING I, II, III.** (3 cr per qtr; prereq Math 1111) Gatewood  
Digital computers and FORTRAN programming, with applications in biology and medicine; information capture, storage, retrieval, and display; statistical analysis; hospital information systems. (GrA)
- 5436. ANALYTICAL TECHNIQUES FOR HEALTH DELIVERY SYSTEMS.** (3 cr; prereq calculus and 5450, 5451 or #) Johnson  
Operations research and systems analysis techniques applied to medical service systems. Applications of linear programming, theory of queues, and inventory models in health care systems.
- 5440-5441-5442. QUANTITATIVE MAMMALIAN BIOLOGY I, II.** (3 cr per qtr, §Phsl 3052-3053; prereq 1-yr sequences in mathematics, physics, chemistry, and biology or #) Johnson  
Diffusion, surface tension, and mechanics of respiration, circulation, digestion, and locomotion. Chemical aspects of blood, respiration, renal function, nutrition, and metabolism. Endocrine, sensory, neuromuscular, and central neural functioning.

## Course Descriptions—Major Sequences

- 5450. BIOMETRY I.** (3 cr; prereq ¶5451...familiarity with basic concepts of calculus desirable) Bartsch, Jeffries  
Basic concepts in probability, binomial, Poisson, and normal probability models for random phenomena in the biological and medical sciences. (GrA)
- 5451. BIOMETRY LABORATORY I.** (2 cr; prereq ¶5450) Jeffries  
Application of concepts of probability to the development of probability models for random phenomena in the biological and medical sciences. (GrA)
- 5452. BIOMETRY II.** (3 cr; prereq 5450 and ¶5453) Bartsch, Jeffries  
Further consideration of testing statistical hypotheses and interval estimation;  $\chi^2$  applied to frequency data; regression analysis; correlation; analysis of variance; contrasts and multiple comparison techniques. (GrA)
- 5453. BIOMETRY LABORATORY II.** (2 cr; prereq ¶5452) Jeffries  
Application of concepts of testing and estimation of the parameters of basic probability models; application of  $\chi^2$  to goodness of fit and heterogeneity tests; application of regression to bioassay; application of analysis of variance to bioassay. (GrA)
- 5454. BIOMETRY III.** (3 cr; prereq 5452 and ¶5455) Bartsch, Jeffries  
Analysis of nested, randomized block, factorial, and split plot designs. (GrA)
- 5455. BIOMETRY LABORATORY III.** (2 cr; prereq ¶5454) Jeffries  
Basic designs illustrated with examples from the biological sciences. (GrA)
- 5456. BIOMETRY CONSULTING SEMINAR.** (Cr ar; prereq biometry major) Boen  
Consultant and consultee interaction: communication and formulation of the biometric problem. Role and responsibility of the biometrician. Robustness and relevance of frequently used analytical techniques. Biometry student internship experiences.
- 5459. INTRODUCTION TO MATHEMATICAL THEORY IN BIOMETRY.** (3 cr; prereq 2 qtrs of calculus, 5455 or ¶) Jeffries  
Generating functions, curve fitting, iterative estimation, tests, propagation of error, and related topics. Illustrations from epidemics and population growth, bioassay, clinical trials, demography, and other bio-health science areas.
- 5460. DEMOGRAPHY AND HEALTH.** (3 cr; prereq biometry major or ¶) McHugh  
Needs, sources, collection, and interpretation of data in the areas of population, mortality, morbidity, natality, and health services.
- 5462. LIFE TABLE TECHNIQUES.** (3 cr; prereq biometry major...others ¶) Kjelsberg  
Mathematical development of life table techniques and application to follow-up studies in medicine and public health.

## Botany (Bot)

*College of Biological Sciences*

### Staff

*Head*, Albert W. Frenkel, 220 Biological Sciences Center

*Professors*: Frenkel, Gorham, Hall, Jonas, Lawrence, Morley, Ownbey, Pratt

*Associate Professors*: Cushing, Koukari, McLaughlin, Soulen, Wetmore

*Assistant Professor*: Charvat

Botanists study the structure, function, development, classification, evolution, and worldwide distribution and importance of plants ranging from algae and fungi to higher flowering plants. Special studies range from the molecular basis of plant evolution and development and mechanisms by which plants convert light into chemical energy to the use of plants in the interpretation of the history and pre-history of the world and their impact on human civilizations.

A departmental major leading to the B.S. is available through the College of Biological Sciences.

**General Education**—Courses especially appropriate for nonmajors include Biol 1103; Bot 1009, 1012, 3003, 3071.

**1009s. MINNESOTA PLANT LIFE.** (4 cr; suitable for nonmajors) Morley  
Nontechnical survey of all groups of plants native to Minnesota; identification and distribution. (CrB)

- 1012f.w. PLANTS USEFUL TO MAN.** (4 cr; for majors or nonmajors) Lawrence, Jonas  
Roles of plants in man's biological and cultural development. Lectures and demonstration of material. (GrB)
- Biol 1103f.w,s,su. GENERAL BOTANY.** (5 cr, §Biol 3012; prereq Biol 1011) Wetmore, Charvat  
Levels of organization of plants, plant function, plant growth and development, plant reproduction. (GrB)
- 3003s. FIELD BOTANY.** (4 cr; intended for prospective teachers; prereq 1009 or Biol 1011 or Biol 1103 or §) Lawrence  
Plants in nature, their recognition, geographical distribution, reproductive habits, growth and seasonal development, and uses by aboriginal man. Use of the out-of-doors for teaching natural history. Weekly field trips. (GrB)
- 3071f. PLANTS AND HUMAN AFFAIRS.** (4 cr; prereq 1009 or §...Biol 1103 desirable) Jonas  
Reciprocal and deterministic interaction between plants and man as illustrated by events and developments in agriculture, industry, trade, domestic and foreign affairs, medicine, religious customs, and the arts. (GrB)
- 3109s. PLANT ANATOMY.** (5 cr; prereq Biol 1103 or Biol 3012) Hall  
Structure and development of plants; special reference to vascular plants. (GrB)
- 3131f.s. SURVEY OF PLANT PHYSIOLOGY.** (4 cr; prereq Biol 1103 or Biol 3012, Chem 3301 or BioC 1301) Soulen, Koukkari, Brun  
Physiological principles underlying processes that occur in living plants, with emphasis on higher plants. Growth and development, mineral nutrition, water relations and solute metabolism, respiration, photosynthesis. (GrB)
- 3132f.s. PLANT PHYSIOLOGY LABORATORY.** (2 cr; prereq 3131 or §3131)  
Laboratory course to accompany Bot 3131. (GrB)
- 3201s. ELEMENTARY TAXONOMY.** (3 cr; prereq Biol 1103 or Biol 3012) Morley  
Taxonomy of ferns, gymnosperms, and flowering plants (material drawn largely from Minnesota spring flora). Families of plants and their relationships; floral structure and function; taxonomic terms; nomenclature; literature; methods of collection and identification. Two or three field trips. (GrB)
- 3950f.w,s,su. UNDERGRADUATE PROSEMINAR.** (1 cr; prereq #)  
Biological topics of current interest. (GrB)
- 3970f.w,s,su. INDEPENDENT STUDIES.** (1-5 cr; prereq #)  
Individual study of selected topics or problems; selected readings and use of scientific literature. (GrB)
- 3990f.w,s,su. RESEARCH PROBLEMS.** (1-5 cr; prereq #)  
Individual research for undergraduates. (GrB)
- 5103w. BIOLOGY OF NONVASCULAR PLANTS.** (5 cr; prereq Biol 1103 or Biol 3012)  
McLaughlin  
Algae, fungi, lichens, and bryophytes. Characteristics of groups, evolutionary relationships, life cycles, comparative morphology (including ultrastructure), comparative nutrition. Laboratory emphasizes living material and isolation of algae and fungi into culture. (GrB)
- 5105f. MORPHOLOGY OF VASCULAR PLANTS.** (5 cr; prereq Biol 1103 or Biol 3012 or #)  
Vegetative and reproductive structure of living and fossil vascular plants. Evolutionary relationships based on phylogenetic principles. (GrB)
- 5111w. DEVELOPMENTAL PLANT ANATOMY.** (5 cr; prereq Biol 1103 or Biol 3012)  
Microscopic structure of vascular plants; development in root, stem, and leaf. (GrB)
- 5141w. SURVEY OF PLANT PHYSIOLOGY.** (3 cr, §PIPh 5141; prereq Biol 1103 or Biol 3012, course in organic chemistry or biochemistry) Frenkel  
Physiological processes in living plants, with emphasis on higher plants. Growth and development, energy relations, mineral nutrition, water relations, respiration, photosynthesis, and nitrogen metabolism. (GrB)
- 5142w. PLANT PHYSIOLOGY LABORATORY.** (2 cr; prereq 5141 or §5141)  
Laboratory course to accompany 5141. (GrB)
- 5182s. PLANT METABOLISM.** (3 cr, §PIPh 5182; prereq course in biochemistry) Soulen  
Plant metabolism: photosynthesis, respiration, and synthesis of macromolecules by plants. Structure-function relations at the plant, cell, and subcellular level. Energy flow in the plant system and regulation of plant metabolism. (GrB)

## Course Descriptions—Major Sequences

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- 5183w. WATER, MINERALS, AND TRANSLOCATION.** (4 cr, §PIPh 5183; prereq courses in biology, physics, and organic chemistry or biochemistry) Stadelmann, Smith  
Membrane phenomena and osmotic properties of cells. Uptake, movement, and loss of water in plants; effects of external factors. Translocation of organic substances. Absorption, distribution, and function of inorganic elements. (GrB)
- 5184f. PLANT GROWTH AND DEVELOPMENT.** (3 cr, §PIPh 5184; prereq course in biology and organic chemistry) Brun and staff  
Growth of higher plants; division and differentiation of cells, development of plant organs, effects of external factors on plant growth, photosynthesis and respiration in relation to plant development, and nature and action of plant growth substances. (GrB)
- 5205s. FLORA OF MINNESOTA.** (4 cr; prereq 3201 or #) Ownbey  
Vascular plants of Minnesota; taxonomic and floristic relationships; geographical distribution and variation; collecting and identifying. Field trips. (GrB)
- 5211w. SURVEY OF ANGIOSPERM FAMILIES.** (5 cr; prereq 3201 or #; offered 1975-76 and alt yrs) Morley  
Characteristics and relationships of orders and families of flowering plants on a world-wide basis. (GrB)
- 5212w. PRINCIPLES OF ANGIOSPERM PHYLOGENY.** (3 cr; prereq 3201 or #; offered 1974-75 and alt yrs) Morley  
Evolutionary relationships and various means of judging them within the angiosperms. Laboratory investigation of representative and critical groups. (GrB)
- 5231s. INTRODUCTION TO THE STUDY OF ALGAE.** (5 cr; prereq 10 cr in botany or biology or #; offered 1974-75 and alt yrs)  
Structure, reproduction, and life histories of major algal divisions. (GrB)
- 5801su. SUMMER FLORA OF MINNESOTA.** (5 cr; prereq course in taxonomy) (GrB)
- 5805su. AQUATIC FLOWERING PLANTS.** (5 cr; prereq course in taxonomy) (GrB)
- 5811su. FRESHWATER ALGAE.** (5 cr; prereq 10 cr in botany, biology, or zoology) (GrB)
- 5815su. BRYOPHYTES.** (5 cr; prereq 10 cr in biology or #) (GrB)
- 5821su. LICHENS.** (5 cr; prereq 10 cr in botany or zoology or #) (GrB)
- 5970f,w,s,su. BASIC BOTANY.** (Cr ar; prereq Biol 1103 or Biol 3012 and #) Staff  
Individual work in special disciplines. (GrB)

## Business Administration (BA)

### *College of Business Administration*

Business administration courses listed below are open to CLA students. There is no CLA major in business administration, but some of the courses may count toward a major in economics.

- Acct 1050f,w,s. PRINCIPLES OF ACCOUNTING I.** (4 cr, §8050; prereq 3rd-qr fr)  
Basic financial accounting concepts; their application to recording and reporting business events. (GrA)
- Acct 1051f,w,s. PRINCIPLES OF ACCOUNTING II.** (4 cr, §8051; prereq 1050)  
Accounting analysis and reports for management and investor decision making. (GrA)
- QA 1050f,w,s. ELEMENTARY MANAGERIAL STATISTICS.** (4 cr; prereq Math 1131 or 1141 or equiv)  
Quantitative decision making. Probabilistic and stylistic techniques in decision making, data analysis, and management information systems—laws of probability, sampling, estimation, and regression. (GrA)
- BLaw 3058. INTRO TO LAW, AND THE LAW OF CONTRACTS AND AGENCY.** (4 cr; prereq Econ 1002 or equiv)  
The origin, history, and development of law; its place in and effect upon society; the systems of courts; legal procedure. The law of contracts as the basic law affecting business transactions. Law affecting the relationships between principal and agent, master and servant, and employer and employee.

**BFin 3000. FINANCE FUNDAMENTALS.** (4 cr, §8000; prereq Acct 1051)

Analytical introduction to the principal concepts in finance. The business environment; valuation theory. Management decisions concerning uses and sources of funds; capital budgeting. The nation's financial markets.

**Ins 3100. RISK MANAGEMENT AND INSURANCE.** (4 cr, §8100)

Risk analysis and evaluation of the property, liability, and personnel risks facing a business firm, a family, or some other economic unit. The tools and use of risk management—retention, loss prevention, and insurance. How to select and deal with an insurer. Public policy issues—government regulation, social insurance, automobile insurance.

**IR 3002. INDUSTRIAL RELATIONS SYSTEMS: LABOR MARKET AND THE MANAGEMENT OF HUMAN RESOURCES.** (4 cr, §8002; prereq Econ 1001, 1002, Psy 1001)

Labor markets, manpower management, federal-state employment policies, and the resolution of industrial conflict. Processes of valuing, employing, developing, motivating and maintaining human resources in an industrial society.

**IR 3007. COLLECTIVE BARGAINING NEGOTIATIONS AND MODERN LABOR RELATIONS.** (4 cr)

Collective bargaining negotiations between employers and/or employer associations and unions. Relevant policies of employers, unions, and the public; background of the labor movement; current practices in labor relations; significant trends.

**IR 3010. HUMAN RELATIONS AND APPLIED ORGANIZATION THEORY.** (4 cr)

Human relations problems in modern organizations; approaches to their solution. Philosophies and theories of human relations and their translation into policy. Discussions, cases, role playing, and skill-building sessions.

**Mgmt 3001. FUNDAMENTALS OF MANAGEMENT.** (4 cr, §8001)

The principal functional areas of management: concepts, theory, research, and operational problems. Factors and relationships necessary to achieve organizational objectives: establishment of goals, policies, procedures; organizational structure and behavior; leadership; control systems.

**Mktg 3000. PRINCIPLES OF MARKETING.** (4 cr, §8000; prereq Econ 1002 or equiv)

Basic policy and strategy issues in marketing and environmental factors that affect these issues. Legal, behavioral, ethical, competitive, economic, and technological factors as they affect product, pricing, promotion, and marketing channel decisions.

**Mktg 3085. PRICE AND PRODUCT POLICY.** (4 cr, §8085; prereq 3000)

Managerial aspects of pricing and product policies and strategies. Methods and factors in developing and updating product line and pricing decisions in industrial and consumer markets. Pricing and product line objectives, product planning and evaluation; managing the product line, environmental factors affecting product and pricing strategies, quantitative aspects of product line and pricing decisions.

**MIS 5100. COMPUTERS AND SYSTEMS DESIGN.** (4 cr, §8208; prereq 3098 or 3099 or §3098 or §3099)

The computer as a tool: hardware components and their function, operation systems, how a computer works, instructing a computer—the role and nature of programming languages, acquiring computer services, new developments in computer systems, selected uses of the computer, the many facets of the computer industry, standards.

**OAM 3055. INTRODUCTION TO MANAGEMENT SCIENCES.** (4 cr; prereq QA 1050, MIS 3099 or §MIS 3099, Math 1142 or equiv)

Analytical approaches and techniques within business contexts. Mathematical models, statistical techniques related to data acquisition, and the use of computers and computer techniques in solving organizational problems: deterministic and stochastic models. Problem solving and case analysis.

**OAM 5056. APPLICATIONS OF ANALYTICAL METHODS AND COMPUTERS IN OPERATIONS MANAGEMENT AND ANALYSIS.** (5 cr; prereq OAM 3055 or §)

The application of forecasting methods, optimization techniques; simulation; product and project management methods; inventory models, quality control techniques, and computer technology problems in organizational management. Problem solving and case analysis.

**Tran 3054. FUNDAMENTALS OF TRANSPORTATION.** (4 cr, §8154; prereq Econ 1002 or equiv)

Organization and economic aspects of transportation systems of the United States, including rail, highway, air, pipeline, and water. Administration of transportation by its users, its carriers, and government.

## CELL BIOLOGY

See Genetics and Cell Biology.

## Chemistry (Chem)

*Institute of Technology*

### Staff

*Chairman*, Robert M. Hexter, 139 Smith Hall; *Associate Chairman*, Archie S. Wilson; *Director of Undergraduate Studies*, Harold S. Swofford, Jr.

*Professors*: Brasted, Britton, Crawford, Dahler, Davis, Dodson, Fenton, Gassman, Hexter, Kreevoy, Leete, Lipsky, Lumry, Mead, Meehan, Moscovitz, Noland, O'Connor, Overend, Prager, Reynolds, Wertz, Wilson

*Associate Professors*: Barnett, Bloomfield, Borch, Bryant, Conroy, Gougoutas, Mossotti, Pignolet, Swofford, Truhlar

*Assistant Professors*: Buttrill, Ellis, Centry, Gray, Van-Catledge

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

4 yrs high school mathematics; 1 yr high school chemistry; high school physics recommended

#### Major Requirements

1031, 1032, 1034, 3034, 3201, 5126, 5505 plus approximately 20 additional 5xxx chemistry cr, chosen in consultation with adviser

Math 1311, 1321, 1331, 3211

Phys 1271, 1275, 1281, 1285, 1291, 1295

3 qtrs German (may be used to meet language requirement)

More information is available at the Undergraduate Advising office, 147b Smith (373-7858).

*Note*—Each student must present a deposit card for admission to a laboratory section. See Deposit Cards in the *Class Schedule*.

**1004-1005†. GENERAL PRINCIPLES OF CHEMISTRY.** (5 cr per qtr, §1014, §1031-1032; primarily for nonchem majors; prereq predicted Math GPA 1.90 on ACT, Math 0009 or college course in algebra...4 yrs high school mathematics, high school chemistry recommended; 4 lect, 1 rec, and 3 lab hrs per wk)

Introduction to chemistry from the standpoint of atomic structure; periodic properties of elements and compounds derivable from structural considerations; laws governing behavior of matter, theories of solutions, acids, bases, and equilibria. Lab fee. (GrB)

**1006. PRINCIPLES OF SOLUTION CHEMISTRY.** (4 cr; prereq 1005 or 1032; 3 lect, 4 lab hrs per wk)

Lecture and laboratory work related to chemistry of selected cations and anions. Detection methods: spectrophotometric and potentiometric as well as chromatographic procedures. Metal ion studies, including systematics; acid-base principles; influence on the environment; importance in biological systems; formation and stereochemistry of complexes. Lab fee. (GrB)

**1031-1032†. GENERAL PRINCIPLES OF CHEMISTRY I AND II.** (5 cr per qtr, §1004-1005, §1014; for chemistry, chemical engineering, and biochemistry majors; prereq 4 yrs high school mathematics, 1 yr high school chemistry...1 yr high school physics recommended; 3 lect, 1 lect discussion, 1 lab discussion, one 4-hr lab per wk)

1031: Consolidation of basic principles of chemistry with those of qualitative and quantitative analysis; stoichiometry, development and use of structural concepts, energetics and

- geometry of molecule, bonding, the behavior of gaseous and liquid states. 1032: Further development of the basic principles, utilizing quantitative techniques; the solid state, theory of solutions, equilibrium, gas and condensed phases, behavior and nature of the solution process, acids and bases. Lab fee. (GrB)
- 1034. SYNTHESIS I.** (5 cr; prereq 1032; 4 lect, 1 lab discussion, one 4-hr lab per wk)  
Structure, synthesis, and reactions of organic compounds. Relationship of organic chemistry to problems of health and environment. Laboratory. Lab fee. (GrB)
- 1301. CARBON COMPOUNDS.** (4 cr; for students in engineering, except chemical and mining; cannot be substituted for 3301-3302; prereq 1005 or 1032)  
Carbon compounds; emphasis on those useful as engineering materials; processes by which such compounds are made. (GrB)
- 3034. SYNTHESIS II.** (5 cr; prereq 1034; 4 lect, 1 lab discussion, one 4-hr lab per wk)  
Continuation of 1034. Relationship of organic chemistry to living systems. Laboratory. Lab fee. (GrB)
- 3100-3101†. QUANTITATIVE ANALYSIS.** (3/2 cr; for nonchemistry majors; prereq 1005)  
**3100:** Modern quantitative methods of analysis. Lecture. **3101:** Modern quantitative methods of analysis; elementary physicochemical procedures. Laboratory. Lab fee. (GrB)
- 3201. RATES AND MECHANISMS.** (5 cr; prereq 3034 or equiv; 3 lect, one 3-hr lab, 1 lab discussion as arranged per wk)  
Rates and mechanisms of chemical processes. Potential energy surfaces. Absolute rate theory. Lab fee. (GrB)
- 3301. ELEMENTARY ORGANIC CHEMISTRY.** (5 cr; prereq 1005 or 1032 or equiv; 3 lect, 1 lab conf, 1 quiz, and one 4-hr lab per wk)  
Important classes of organic compounds, both aliphatic and aromatic; some heterocyclic compounds. Laboratory preparation of typical substances. Lab fee. (GrB)
- 3302. ELEMENTARY ORGANIC CHEMISTRY.** (5 cr; prereq 3301; 3 lect, 1 lab conf, 1 quiz, and one 4-hr lab per wk)  
For description, see 3301. (GrB)
- 3303. ELEMENTARY ORGANIC CHEMISTRY.** (4 cr; prereq 3302 or 3034; 4 lect per wk)  
Basic principles of organic chemistry; survey of organic reaction mechanisms; to coordinate knowledge acquired in 3301, 3302. (GrB)
- 3304. ELEMENTARY ORGANIC CHEMISTRY LABORATORY.** (4 cr; prereq 3303 or ¶3303 or 3201; 8 lab hrs, 1 lect, 1 conf hr per wk)  
Reactions of typical functional groups and introduction to methods of organic qualitative analysis. Lab fee. (GrB)
- 3499. SENIOR THESIS.** (Cr ar; prereq ‡, 4th yr)  
Written final senior thesis report. (GrB)
- 3590. INTRODUCTION TO PRINCIPLES OF CHEMISTRY.** (3 cr; especially for those concentrating in biology and minoring in biochemistry; prereq Math 1111 or equiv and 1 yr general chemistry, 1 yr college physics. (GrB)
- 3591, 3592, 3593. SPECIAL TOPICS IN PHYSICAL CHEMISTRY.** (2 cr per qtr; primarily for third- and fourth-year chemistry majors; prereq 2 qtrs physical chemistry)  
Areas of current research. (GrB)
- 3752, 3753. ADVANCED INORGANIC CHEMISTRY LABORATORY.** (2 cr per qtr; prereq 3751 or 5703)  
Advanced laboratory in physical and synthetic methods. Specific experiments determined by student-instructor consultation. Detailed instructions for a wide variety of experiments. Lab fee. (GrB)
- 3970. DIRECTED STUDIES.** (Cr ar; prereq §)  
On- or off-campus learning experiences individually arranged between a University undergraduate and a faculty member for earning credit in areas not covered by regular courses.
- 5122. ADVANCED ANALYTICAL CHEMISTRY.** (4 cr; prereq 3101 or 1032)  
Equilibria in aqueous and nonaqueous systems. (GrB)
- 5123. ELECTROCHEMICAL METHODS OF ANALYSIS.** (4 cr; prereq 8101 or §)  
Potentiometric, coulometric, polarographic, and other electrical methods. (GrB)
- 5124. ELECTROCHEMICAL METHODS OF ANALYSIS.** (3 cr; prereq 5123)  
Laboratory course. Lab fee. (GrB)

## Course Descriptions—Major Sequences

- 5125. INTRODUCTION TO INSTRUMENTAL MEASUREMENTS.** (5 cr; prereq 5505 or #; 3 lect and two 4-hr labs per wk)  
Instrumental techniques for detection and measurements; analysis of signal flow in control systems; principles of frequency-domain and time-domain filtering; information flow in nonlinear systems. Lab fee. (GrB)
- 5126. MODERN ANALYTICAL CHEMISTRY.** (4 or 5 cr [chemistry majors must take for 5 cr]; prereq 3034; 2 lect, two or three 3-hr labs per wk)  
Strategies and techniques for solving modern analytical problems. Use of modern instruments in analysis. Lab fee. (GrB)
- 5127. ANALOG INSTRUMENTATION.** (5 cr; prereq Phys 1291, Math 3211; 3 lect, two 4-hr labs per wk)  
Basic principles of electronic design and circuitry, servo systems, operational amplifiers, feedback control, oscillators. Lab fee. (GrB)
- 5128. DIGITAL INSTRUMENTATION.** (5 cr; prereq Phys 1291, Math 3211; 3 lect, two 4-hr labs per wk)  
Simple switching devices such as semiconductor diodes and transistors; high-speed integrated circuits; binary, decimal, and modulo-M counters. (GrB)
- 5211. ADVANCED CHEMICAL KINETICS.** (4 cr; prereq 3201 and 5505)  
Factors that govern the rates of chemical reactions in gaseous and condensed phases. Deduction of reaction mechanisms from rate data and theoretical interpretation in terms of dynamical and statistical models. Coupled reactions. (GrB)
- 5301. SPECTRAL METHODS FOR ORGANIC QUALITATIVE ANALYSIS.** (4 cr, §8302; prereq 3303; 3 lect, 1 conf hr per wk)  
Practical application of nuclear magnetic resonance and infrared spectral analysis to solution of organic problems. (GrB)
- 5302. ORGANIC SYNTHESIS.** (4 cr; prereq 3201 or 3303; 8 lab, 2 conf hrs per wk)  
Reactions of typical functional groups and introduction to modern laboratory methods of organic synthesis. (GrB)
- 5305. INTERMEDIATE ORGANIC CHEMISTRY.** (4 cr; prereq 3201 or 3303; 3 lect, 1 rec hr per wk)  
Aspects of physical organic chemistry with application to typical chemical problems. Reactions of typical functional groups; modern laboratory methods of organic synthesis. (GrB)
- 5309. THEORETICAL ORGANIC CHEMISTRY.** (4 cr; prereq 5502 or Phys 3501 or #; 3 lect, 1 rec hr per wk)  
Application of quantum mechanics to organic reactions and photochemistry. (GrB)
- 5310. CONSUMER CHEMISTRY.** (4 cr; prereq 3034 or equiv or #)  
The role of chemistry in relevant consumer concerns. (GrB)
- 5342. CHEMISTRY OF NATURAL PRODUCTS.** (3 cr; prereq 3303; offered 1974-75 and alt yrs)  
Biosynthesis of secondary natural products with emphasis on alkaloids, terpenes, and acetogenins. (GrB)
- 5344. HETEROCYCLIC COMPOUNDS.** (3 cr; prereq 3303; offered 1975-76 and alt yrs)  
Typical classes of heterocyclic compounds; their chemical and physical properties and uses; synthesis. (GrB)
- 5365. ORGANIC QUALITATIVE ANALYSIS.** (4 cr, §3304; prereq 3201 or 3303; 8 lab hrs, 1 lect hr, 1 conf hr per wk)  
Reactions of typical functional groups and introduction to methods of organic structure determination. (GrB)
- 5502. QUANTUM MECHANICS.** (5 cr, §5531; prereq 1 yr college chemistry, Phys 1291 or §Phys 1291 or 1106 with #, Math 3211)  
Introductory quantum mechanics course for chemists. Laboratory illustrates quantum properties of nature. (GrB)
- 5505. STATISTICAL THERMODYNAMICS.** (4 cr; prereq 1 yr college chemistry, Phys 1291 or §Phys 1291 or 1106 with #, Math 3211)  
Classical statistical mechanics as applied to lattice model treatments of liquids and solutions. (GrB)
- 5520-5521. ELEMENTARY PHYSICAL CHEMISTRY.** (3 cr per qtr; for nonchemistry majors; prereq 1 yr college chemistry, Phys 1291 or §Phys 1291 or 1106 with #, Math 3211)  
General survey of physical chemistry. 5520: Thermodynamics and applications to chemistry. 5521: Elementary statistical mechanics, kinetics, and structure. (GrB)

- 5522. PHYSICAL BIOCHEMISTRY OF SOLUTIONS.** (4 cr, §BioC 5522; prereq 2 qtrs physical chemistry)  
Physical chemistry of equilibrium and transport phenomena in solution, application to biochemical systems. Electrolyte and polyelectrolyte solutions, solutions of macromolecules, binding of substrates, diffusion and sedimentation, viscosity diffusion-controlled kinetics, interfacial phenomena colloids and miscelles. (GrB)
- 5523. PHYSICAL BIOCHEMISTRY: STRUCTURE AND INTRAMOLECULAR FORCES.** (4 cr, §BioC 5523; prereq 5522 or 2 qtrs physical chemistry and §...some biochemistry desirable)  
Determination of structure of biological macromolecules by diffraction and spectroscopic methods; energetics and statistical mechanics of biochemical reactions and structural transitions. (GrB)
- 5524. BIOPHYSICAL CHEMISTRY: DYNAMICS.** (4 cr, §BioC 5524; prereq 2 qtrs physical chemistry...BioC 5741, 5002 or equiv desirable)  
Application of thermodynamics, statistical mechanics, and chemical kinetics to biological systems. Theoretical and experimental enzyme kinetics, solvent effect, structure-function relation. (GrB)
- 5530. THERMODYNAMICS.** (4 cr; prereq minimum of 2 qtrs physical chemistry)  
Application to gases, chemical reactions, solutions, phase equilibria. (GrB)
- 5531. FOUNDATIONS OF QUANTUM CHEMISTRY.** (4 cr, §5502; prereq Phys 1291 or equiv and Math 3211 or 3411 or equiv plus §)  
Postulates of quantum mechanics, introduction to wave functions, solutions of the Schrödinger equation, variation and perturbation theory, introduction to modern techniques for calculating bound state wave functions and electronic energies of molecules, other material necessary for 8305 and/or 8705. (GrB)
- 5571-5572. MOLECULAR SPECTROSCOPY.** (4 cr per qtr; prereq 5502 or 5531 or equiv for 5571)  
Various types of molecular spectroscopy from the standpoint of how structure information is obtained from spectra. (GrB)
- 5574. MOLECULAR STRUCTURE AND SCATTERING.** (3 cr; prereq 5572)  
Determination of geometrical structure of molecules by X-ray, electron and neutron scattering. The effect of internal molecular motions on the structural determination. Inelastic scattering and molecular energies. (GrB)
- 5580. PHYSICAL CHEMISTRY OF POLYMERS.** (3 cr; prereq 5503 or 5505 or §; offered spring 1976 and alt yrs)  
Molecular weight distribution, statistical mechanics of polymer solutions, network polymer, viscosity, light scattering, viscoelastic behavior. (GrB)
- 5610. PRINCIPLES OF POLYMER SCIENCE.** (4 cr, §MatS 5610; prereq physical chemistry or §; 3 lect, 3 lab-rec hrs per wk)  
Polymer synthesis and physical chemistry: polymerization kinetics, molecular weight distribution, network formation, macromolecules in solution and their characterization, the glassy state, rubber elasticity, flow and viscoelasticity, environmental degradation. (GrB)
- 5703. ADVANCED INORGANIC CHEMISTRY.** (5 cr; prereq 3201 and 5502)  
Modern treatment of transition and nontransition metal chemistry. Structure, bonding, and stereochemistry of inorganic and organometallic compounds. Selected current topics. Lab fee. (GrB)
- 5704. ECOLOGY OF WATER.** (4 cr; prereq 5505 or equiv or §; offered winter 1975)  
Interaction of water with the gases, elements, and compounds of the biosphere. (GrB)
- 5705. SYMMETRY IN CHEMISTRY.** (4 cr; prereq 5703)  
Group theory: symmetry classification of inorganic and organic molecules; representations of symmetry point groups; the symmetry of wave functions. Symmetry aspects of molecular orbital theory and symmetry control of organic and inorganic reactions. (GrB)
- 5710. ADVANCED INORGANIC CHEMISTRY I. SURVEY OF THE TRANSITION METALS.** (4 cr; prereq 1 yr each organic, physical chemistry)  
Reactions and properties of the transition metals, including the rare earths and their compounds. Coordination chemistry using elementary ideas of ligand field theory. (GrB)
- 5711. ADVANCED INORGANIC CHEMISTRY II. SURVEY OF THE CHEMISTRY OF THE NONTRANSITION ELEMENTS.** (4 cr; prereq 1 yr each organic, physical chemistry)  
Reactions and properties of the nontransitional elements, including their rare gases and compounds. (GrB)

## Course Descriptions—Major Sequences

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- 5791, 5792, 5793. **SELECTED TOPICS IN INORGANIC CHEMISTRY.** (2 cr per qtr; prereq 5702, Δ)  
Topics of current interest. Consult department for details of a particular quarter. (GrB)
- 5801, 5802, 5803. **THE CHEMISTRY OF INDUSTRY.** (4 cr; prereq 5505 or #)  
The relation between basic chemical theory and chemical technology; programs of economics, ecology, and resources. (GrB)

## Chicano Studies (Chic)

### Staff

*Associate Professor:* Madrid

*Instructors:* Gonzalez, Trujillo

*Lecturer:* Franco

The department curriculum offers a rapidly-expanding core of multidisciplinary offerings designed to acquaint students with the historical and cultural experience of Mexican-Americans and to prepare students in such areas as bilingual-bicultural education and the general field of Chicano studies.

The departmental office is located in 489 Ford Hall.

- 1105f. **INTRODUCTION TO CHICANO STUDIES: A HISTORICAL BACKGROUND.** (4 cr)  
The American of Mexican descent or extraction, the Chicano, viewed in historical perspective in literature; sociological, cultural, political, and psychological factors. (GrC)
- 1106w. **INTRODUCTION TO CHICANO STUDIES: THE MEXICAN-AMERICAN IN TRANSITION.** (4 cr)  
The "Mexican-American" concepts of assimilation and acculturation in historical perspective, 1920 through 1960. (GrC)
- 1107s. **INTRODUCTION TO CHICANO STUDIES: THE CHICANO AND CONTEMPORARY SOCIETY.** (4 cr)  
Role of the Chicano in contemporary U.S. society; his increasing participation. Personalities such as Chavez, Tijerina, and Corky Gonzalez; the La Raza Unida party in U.S. sociological, historical, political, and economic movements. (GrC)
- 3112f. **BILINGUAL EDUCATION: PRINCIPLES, PRACTICES, AND PHILOSOPHY.** (5 cr; educational or general psychology helpful)  
Philosophy and principles of bilingual education. (GrC)
- 3113w. **BILINGUAL EDUCATION: METHODS AND MATERIALS AT THE ELEMENTARY AND PRESCHOOL LEVELS.** (5 cr; educational or general psychology helpful)  
Physical dexterity activities; intellectual and mental development through memorization of rhymes, rounds, songs, dances, and other cultural material for use with preschool and elementary level students. All material in Spanish. (GrC)
- 3114s. **BILINGUAL EDUCATION: SECONDARY SCHOOL EMPHASIS; PRACTICES, METHODS, AND MATERIALS.** (5 cr; educational or general psychology helpful)  
Methods and philosophy of approach to education of bilingual-bicultural secondary school students to make American education relevant and valuable. Critiques of materials by class members; application to school situations that can serve as clinical field studies. (GrC)
- 3324f. **THE MEXICAN IN THE UNITED STATES.** (4 cr; prereq 1105 or #)  
Historical experience of Mexicans in the United States between 1846 and 1972. (GrC)
3330. **CHICANO HISTORY: TOPICS.** (4 cr; prereq 1105, 1106, 1107 or 3324) Madrid  
Aspects of Mexican-American history including such areas as migration, labor movements, Chicanos in agriculture, the "pachuco" phenomenon, border conflict, and regional history. (GrC)
- 3401f. **CHICANO DIALECTS OF THE UNITED STATES.** (4 cr; prereq knowledge of world standard Spanish, #)  
Dialectology of the Southwest, with concentration on Colorado and New Mexican Spanish. Etymologies of nouns of Chicano regions. Contrastive analysis of world standard Spanish and the dialect of the Twin Cities. Semantics of various nouns. (GrA)

- 3505f. SPANISH FOR THE SPANISH-SPEAKING.** (4 cr)  
Spanish for Chicanos and other Spanish-speaking Americans. Development range in speaking, reading, and composition skills. (GrA)
- 3506w. SPANISH FOR THE SPANISH-SPEAKING.** (4 cr; prereq 3505)  
Reading material in Spanish and English that show cultural traits in the use of both languages in essay, drama, short story, and poetry. Mexican-Indian words in the Chicano lexicon and English transformations that comprise "Spanglish." (GrA)
- 3507, 3508. CHICANO LITERATURE AND CULTURE.** (4 cr per qtr)  
Chicano literature in the United States; how the culture is viewed and interpreted in the media. (GrD)
- 3511. CHICANO LITERATURE: TEXT AND CONTEXT.** (4 cr; prereq 3324 or #)  
Fiction, poetry, and theatre by Chicano writers, including Rudolfo Gonzalez, Alurista, Jose Villarreal, Tomas Ribera, Luis Valdez, and others. (GrD)
- 3970f,w,s,su. DIRECTED STUDIES.** (Cr ar; prereq #) Staff

## Child Psychology (CPsy)

### College of Education

#### Staff

*Director*, Willard W. Hartup, 196 Child Development; *Director of Undergraduate Studies*, John C. Masters; *Departmental Honors Adviser*, Albert Yonas

*Professors*: Charlesworth, Flavell, Hartup, Moore, A. Pick, H. Pick, Scarr-Salapatek, Tapp, Templin

*Associate Professors*: Masters, Salapatek, Sroufe (on leave, 1974-75), Yonas

*Assistant Professors*: Collins, Keating, Maratsos, Wozniak

*Instructors*: McLinn, Sternberg, Vrane

Child psychology concerns behavioral development and maintenance from the prenatal period to maturity in the spheres of cognition, language, learning, perception, and social behavior.

Detailed information regarding the major in child psychology, independent or directed study courses, and other current course offerings is available from the undergraduate advisory committee, 106 Child Development, or at the main information desk, Child Development Building. Honors contract registration is available for all child psychology courses except courses offered for S-N credit only.

Since changes in the undergraduate curriculum may occur in 1974-76, students are advised to consult the Child Development department, especially after July 1975.

For a specialized curriculum in nursery school and kindergarten education, see *College of Education Bulletin*. Students interested in certification for nursery school education should consult the adviser to the certification program, 226 Child Development.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

Psy 1001 or 5 cr of introductory psychology; Psy 1004-1005

#### Major Requirements

Minimum of 32 3xxx- or 5xxx-level cr (maximum of 52), to include 3301, 5303, Psy 3801; 12 cr from 5333, 5335, 5339, 5341, 5343, 5345, 5347; minimum

## Course Descriptions—Major Sequences

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of 8 cr from 5xxx-level child psychology or psychology courses except Psy 5031, 5054, 5071, 5701

Majors may count toward graduation no more than 52 total 3xxx- and 5xxx-level cr in child psychology, psychology, psychological foundations, and special education.

**General Education**—3301 and 5303 deal with general education subject matter that is often of interest to students in other major concentrations.

- 1970. DIRECTED STUDY IN CHILD PSYCHOLOGY.** (Cr ar; prereq #)  
Readings in selected areas in child psychology. (GrC)
- 3301f,w,s. CHILD PSYCHOLOGY.** (4 cr; prereq 5 cr introductory psychology)  
Science of child behavior; review of theories and research. (GrC)
- 3360. HONORS COURSE: JUNIOR SEMINAR.** (4 cr per qtr; S-N only; prereq 3301 and #)  
Child psychology research and methodology. (GrC)
- 3361. HONORS COURSE: SENIOR SEMINAR.** (4 cr; S-N only; prereq 3301 and #)  
Systems, theories, and methods of child psychology; design and conduct of experiments with children. (GrC)
- 3980. DIRECTED INSTRUCTION.** (1-4 cr; S-N only; prereq #)  
Undergraduates serve as teaching assistants in courses they have successfully completed for credit.
- 5303f,w,s. ADOLESCENT PSYCHOLOGY.** (4 cr; prereq 5 cr introductory psychology)  
Physical, cognitive, and social development during adolescence. (GrC)
- 5311. BEHAVIOR PROBLEMS.** (4 cr; prereq 3301 or equiv; offered twice yearly)  
Types, origin, development, and treatment of behavior difficulties in normal children. (GrC)
- 5313. PSYCHOLOGY OF ATYPICAL CHILDREN.** (4 cr; prereq 3301 or equiv)  
Problems of research, assessment, and behavior associated with atypicality; evaluation of research in areas of major concern for sensory, language, intellectual, and physical deviation. (GrC)
- 5315. INTRODUCTION TO MENTAL RETARDATION.** (4 cr, §SpEd 5120; prereq 3301 or equiv)  
Psychological and educational problems related to the mentally retarded. (GrC)
- 5319. CLINICAL PROCEDURES WITH CHILDREN.** (4 cr; primarily for students not majoring in clinical psychology; prereq 12 cr in child psychology, psychology, educational psychology, or sociology)  
Methods of clinical psychology; basic concepts and research problems in clinical work with children. (GrC)
- 5330. DIRECTED EXPERIENCES WITH CHILDREN.** (4 cr per qtr; S-N only; prereq 3301 and #)  
Intellectual and/or social development of children as individuals or members of peer groups. Experiences in case study, social behavior, cognitive stimulation of children. (GrC)
- 5331. PROCESSES OF SOCIALIZATION OF CHILDREN.** (4 cr; prereq 3301 or grad; offered twice yearly)  
Processes of social learning; identification, imitation, reward and punishment, internalization, and object choice. (GrC)
- 5333. PERSONALITY DEVELOPMENT.** (4 cr; prereq 5331)  
Psychoanalytic and behavior theory formulations and related research literature in content areas (attachment, dependency, aggression, and sex typing). (GrC)
- 5334. CHILDREN AND YOUTH IN SOCIETY.** (4 cr; prereq #)  
Rule-acquisition process in children and youth and its relation to concepts of rights, roles, and responsibilities; interdisciplinary theoretical and research perspective employed to examine the development of moral, political, and legal ideologies in sub- and cross-cultural contexts. (GrC)
- 5335. PEER RELATIONS.** (4 cr; prereq 5331)  
Peer influences; social interactions and social relations; developmental changes. (GrC)
- 5339. PARENT-CHILD RELATIONS.** (4 cr; prereq 5331)  
Parent-child relationships and evaluation of relevant research literature. (GrC)

- 5341. PERCEPTUAL DEVELOPMENT.** (4 cr; prereq 3301)  
Perceptual learning and the development of sensory and perceptual processes. (GrC)
- 5343. COGNITIVE DEVELOPMENT.** (4 cr; prereq 3301 or equiv)  
Development of cognitive processes; discussion of relevant theory, research literature, and methodology. (GrC)
- 5345. LANGUAGE DEVELOPMENT.** (4 cr; prereq 3301)  
Development of structure and function of language; factors influencing development; methodological problems, language scales, theories. (GrC)
- 5347. LEARNING IN CHILDREN.** (4 cr; prereq 3301)  
Current research on learning and problem solving in children; application to practical contexts. (GrC)
- 5970. DIRECTED STUDY IN CHILD PSYCHOLOGY.** (Cr ar; prereq #)  
Independent reading. (GrC)
- 5990. DIRECTED RESEARCH IN CHILD PSYCHOLOGY.** (Cr ar; prereq #)  
Individual empirical investigation. (GrC)

## CHINESE

See East Asian Languages.

## Civil Engineering (CE)

*Institute of Technology*

- 5210. INTRODUCTION TO TRANSPORTATION PLANNING.** (4 cr; prereq #)  
Transportation planning in urban areas; data requirements and travel characteristics; trip generation analysis; models of travel distribution; transit characteristics and usage; selection and evaluation of alternate transportation proposals; transportation and land link usages.
- 5420. INTRODUCTION TO WATER RESOURCES MANAGEMENT.** (4 cr)  
The state of the water resource; water resources planning; implementation of planning.

## Classical Civilization

This program, for which no knowledge of Greek or Latin is required, provides a broad introduction to the culture and civilization of the Greek and Roman Classical period. Though many of the courses that contribute to it are offered in the Classics Department, it is an interdepartmental program.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

CLA Route I (Route II not permissible) in any language, ancient or modern. Students satisfying Route I in a language other than Greek or Latin must take Clas 1015.

#### Major Requirements

Credits must be earned in approved courses. Total credits, 80; minimum 3xxx-5xxx-level credits, 60. Credits are required in four areas: language and literature, 16 cr; art history/archaeology and history, 16 cr; thought and religion, 12 cr; classical traditions, 12 cr.

## Course Descriptions—Major Sequences

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A list of approved courses in these areas is available; inquire in the Classics office, 310 Folwell Hall. Appropriate independent study, special topic, or proseminar courses as well as Honors Program opportunities are also available. From time to time, seminars in classical civilization will be offered.

### Classics

#### Staff

*Chairman*, Robert P. Sonkowsky, 310 Folwell Hall

*Professors*: McDonald, Sonkowsky, Swanson

*Associate Professors*: Erickson, Hershbell, Keuls (on leave, 1974-75), Kraabel

*Assistant Professors*: Coulson, Fisher, Rochefort, Ruebel

*Instructors*: Moritz, Nichipor

Classics is the study and knowledge of the human experience of ancient Greece and Rome. The field encompasses prehistoric time as well as the interpenetration between classical culture and the ancient Near East and Minoan-Mycenaean civilization. Classics also embraces Greek and Latin studies in the medieval, Renaissance, and modern periods. Greek and Latin literatures and archaeological and artistic remains offer humane approaches to many fields of study: literature, philology, metrics, oral reading, rhetoric and poetics, archaeology, mythology, religion, philosophy, art criticism, daily life.

Many sophomores can qualify for 3xxx-level courses. Students with 4 years of high school Latin, 3 years of high school Greek, or advanced placement may begin 3xxx-level courses as entering freshmen. All courses are open to nonmajors.

Courses with the designation "Clas" require no knowledge of Greek or Latin language.

Major programs are offered in Greek, Latin, Greek and Latin (double major), and classical civilization (interdepartmental). Students who wish to undertake advanced work in both languages or design double majors should consult the department early. Courses in classics, classical philology, or modern Greek may form part of any of the four majors.

### GREEK (Grk)

#### B.A. MAJOR SEQUENCE

##### Required Preparatory Courses

1105 or 1122 or 3052 or 3 years high school Greek

##### Major Requirements

20 cr in Greek courses numbered above 3052

15 additional 3xxx-5xxx-level cr in classics, or classical philology, or related courses in other departments, in Greek courses, or in a combination of these

**1101f-1102w†. BEGINNING CLASSICAL GREEK.** (5 cr per qtr; prereq 1101 or equiv for 1102)

Language structure in context of graded reading materials. Selections from *New Testament*, Aesop, Xenophon, and Plato. Oral reading and composition.

**1103s. SELECTIONS FROM GREEK PROSE.** (5 cr; prereq 1102 or equiv)

Plato, Xenophon, and Herodotus.

- 1104f, 1105w. GREEK READINGS.** (5 cr per qtr; prereq 1103 or 2 yrs high school Greek or  $\Delta$  for 1104...1104 or  $\Delta$  for 1105)  
Selected Greek authors; development of reading proficiency in ancient Greek texts; authors' ideas and styles. (GrD)
- 1110. INDIVIDUALIZED INTRODUCTION TO ANCIENT GREEK.** (1-15 cr [may be repeated for max of 15 cr], §1101-1102, §1103)  
Basic phonology, morphology, and syntax of classical and *Koine* Greek at a pace less intensive than other beginning Greek courses. Computer-assisted instruction and class meetings. (GrA)
- 1111f-1122w. HONORS COURSE: BEGINNING CLASSICAL GREEK.** (5 cr per qtr; prereq regis in Honors Program or high ability as indicated by college entrance records)
- 3051f-3052w†. READING CLASSICAL GREEK.** (5 cr per qtr, §1101-1102)  
Intensive beginning course. Experience in another foreign language is highly desirable.
- 3106s. GREEK READINGS.** (5 cr; prereq 1105 or 3052 or 1122 or  $\Delta$ )  
Selected Greek authors; development of reading proficiency in ancient Greek texts; textual criticism, secondary sources, and influence on world literature. (GrD)
- 3107. BIBLICAL GREEK.** (5 cr; prereq 1104 or 1105 or 3052 or 1122 or  $\Delta$ )  
Greek texts of the *Old* and *New Testaments*, apocrypha, and early Christian documents. Emphasis on reading proficiency and content. (GrD)
- 3461, 3462, 3463, 3464, 3465, 3466, 3467, 3471, 3472, 3473, 3474, 3475. ADVANCED UNDERGRADUATE GREEK.** (5 cr per qtr; prereq 3106 or 3107 or 3 yrs high school Greek or  $\Delta$ )  
A 2-year cycle. Only one of the courses listed for each quarter will be offered. 1974-75: 3461f, Orators, or 3462f, Plato. 3463w, Lyric Poetry, or 3464w, New Comedy, or 3465w, Lucian. 3466s, Herodotus, or 3467s, Thucydides. 1975-76: 3471f, Euripides, or 3472f, Sophocles. 3473w, Aristophanes, or 3474w, Byzantine Greek. 3475s, Homer. (GrD)
- 3590. LANGUAGE AND CULTURE SEMINAR.** (5 cr per qtr; prereq 10 Greek 3xxx-5xxx-level cr; limited to 10 students)  
Varying topics in ancient culture, intellectual and literary history, studied with knowledge of Greek.
- 3960. HONORS TUTORIAL.** (5 cr per qtr; prereq  $\Delta$ )
- 3970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq # and  $\Delta$ )  
Designed to permit individual reading or study.
- 5012. PROSE COMPOSITION.** (2 cr; prereq 3106 or  $\Delta$ ) (GrA)
- 5264, 5265, 5266. SURVEY OF GREEK LITERATURE.** (4 cr per qtr; prereq §5012)  
5264: Epic and lyric poetry. 5265: Prose. 5266: Drama. (GrD)
- 5371, 5372, 5373, 5374, 5375, 5376, 5377, 5378, 5379. GREEK LITERATURE.** (3 cr per qtr)  
Authors read vary from term to term; different authors in each course. 5371: Oratory. 5372: Tragedy. 5373: Comedy. 5374: History. 5375: Philosophy. 5376: Religious texts. 5377: Epic. 5378: Lyric. 5379: Romance. (GrD)
- 5381. BYZANTINE TEXTS.** (3 cr; prereq 2 yrs of classical Greek or #)  
Byzantine literature in the original. (GrD)
- 5621. GREEK PALEOGRAPHY.** (3 cr; prereq 5 Greek 3xxx-5xxx-level cr or #)  
Styles of writing in Greek literary papyri and later manuscripts; the transmission of ancient Greek texts. (GrD)
- 5794. PROSEMINAR: INTRODUCTION TO CLASSICAL STUDIES.** (3 cr, §Lat 5794; required of all new grad students; prereq grad major or #)  
Research in classical scholarship, methods and bibliography, textual history and criticism. (GrC)
- 5970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq # and  $\Delta$ )  
Designed to permit individual reading or study.
- 5980. DIRECTED INSTRUCTION.** (Cr ar; prereq # and  $\Delta$ )
- 5990. DIRECTED RESEARCH.** (Cr ar)

## Course Descriptions—Major Sequences

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### MODERN GREEK (MdGk)

- 1101-1102-1103. BEGINNING MODERN GREEK.** (5 cr per qtr)  
Speaking and reading demotic Greek. Pattern-practice drill, simple readings, some grammar.
- 1104-1105. INTERMEDIATE MODERN GREEK.** (4 cr per qtr) (GrD)
- 5970. DIRECTED STUDIES.** (1-5 cr per qtr)  
Designed to permit individual reading or study.
- 5980. DIRECTED INSTRUCTION.** (Cr ar; prereq # and  $\Delta$ )
- 5990. DIRECTED RESEARCH.** (Cr ar)

### LATIN (Lat)

#### B.A. MAJOR SEQUENCE

##### Required Preparatory Courses

1105 or 1122 or 3052 or 4 years high school Latin (students with 2 years high school Latin should enter 1003; those with 3 years, 1104; those with 4 years or advanced placement, any 3xxx-level course)

##### Major Requirements

20 cr in Latin courses numbered above 3052

15 additional 3xxx-5xxx-level cr in classics, or classical philology, or related courses in other departments, in Latin courses, or in a combination of these.

- 1003. INTERMEDIATE LATIN.** (5 cr; prereq 2 yrs high school Latin or equiv or  $\Delta$ )  
Refresher and continuation course. Caesar, Cicero, Virgil, and others.
- 1101f-1102w†. BEGINNING LATIN.** (5 cr per qtr; prereq 1101 or equiv for 1102)  
Gradual mastery of structure of Latin, for attaining reading knowledge; practice in oral reading and composition. (GrA)
- 1103s. SELECTIONS FROM LATIN LITERATURE.** (5 cr; prereq 1102 or equiv)  
Acquaints students with ancient authors in context of graded reading materials. (GrA)
- 1104, 1105. LATIN READINGS.** (5 cr per qtr; prereq 1103 or 3 yrs high school Latin or 1003 or  $\Delta$  for 1104...1104 or 1003 or  $\Delta$  for 1105)  
Selected Latin authors; development of reading proficiency in ancient texts; authors' ideas and styles. (GrD)
- 1111f-1122w. HONORS COURSE: BEGINNING LATIN.** (5 cr per qtr; prereq reg in Honors Program or high ability as indicated by college entrance records)
- 3011. PROSE COMPOSITION.** (5 cr; prereq # or  $\Delta$ ) (GrA)
- 3051f-3052w†. READING LATIN.** (5 cr per qtr, §1101-1102-1103; prereq jr)  
Intensive beginning course. Experience in another foreign language highly desirable.
- 3104su. LATIN READINGS.** (5 cr; prereq 1104 or equiv or #) (GrD)
- 3106s. LATIN READINGS.** (5 cr; prereq 1105 or 3052 or 1122 or  $\Delta$ )  
Selected Latin authors. Development of reading proficiency in ancient texts; textual criticism, secondary sources, and influence on world literature. (GrD)
- 3461, 3462, 3463, 3464, 3465, 3466, 3467; 3471, 3472, 3473, 3474, 3475, 3476. ADVANCED UNDERGRADUATE LATIN.** (5 cr per qtr; prereq 3106 or 4 yrs high school Latin or  $\Delta$ )  
A 2-year cycle. Only one of the courses listed for each quarter will be offered. 1974-75: 3461f, Cicero, or 3462f, Livy. 3463w, Comedy, or 3464w, Catullus, or 3465w, Medieval Latin. 3466s, Petronius, or 3467s, Horace. 1975-76: 3471f, Virgil, or 3472f, Elegy. 3473w, Tacitus, or 3474w, Seneca. 3475s, Satire, or 3476s, Lucretius. (GrD)
- 3590. LANGUAGE AND CULTURE SEMINAR.** (5 cr per qtr; prereq 10 Latin 3xxx-5xxx-level cr; limited to 10 students)  
Varying topics in ancient culture, intellectual and literary history, studied with knowledge of Latin.
- 3960. HONORS TUTORIAL.** (5 cr per qtr; prereq  $\Delta$ )

- 3970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq # and  $\Delta$ )  
Designed to permit individual reading or study.
- 5012. PROSE COMPOSITION.** (2 cr; prereq 3106 or  $\Delta$ ) (GrA)
- 5038. ORAL INTERPRETATION OF CLASSICAL LATIN LITERATURE.** (5 cr, §Th 5831; prereq 2 yrs Latin or equiv and Th 3801 or 3321 or #)  
Phonetics, prosody, and oral performance of selected texts in classical Latin.
- 5264-5265-5266. GRADUATE SURVEY.** (4 cr per qtr; prereq ¶5012)  
5264: Latin literature of the Republic. 5265: Latin literature of the Augustan Age.  
5266: Latin literature of the Empire. (GrD)
- 5371, 5372, 5373, 5374, 5375, 5376, 5377, 5378, 5379. LATIN LITERATURE.** (3 cr per qtr)  
Authors read vary from term to term; different authors in each course. 5371: History. 5372: Epistles and essays. 5373: Oratory. 5374: Epic and pastoral poetry. 5375: Lyric and elegiac poetry. 5376: Drama. 5377: Satire. 5378: Law. 5379: Religious texts. (GrD)
- 5701-5702-5703†. STRUCTURE OF LATIN.** (1-2 cr per qtr; prereq sr or grad, 10 3xxx-5xxx-level cr or equiv, #) Erickson  
Basic Latin structures; application of current linguistic theories to Latin texts; substitution, transformation, and expansion of Latin patterns; special problems in reading Latin. (GrA)
- 5715. NEW CRITICAL APPROACHES TO CLASSICAL TEXTS.** (3 cr; recommended for Latin tchg majors; prereq 15 Latin 3xxx-5xxx-level cr and #)  
Designed to bring teachers up to date in significant research, especially in authors read in secondary schools. Recent approaches to Caesar, Cicero, Ovid, Virgil, Horace, Catullus, Livy, Tacitus are described and evaluated. (GrD)
- 5794. PROSEMINAR: INTRODUCTION TO CLASSICAL STUDIES.** (3 cr, §Grk 5794; required of all new grad students; prereq grad major or #)  
Research in classical scholarship, methods and bibliography, textual history and criticism. (GrC)
- 5970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq # and  $\Delta$ )  
Course designed to permit individual reading or study.
- 5980. DIRECTED INSTRUCTION.** (Cr ar; prereq # and  $\Delta$ )
- 5990. DIRECTED RESEARCH.** (Cr ar)

## GREEK-LATIN

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

Grk 1105 or 1122 or 3052 or 3 years high school Greek; Lat 1105 or 1122 or 3052 or 4 years high school Latin (students with 2 years high school Latin should enter 1003; those with 3 years, 1104; those with 4 years or advanced placement, any 3xxx-level course)

#### Major Requirements

20 cr in Greek courses numbered above 3052

20 cr in Latin courses numbered above 3052

30 additional 3xxx-5xxx-level cr in classics, or classical philology, or related courses in other departments, in Greek and/or Latin courses, or in a combination of these

## CLASSICAL PHILOLOGY (CIPh)

These courses in historical aspects of classical linguistics, for which knowledge of Greek or Latin is required, may be used as parts of Greek, Latin, or Greek-Latin major programs.

## Course Descriptions—Major Sequences

- 3773. HELLENISTIC GREEK.** (4 cr; prereq #) Swanson  
Koiné language in *New Testament*, the papyri, and other documents from 3rd century B.C. to 2nd century A.D. General principles of language study. (GrA)
- 5715. INTRODUCTION TO CLASSICAL PHILOLOGY.** (2 cr; prereq #) Swanson  
Sounds and forms of the classical languages; principles of linguistic paleontology. Essential to all other work in classical philology. (GrA)
- 5716. HISTORY OF GREEK.** (4 cr; prereq 5715 or equiv and 2 yrs Greek) Swanson  
Semantic and formal development of Greek, from Mycenaean to Romaic; readings, reports, lectures. (GrA)
- 5717. HISTORY OF LATIN.** (4 cr; prereq 5715 or equiv or # and 2 yrs Latin) Swanson  
Old Latin philological texts; Latin etymology, word formation, loanwords, historical syntax. (GrA)
- 5718. GREEK DIALECTS.** (4 cr; prereq 5715 and 2 yrs Greek or #) Swanson  
Introductory survey of epigraphic and literary monuments illustrating ancient Hellenic dialectology. The age-and-area hypotheses; proto-Greek. (GrA)
- 5733. VULGAR LATIN.** (4 cr; recommended for all students of language; prereq #) Swanson  
Development of Romance languages; documents that reveal the lexical, phonological, and syntactic systems of colloquial Latin. (GrA)
- 5735. OSCAN-UMBRIAN.** (4 cr; prereq 5715 and 5717 or #) Swanson  
Epigraphic and onomastic techniques for the interpretation of Indo-European languages of early Italy. (GrA)
- 5970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq # and  $\Delta$ )  
Course designed to permit individual reading or study. (GrA)

## CLASSICS (Clas)

### Classical Humanities

- 1001, 1002, 1003. INTRODUCTION TO CLASSICAL CIVILIZATION: GREECE.** (4 cr per qtr)  
*1001: World of Homer: Heroic Tradition and Intellectual Awakening*—Transition in values and institutions from the monolithic society represented in Homeric epic to the relatively open society of the archaic age. Cultural dynamism and contact with the Near East. *1002: Age of Pericles: City-State and Intellectual Maturity*—"Golden Age" and the classical ideal of self-realization in service to the polis. The explosion of creativity in literature, philosophy, art. Ideological struggle between democracy and authoritarianism. Failure of the city-state. *1003: Age of Alexander: Cosmopolitanism and Cultural Fusion*—Hellenistic "big government" and rise of individualism. Spread of Greek culture to the Near East. New emphases in literature, philosophy, art, and especially in science and religion. (GrC)
- 1004, 1005, 1006. INTRODUCTION TO CLASSICAL CIVILIZATION: ROME.** (4 cr per qtr)  
*1004: World of Cato*—Changing values and institutions of early Roman agrarian society; rise of republic. Greek and Etruscan influences; clash with Carthage. *1005: World of Augustus.* From anarchy to Pax Romana; consequences for Roman world. *1006: World of Constantine.* Consolidation and expansion of empire. World of Roman law and rise of Christianity. (GrC)
- 1007su. THE WORLD OF GREECE.** (3 cr, §5007) (GrC)
- 1008su. THE WORLD OF ROME.** (3 cr, §5008) (GrC)
- 1011, 1022, 1033, 1044, 1055, 1066. HONORS COURSES: INTRODUCTION TO CLASSICAL CIVILIZATION.** (5 cr per qtr; prereq regis in Honors Program or # or  $\Delta$ )  
Students attend lectures in 1001, 1002, 1003, 1004, 1005, 1006 and meet with lecturer one additional period each week. (GrC)
- 1015. INTRODUCTION TO THE LANGUAGES AND THOUGHT OF GREECE AND ROME.** (4 cr; for nonlanguage students)  
The relationship of the languages of Greece and Rome to the literature, philosophy, law, science, government, and physical environment. (GrA)
- 1042. GREEK AND ROMAN MYTHOLOGY.** (2 cr, §1142; prereq soph)  
Classical myths; stories of gods, demigods, and heroes that are a basic component of European cultural heritage; their artistic, religious, psychological, and anthropological implications. (GrC)
- 1045su. GREEK AND ROMAN MYTHOLOGY.** (3 cr, §1042, §1142, §5145) (GrC)

1048. **TECHNICAL TERMS OF SCIENCE, MEDICINE, AND HUMANITIES.** (3 cr, §3048; prereq soph)  
Presentation in English contexts of Greek and Latin prefixes, suffixes, and roots basic in modern technical vocabularies. (GrA)
1061. **INTRODUCTION TO BYZANTINE CIVILIZATION.** (4 cr, §5061)  
Greco-Roman backgrounds of Byzantine civilization. The culture of the Eastern Empire through the study of history, religion, education, art, literature. (GrC)
3048. **TECHNICAL TERMS OF SCIENCE, MEDICINE, AND THE HUMANITIES.** (3 cr, §1048; prereq jr)  
Presentation in English contexts of Greek and Latin prefixes, suffixes, and roots basic in modern technical vocabularies. (GrA)
3070. **RELIGION IN ANTIQUITY: ADVANCED TEXTUAL STUDIES.** (4 cr per qtr; §5070, §Grk 5376 or §Lat 5379, depending on topic; prereq 3071 or 3072 or 3073 or any religious studies course or §)  
Selected religious texts central to early Christianity or another ancient religion, in the context of the Greco-Roman world. Theology and present interpretations of the texts. Their influence in later religion and culture. Topics: 1974-75—Texts from the mystery religions; 1975-76—The Pauline letters of the *New Testament*. (GrC)
3071. **RELIGION IN ANTIQUITY: GREEK, HELLENISTIC.** (4 cr, §5071; prereq jr) Kraabel  
Greek religion of the Archaic, Classical, and Hellenistic periods. Eclipse of city-state and "failure of nerve." Mystery religions and impact of eastern cults. Ancient myths and need for allegory. Ruler worship. Gnosticism. Judaism in Greek world; Dead Sea scrolls. (GrC)
3072. **RELIGION IN ANTIQUITY: THE NEW TESTAMENT.** (4 cr, §5072; prereq jr) Kraabel  
First-century Israel under Roman rule. Jesus of Nazareth. Earliest Christian communities. Jewish Christianity. Mission to gentiles. Paul the apostle. Beginnings of *New Testament*. (GrC)
3073. **RELIGION IN ANTIQUITY: ROMAN, EARLY CHRISTIAN.** (4 cr, §5073; prereq jr) Kraabel  
The Etruscans. Republican religion. The appeal of non-Roman cults. Ruler worship. Christians in Asia Minor, Egypt, and the West. Popular piety, Christian and non-Christian. Rabbinic Judaism. Varieties of Christianity in 2nd and 3rd centuries. Influence of Greco-Roman culture upon emerging Church. Constantine and Julian. (GrC)
3081. **CLASSICAL EPIC IN TRANSLATION.** (4 cr, §5081; prereq 8 cr in English literature beyond Engl 1003, or in foreign literature, or Δ)  
Homer's *Iliad* and *Odyssey*, Virgil's *Aeneid*; cultural context of epic, the heroic character, epic formulas, and poetic techniques. (GrD)
3082. **GREEK TRAGEDY IN TRANSLATION (AESCHYLUS, SOPHOCLES, EURIPIDES).** (4 cr, §5082; prereq 8 cr in English literature beyond Engl 1003, or in foreign literature, or Δ)  
Origin of European drama as distinct literary form; characteristics of Greek tragedy; ancient theaters and theatrical conventions. Selected tragedies. Problems posed in relation to cultural patterns of the time. (GrD)
3083. **ARISTOPHANES AND ROMAN DRAMA IN TRANSLATION (ARISTOPHANES, MENANDER, PLAUTUS, TERENCE, SENECA).** (4 cr, §5083; prereq 8 cr in English literature beyond Engl 1003, or in foreign literature, or Δ)  
Greek and Roman comic theater. Discussion of several comedies. Roman tragic drama as exemplified by tragedies of Seneca. (GrD)
3181. **HONORS COURSE: CLASSICAL EPIC IN TRANSLATION.** (5 cr; prereq regis in Honors Program or § or Δ)  
Students attend lectures in 3081 and meet with lecturer one additional period each week. (GrD)
3282. **HONORS COURSE: GREEK TRAGEDY IN TRANSLATION (AESCHYLUS, SOPHOCLES, EURIPIDES).** (5 cr; prereq regis in Honors Program or § or Δ)  
Students attend lectures in 3082 and meet with lecturer one additional period each week. (GrD)
3383. **HONORS COURSE: ARISTOPHANES AND ROMAN DRAMA IN TRANSLATION (ARISTOPHANES, MENANDER, PLAUTUS, TERENCE, SENECA).** (5 cr; prereq regis in Honors Program or § or Δ)  
Students attend lectures in 3083 and meet with lecturer one additional period each week. (GrD)

## Course Descriptions—Major Sequences

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- 3970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq # and Δ)  
Course designed to permit individual reading or study.
- 5001. GREEK AND ROMAN LYRIC POETRY IN TRANSLATION.** (4 cr; prereq two courses in English literature beyond Engl 1002, or in foreign literature, or Δ)  
Translations of Greek lyric poets, Catullus, Horace, and minor Latin lyricists; cultural patterns of the times; survival of such poetry in modern times. (GrD)
- 5002. ANCIENT SATIRE.** (4 cr; prereq two courses in English literature beyond Engl 1002, or in foreign literature, or Δ)  
Ancient satire from Homer to Juvenal. Translations of Homer, Aesop, Archilochus, Aristophanes, and Lucian. The form of Roman satire; Lucilius, Horace, Persius, Petronius, Martial, and Juvenal. Survival of Roman satire in English literature. (GrD)
- 5003. ANCIENT NOVEL AND ROMANCE.** (4 cr; prereq two courses in English literature beyond Engl 1002, or in foreign literature, or Δ)  
Development of the ancient novel. Translations of ancient Greek novelists and of Apuleius and Petronius. (GrD)
- 5004. EROTICISM AND FAMILY LIFE IN THE GRECO-ROMAN WORLD.** (4 cr) Erickson  
Greek and Roman family life in the shaping of personality; diachronic change in modes of erotic expression; narcissism and homosexuality; status and roles of women; evolving views of sexual morality in ancient world compared to present trends. Examples from art and literature. (GrC)
- 5005. MADNESS AND DEVIANT BEHAVIOR IN ANCIENT GREECE AND ROME.** (4 cr; prereq 2 cr in classics) Erickson  
Definitions of madness in Greece and Rome and theories of its etiology; assessment of predisposing factors in Greece and Rome; examples of madness from mythology, legend, and history; cross-cultural comparison with contemporary United States. (GrC)
- 5006. GREAT MEN IN ANCIENT BIOGRAPHY.** (4 cr; prereq 5004 or 5005 or Δ)  
The lives of three famous historical personages: Alexander, Caesar, Cicero. Interpretations of their accomplishments, factors that shaped their characters, criteria for "greatness," the social and political milieu in which they functioned, the hero myth and history; psychohistorical approach to biography. (GrC)
- 5007su. THE WORLD OF GREECE.** (3 cr, §1007) (GrC)
- 5008su. THE WORLD OF ROME.** (3 cr, §1008) (GrC)
- 5013. ROMAN LAW AND SOCIETY.** (4 cr; prereq # or Δ)  
Roman law as a social institution: basic concepts of persons, property, obligations in historical and social perspective. (GrC)
- 5017, 5018. WOMAN IN CLASSICAL ANTIQUITY.** (4 cr per qtr)  
**5017:** Women in the Greek world. **5018:** Women in the Roman world. The role of women in the classical world, in literature and in the social structure. Women's legal and economic position. (GrC)
- 5020. PROBLEMS IN POST-ARISTOTELIAN PHILOSOPHY.** (4 cr per qtr, §Phil 5020; prereq 5085 or 5086 or Phil 3001 or 3002 or 3900 or 5008 or 5012 or #)  
Problems in philosophy after Aristotle and before Augustine. Topics involve one or several of the following: Stoics, Epicureans, Cynics, Sceptics, neo-Pythagoreans, middle and late Platonists. (GrC)
- 5061. INTRODUCTION TO BYZANTINE CIVILIZATION.** (4 cr, §1061)  
Greco-Roman backgrounds of Byzantine civilization. The culture of the Eastern Empire through the study of history, religion, education, art, literature in translation. Requires additional work for graduate credit. (GrC)
- 5070. RELIGION IN ANTIQUITY: ADVANCED TEXTUAL STUDIES.** (4 cr per qtr, §3070, §Grk 5376 or §Lat 5379, depending on topic; prereq 3071 or 5071 or 3072 or 5072 or 3073 or 5073 or any religious studies course or #)  
Meets with 3070; requires additional work for graduate credit. (GrC)
- 5071. RELIGION IN ANTIQUITY: GREEK, HELLENISTIC.** (4 cr, §3071; prereq #) Kraabel  
Meets with 3071; requires additional work for graduate credit. (GrC)
- 5072. RELIGION IN ANTIQUITY: THE NEW TESTAMENT.** (4 cr, §3072; prereq #) Kraabel  
Meets with 3072; requires additional work for graduate credit. (GrC)
- 5073. RELIGION IN ANTIQUITY: ROMAN, EARLY CHRISTIAN.** (4 cr, §3073; prereq #) Kraabel  
Meets with 3073; requires additional work for graduate credit. (GrC)

- 5081. CLASSICAL EPIC IN TRANSLATION.** (4 cr, §3081)  
Meets with 3081, advanced independent work required. (GrD)
- 5082. GREEK TRAGEDY IN TRANSLATION (AESCHYLUS, SOPHOCLES, EURIPIDES).**  
(4 cr, §3082)  
Meets with 3082; additional independent work required. (GrD)
- 5083. ARISTOPHANES AND ROMAN DRAMA IN TRANSLATION (ARISTOPHANES, MENANDER, PLAUTUS, TERENCE, SENECA).** (4 cr, §3083)  
Meets with 3083; advanced independent work required. (GrD)
- 5085. GREEK PHILOSOPHY: THE PRE-SOCRATICS TO PLATO.** (4 cr) Hershbell  
Fragments of the pre-Socratics and Sophists and selected dialogues of Plato. (GrC)
- 5086. GREEK PHILOSOPHY: ARISTOTLE AND POST-ARISTOTELIAN THOUGHT.** (4 cr; prereq  $\Delta$ ) Hershbell  
Excerpts from the writings of Aristotle; his metaphysical and ethical writings. Fragments of Stoic and Sceptic writers; the extant works of Epicurus; Diogenes Laertius; Sextus Empiricus; Plutarch's polemical works against the Stoics. (GrC)
- 5115. CLASSICAL HUMANITIES PROSEMINAR.** (4 cr; prereq  $\Delta$ )  
Integrates various disciplines within field of classics. Several faculty members present special studies. Synoptic view of classical culture. (GrD)
- 5145su. GREEK AND ROMAN MYTHOLOGY.** (3 cr, §1042, §1045, §1142) (GrC)
- 5308. ORAL INTERPRETATION OF CLASSICS IN TRANSLATION.** (4 cr, §Th 5831)  
Oral performance in Greek and Roman antiquity. Oral performance problems in major classical genres. Study of translations for suitability for oral performance. Workshop on oral performance of classical literature. (GrD)
- 5400. SUPERVISED DIRECTION OF ORAL INTERPRETATION PROJECTS.** (1-3 cr [max 6 cr for BA, 12 cr for MA, 18 cr for PhD]; prereq #)  
Projects such as group performances of Greek and Roman poetry. Directors must have both classics and theatre backgrounds. (GrD)
- Spch 5611. CLASSICAL RHETORIC.** (4 cr; prereq Spch 1101 or 1105) Scott  
Greek and Roman theories of speechmaking; historical and philosophic context and influence on education. (GrA)
- 5970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq # and  $\Delta$ )  
Individual reading or study.
- 5980. DIRECTED INSTRUCTION.** (Cr ar; prereq # and  $\Delta$ )
- 5990. DIRECTED RESEARCH.** (Cr ar)

## Archaeology

- 3152. GREEK ART.** (5 cr, §ArH 3152; offered alt yrs)  
The classical style of ancient Greece; its origins, its characteristics, its importance to later culture. (GrD)
- 3162. ROMAN ART AND ARCHAEOLOGY.** (5 cr, §ArH 3162; prereq ArtH 3008 or 3152 or Clas 3152)  
Examination of what is Roman in Roman art and material culture, how it came into being; the degree of change, or continuity, of "progress" or "decay" in the later Empire. (GrD)
- 5089. INTRODUCTION TO BIBLICAL ARCHAEOLOGY.** (4 cr) Kraabel  
Archaeological data relevant to the Jewish Scriptures and the *New Testament*: major sites in "the Holy Land" and in other areas of the Mediterranean and the Near East. The evidence of pottery, inscriptions, manuscripts, and coins. Excavation methods. Archaeology as a tool for the study of ancient religions. Requires additional work for graduate credit. (GrC)
- 5101. INTRODUCTION TO PREHISTORIC GREEK ARCHAEOLOGY.** (4 cr; prereq jr or #) McDonald  
Aims and methods of modern field archaeology; the record of human habitation in the Aegean area from earliest times until the end of the Bronze Age with concentration on the Mycenaean period; the use of archaeological evidence as the basis for historical reconstruction. (GrA)

## Course Descriptions—Major Sequences

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- 5102. GREEK SCULPTURE.** (4 cr, §ArH 5102; prereq jr or #) Coulson  
Styles and techniques of Greek sculpture from the archaic period down to the end of the 4th century B.C. Sculptors and styles throughout Greece, Sicily and southern Italy, and Asia Minor. (GrD)
- 5103. HELLENISTIC ART AND ARCHAEOLOGY.** (4 cr, §ArH 5103; prereq jr or #) Coulson  
Greek architecture, sculpture, ceramics, painting, and minor arts from the beginning of the 4th century B.C. to the end of the Hellenistic period. City planning, public buildings, and the topography of such sites as Athens, Olynthos, Corinth, Priene, Pergamon. (GrD)
- 5104. ROMAN ARCHITECTURE.** (5 cr, §ArH 5104; prereq ArtH 1008 or 3008 or 3162 or Clas 3162) McNally  
Types and techniques of buildings in Rome and the Empire from the 5th century B.C. to the 4th century A.D. Major archaeological sites. (GrD)
- 5105. ROMAN PAINTING AND MOSAICS.** (5 cr, §ArH 5105; prereq ArtH 1008 or 3008 or 3162 or Clas 3162) McNally  
Roman painting and mosaics; specific problems. Sites such as Pompeii and Antioch. (GrD)
- 5106. GREEK PAINTING.** (5 cr, §ArH 5106; prereq 5102 or 5103; offered when feasible) Cooper, McNally  
Methods of research and analysis in classical art as applied to study of vases; investigation of original objects and of sources. (GrD)
- 5107. ROMAN SCULPTURE.** (4 cr, §ArH 5107; prereq ArtH 1008 or 3008 or 3162 or Clas 3162)  
Sculpture from Rome and its provinces from the 1st century B.C. to the 4th century A.D.; the role of sculpture in Roman politics and religion. (GrA,D)
- 5108. GREEK ARCHITECTURE.** (4 cr, §ArH 5108; prereq ArtH 1008 or 3008 or 3152 or Clas 3152) Cooper, McNally  
Archaic and Classical examples of religious and secular architecture. Their setting in major archaeological sites. (GrD)
- 5109. INTRODUCTION TO ETRUSCAN ART AND ARCHITECTURE.** (4 cr, §ArH 5109; prereq jr or #) Coulson  
The architecture, sculpture, painting, and minor arts of the Etruscans. Political, religious, and social settings. Methods of Etruscan archaeology. (GrD)
- 5110. PROSEMINAR: CLASSICAL ARCHAEOLOGY.** (4 cr per qtr; prereq #) (GrC)
- 5120. FIELD RESEARCH IN ARCHAEOLOGY.** (3-6 cr per qtr; prereq #) Kraabel, McDonald  
Field excavation, survey, and research in archaeological sites in Greece, Turkey, Italy, or the Mediterranean area. Techniques of excavation and exploration; interpretation of archaeological materials. (GrA)

## COMPOSITION

See English.

## Communication (Comm)

### Staff

*Director*, Daniel V. Bryan, 116A Klaeber Court

*Professors*: Bryan, Jensen

*Assistant Professor*: Ward

Courses in written and oral communication, theoretical and practical, prepare students to meet communicative demands in contemporary settings. Instruction is individualized by conferences, tutorials, and small group sessions.

**1001-1002f,w,s or 1001-1003f,w,s. COMMUNICATION.** (4 cr per qtr, §Comp 1001-1002, §1006-1007-1008; prereq assignment to English Placement Category 1, 1A, or 2; meets the English composition requirement)

1001: Communication, language, and nonverbal means of communicating; clarity and appropriateness in expository discourse; writing and speaking under direction and criticism. 1002: Deliberation, reasoning, nonlogical appeals, and ethical concerns in problem solving and persuasive discourse; writing and speaking under direction and criticism. 1003: Mass communication in rhetorical perspective: communicators, messages, media, effects, and social implications; writing and speaking under direction and criticism.

1001Hf-1002Hw. HONORS COURSE: COMMUNICATION. (4 cr per qtr, §Comp 1001-1002, §1006-1007-1008; prereq assignment to English Placement Category 1, 1A, or 2 and  $\Delta$ )

3980f,w,s. DIRECTED INSTRUCTION. (1-5 cr; prereq 1001 and 1002 or 1003, and #)  
Students work with instructors in planning and teaching freshman communication courses.

## Communication Disorders (CDis)

### Staff

*Chairman*, Clark D. Starr, 105 Shevlin Hall; *Director of Undergraduate Studies*, Richard P. McDermott

*Professors*: Chaiklin, Darley, Lassman, Martin (on leave, winter, 1974), McDermott, Siegel, Speaks, Starr, Templin, Ward

*Associate Professor*: Brookshire

*Assistant Professors*: Broen, T. Doyle, Haroldson, Moller, Nelson

*Instructors*: Ambroe, S. Doyle, Marth, Oxman

The curriculum and activities of the Department of Communication Disorders focus on the study of normal and abnormal hearing, speech, and language, and the application of knowledge in this area to the identification, prevention, evaluation, and clinical management of hearing, speech, and language problems.

The major in speech and hearing science in the Department of Communication Disorders offers undergraduate students an opportunity for broad study of the processes of normal and disordered hearing, language, speech, and voice. It serves as a preprofessional program for postgraduate education to qualify students for careers as speech pathologists, audiologists, or speech and hearing scientists. The undergraduate major does not provide specialized vocational skills, but the M.A. programs in speech pathology and audiology provide the educational background required for the Certificate of Clinical Competence issued by the American Speech and Hearing Association. Students contemplating graduate study should consult the director of graduate studies early in their senior year.

The department's former B.A. degree will not be available to students entering as freshmen in fall 1974 or after.

### B.S. MAJOR SEQUENCE

#### Required Preparatory Courses

Math 1111, Ling 3001 or 5001, Psy 1001, 1004-1005; Phys 1014-1024 or 1031-1032 or 1051-1052 or Biol 1011 and one previously listed physics course

#### Major Requirements

3100 (3 registrations of 1 cr each), 5301, 5302, 5303, 5304, 5307, 5512, PsyF 5110, CPsy 3301, Psy 3011, 3031

Four courses chosen from 3101, 5306, 5502, 5504, 5506, 5507, 5508, 5513, 5701, 5702, 5703, 5704

## Course Descriptions—Major Sequences

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One of the following groups:

- Group I: at least two courses chosen from CPsy 5341, 5343, Psy 3051, 3124, 5011
- Group II: at least two courses chosen from Ling 5006, 5201, 5202, 5302, CPsy 5345, Psy 5054, SpEd 5100
- Group III: at least two courses chosen from Math 1008, 1142, 1211, 1221, 1231
- Group IV: Ind 1520, 1522, 1524
- Group V: Psy 5017, 5018, 5019
- Group VI: SpEd 5120 or CPsy 3315, SpEd 5123

### Recommended Elective Courses

Anth 1002, Chem 1004-1005, Econ 1001-1002 or 1004-1005, GCB 3002, 3022, Ling 3301, Soc 1001

**General Education**—Courses 5301, 5302, 5303, 5304,\*\* 5306,\*\* 5512, and 5513 address the processes of normal hearing, speech, language, and voice. These courses are of interest to students wishing to gain understanding of the multi-disciplinary foundations of human communication. Other courses, such as 3101, a survey of problems of human communication, and 5502, 5504,\*\* 5506,\*\* 5507, 5508, 5701,\*\* 5703,\*\* and 5704,\*\* dealing with selected problems of human communication may be of general interest to students in psychology, child psychology, speech-communication, education, and medical-dental fields.

- 3100f,w,s,su. CLINICAL AND RESEARCH OBSERVATION.** (1 cr per qtr; S-N only; prereq 2nd-qtr jrs and srs majoring in communication disorders and #)  
Supervised observation of clinical procedures such as evaluation and treatment of persons with communication disorders or of research relating to normal and disordered communication.
- 3101f,s,su. INTRODUCTION TO SPEECH PATHOLOGY AND AUDIOLOGY.** (4 cr) McDermott, Haroldson  
Concepts basic to understanding normal and abnormal speech and hearing functions. Selected communication problems. Strategies and systems of delivery of clinical services. (GrA)
- 5202. SYMPOSIUM IN SPEECH SCIENCE, PATHOLOGY, AND AUDIOLOGY.** (4 cr; prereq grad major or professional paid experience beyond undergrad major or #)
- 5301f. INTRODUCTION TO ACOUSTICS.** (5 cr) Speaks  
Elements of acoustics necessary to understand quantitative aspects of speech pathology and audiology. Nature of sound, sound transmission, units of measurement, acoustic characteristics of speech, and elementary electroacoustic systems.
- 5302f. ANATOMY AND PHYSIOLOGY OF THE SPEECH AND HEARING MECHANISMS.** (4 cr) Lassman, McDermott  
Gross anatomy, physiology, and function of structures related to phonation, articulation, and audition.
- 5303f,w. PHONETICS LABORATORY.** (2 cr) Broen  
Phonetic analysis of speech, the IPA classification system and articulatory correlates of English phonemes. Laboratory transcription of isolated sounds, words, and connected speech.
- 5304w. SPEECH AND HEARING SCIENCE.** (5 cr; prereq 5301, 5302, 5303, or #) Speaks, Ward  
The physiologic, acoustic, and perceptual parameters of speech and fundamental concepts in normal audition.

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\*\* Prerequisite required

- 5305s. LABORATORY INSTRUMENTATION.** (4 cr; prereq 5301 or #) Speaks  
Basic concepts in electronics and electroacoustic systems appropriate to the study of speech and hearing.
- 5306s. HEARING SCIENCE.** (4 cr; prereq 5301 or Psy 3031 or #) Ward  
Fundamental concepts in normal audition. Psychoacoustic methods; sensitivity and acuity; loudness, pitch, timbre; distortion, aural harmonics; masking, adaptation; auditory reflex, binaural phenomena, localization. With laboratory.
- 5307w. ELEMENTARY INSTRUMENTATION.** (2 cr; prereq 5301) Speaks  
Instrumentation systems used by speech and hearing clinicians. Elementary electronics; measuring instruments; selection and use of audio recorders, tape, and transducers; procedures for recording, dubbing, and editing; standards and procedures for checking calibration of audiometers.
- 5502s. STUTTERING.** (4 cr) Martin  
Description, nature, and treatment of stuttering in children and adults. Involvement at various levels. Participation in therapeutic and research activities.
- 5504w. ARTICULATION DISORDERS.** (4 cr; prereq 5301, 5302) McDermott  
Impaired articulation performance and associated factors. Principles of diagnosis and clinical management. Observation of clinical activities.
- 5506s. APHASIA.** (4 cr; prereq 5302 or #) Brookshire  
Etiology, diagnosis, evaluation, and treatment of brain-damaged, communicatively-impaired adults. Clinical case materials; observation of evaluation and treatment of adult aphasic individuals.
- 5507f. CLEFT PALATE, ORAL-FACIAL ANOMALIES AND SPEECH.** (4 cr) Starr, Moller  
Relationships between oral-facial structures and speech. Speech problems associated with dental and palatal anomalies and their clinical management. Observations of clinical activities.
- 5508s. VOICE DISORDERS.** (4 cr) Starr  
Physical and physiological bases of normal voice production. Voice disorders (pitch, loudness, quality) and their symptomatology, etiology, and clinical management. Laryngectomy and other organic disorders.
- 5512f. SPEECH DEVELOPMENT AND RETARDATION.** (4 cr) Siegel  
Theory and experimental research dealing with speech development as related to delayed or retarded speech.
- 5513w. SPEECH DELAY: PSYCHOLINGUISTIC APPROACHES.** (4 cr; 3 class meetings per week plus off-campus assignments) Siegel  
Basic concepts in psycholinguistics applied to delayed language.
- 5514s. SPEECH DELAY: DEVELOPMENT AND ASSESSMENT.** (4 cr; prereq 5513 or #; 3 class meetings per week plus off-campus assignments) Broen, Siegel  
Continued application of psycholinguistics to delayed speech and language, plus consideration of language assessment.
- 5701f,s. HEARING DISORDERS.** (4 cr; prereq 5301, 5302) Chaiklin, Lassman  
Basic orientation to audiology with emphasis on hearing disorders; medical and surgical management, overview of major audiometric procedures, with laboratory demonstration; overview of audiologic and educational approaches to different types and degrees of hearing defects; psychological effects of hearing impairment.
- 5702f,w. HEARING MEASUREMENT.** (4 cr; prereq 5301, 5302, 5701; 4 lab hrs per wk plus lectures) Chaiklin, Marth  
Pure-tone audiometry, masking; bone-conduction theory; calibration; audiometer function; screening audiometry; emphasis on research bases of basic procedures.
- 5703w. COMMUNICATION PROBLEMS OF THE HEARING IMPAIRED.** (4 cr; prereq 5701 or #) Lassman  
Effects of impaired hearing on speech and language development. Development of speech and language for hearing-impaired individuals through speech, speech reading, auditory training, and other special methods and philosophies.
- 5704s. NOISE AND MAN.** (4 cr; prereq 5301 or #) Ward  
Temporary and permanent effects of steady, intermittent, and impulse noise on hearing and health. Annoyance and community noise. Noise measurement, reduction, and control; ear defenders and their limitations. Hearing conservation programs; preemployment testing and monitoring audiometry.
- 5970f,w,s,su. DIRECTED STUDIES.** (Cr ar; prereq #) Staff

## Comparative Literature (CLit)

### Staff

*Chairman*, Peter Firchow, 210K Main Engineering

*Professors*: Anderson, Chejne, Hurrell, Kwiat, Liu, Mather, Ramras, Renaud, Weiss

*Associate Professors*: Bauer, Duroche, Firchow, Schneider

*Assistant Professors*: Fisher, Spadaccini

Comparative literature is the study of the history, theory, and criticism of various national literatures in their interrelations and in their relations to the other disciplines. The program stresses the study of two or more literatures in their original languages and the development of critical perspectives that cut across individual linguistic and cultural boundaries. For a description of the graduate program in comparative literature, see the *Graduate School Bulletin*. The program does not offer an undergraduate major, but the courses listed below are available as electives for CLA students.

- 5111, 5112. **20TH-CENTURY WRITERS: ENGLISH AND CONTINENTAL.** (4 cr per qtr; prereq 6 cr of literature courses, exclusive of English composition, good reading knowledge of French or German) Firchow  
Modern European writers of various nations and cultures (among them Huxley, Hesse, Camus). (GrD)
5311. **FANTASY LITERATURE.** (4 cr; prereq reading knowledge of French or German)  
Fantasy literature (chiefly in the novel) from ca. 1800 to the present. Among authors considered: E. T. A. Hoffmann, Gautier, Gogol, Carroll, Chesterton, Morgenstern, Hesse, C. S. Lewis, and Tolkien. (GrD)
5321. **LITERATURE AND PHENOMENOLOGY.** (4 cr; prereq reading knowledge of French or German) Duroche  
Specific literary texts from a variety of literatures and languages—a phenomenological perspective. Theoretical foundations of selected critics, notably Ingarden and Merleau-Ponty. (GrD)
- 5331, 5332. **THE EUROPEAN NOVEL 1750-1950.** (4 cr per qtr; prereq reading knowledge of French or German)  
Development of the novel as an artistic genre; social and intellectual-historical factors. 5331: 1750-1850, England, France, and Germany and novels of Sterne, Rousseau, Goethe, Stendhal, Scott, Balzac, and E. T. A. Hoffmann. 5332: 1850-1950, England, France, Germany, and Spain and works of Dickens, Flaubert, Dostoyevsky, Tolstoy, Zola, Joyce, Hesse, Mann, Unamuno, Cela, and Lawrence.
5518. **MYTH AND MYTHOGRAPHERS OF THE RENAISSANCE.** (5 cr; reading knowledge of Italian or Latin)  
A study of the primary mythographical texts of the Renaissance.
5588. **ASPECTS OF CONTEMPORARY CRITICISM.** (5 cr, §Fren 5588; course taught in English; students who have no French must have reading knowledge of Russian, German, Italian or Spanish) Bauer  
Major aspects of criticism in contemporary France. (GrD)
5591. **DADA AND SURREALISM.** (5 cr, §Fren 5591; prereq one literature course at the 3xxx-5xxx level, reading knowledge of French, German, or Spanish) Bauer, visiting lecturers  
Origins, activities, and literary accomplishments of Dada and Surrealism. (GrD)

## Computer, Information, and Control Sciences (CICS)

*Institute of Technology*

### Staff

*Head*, J. Ben Rosen, 115 Main Engineering; *Associate Head and Director of Graduate Study*, William D. Munro, 120 Main Engineering

*Professors:* Giloi, Munro, Rosen, Stein

*Associate Professors:* Brown, Frankowski, Ibarra, Leavitt

*Assistant Professors:* Boyd, Franta, Hanson, Maly, Sahni, Weingart

Computer science is concerned with the study of the hardware and software (programming) aspects of high speed computing devices and the applications of these devices to a broad range of technological and business problems. Bachelor's degree training in computer science can be obtained in either CLA or IT (the IT program is described in the *Institute of Technology Bulletin*). Both curricula are designed to provide a broad base in the foundation subjects of computer science.

By means of the CLA major option and a choice of alternatives among required courses, the curriculum is made flexible enough that a student can plan a concentration either in computer science or in interdisciplinary areas involving the applications of computers. The concentrations prepare students for industrial and governmental positions involving computer usage and give them the background for graduate work.

**Transfer Students**—A student with a calculus and FORTRAN background can enter the program as a junior if his earlier college work is substantially equivalent to that required by CLA during the first 2 years. A program can be worked out so that students who have not had the material covered in 3105, 3106 and 3107 may take them in the summer before their junior year. Transfer students should consult advisers in the department office.

## B.A. MAJOR SEQUENCE

### Required Preparatory Courses

Math 1311, 1321, 1331, 3142, 3211; Stat 3091 or 5121 for students intending to take additional work in statistics; at least one additional 3xxx- or 5xxx-level mathematics or statistics course (recommended: Math 5701)

### Major Requirements

3001, 3105, 3106, 3107, 5102, 5104, 5107, 5121, 5301, 5400, 5501

At least two courses chosen from one of the following areas: 5001, 5002, 5105, 5302, 5304, 5305; or 5103, 5106, 5108, 5200, 5201, 5202, 5401, 5499, 5502, 5503, 5504, 5505, 5122

All courses listed above must be taken A-N (except courses offered only S-N).

**General Courses**—3101 or 1100-1101 covers the FORTRAN computer language, programming applications, and techniques. 3001 deals with the impact of computers on society. Introduction to numeric and nonnumeric algorithms and languages for implementing them is covered in 3105, 3106. 3107 and 5101 are concerned with the organization and logical structure of computer systems and the representation of programs and data (machine and assembly language programming).

**1100. INTRODUCTION TO FORTRAN PROGRAMMING I.** (2 cr; prereq Math 1211 or 1311 or 1611 or ¶Math 1211 or ¶1311 or ¶1611 or §; informal lab)

Introduction to computer programming using FORTRAN; elementary-intermediate level applications. Choice of problems provided for students from different disciplines. See 3101. (GrA)

**1101. INTRODUCTION TO FORTRAN PROGRAMMING II.** (2 cr [no cr for CICS majors]; prereq 1100 and Math 1211 or 1311 or 1611 or §; informal lab)

(Continuation of 1100) Extended applications, including numerical methods. (GrA)

## Course Descriptions—Major Sequences

- 3001. PERSPECTIVES ON COMPUTERS AND SOCIETY.** (4 cr; prereq soph or #; informal lab)  
The impact of computers on society. Partnership or confrontation. History of development. Potential for use. Computer utility. Privacy in a computer society. The future of computers. The ultimate machine. Computers in business, industry, art, music, the home. (GrA)
- 3101. A FORTRAN INTRODUCTION TO COMPUTER PROGRAMMING.** (4 cr; for non-CICS majors; prereq Math 1231 or 1331 or 1621 or #)  
FORTRAN computer language with extensions; applications; programming techniques. The course brings students to advanced FORTRAN programming competence. Integral nonscheduled laboratory. (GrA)
- 3105. FUNDAMENTALS OF ALGORITHMS AND LANGUAGES I.** (4 cr; prereq competence in a high-level language such as FORTRAN at a minimum level of 1100, although sophistication at the level of 1101 or 3101 is desirable or #...Math 1231 or 1331 or 1621 or #; informal lab)  
Informal and formal approaches to algorithms, their properties, analysis, and synthesis (formulation); correspondence between programming languages and types of problems to be solved. Numerical algorithms and their implementation in a programming language (FORTRAN). (GrA)
- 3106. FUNDAMENTALS OF ALGORITHMS AND LANGUAGES II.** (4 cr; prereq competence in a high-level language, algorithmic structures at the level of 3105 or #; informal lab)  
Algorithms for nonnumeric data types. Examples from language processors, data structures, string processing. Suitable languages; SNOBOL. Textual analysis, recursive processes, their implication on languages and their implementations; artificial intelligence. (GrA)
- 3107. INTRODUCTION TO THE STRUCTURE AND PROGRAMMING OF COMPUTER SYSTEMS.** (4 cr, §5101; for CICS majors...nonmajors should take 5101; prereq 1101 or 3101 or equiv or #; informal lab)  
Organization and logical structure of computer systems. Representation of programs and data. Number systems, primitive computer systems, programming in machine language. More sophisticated systems, assembly language, sequencing, decision making, arithmetic, logical operations, character manipulation, iteration, subroutines, data description, introduction to assembler software. (GrA)
- 5001. THEORY AND APPLICATION OF LINEAR PROGRAMMING ALGORITHMS.** (4 cr; prereq 1101 or 3101, Math 3211 or 3142, or #; informal lab)  
Convex polyhedral sets; extreme points; linear systems; primal and revised simplex algorithms; duality theory and Kuhn-Tucker conditions; post-optimality analysis; obtaining initial feasible solutions; storage and retrieval problems; use of commercial linear programming codes. (GrA)
- 5002. COMPUTATIONAL METHODS FOR NONLINEAR PROGRAMMING.** (4 cr; prereq 5001 or #; informal lab)  
Convex functions and domains; nonlinear optimality conditions and duality; unconstrained minimization methods; convergence rates; minimization methods for linear and nonlinear constraints; penalty functions; acceleration of convergence; nonconvex problems. (GrA)
- 5101. STRUCTURE AND PROGRAMMING OF SOFTWARE SYSTEMS I.** (4 cr, §3107; for non-CICS majors...majors should take 3107; prereq 1101 or 3101 or equiv or #; informal lab)  
Topics are essentially the same as those listed for 3107, but the emphasis and projects are geared to nonmajors. (GrA)
- 5102. STRUCTURE AND PROGRAMMING OF SOFTWARE SYSTEMS II.** (4 cr; prereq 3107 or 5101 or #; informal lab)  
Subroutine coding conventions; argument transfer; interrupts and traps; macros; I/O equipment and operations; buffers; conditional assembly and program segmentation. Students run assembly language programs. (GrA)
- 5103. INTRODUCTION TO ASSEMBLERS.** (4 cr; prereq 5102 or #; informal lab)  
Relocatability and base addressing. Creating an assembler; source code scanning, symbol table management, stacking, template macroprocessing, etc. Microprogramming. Students design and run an assembler. (GrA)
- 5104. SYSTEM SIMULATION: LANGUAGES AND TECHNIQUES.** (4 cr; prereq 3107 or 5101, Stat 3091 or #; informal lab)  
Simulation methodology including random number generation, queuing, service times, discrete random variables, design of experiments. Simulation languages, flow and event oriented: GPSS, SIMULA, SIMSCRIPT. Model building. Applications to job shops, business, operations research, and operating systems. (GrA)

- 5105. THEORY OF MACHINE ARITHMETIC.** (4 cr; prereq 3107 or 5101 or §; informal lab)  
Residue class arithmetic. Congruences and complement arithmetic. Integral additive and subtractive accumulators. Multiplication and division by shifting and accumulation. Applications to absolute value and sign arithmetic, scaling and floating point operation. (GrA)
- 5106. STRUCTURE OF HIGHER LEVEL LANGUAGES.** (4 cr; prereq 5102 or §)  
Formal definition of programming languages. Syntax. Semantics. The Algol report. Introduction to Algol. Applications. Extensions of concepts to other languages. List structures. List languages. List processing. Basics of compilers and compiler implementation. (GrA)
- 5107. COMPUTER GRAPHICS.** (4 cr; prereq 3107 or 5101 or §)  
Arrangement of data base and display files. Representation of data types of display equipment available, calligraphic and raster. Character generators. Display processors. Clipping, windowing, and the hidden surface problem. Applications. (GrA)
- 5108. MATRIX DESCRIPTION AND SYNTHESIS OF LOGICAL ALGORITHMS FOR MICROPROGRAMMING.** (4 cr; prereq 3107 or 5101, 5201, Math 3211, or §; informal lab)  
A matrix calculus is developed and applied to the description and synthesis of combinational, iterative, and sequential networks. Applications to state reduction, minimization of logical algorithms, and structural implementation of microprograms. (GrA)
- 5121. INTRODUCTION TO DATA STRUCTURES.** (4 cr; prereq 3106 or §; informal lab)  
Basic concepts of data and its representation. Linear lists and strings. Array structures and allocation. Symbol tables and searching techniques; hash coding techniques. Tree structures. Storage systems and structures. Storage allocation. Multilinked structures. Sorting. (GrA)
- 5122. ADVANCED DATA STRUCTURES.** (4 cr; prereq 5121 or §; informal lab)  
Data structure formalisms. Storage structures and organization. Data structures in programming languages. List processing languages. Data definition languages. Data base management systems and design. Problems in information system design. Applications to large data base problems. (GrA)
- 5199. PROBLEMS IN LANGUAGES AND SYSTEMS.** (1-4 cr [may be repeated for cr]; prereq §)  
Individual study arranged with faculty member. (GrA)
- 5200. INTRODUCTION TO ANALOG AND HYBRID COMPUTATION.** (4 cr; prereq 1101 with §, and Math 3221 or Math 3061, or §; 3 lect and 1 lab)  
Organization of analog and hybrid computers. Programming for analog and hybrid computers. Interface equipment including analog-to-digital and digital-to-analog conversion. Simulation languages. Case studies and problem solutions. (GrA)
- 5201-5202. FUNDAMENTALS OF LOGIC SYSTEM DESIGN.** (4 cr per qtr; prereq 3105 or §; 5202 not offered 1974-75)  
Mathematical fundamentals: sets, set operations, relations, algebraic structures and Boolean algebra, switching functions. Matrix notation and operations for the synthesis of combinational networks and iterative or sequential systems. State reduction and minimization. Design of synchronous flip-flop networks and microprograms for computer algorithms. (GrA)
- 5299. PROBLEMS IN MACHINE DESIGN.** (1-4 cr [may be repeated for cr]; prereq §)  
Individual study arranged with faculty member. (GrA)
- 5301. NUMERICAL ANALYSIS.** (4 cr, §Math 5472; prereq Math 3221, or 3142 and 3211, or §; a knowledge of FORTRAN is assumed; informal lab)  
General concept of iteration formulas. Solution of equations. Newton's method. Linear systems. Finite differences. Interpolation. Numerical differentiation and integration. Introduction to initial value problems. (GrA)
- 5302. NUMERICAL ANALYSIS.** (4 cr, §Math 5473; prereq 5301 or §; informal lab)  
General theory of linear approximations. Norms. Error estimates. Convergence rates. Least squares. Orthogonal polynomials. Chebychev interpolation theory. Gaussian quadrature. Further solution of equations. Multipoint iteration formulas. Starting values. Iterative schemes for linear algebra. Conditioning. Jacobi's method. Differential equations. Initial value problems. Systems of equations. Runge-Kutta. Stability. (GrA)
- 5304. COMPUTATIONAL ASPECTS OF MATRIX THEORY.** (4 cr; prereq 5302 or §; informal lab)  
Computational pitfalls. Conditioning. Iterative methods. Relaxation methods. Various reduction and elimination schemes. Hessenberg matrices. Methods of Lanczos, Givens, Householder. Eigenvalue problems. Bounds for eigenvalues. (GrA)

## Course Descriptions—Major Sequences

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- 5305. NUMERICAL SOLUTIONS OF INITIAL AND BOUNDARY VALUE PROBLEMS.** (4 cr; prereq 5302 or #; informal lab)  
Linear two-point boundary value problems. The eigenvalue problem. Tau and Galerkin methods. Nonlinear two-point problems. Shooting method. Newton-Kantorovich method. Elements of numerical solutions of problems in partial differential equations. Laplace, heat, and wave equations. (GrA)
- 5399. PROBLEMS IN NUMERICAL ANALYSIS.** (1-4 cr [may be repeated for cr]; prereq #)  
Individual study arranged with faculty member. (GrA)
- 5400. INTRODUCTION TO AUTOMATA THEORY.** (4 cr; prereq 3106 or #)  
Turing machines, computable functions, unsolvability of the halting problem. Finite state models: equivalence, minimization, synthesis of finite state systems, state assignment, decomposition. Survey of other automata. (GrA)
- 5401. INTRODUCTION TO FORMAL LANGUAGES.** (4 cr; prereq 5400; informal lab)  
Formal grammars and languages and their related automata. Language hierarchy. Context free languages and grammars. Pushdown automata. Normal form theorems. Operations on languages. Decidability and undecidability results. Parsing algorithms. Applications to programming. (GrA)
- 5499. PROBLEMS IN COMPUTATIONAL THEORY OR LOGIC.** (1-4 cr [may be repeated for cr]; prereq #)  
Individual study arranged with faculty member. (GrA)
- 5501. ARTIFICIAL INTELLIGENCE AND HEURISTIC PROGRAMMING.** (4 cr; prereq 3106 or #; informal lab)  
Concept of a "mechanized" intelligence. The IQ of current systems. Game playing, particularly heuristic search techniques. Introduction to neural networks and their mechanical analogues. Methodologies in pattern recognition and applications. The frame problem in AI and implications for robotics. Natural language processing and deductive question answering. (GrA)
- 5502. INTRODUCTION TO OPERATING SYSTEMS.** (4 cr; prereq 5102 or #; informal lab)  
Definition and historical development of operating systems. Classification of systems as batch-processing, interactive, and real-time systems. Abstractions and implementations of properties common to most systems. Concurrency and related control problems. Resource allocation. Storage allocation. Program modularity. Sharing. Multiplexing. Protection. Performance optimization. (GrA)
- 5503. INTRODUCTION TO COMPILER CONSTRUCTION.** (4 cr; prereq 5103 or #; informal lab)  
Definition of a language; phrase structure languages; context free languages and grammars; rigorous definition of typical small language in BNF. Construction of a compiler for programs written in this language. Scan and classification of statements; symbol table construction and management; generation of intermediate text and assembly code. (GrA)
- 5504. FORMAL METHODS IN COMPILER CONSTRUCTION.** (4 cr; prereq 5401 and 5503 or #; informal lab)  
Syntax-directed approach to the "front end" of a compiler; review of finite state automata used by the lexical scanner; generative BNF grammars and their use in top-down parsing; boot-strapping techniques; precedence schemes and languages, production of a table-driven, efficient bottom-up parser. (GrA)
- 5505. OPTIMIZATION IN COMPILERS.** (4 cr; prereq 5503 or #; informal lab)  
Automatic collection of global information encompassing the structure of the program; usage information for the variables; representation in terms of a program graph. Specific optimizations: elimination of common subexpressions; backward movement of code; strength reductions. Minimization of loads and stores. Optimal global assignment of registers. (GrA)
- 5511. ADVANCED TOPICS IN ARTIFICIAL INTELLIGENCE.** (4 cr; prereq 5501 and 5400 or #)  
"Systems" employing AI techniques; examples including Shakey (the SRI robot), the hand-eye project at Edinburgh, the MIT robot project, etc. Methods of integrating eyes, hands, ears, etc., into a functioning unit. Natural language facilities including representational schemes, parsing algorithms, and semantic memories. Students design and implement phases of a large system. (GrA)
- 5599, 5699, 5799. PROBLEMS: NONNUMERIC COMPUTATION, CONTROL SCIENCE, INFORMATION SCIENCE.** (1-4 cr [may be repeated for cr]; prereq #)  
Individual study arranged with faculty member. (GrA)

## Criminal Justice Studies (CJS)

### Staff

*Chairman*, Joel B. Samaha, 314 Social Sciences Building

*Professors*: Malmquist, Murton, Tapp, Ward

*Associate Professors*: Feld, Samaha

*Lecturer*: Dwyer

The Department of Criminal Justice Studies offers an interdisciplinary program designed to permit students to specialize in criminal justice and related studies. Though there is not a major in criminal justice studies, the specialization may be earned in conjunction with a 2-year associate in liberal arts degree in either CLA or General College, a 4-year B.A., or a 4-year B.S. degree in University College. Students specializing in the field should select related majors or individual study programs. The specialization requires students to meet the core requirements of the program.

### SPECIALIZATION CORE REQUIREMENTS

Area A: The Definition of Behavior as Criminal: 5101 and 5106, 5205, or Soc 5111 (8 cr)

Area B: Societal Response to Behavior Defined as Criminal: 5102 and either Soc 5105 or 5125 (8 cr)

Area C: Electives: 8 cr from a list of approved electives available in the CJS office.

**5001, 5002, 5003. THE ROLE AND FUNCTION OF MUNICIPAL POLICE ADMINISTRATION IN A CHANGING SOCIETY.** (4 cr per qtr; prereq 5001 for 5002 and 5003, or 5001 for 5003, or #) Dwyer

**5001:** The development of American policing; its goals, evolution of its structure, analysis of the milieu in which it operates. **5002:** Police organization, management, and functions; executive responsibilities; policy formulation and implementation; management of staff units. **5003:** Organization and management of police services; theory and practice of administration; role of investigative, juvenile, vice, and other programs. (GrC)

**5101. CRIMINAL LAW.** (4 cr) Samaha, Feld

General criminal law; its philosophical underpinnings. The substantive law of homicide, theft, conspiracy, and attempt; the defenses of insanity, self-defense, and mistake of fact or law. (GrC)

**5102. CRIMINAL PROCEDURE.** (4 cr) Samaha, Feld

The processes by which persons are convicted of crime. Discretion to arrest, constitutional law of arrest, search and seizure, role of prosecutor, plea bargaining, sentencing, and postconviction relief. (GrC)

**5105. ORIGINS OF THE FIFTH AMENDMENT.** (4 cr) Samaha

History of the right against self-incrimination from its origins to the ratification of the Constitution. Evaluation of Chief Justice Magruder's remarks: "Our forefathers, when they wrote this provision into the fifth amendment, had in mind a lot of history which has largely been forgotten today." (GrC)

**5106. LAW AND SOCIAL ISSUES.** (4 cr; prereq Soc 3101) Samaha

How far the law can go in solving pressing social issues which impinge on individual liberties, such as sexual relations, drug use, abortion, family relationships. (GrC)

**5113. COMMUNITY-BASED CORRECTIONS.** (4 cr; prereq Soc 5105 or #) Murton

Theory, structure, and description of programs that exist as alternatives to imprisonment. (GrC)

**5114. WOMEN IN THE CRIMINAL JUSTICE SYSTEM.** (4 cr; prereq Soc 3101 or #)

Major areas in which women are involved in the criminal justice system; effect of sex-based distinctions on a female offender; functioning of criminal justice system when women are victims of criminal acts; types of jobs and job demands given women in the criminal justice system. (GrC)

## Course Descriptions—Major Sequences

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- 5116-5117†. LAW, JUSTICE, AND THE INDIVIDUAL IN SOCIETY.** (4 cr per qtr; prereq sr, grad, law student or #) Tapp  
Experiential, interdisciplinary approach to theory and research about individual and institutional processes in developing expressions of law and justice. *5116*: Psychology-law interface, cross-cultural examples, law and justice theories, the legal socialization process. *5117*: Compliance styles, deviance dynamics, functioning justice systems, psychological reforms. (GrC)
- 5121. COMPARATIVE PENAL POLICY.** (4 cr per qtr; prereq Soc 5105 or #) Ward  
Structure and functioning of law enforcement, adjudication and corrections systems in other countries compared to the United States. (GrC)
- 5201. POLICE AND COMMUNITY RELATIONS.** (4 cr) Dwyer  
Critical issues in the police and community relationship; the nature of the relationship; an assessment of the problem; evaluation of present programs; agenda for change. (GrC)
- 5202. COMPARATIVE CRIMINAL JUSTICE ADMINISTRATION.** (4 cr) Murton  
Application of comparative method to field of law enforcement administration; law enforcement activities in a variety of governmental settings. (GrC)
- 5203. SEMINAR IN CORRECTIONAL ADMINISTRATION.** (4 cr; prereq Soc 5105 or #) Murton  
Organization and decision making in correctional (probation, parole, and institutional) settings. How system is organized, how it functions; the relation of administration to attainment of goals. (GrC)
- 5205. CRIMINAL PSYCHOPATHOLOGY.** (4 cr, \$Psy 5641; prereq sr or grad) Malmquist  
Psychiatric and psychological aspects of antisocial and criminal behavior as related to issues faced in the courts and criminal justice system. (GrC)
- 5970. DIRECTED STUDIES.** (1-15 cr per qtr; prereq #) Staff (GrC)

## Cross-Disciplinary Studies

*Director*, Marcia M. Eaton, 106 Johnston Hall

This program sponsors, for freshmen and sophomores, coordinated sequences of regularly offered introductory courses, the patterns of which may change from year to year. It also supervises the advising services for interdepartmental majors and provides the channel for consideration and initiation of experimental courses. Information about the coordinated sequences is to be found on page 23. See the current *Class Schedule* for listing of specific 1974-75 and 1975-76 sequences.

## DANISH

See Scandinavian.

## Design (Dsgn)

*College of Home Economics*

Staff

*Chairman*, Gertrude Esteros, 354 McNeal Hall

*Professor*: Larkin

*Associate Professors*: Abell, Bagley, Erickson, Nagle, Ordos, Stoeckeler, Tarapchak

*Assistant Professors*: Amir-Fazli, Shank

*Instructors*: Franklin, Ginthner

Design courses emphasize design principles applied to jewelry and textiles in conjunction with a strong foundation in basic design.

- 1501. INTRODUCTION TO DESIGN.** (3 cr)  
Awareness of design in the near environment. (GrD)
- 1521. COLOR AND DESIGN I.** (3 cr)  
Color concepts and their application to design. (GrD)
- 1523. DRAWING AND DESIGN I.** (4 cr)  
Development of basic drawing skills for the designer.
- 1531. FIBER-FABRIC DESIGN I.** (3 cr; prereq 1525)  
Orientation to sources and resources of textile media. Individual designing in textile construction techniques and/or applied media. Studio problems.
- 1533. JEWELRY DESIGN I.** (4 cr; prereq 1525)  
Contemporary jewelry making processes and materials.
- 1541. COSTUME DESIGN I.** (3 cr; prereq 1521, 1523, or 1525, or #)  
Problems in color, texture, design for individual. Introduction to sketching. Folk and regional costume. (GrD)
- 1552. INTRODUCTION TO HOUSING AND INTERIOR DESIGN.** (3 cr, §1551; prereq soph)  
Locating, planning, and selecting a dwelling unit and its furnishings. Emphasis on design and appraisal of individual and family needs.
- 1553. INTERIOR DESIGN I.** (3 cr; prereq 1521, 1552, AgEn 1010, or equiv)  
Designing for living space needs. Evaluation of design quality of furnishings elements. Selection and coordination of fabric, furniture, accessories in an interior space laboratory.
- 3531. FIBER-FABRIC DESIGN II.** (3-4 cr; prereq 1531, 1521, 1523 or #)  
Studio problems. Printed, dyed, woven or nonwoven textiles.
- 3533. JEWELRY DESIGN II.** (4 cr; prereq 1523, 1533 or #)  
(Continuation of 1533) Selection of one or two procedures.
- 3541. COSTUME DESIGN II.** (4 cr; prereq 1541, 1543)  
Production for design of sportswear, day and evening wear, and children's garments.
- 3563. ART AND THE ENVIRONMENT.** (3 cr; prereq soph)  
Art and design in housing; the individual's role and responsibility; contemporary and historical examples of alternative approaches to design of the home environment.
- 5505. ART HISTORY.** (4 cr)  
Art from Egyptian period to present. Painting, sculpture, architecture of the past studied for influences on contemporary period. Field trips.
- 5512. HISTORY OF EUROPEAN FURNITURE AND INTERIORS.** (3-4 cr; prereq 5505 or equiv)  
Furniture and interiors from ancient time through the 19th century.
- 5514. HISTORY OF AMERICAN FURNITURE AND INTERIORS.** (3-4 cr; prereq 5505 or equiv, 5512)  
Historical styles of American interiors and furnishings from the 17th to the 20th century.
- 5565. HOMES OF THE WORLD.** (3-4 cr; prereq 1551 or 1553 or 3563 or equiv)  
Home design in selected regions of the world.

## DUTCH

See German.

## East Asian Languages

### Staff

*Chairman*, Stephen S. Wang, 321A Folwell Hall

*Professors*: Copeland, Liu, Mather, Shohara, Wang

*Associate Professor*: Loveless

## Course Descriptions—Major Sequences

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Assistant Professors: Matsumoto, Shibano

Instructor: Na

The department offers courses at all levels to develop spoken and literate competence in the languages of East Asia (primarily Chinese and Japanese). Students may choose to emphasize either literature (all periods) or linguistics, but opportunity is also afforded for philologically-based studies of broader cultural aspects of East Asian civilization.

### CHINESE (Chn)

#### B.A. MAJOR SEQUENCE

##### Required Preparatory Courses

1011-1012-1013, 3021-3022-3023

##### Major Requirements

3031-3032-3033, 5041-5042-5043

8 cr from courses numbered above Chn 52xx

8 cr from courses numbered above EAS 31xx, or additional courses above Chn 52xx

**1011f-1012w-1013s. FIRST-YEAR CHINESE.** (5 cr per qtr)

Basic skills in modern standard Chinese through conversation and reading.

**3021f-3022w-3023s. SECOND-YEAR CHINESE.** (5 cr per qtr; prereq 1013)

Modern standard Chinese strengthened and expanded through conversation and reading literary Chinese introduced in third quarter.

**3031f-3032w-3033s. THIRD-YEAR CHINESE: CLASSICAL TEXTS.** (5 cr per qtr; prereq 3023)

Reading literary Chinese. Selections from earliest times to 12th century. (GrA)

**3090. HONORS TUTORIAL.** (1-4 cr per qtr; prereq Δ)

**3970. DIRECTED STUDIES.** (1-4 cr per qtr; prereq 3023 or §) (GrA)

**5041f-5042w-5043s. FOURTH-YEAR CHINESE: POSTCLASSICAL TEXTS.** (5 cr per qtr; prereq 3033)

Extensive reading of representative works, literary and vernacular, from the 13th century to the modern period. (GrA)

**5251. STRUCTURE OF STANDARD CHINESE.** (4 cr; prereq 1013 and Ling 3001)

Phonological and syntactic structures of modern standard Chinese.

**5252. HISTORY OF THE CHINESE LANGUAGE.** (4 cr; prereq 3031...Ling 3601 highly recommended)

Historical development of the Chinese language, using traditional native philological sources and modern dialectal evidences.

**5261f, 5262w, 5263s. READINGS IN CHINESE LITERATURE.** (4 cr per qtr; prereq 3033)

Representative pieces of Chinese literature; styles, ideas, and historical background of the authors. (GrD)

**5451, 5452. STUDIES IN CHINESE LINGUISTICS.** (4 cr per qtr; prereq 5251 or 5252)

In-depth work in specific areas of Chinese linguistics. Topic for each quarter chosen in advance, in consideration of students' interests, from syntax of modern standard Chinese, Chinese dialectology, Chinese historical phonology, grammar of classical Chinese. (GrA)

**5461. PROSEMINAR ON ANCIENT AND MEDIEVAL CHINESE TEXTS.** (4 cr; prereq 2 qtrs from 5261, 5262, 5263)

Selected poetic, expository, and narrative Chinese texts from 600 B.C. to 1000 A.D. (GrD)

**5471. RESEARCH METHODS.** (4 cr; prereq 3033)

Research methods and materials in the area of Far Eastern philosophy. (GrD)

- 5472. CHINESE BIBLIOGRAPHY.** (4 cr; prereq 2 qtrs from 5261, 5262, 5263, or #)  
Primary sources for the study of Chinese humanities, to prepare students for independent research. (GrD)
- 5970. DIRECTED STUDIES.** (1-4 cr per qtr; prereq 2 qtrs from 5261, 5262, 5263)  
Individual study of selected Chinese texts. (GrD)

## JAPANESE (Jpn)

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1011-1012-1013, 3021-3022-3023

#### Major Requirements

- 3031-3032-3033, 5041-5042-5043  
8 cr from courses numbered above Jpn 52xx  
8 cr from courses numbered above EAS 31xx, or additional courses above Jpn 52xx
- 1011f-1012w-1013s. FIRST-YEAR JAPANESE.** (5 cr per qtr)  
Basis for reading, writing, and speaking Japanese.
- 3021f-3022w-3023s. SECOND-YEAR JAPANESE.** (5 cr per qtr; prereq 1013)  
Continues to build skills. Foundation for reading knowledge of Japanese. Review and pattern drill.
- 3031f-3032w-3033s. THIRD-YEAR JAPANESE: ADVANCED.** (5 cr per qtr; prereq 3023)  
Further competence in hearing, speaking, reading, and writing Japanese. Development of reading proficiency in modern Japanese prose and poetry. Formal written Japanese.
- 3090. HONORS TUTORIAL.** (1-4 cr per qtr; prereq Δ)
- 3970. DIRECTED STUDIES.** (1-4 cr per qtr; prereq 3023 or #) (GrA)
- 5041f-5042w-5043s. FOURTH-YEAR JAPANESE: CLASSICAL.** (5 cr per qtr; prereq 3033)  
Classical Japanese; masterpieces of Japanese literature in classical language. Grammatical construction. (GrA)
- 5251. HISTORY OF JAPANESE LANGUAGE.** (4 cr; prereq 3033)  
Development of Japanese grammar from classical to modern language. (GrA)
- 5261f, 5262w, 5263s. READINGS IN JAPANESE LITERATURE.** (4 cr per qtr; prereq 3033)  
Japanese literature—style, ideas, and historical appreciation of authors and works. Traditional Japanese literary criticism. (GrD)
- 5451f-5452w-5453s. STRUCTURE OF JAPANESE.** (4 cr per qtr; prereq 3023 and Ling 3001, or #)  
Dealing with data of language itself in phonology, morphology, and syntax.
- 5461. PROSEMINAR IN JAPANESE LITERATURE.** (4 cr; prereq 2 qtrs from 5261, 5262, 5263)  
Reading and discussion of selected poetic, expository, narrative, and dramatic texts. (GrD)
- 5471. RESEARCH METHODS.** (4 cr; prereq 3033)  
Research methods and materials in Far Eastern philology. (GrD)
- 5472. JAPANESE BIBLIOGRAPHY.** (4 cr; prereq 2 qtrs from 5261, 5262, 5263, or #)  
Research in Japanese studies; primary sources and secondary materials in the native research tradition. (GrD)
- 5970. DIRECTED STUDIES.** (1-4 cr per qtr; prereq 2 qtrs from 5261, 5262, 5263)  
Individual study of selected Japanese texts. (GrD)

## EAST ASIAN STUDIES (EAS)

- 1001, 1002. THE EAST ASIAN HERITAGE.** (4 cr per qtr)  
The cultures of East Asia through study of representative works of national expression. 1001: Early period. 1002: Modern period. (GrC)

## Course Descriptions—Major Sequences

- 1032. RELIGIONS OF EAST ASIA.** (4 cr, §ReIs 1032)
- 3161, 3162. LITERATURE OF CHINA: THE LYRICAL TRADITION AND THE NARRATIVE TRADITION.** (4 cr per qtr; reading knowledge of Chinese not required)  
Main topics of Chinese literature introduced. Attention to the intellectual, social and aesthetic traditions of the works under investigation. *3161*: The lyrical tradition. *3162*: The narrative tradition. (GrD)
- 3163, 3164. LITERATURE OF JAPAN.** (4 cr per qtr; reading knowledge of Japanese not required)  
Topics of Japanese literature. Intellectual, social, and aesthetic traditions. (GrD)
- 5990. COLLOQUIUM ON EAST ASIA.** (1-4 cr per qtr; prereq jr, sr, or grad standing)  
Reports by students on their research. (GrD)

## Ecology and Behavioral Biology (EBB)

*College of Biological Sciences*

### Staff

*Head*, John R. Tester, 227 Snyder Hall; *Director of Undergraduate Studies*, Tester  
*Professors*: McKinney, Parmelee, Phillips, Shapiro, Tester, Tordoff, Wright  
*Associate Professors*: Bright, Corbin, Cushing, Megard, Siniff  
*Assistant Professors*: Birney, Hopkins, Maxwell, McColl, Regal, Taylor

Ecology is concerned with organism-environment interaction and the study of the structure and functioning of ecosystems.

**General Education**—Courses especially appropriate for nonmajors include Biol 1104, 1105, 1107 and EBB 3001, 3111.

- Biol 1104f.s. ECOLOGY AND MAN.** (4 cr; prereq Biol 1011) Megard, Siniff  
Basic concepts of ecology; man's increasing impact and exploitation of the environment; the biosphere's limits with respect to energy, resources, and space. (GrB)
- Biol 1105w. INTRODUCTION TO EVOLUTIONARY BIOLOGY.** (4 cr; prereq Biol 1011 or 1101) Birney  
History and basis of evolutionary thought, the history and future of man. (GrB)
- Biol 1107s. BEHAVIOR OF ANIMALS.** (4 cr; prereq Biol 1011) Hopkins  
Central ideas in behavior: control of movement, ontogeny, hormone and sensory systems, behavioral evolution, social behavior. Behavior of primates. (GrB)
- 3001w. INTRODUCTION TO ECOLOGY.** (4 cr, §Biol 1104; open to jrs and above but not to biology majors) Corbin  
Organization, development, and functioning of ecosystems; population growth and regulation. Man's impact on such systems. (GrB)
- 3004w. FUNDAMENTALS OF ECOLOGY.** (4 cr; not open to biology majors; prereq Biol 1011, college algebra) Tester  
Relationships between organisms and their environment; ecosystem structure and function emphasizing energy flow, biogeochemical cycling and succession; population dynamics; regional biotic communities. (GrB)
- 3101f.w. ECOLOGY FOR ENGINEERS AND PHYSICAL SCIENTISTS.** (4 cr, §3001, §Biol 1104; not open to biology maj; prereq Math 1231) Staff  
Spatial and temporal interactions between populations in ecosystems; the processes affecting populations and the transformations of energy and materials in the biosphere.
- 3111s. ANIMAL BEHAVIOR.** (4 cr, §AnSc 3110; prereq Biol 1011 or #) Phillips  
The nature and variety, development, motivation, and evolution of animal behavior; social interactions and communication.
- 3990f.w.s. RESEARCH PROBLEMS.** (1-6 cr; prereq #) Staff  
Individual research for undergraduate majors in biology.
- 5014f. ECOLOGY OF PLANT COMMUNITIES.** (5 cr; prereq 3004 or Biol 3041, 1 qtr statistics or #) Cushing  
Methods of describing, sampling, and classifying plant communities; theory of structure, development, and stability and of the interactions among constituent populations. Field trips to local vegetation types; analysis of quantitative data.

- 5015w. NUTRIENTS AND ENERGY IN TERRESTRIAL ECOSYSTEMS.** (6 cr; prereq Biol 3041, 4 cr in statistics and #)  
Hydrologic and biogeochemical cycling processes, flow of energy in natural ecosystems, and effects of certain perturbations. Concepts of ecosystem modeling. Nutrient cycling in terrestrial plant communities. Greenhouse experiments, field trip, discussions of current literature.
- 5016s. ECOLOGICAL PLANT GEOGRAPHY.** (3 or 5 cr; prereq 3004 or Biol 3041, Bot 3201 or ¶Bot 3201 or #) Cushing  
Vegetation regions of the world in general and North America in detail; ecological principles of plant distribution; interpretation of regional and temporal patterns in the distribution of vegetation and taxonomic groups. Field trips to floristic regions of Minnesota.
- 5017f. PREDATORS.** (3 cr; prereq Biol 3041 or #) Taylor  
Energetics, ecology, and evolution of vertebrate and invertebrate predators and insect parasitoids.
- 5021f. PREDATION LABORATORY.** (2 cr; prereq 5017 or §5017 and #) Taylor  
Individual projects in the behavior and population ecology of predators.
- 5022w. ANIMAL BEHAVIOR.** (4 cr; prereq #) McKinney  
Introduction to ethology; causation, development, evolution, and adaptive significance of behavior.
- 5023w. BEHAVIORAL ADAPTATIONS.** (5 cr; prereq 5022 and Biol 3041, #) McKinney  
Current problems in areas of overlap between ethology, ecology, and evolution; social systems, spacing mechanisms, and communication.
- 5024f. PHYSICAL ASPECTS OF FIELD BIOLOGY I.** (5 cr; prereq 1 yr physics, 1 yr calculus) Maxwell  
Use of the continuity principle in relating meteorological parameters to biologic systems and modeling of environmental interactions with organisms.
- 5025w. PHYSICAL ASPECTS OF FIELD BIOLOGY II.** (4 cr; prereq 5024) Maxwell  
Elements of a measuring system and determination of meteorological parameters to study the physical relationships between an organism and its environment.
- 5026su. PHYSICAL ASPECTS OF FIELD BIOLOGY III.** (2-5 cr; prereq 5025 or #; offered at Itasca) Maxwell  
Field application of the principles of biometeorology and basic measuring systems presented in 5024 and 5025.
- 5028s. ADVANCED ECOSYSTEM ANALYSIS.** (5 cr; prereq 5015, #)  
Individual projects. Literature review, field data collection, and/or laboratory analysis and synthesis of results. Projects relate to cycling of water or chemical elements or to energy flow in ecosystems at the Cedar Creek Natural History Area. Weekly half-day field trips.
- 5029w. POPULATION ECOLOGY.** (4 cr; prereq 3004 or Biol 3041, 1 course in statistics) Siniff  
The regulation, growth, and general dynamics of populations. Populations, population growth, population models, and regulatory mechanisms.
- 5031s. EVOLUTIONARY ECOLOGY.** (3 cr; prereq Biol 3041 or equiv and #; offered 1975 and alt yrs) Corbin  
Evolutionary concepts and theory applied to the study of populations, communities, and ecosystems. Current literature and research.
- 5601f. LIMNOLOGY.** (4 cr, §Geo 5601; prereq Chem 1005 or #) Shapiro  
Description and analysis of events occurring in lakes, reservoirs, and ponds, beginning with their origins and progressing through their physics, chemistry, and biology. Interrelationships of these parameters and effects of civilization on lakes. Laboratory, field trips.
- 5811su. WEATHER IN THE BIOSPHERE.** (5 cr, §5024, §5025, §5026; prereq 1 yr physics and course in ecology; offered at Itasca) Maxwell  
Distribution and variability of weather parameters, such as solar and longwave radiation, temperature, water vapor, and wind speed, studied in microhabitats found in the Itasca region. Field measurement and effect of parameters on the energy budget of an organism.
- 5812su. AQUATIC ECOLOGY.** (5 cr; prereq 15 cr in biology and 5 cr in chemistry; offered at Itasca) Staff  
Nature, origin, and development of lakes; conditions for plant and animal life in water. Individual and team projects in field and laboratory research.

## Course Descriptions—Major Sequences

- 5813su. TOPICS IN LIMNOLOGY.** (5 cr; prereq 5812, §5816; offered at Itasca) Megard  
Measurement and theoretical analysis of relationships between photosynthesis and population densities of phytoplankton. Lectures, laboratory, and field work.
- 5814su. COMMUNITY ECOLOGY.** (5 cr; prereq course in ecology; offered at Itasca) Staff  
Communities in Itasca Park and vicinity and their dynamic relationships. Relationships of local communities to the flora and fauna of Minnesota as a whole. Modern methods of community analysis and measurement.
- 5815su. FIELD ETHOLOGY.** (5 cr; prereq course in ornithology or ecology; offered at Itasca) Oring  
Behavioral function, evolution, causation, and development; relationship between environment and behavior. Sound recording, motion picture photography, tape and film analysis, and marking techniques. Individual research and term paper on the social behavior of one species of bird, mammal, frog, or dragonfly.
- 5816su. ECOLOGY OF FRESHWATER ALGAE.** (5 cr, §EBB 5813; prereq Bot 5811 or equiv; offered at Itasca) Staff  
Phytoplankton as a biotic community; its spatial and temporal distribution; factors influencing periodicity. Field and laboratory instruction in relevant research techniques.
- 5817s,su. VERTEBRATE ECOLOGY.** (5 cr; prereq course in ecology; offered at Itasca) Tester  
Field studies on populations and their relationships to local environments; habitat analysis and ecological research methods. Individual and team research projects, field trips, and lectures.
- 5818su. QUANTITATIVE ECOLOGY.** (5 cr; prereq 9 cr in ecology, 1 qtr statistics or §; offered at Itasca) Staff  
Design of field studies of populations, communities, and ecosystems. Formulation and testing of hypotheses in the field, design of field sampling, and analysis and interpretation of data.
- 5819su. SOILS AND THE ECOSYSTEM.** (5 cr; prereq course in ecology; offered at Itasca) Grigal  
Functional and structural aspects of soils as a component of the ecosystem. Interrelationships of soil and vegetation on the landscape.
- 5820su. WETLAND ECOLOGY.** (5 cr; prereq 15 cr in biological sciences, introductory chemistry or §...ecology recommended; offered at Itasca) Staff  
Nature, origin, and development of lake, marsh, swamp, and bog ecosystems; environmental control and productivity.
- 5821su. QUATERNARY PALEOECOLOGY.** (5 cr; prereq course in ecology or §; offered 1976 and alt yrs at Itasca) Staff  
Reconstruction of past communities and ecosystems from fossil evidence in deposits of Quaternary age. Field and laboratory methods in collection and description of stratigraphic sequences and identification and quantitative analysis of fossil assemblages.
- 5970. DIRECTED STUDIES.** (Cr ar; prereq Δ) Staff

## Economics (Econ)

### Staff

*Chairman*, N. J. Simler, 1035 Business Administration Building; *Director of Undergraduate Studies*, Edward Coen, 1035b Business Administration Building; Boddy, Brownlee, Chipman, Clark, Danforth, Foster, Freedman, Hause, Heller, Henderson, Hildreth, Hurwicz, Kareken, Koeune, Krueger, Maynes, Mohring, Muench, Richter, Sargent, Shiller, Sims, Schultz, Smith, Swan, Turnbull, Wallace

Economics seeks to describe how the economy works, to define criteria for assessing its efficiency in providing goods and services, and to evaluate alternative techniques of social control intended to increase economic efficiency and equity.

A major in economics is useful for students contemplating careers in business, law, government, or teaching. It familiarizes them with the basic features of the economic environment. For senior work as economists in business or government, and for college teaching, graduate work is essential. Prospective public school teachers should consult the *College of Education Bulletin*.

The department offers alternative majors, the B.A. and the B.S. The B.A. sequence is relatively nonmathematical and nonquantitative. The B.S. sequence emphasizes mathematical and statistical methods in economics. Student contemplating graduate work in economics or careers as professional economists in business, government, or college teaching are advised to select the B.S. program, or to include in a B.A. major a program of courses approximating that required for the B.S. Advisers for majors and premajors are the director of undergraduate studies and his assistant.

## B.A. MAJOR SEQUENCE

### Required Preparatory Courses

1001 or 1001H or equiv; 1002 or 1002H or equiv; Math 1111 or 1131 or 1141 or equiv. (Students with good high school grades in economics or mathematics may consult the director of undergraduate studies about possible modification of this requirement)

### Major Requirements

Minimum of 35 3xxx-5xxx-level cr to include 3101 or 3101H; 3102 or 3102H; 3131 or 3131H. Students are urged to take these courses as soon as possible. 3101 and 3102 may be taken in either order or simultaneously.

Two 3xxx-5xxx-level statistics courses (selected from one of the following three groups) may be included in the major: (1) Stat 3091, 5101, 5021-5022, 5121-5122, 5131-5132, 5302; (2) PubH 5450-5452-5454, with associated labs; (3) QA 3053 (prereq QA 1050, does not carry cr toward major)

Departmental permission is required to apply more than 8 credits of directed studies (3970, 5970) toward the major.

For the following graduate-level courses, the instructor's consent is required: 5161-5162-5163, 5164-5165-5166, 5171-5172, 5181-5182, 5261-5262-5263, 5461-5462-5463, 5561-5562, 5661, 5671-5672-5673, 5861-5862-5863.

Courses 3001, 3002, 3501, 3601, 3701, 3711, 3801, 5301, 5307, 5311, 5401, 5701 are not open to economics majors.

## B.S. MAJOR SEQUENCE

### Required Preparatory Courses

1001 or 1001H or equiv; 1002 or 1002H or equiv; Math 1211-1221-1231 or 1311-1321-1331 or 1611-1621 or equiv

### Major Requirements

3101H, 3102H and 3131 or 3131H

Math 3211, 1 qtr linear algebra

Stat 5021, 5022 or 5121-5122 or 5131-5132 or 3091 and 5101

Econ 3251 or Stat 5302 or Econ 5261

Two courses selected in consultation with adviser from 5161-5162-5163, 5164-5165-5166, 5171-5172, 5181-5182, 5261-5262-5263, 5461-5462-5463, 5561-5562, 5661, 5671-5672-5673, 5861-5862-5863

20 3xxx-5xxx-level economics cr or 16 such cr and one mathematics or statistics course approved by adviser

**General Education**—Courses that may be of interest to nonmajors are 1001, 1002, 1004, 1005, 1014, 1015, 1041, 3001, 3002, 5041 (no course prerequisites); 3041, 3501, 3601, 3701, 3711, 3801, 3970, 5021, 5301, 5307, 5311, 5313, 5315, 5401, 5611, 5621 (prerequisites for each 1001, 1002).

## Course Descriptions—Major Sequences

- 1001f,w,s. PRINCIPLES OF MACROECONOMICS.** (4 cr, §1004, §1014, §3001, §3002; prereq 3rd-qr fr)  
National income; money and banking; business cycles; international trade. (GrC)
- 1001Hf,w,s. HONORS COURSE: PRINCIPLES OF MACROECONOMICS.** (5 cr, §1004, §1014, §3001, §3002; prereq 3rd-qr fr...B average recommended) (GrC)
- 1002f,w,s. PRINCIPLES OF MICROECONOMICS.** (4 cr, §1005, §1015, §3001, §3002; prereq 3rd-qr fr)  
Demand and supply; competition and monopoly; the distribution of income. (GrC)
- 1002Hf,w,s. HONORS COURSE: PRINCIPLES OF MICROECONOMICS.** (5 cr, §1005, §1015, §3001, §3002; prereq 3rd-qr fr...B average recommended) (GrC)
- 1004f,w,s. PRINCIPLES OF MACROECONOMICS.** (4 cr, §1001; prereq 1 qtr calculus)  
For description, see 1001. (GrC)
- 1005f,w,s. PRINCIPLES OF MICROECONOMICS.** (4 cr, §1002; prereq 1 qtr calculus)  
For description, see 1002. (GrC)
- 1014w. SCOPE, METHODS, AND APPLICATIONS OF ECONOMICS.** (5 cr)  
Overview of economics. Different professional economics specialists explain their fields. Types of problems for which study of economics is useful. (GrC)
- 1015s. INTRODUCTION TO ECONOMIC ANALYSIS.** (4 cr, §1002, §1005; prereq 1014; may substitute for 1002 as prereq for 3xxx-5xxx-level courses in economics)  
Elementary training in analytical approach; applications to production and different market structures in American economy. (GrC)
- 1041. DECISION MAKING FOR CONSUMERS.** (4 cr, §5041)  
Application of economic principles to consumer decisions. Improved decisions versus cost of search. Sources of consumer information. Decision making under uncertainty. Expenditure control. Saving; optimal distribution of assets; insurance principles. Consumer protection. Economics of health care. (GrC)
- 3001f-3002w. ECONOMIC PROBLEMS OF AMERICAN ECONOMY.** (5 cr per qtr, §1001, §1002, §1004, §1005, §1014, §1015; not available to economics majors as 3xxx-level cr; offered 1975-76 and alt years)  
General education in economics for the average citizen. (GrC)
- 3021. SURVEY OF ECONOMIC IDEAS.** (3-5 cr; prereq 1001, 1002 or equiv)  
Economic thought from Adam Smith to J. M. Keynes; impact of industrial revolution and business cycle on formation of theory. (GrC)
- 3041. CURRENT ISSUES WORKSHOP.** (4 cr; prereq 1001, 1002 or equiv)  
Problems of current interest analyzed with the tools and viewpoint of economic theory. Discussion rather than lecture course, with active student participation. (GrC)
- 5021. ECONOMICS, ETHICS, AND ECONOMIC PHILOSOPHY.** (3-5 cr; prereq 1001, 1002 or equiv; offered when feasible)  
Literature and issues it raises; relation of ethics to economic organization, practice, and policy. Different economic philosophies; elements involved in formulation of economic philosophy. (GrC)
- 5031, 5032, 5033. CURRENT ECONOMIC ISSUES.** (3-5 cr per qtr [may be repeated for cr with #]; prereq 3101, 3102 or equiv or #; offered when feasible)  
Current controversies over economic policy and underlying problems. Selected topics. (GrC)

### Consumer Economics

- 5041. DECISION MAKING FOR CONSUMERS.** (4 cr, §1041)  
For description, see 1041. (GrC)
- 5051. ECONOMIC BEHAVIOR OF THE HOUSEHOLD.** (4 cr; prereq 3101, 3102)  
Sample survey techniques. Concept of saving. Models of household behavior. Review of regression analysis. Traditional demand analysis; consumer anticipations approach to forecasting demand. Consumption-saving hypotheses. Consumption and capital. The value of time. (GrC)
- 5053. ECONOMIC ORGANIZATION OF THE HOUSEHOLD.** (4 cr for undergrads, 3 cr for grads, §AgEc 5580; prereq 3101)  
The household as a multiproduct firm producing monetary and in-kind income, human capital, and satisfaction. Relationships with the labor market, consumer-good market, housing market, and public-good market. The household, information, and uncertainty. (GrC)

- 5055. GOVERNMENT AND THE CONSUMER.** (4 cr for undergrads, 3 cr for grads, §AgEc 5590; prereq 1041 or 5041 or 5053 or 1002 and  $\Delta$ )  
Consumer sovereignty. Measures of consumer well-being. Publicly supplied goods and services. Effects of government policies on the consumer in private and public markets. Informational imperfections. Consumer protection and redress. (GrC)

### Economic Theory

- 3101f,w,s. MICROECONOMIC THEORY.** (4 cr; prereq 1001, 1002, Math 1111 or 1141 or 1131 or equiv)  
Behavior of households, firms and industries under competitive and monopolistic conditions; factors influencing production, price and advertising decisions. (GrC)
- 3101H. HONORS COURSE: MICROECONOMIC THEORY.** (5 cr; prereq 1001, 1002, 1 qtr calculus...B average recommended) (GrC)
- 3102f,w,s. MACROECONOMIC THEORY.** (4 cr; prereq 1001, 1002, Math 1111 or 1141 or 1131 or equiv)  
Determinants of national income, employment, and price level; aggregate consumption, investment, and government demand; the money market; the labor market. (GrC)
- 3102H. HONORS COURSE: MACROECONOMIC THEORY.** (5 cr; prereq 3101 or 3101H or  $\Phi$ , 1 qtr calculus...B average recommended) (GrC)
- 3131f,w,s. WELFARE ECONOMICS.** (4 cr; prereq 3101 or equiv)  
Welfare economics. Economic efficiency and the conditions necessary to sustain it. Conflicts between efficiency and income distribution goals. How market structure and public policies increase or decrease efficiency. (GrC)
- 3131H. HONORS COURSE: WELFARE ECONOMICS.** (5 cr; prereq 3101 or 3101H or  $\Phi$ , 1 qtr calculus...B average recommended) (GrC)
- 5111. FOUNDATIONS OF MATHEMATICS FOR SOCIAL SCIENTISTS.** (4 cr; prereq Math 1111 or equiv or  $\Phi$ )  
Sets. Relations. Partially ordered systems. Functional relations. Elements of logical calculus. Groups. Matrices. Applications mostly in economics, decision and game theory, some in statistics. (GrC)
- 5141. BUSINESS CYCLES.** (4 cr; prereq 3102, 3751 or equiv)  
Ups and downs of business; causes and statistical data; relationship of cycles to economic growth. Methods of forecasting. Proposals for economic stabilization. (GrC)
- 5141H. HONORS COURSE: BUSINESS CYCLES.** (5 cr; prereq 3101, 3102, 3751 or equiv... B average recommended) (GrC)
- 5151. ELEMENTS OF ECONOMIC ANALYSIS: FIRM AND HOUSEHOLD.** (3 cr, §3101; prereq 1001, 1002, 1 qtr calculus, grad or  $\Phi$ )  
Decision making by households and firms under conditions of competition, monopoly, and monopolistic competition. (GrC)
- 5152. ELEMENTS OF ECONOMIC ANALYSIS: INCOME AND EMPLOYMENT.** (3 cr, §3102; prereq 1001, 1002, 1 qtr calculus, grad or  $\Phi$ )  
Determinants of national income, employment, and price level; aggregate consumption, investment, and asset holding. (GrC)
- 5161-5162-5163. MICROECONOMIC THEORY.** (5 cr per qtr [no grad cr]; prereq 3131, Math 3211 or equiv,  $\Phi$ ...1 qtr linear algebra recommended)  
Decision problems faced by the household and the firm; theories of choice under conditions of certainty and uncertainty. Partial equilibrium analysis of competition and monopoly. General equilibrium analysis. Welfare economics: economic efficiency of alternative market structures; social welfare functions. Dynamics: stability of markets; introduction to capital theory. (GrC)
- 5164-5165-5166. MACROECONOMIC THEORY.** (5 cr per qtr [no grad cr]; prereq 3102, 3131, Math 3211 or equiv,  $\Phi$ ...1 qtr linear algebra recommended)  
General equilibrium models for determining output, employment, price level, and rate of interest. Components of demand for goods (especially consumption and investment demand) and for financial assets. Models of economic fluctuations and growth. (GrC)
- 5171-5172. HISTORY OF ECONOMIC THOUGHT.** (5 cr per qtr [no grad cr]; prereq 5161, 5164)  
5171: Classical economists, Marx, beginnings of neoclassical economics. 5172: Development of neoclassical economics through 1930's. Origins of macro theory. (GrC)

## Course Descriptions—Major Sequences

- 5181-5182. DECISION MAKING AND OPERATIONAL ANALYSIS.** (5 cr per qtr [no grad cr]; prereq 3101 or 5151, 2 qtrs calculus, 1 qtr linear algebra, #)  
5181; Linear models of economic activity, emphasizing linear programming and input-output analysis. 5182; Nonlinear models of economic activity, emphasizing nonlinear programming models. (GrC)

### Econometrics

- 3251. INTRODUCTION TO ECONOMETRICS.** (4 cr; prereq QA 3053 or Stat 5022 or equiv or #)  
Least-squares estimation in two- and three-variable linear model. Significance tests and confidence intervals. Autocorrelation and multicollinearity. Distributed lags. Simultaneous equation systems. Identification, least-squares bias. Two-stage least squares. Econometric case studies. (GrC)
- 5261f-5262w-5263s. APPLIED ECONOMETRICS.** (5 cr per qtr [no grad cr]; prereq 3101, 3102, Stat 5122, 1 qtr linear algebra, #)  
Conceptual basis of econometric theory (omitting many proofs of theorems) with application to economic models. Laboratory required. (GrC)

### Economic Development, Comparative Systems, Area Studies

- 5301. ECONOMIC DEVELOPMENT.** (4 cr, §5331; not open to economics majors; prereq 1001, 1002 or equiv)  
Problems of economic growth in low income countries. Theory of aggregate and per capita income growth. Role of population growth, productivity increases, and capital formation. Allocation of resources between consumption and investment and among sectors. International assistance and trade. (GrC)
- 5307. COMPARATIVE ECONOMIC SYSTEMS.** (4 cr, §5337; not open to economics majors; prereq 1001, 1002 or equiv)  
Functions of all economic systems; the market economy, liberal socialism, centrally planned economy. Analysis of American and Soviet economies. (GrC)
- 5311. ECONOMY OF LATIN AMERICA.** (4 cr, §5341; not open to economics majors; prereq 1001, 1002 or equiv)  
Current economics problems: exchange controls, land reform, inflation, and fluctuation in prices of basic commodities. Evaluation of foreign aid programs. (GrC)
- 5313. ECONOMY OF U.S.S.R.** (4 cr; prereq 1001, 1002 or equiv)  
Economic organization, planning and control of use of resources, and distribution of product. Performance of economy in agriculture and industry under 5-year plans. External economic policy. Public finance, income distribution, economic incentives. (GrC)
- 5315. ECONOMICS OF ASIA.** (4 cr; prereq 1001, 1002 or equiv)  
Economic development following contact with Western civilization. Current problems; population growth, capital formation, international economic relations, choice between types of economic organization. (GrC)
- 5331. ECONOMIC DEVELOPMENT.** (4 cr, §5301; prereq 3101, 3102 or equiv or #)  
For description, see 5301. (GrC)
- 5337. COMPARATIVE ECONOMIC SYSTEMS.** (4 cr, §5307; prereq 3101, 3102 or equiv or #)  
For description, see 5307. (GrC)
- 5341. ECONOMY OF LATIN AMERICA.** (4 cr, §5311; prereq 3101, 3102 or equiv or #)  
For description, see 5311. (GrC)
- 5347, 5348. DEVELOPMENT OF AMERICAN ECONOMY.** (4 cr per qtr; prereq 3101, 3102 or equiv or #)  
Applications of economic theory and empirical methods to topics in American economic development, particularly during 19th-century period of accelerated growth and industrialization. (GrC)

### International Economics

- 5401. INTERNATIONAL ECONOMICS.** (4 cr, §5431; not open to economics majors; prereq 1001, 1002 or equiv)  
The case for free trade. Effects of tariffs; protection of infant industries; common markets. Balancing international receipts and payments, the role of exchange rates, international monetary reform. (GrC)

- 5411. U.S. FOREIGN ECONOMIC POLICY.** (4 cr; prereq 5401 or equiv; offered 1974-75 and alt yrs)  
Development of U.S. foreign economic policy in 20th century and current issues of U.S. foreign economic policy. (GrC)
- 5421. THE PROSPECTIVE WORLD ECONOMY.** (4 cr, §IntR 5802; prereq 5401 or 5431 or #) Smith  
Alternative patterns for a future world economy and their implications for the economic welfare of nations. World institutions and their relation to growth and survival problems in a world economy. (GrC)
- 5431. INTERNATIONAL ECONOMICS.** (4 cr, §5401; prereq 3101, 3102 or equiv or #)  
For description, see 5401. (GrC)
- 5461f-5462w-5463s. INTERNATIONAL TRADE AND PAYMENTS THEORY.** (5 cr per qtr [no grad cr]; prereq 3102, 3131, Math 3211 or equiv, #...1 qtr linear algebra recommended)  
Gains from trade; effect of trade on factor prices; tariffs; customs unions. Relation of trade theory to growth and development. Balance of payments disequilibrium, exchange rates, capital movements, international liquidity. (GrC)

### Labor Economics

- 3501. LABOR ECONOMICS.** (4 cr, §3551; not open to economics majors; prereq 1001, 1002)  
Role of labor in economy: labor as a factor of production, population and the labor force; economics of labor markets; labor market institutions; theories of wages and employment; unions and collective bargaining; public policy. (GrC)
- 3551. LABOR ECONOMICS.** (4 cr, §3501; prereq 3101, 3102 or equiv)  
For description, see 3501. (GrC)
- 5531. ECONOMIC HISTORY OF LABOR.** (4 cr; prereq 3501 or 3551 or #)  
Historical analysis of labor in American economic development: labor force characteristics, wage level and structure, migration. Origins and growth of labor organizations and other labor market institutions. Economic and social consequences. (GrC)
- 5534. ECONOMIC SECURITY.** (4 cr, §Ins 3210; prereq 3501 or 3551 or #)  
Public and private approaches to problems of economic insecurity. Economic and social implications of private and public programs. Emphasis on economics of income and employment stabilization rather than upon legal or administrative aspects. (GrC)
- 5537. LABOR MARKET BEHAVIOR AND REGULATION.** (4 cr; prereq 3501 or 3551 or #)  
Public and private policies directed at regulation of employer-employee-union relations and labor market behavior. Settlement of disputes. Control of employer and union self-help techniques. Emphasis on economic rather than legal or administrative aspects of policy. (GrC)
- 5541. CONTEMPORARY LABOR ISSUES.** (4 cr; prereq 3501 or 3551 or #)  
Important labor problem areas. Current issues examined in light of economic, legal, political, and social implications. (GrC)
- 5561-5562. WAGES AND EMPLOYMENT.** (5 cr per qtr [no grad cr]; prereq 3102, 3131, 1 qtr calculus, #)  
Economic analysis of labor markets and their operation under conditions of individual and collective bargaining. Implications of labor market operations for resource allocation, wage and price stability, income and employment growth. Wage structures and wage levels. Wage and employment theories and practices. Economic impact of the union. (GrC)

### Industrial Organization, Technological Change, Environmental Control, Urban Problems

- 3601. INDUSTRIAL ORGANIZATION AND ANTITRUST POLICY.** (4 cr, §3651; not open to economics maj; prereq 1001, 1002 or equiv)  
Economic aspects of antitrust and related policies. Relations between market structure and economic efficiency and welfare. Economic origins of monopoly and other restraints on competition. Purposes and effects of antitrust and related legislation. (GrC)
- 3651. INDUSTRIAL ORGANIZATION AND ANTITRUST POLICY.** (4 cr, §3601; prereq 3101...3131 recommended)  
For description, see 3601. (GrC)

## Course Descriptions—Major Sequences

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- 3651H. HONORS COURSE: INDUSTRIAL ORGANIZATION AND ANTITRUST POLICY.** (5 cr; prereq 3131 or equiv...B average recommended) (GrC)
- 3655. SCIENCE, TECHNOLOGY, AND ECONOMIC GROWTH.** (4 cr; prereq 3101, 3102 or equiv)  
Technical change and economic growth. Determinants of invention; factors affecting rate of innovation and of diffusion of new technology. Rates of return to new technologies. Externalities and public policy; environmental impacts of high-level technologies. (GrC)
- 5611. ECONOMICS OF ENVIRONMENTAL CONTROL.** (4 cr; prereq 1001, 1002 or equiv)  
Pollution as an external diseconomy; use of taxes and subsidies to reduce pollution. Replenishable resources; maximum sustainable yield; role of the discount rate; taxation to protect yields and minimize harvesting costs. Nonreplenishable resources; controlling rates of depletion. (GrC)
- 5621. ECONOMICS OF URBAN PROBLEMS.** (4 cr; prereq 1001, 1002 or equiv)  
Unemployment and central city decay. Minimum guaranteed income proposals. Low income housing policies. Public policies toward health care. Financing public education. Fiscal problems of cities. Mass transit issues. (GrC)
- 5661. ECONOMICS OF LOCATION.** (5 cr for undergrads, 3 cr for grads; prereq 3131, 1 qtr calculus and # for undergrads...5161 for grads)  
Location of economic activity in relation to resources and markets. Effects of changes in transport costs. Problems of urban growth. (GrC)
- 5671f-5672w-5673s. INDUSTRIAL ORGANIZATION AND GOVERNMENT REGULATION.** (5 cr per qtr [no grad cr]; prereq 3131, Math 3211 or equiv, familiarity with regression analysis, #)  
Profit maximization and other theories of business behavior; profits, assets, and barriers to entry; concentration and other aspects of industry structure; performance consequences of alternative industry structures; analysis of business pricing practices; determinants of invention and innovation; economic analysis of antitrust, conservation, and direct regulatory activities of federal, state, and local governments. (GrC)

### Monetary Economics and Macroeconomic Policy

- 3701. MONEY AND BANKING.** (4 cr, §3751, §5701; not open to economics majors; prereq 1001, 1002 or equiv)  
Historical development, present characteristics, and economic role of financial institutions. Commercial banking, the Federal Reserve system, and monetary policy. (GrC)
- 3711. MACROECONOMIC POLICY.** (4 cr, §3731; not open to economics majors; prereq 1001, 1002)  
Problems raised by conflicts among the policy objectives of full employment, price stability, desired rate of growth, balance of payments equilibrium, desired mix of public and private sector outputs. Policy instruments: fiscal policy, monetary policy, wage-price guidelines, exchange rate adjustment. (GrC)
- 3731. MACROECONOMIC POLICY.** (4 cr, §3711; prereq 3102)  
For description, see 3711. (GrC)
- 3731H. HONORS COURSE: MACROECONOMIC POLICY.** (5 cr; prereq 3102...B average recommended) (GrC)
- 3751. MONEY AND BANKING.** (4 cr, §3701, §5701; prereq 3102 or equiv)  
For description, see 3701. (GrC)
- 3751H. HONORS COURSE: MONEY AND BANKING.** (5 cr; prereq 3102 or equiv...B average recommended) (GrC)
- 5701. MONEY, BANKING, AND MONETARY POLICY.** (4 cr, §3701, §3751; not open to economics majors; prereq 1001, 1002 or equiv or #)  
Economic role of financial institutions, with emphasis on commercial banks, the money supply, and monetary policy. (GrC)

### Public Finance

- 3801. ELEMENTS OF PUBLIC FINANCE.** (4 cr, §3851; not open to economics maj; prereq 1001, 1002 or equiv)  
Tax and expenditure policies, primarily at federal level. Impact of tax structure on the distribution of income. Evaluation of public programs. Optimal mix of public and private sector output. (GrC)

- 3851. ELEMENTS OF PUBLIC FINANCE.** (4 cr, §3801; prereq 3101...3131 recommended)  
For description, see 3801. (GrC)
- 3851H. HONORS COURSE: ELEMENTS OF PUBLIC FINANCE.** (5 cr; prereq 3101, 3131...  
B average recommended) (GrC)
- 5811. STATE AND LOCAL FINANCE.** (4 cr; prereq 3801 or 3851 or equiv)  
Problems of state and local finance and proposed solutions; interstate comparisons and coordination of practices and policies. (GrC)
- 5831. COST-BENEFIT ANALYSIS.** (4 cr; prereq 3101 or equiv)  
Principles for evaluation of benefits and costs of public projects or programs. Issues connected with definition and measurement of benefits and costs. Rate of return and rate of discount. Treatment of market imperfections, risk and uncertainty. (GrC)
- 5861f-5862w-5863s. PUBLIC FINANCE.** (5 cr per qtr [no grad cr]; prereq 3102, 3131, #)  
Theory of economic policy. Economic effects of taxes, public debt, and public expenditure on resource allocation, employment, and income distribution; including techniques of cost-benefit analysis. Current problems of fiscal policy and taxation. (GrC)

### Directed Study

- 3970. DIRECTED STUDIES.** (Cr ar; prereq #)  
Areas useful to individual programs and objectives not available in regular course offerings. (GrC)
- 5970. DIRECTED STUDIES.** (Cr ar; prereq #)  
For description, see 3970. (GrC)

## College of Education

Three College of Education departments offer courses carrying CLA credit: Child Psychology, Physical Education, Psychological Foundations (see separate listings). The B.A. degree may be earned in child psychology.

## English (Engl)

### Staff

- Chairman*, George T. Wright, 207 Main Engineering; *Assistant Chairman*, Calvin B. Kendall; *Director of Graduate Studies*, Edward Griffin, 205 Main Engineering; *Director of Undergraduate Studies*, James L. Scoggins, 204 Main Engineering; *Director of Composition*, Julie Carson, 209 Main Engineering
- Professors*: Alkon, Anderson, Bowron, Clayton, Firchow, Hurrell, Kwiat, MacLeish, Madden, Moore, O'Brien, Rosendahl, Scoggins, Steinmann, Stekert, Turpie, Unger, Wright
- Associate Professors*: Bales, M. Durham, Griffin, Haley, Hancher, Jemie, Kendall, Leyasmeyer, McNally, McNaron, Reed, Roth, Solotaroff
- Assistant Professors*: R. Brown, M. D. Browne, Carson, L. Durham, Fergus, Furia, Garner, Geffen, Gohlke, Hirsch, Luke, McClure, Mitchell, Nelson, Nye, Ross, Sugnet

The study of the English language and English and American literature, of value and interest in itself, contributes substantially to an understanding of other areas of learning and life. Ideally it provides special kinds of humanistic breadth, depth, perspective, and resources for verbal communication to other kinds of study, which in turn enlarges and enhances the understanding and experience of English.

## B.A. MAJOR SEQUENCE

### Major Requirements

10 courses beyond the English composition requirement. Eight of the 10 must be at the 3xxx-5xxx-level (only 1 of the 8 on S-N grading), and 1 must be 3241 or 3242. Two writing courses may be among the 10. (Students who began English majors under former programs may use either old or current requirements.)

English majors are urged, in consultation with major advisers and with approval of the director of undergraduate studies, to plan programs that take advantage of the variety and breadth of the department's offerings. In addition to work in literary history and major authors (notably Shakespeare, Chaucer, and Milton), such a program would include some of the following: courses arranged by genre or theme, courses in language, criticism, or writing, and interdisciplinary courses. Normally, a major takes some 1xxx-level English courses during his sophomore year and at least three or four 3xxx- and 5xxx-level courses during each of his last 2 years.

The department recommends all kinds of correlative study, but particularly encourages inclusion of courses in foreign literatures. The study of foreign literatures is best undertaken in the original languages; but most foreign-language departments, including Classics, provide opportunities for examining literary works in translation, and such courses are recommended to students who do not know the original languages. English majors, especially those who look toward graduate study, should begin foreign-language study as soon as possible. The languages most applicable to the study of English are Latin, Greek, French, Italian, and German.

*(For courses in English composition, see page 110.)*

#### 1005. FRESHMAN ENGLISH ELECTIVE STUDIES. (4 cr)

A variety of courses designed to encourage exploration of selected ideas in literature or language. Seminar format. Course descriptions that show content variations among section available prior to registration in Freshman English office. Optional S-N grading. Offered when feasible. (GrD)

#### 1011—1030. INTRODUCTORY COURSES IN BRITISH AND AMERICAN LITERATURE. (4 cr per qtr; prereq completion of freshman English)

Close reading of selected texts; critical discussion and writing. Prospective English majors are urged to take one or more of these courses.

#### 1011. INTRODUCTION TO OLD AND MIDDLE ENGLISH LITERATURE: SOME MAJOR FIGURES AND THEMES. (GrD)

#### 1012. INTRODUCTION TO THE LITERATURE OF THE RENAISSANCE: SOME MAJOR FIGURES AND THEMES. (GrD)

#### 1013. INTRODUCTION TO RESTORATION AND 18TH-CENTURY LITERATURE: SOME MAJOR FIGURES AND THEIR THEMES. (GrD)

#### 1014. INTRODUCTION TO ROMANTIC LITERATURE: SOME MAJOR FIGURES AND THEMES. (GrD)

#### 1015. INTRODUCTION TO VICTORIAN LITERATURE: SOME MAJOR FIGURES AND THEMES. (GrD)

#### 1016. INTRODUCTION TO AMERICAN LITERATURE: SOME MAJOR FIGURES AND THEMES. (GrD)

#### 1017. INTRODUCTION TO MODERN LITERATURE: POETRY. (GrD)

#### 1018. INTRODUCTION TO MODERN LITERATURE: PROSE FICTION. (GrD)

#### 1019. INTRODUCTION TO MODERN LITERATURE: DRAMA. (GrD)

#### 1020 or 1030. INTRODUCTION TO LITERATURE: TOPICS.

Topics specified in the *Class Schedule*. (GrD)

- 1241. INTRODUCTION TO SHAKESPEARE.** (4 cr; prereq completion of or exemption from freshman English requirement)  
Lecture survey of Shakespeare's work, treating approximately 10 plays. For students in all colleges of the University. (GrD)
- 3111f, 3112w, 3113s. SURVEY OF ENGLISH LITERATURE.** (4 cr per qtr)  
Major figures, movements, and trends in English literature. *3111*: From Chaucer to Milton, including such figures as Spenser, Shakespeare, and Donne. *3112*: From Dryden to Johnson, including such figures as Swift and Pope. *3113*: From Blake to Yeats, including such authors as Wordsworth, Coleridge, Keats, Tennyson, and Browning. (GrD)
- 3241, 3242. SHAKESPEARE.** (4 cr per qtr)  
*3241*: Plays from Shakespeare's early and middle periods. All sections read *A Midsummer Night's Dream*, *Hamlet*, a history play, and three or four other plays. *3242*: Plays from the middle and late periods. All sections read *King Lear*, *Macbeth*, *The Tempest*, and three or four other plays. (GrD)
- 3247. SPENSER.** (4 cr)  
*The Faerie Queene*, *The Shepheardes Calendar*, *Amoretti*, and other poems. (GrD)
- 3251, 3252. THE KING JAMES BIBLE AS LITERATURE.** (4 cr per qtr)  
*3251*: The *Old Testament* and literary tradition. Historical narratives, prophets, psalms, and wisdom literature. *3252*: *The Book of Daniel*, the *Apocrypha*, the *New Testament* as documents in the history of literature. (GrD)
- 3283. JONATHAN SWIFT.** (4 cr) (GrD)
- 3351. 20TH-CENTURY BRITISH POETRY.** (4 cr)  
Survey of the major poets. (GrD)
- 3362. W. H. AUDEN AND DYLAN THOMAS.** (4 cr)  
The works of Auden and Thomas, with emphasis on the major poetry. (GrD)
- 3455. AMERICAN SHORT STORY.** (4 cr)  
Historical examination of the American short story from the 18th century to present. (GrD)
- 3631. SATIRE.** (4 cr)  
The satiric tradition in English and American literature; the motives for and the uses, techniques, varieties, and results of satire. (GrD)
- 3635. AUTOBIOGRAPHY.** (4 cr)  
Autobiographical writing. Authors such as Boswell, Rousseau, DeQuincey, Gide, Keats, Joyce, Orwell, Plath, and others. (GrD)
- 3851. THE ENGLISH LANGUAGE.** (4 cr)  
Introductory examination of the English language. The nature of English grammar, English phonetics, language acquisition, and English dialects. (GrA,D)
- 3910 or 3920. TOPICS IN ENGLISH AND AMERICAN LITERATURE.** (4 cr per qtr)  
Topics annually specified in the *Class Schedule*. (GrD)
- 3940 or 3950. FIGURES IN ENGLISH AND AMERICAN LITERATURE.** (4 cr per qtr)  
Figures annually specified in the *Class Schedule*. (GrD)
- 3963. HONORS THESIS.** (4 cr; prereq honors candidacy in English and consent of English honors adviser) (GrD)
- 3970. DIRECTED STUDIES.** (1-15 cr ar; prereq #) (GrD)
- 3980. DIRECTED INSTRUCTION.** (Cr ar; prereq #) (GrD)
- 5151. 18TH-CENTURY ENGLISH NOVEL.** (4 cr)  
Selected novels by such authors as Defoe, Richardson, Fielding, Smollett, Sterne, and Jane Austen. (GrD)
- 5152. 19TH-CENTURY ENGLISH NOVEL.** (4 cr)  
Selected novels from the Romantic and Victorian periods by such authors as Scott, Dickens, the Brontës, Thackeray, Eliot, and Hardy. (GrD)
- 5153. 20TH-CENTURY ENGLISH NOVEL.** (4 cr)  
Selected novels by such authors as Conrad, Ford, Joyce, Woolf, Lawrence, Forster, Cary, and Waugh. (GrD)
- 5171. MEDIEVAL, TUDOR, AND ELIZABETHAN DRAMA.** (4 cr; prereq 3241 or 3242)  
Mystery plays, moralities, interludes, academic and court plays; plays of Kyd, Marlowe, Lyly, Greene, and Peele. (GrD)

## Course Descriptions—Major Sequences

- 5172. JACOBAN AND CAROLINE DRAMA.** (4 cr; prereq 3241 or 3242)  
Selected plays of Jonson, Tourneur, Webster, Middleton, Ford, and others. (GrD)
- 5173. RESTORATION AND 18TH-CENTURY DRAMA.** (4 cr; prereq 3241 or 3242)  
The heroic play, tragedy, the comedy of manners, and sentimental comedy. (GrD)
- 5174. DRAMA FROM CA. 1880 TO CA. 1920.** (4 cr)  
Beginnings of modern realism, naturalism, and expressionism in English and Continental drama. (GrD)
- 5175. DRAMA SINCE CA. 1920.** (4 cr)  
Chief dramatists, English, American and Continental. (GrD)
- 5211. OLD ENGLISH (ANGLO-SAXON).** (5 cr)  
An introductory study of the language to A.D. 1150. Readings in prose and poetry. The culture of the Anglo-Saxons. (GrA,D)
- 5212w. READINGS IN OLD ENGLISH PROSE AND VERSE.** (4 cr; prereq 5211)  
Critical reading of texts; introduction to versification. (GrD)
- 5213s. BEOWULF.** (4 cr; prereq 5211)  
Introduction to the Old English poem; reading of considerable portions of text. (GrD)
- 5215. MAJOR TYPES OF MIDDLE ENGLISH LITERATURE.** (4 cr; prereq 5221)  
Readings in Middle English, in romance, lyric, allegory, and devotional prose. (GrD)
- 5216. MAJOR 14TH-CENTURY POETS.** (4 cr; prereq 5221)  
Readings in Gower, Langland, and the Pearl-poet. (GrD)
- 5221. CHAUCER I: THE CANTERBURY TALES.** (5 cr)  
Reading of *The Canterbury Tales*; introduction to Chaucer's language. (This course is the prerequisite for 5215, 5216, and 5222). (GrD)
- 5222w. CHAUCER II: TROILUS AND CRISEYDE.** (4 cr; prereq 5221 or equiv)  
*Troilus* and selections from the shorter poems. (GrD)
- 5230. SPECIALIZED STUDIES IN RENAISSANCE LITERATURE AND CULTURE.** (4 cr per qtr)  
Topics specified in the *Class Schedule*. (GrD)
- 5233. TUDOR AND ELIZABETHAN POETRY.** (4 cr)  
The works of 16th-century poets. The sonnet cycles. (GrD)
- 5243, 5244. ADVANCED SHAKESPEARE I AND II.** (4 cr per qtr; prereq 3241 and 3242)  
Intensive study of a few plays. (GrD)
- 5255, 5256. 17TH-CENTURY PROSE AND POETRY TO 1660.** (4 cr per qtr) (GrD)
- 5261. MILTON.** (4 cr)  
*Paradise Lost*, *Samson Agonistes*, minor poems, *Areopagitica*, and often *Paradise Regained*. (GrD)
- 5281. ALEXANDER POPE.** (4 cr) (GrD)
- 5287. DR. JOHNSON AND HIS CIRCLE.** (4 cr)  
Johnson's major works; works by writers whom he influenced; secondary emphasis on Boswell. (GrD)
- 5311f, 5312w, 5313s. ROMANTIC WRITERS.** (4 cr per qtr)  
Close examination of one, two, or three writers each quarter. Authors specified in the *Class Schedule*. (GrD)
- 5331f, 5332w, 5333s. VICTORIAN WRITERS.** (4 cr per qtr)  
Close examination of one, two, or three writers each quarter. Authors specified in the *Class Schedule*. (GrD)
- 5361s. POETRY OF W. B. YEATS.** (4 cr) (GrD)
- 5363, 5364. JAMES JOYCE.** (4 cr per qtr) (GrD)
- 5411, 5412, 5413. AMERICAN LITERATURE.** (4 cr per qtr)  
Historical survey of important authors, intellectual currents, movements, conventions, genres, and themes. Lecture course, with wide reading. *5411*: Beginnings through Hawthorne. *5412*: Thoreau and Melville through James. *5413*: Crane to present. (GrD)
- 5431f, 5432w. AMERICAN POETRY.** (4 cr per qtr)  
Critical survey of American poetry from Anne Bradstreet to present; historical and intellectual backgrounds; major figures. (GrD)

- 5451w, 5452s. AMERICAN NOVEL.** (4 cr per qtr)  
History of the American novel. (GrD)
- 5471s. AMERICAN DRAMA.** (4 cr)  
Critical survey of American drama, especially from 1914 to present; some representative American plays of the 18th, 19th, and early 20th centuries. (GrD)
- 5481-5482-5483. FOLKLORE.** (4 cr per qtr; prereq #)  
5481: The different genres of folklore and the history of folklore scholarship. 5482: The ways in which diverse folklore genres have been treated by scholars; training in collection of folklore material. 5483: Literary and "popular" uses of folklore; training in collection of folklore material. (GrD)
- 5486-5487. FOLK SONG.** (4 cr per qtr; prereq #)  
5486: The basic folk song genres of the Anglo- and Afro-American tradition. 5487: Historical development of Anglo- and Afro-American folksong. (GrD)
- 5513, 5514. EARLY AMERICAN LITERATURE.** (4 cr per qtr)  
Critical survey: principal writers and major cultural themes, from the Puritans to the Transcendentalists. (GrD)
- 5541w. EMERSON AND THOREAU.** (4 cr) (GrD)
- 5543f. HAWTHORNE AND MELVILLE.** (4 cr) (GrD)
- 5545s. WHITMAN AND MARK TWAIN.** (4 cr) (GrD)
- 5547. HENRY JAMES.** (4 cr) (GrD)
- 5561f. POETRY OF T. S. ELIOT.** (4 cr) (GrD)
- 5591. ORIGINS OF AMERICAN NATURALISM.** (4 cr) (GrD)
- 5593. BLACK WRITERS OF THE UNITED STATES.** (4 cr)  
Prose, poetry, and drama, with emphasis on writers of the 20th century. (GrD)
- 5596. BLACK POETRY, 1746-1939.** (4 cr)  
The work of Phillis Wheatley, Jupiter Hammon, Frances Harper, Paul Laurence Dunbar, Claude McKay, Countee Cullen, Jean Toomer, James Weldon Johnson, Langston Hughes, and Sterling Brown. (GrD)
- 5597. CONTEMPORARY BLACK POETRY.** (4 cr)  
Afro-American poetry since 1939: Langston Hughes, Melvin Tolson, Robert Hayden, Gwendolyn Brooks, Amiri Baraka, Don Lee, Nikki Giovanni, Sonia Sanchez, and the Last Poets. (GrD)
- 5610. 20TH-CENTURY WRITERS.** (4 cr per qtr)  
Authors vary from year to year, as specified in the *Class Schedule*. (GrD)
- 5632. THE ROMANTIC TRADITION.** (4 cr) (GrD)
- 5651, 5652. TECHNIQUES OF POETRY.** (4 cr per qtr)  
The sound, structure, style, and sense of poems. (GrD)
- 5671, 5672. TECHNIQUES OF THE NOVEL.** (4 cr per qtr; prereq English major with B avg or # for undergrad)  
Novels of the late 19th and 20th centuries, with particular regard to structure. (GrD)
- 5691f, 5692w, 5693s. FORM AND IDEA IN DRAMATIC LITERATURE.** (4 cr per qtr; prereq 3241... 3242 recommended)  
Dramatic types, in chronological sequence; analytical reading of representative plays. 5691: Tragic and religious drama (classical, medieval, Renaissance, and modern); theories of tragedy. 5692: Comedy (classical, Renaissance, and modern); theories of comedy. 5693: Experimental and nonrealistic drama. (GrD)
- 5711. CLASSICS OF LITERARY CRITICISM.** (4 cr)  
Major works in the classic critical tradition, with emphasis on Aristotle and Coleridge and attention to Plato, Horace, Longinus, Sidney, Dryden, Johnson, Hume, and Eliot. (GrD)
- 5712. LITERARY CRITICISM: PLATO TO DRYDEN.** (4 cr)  
Basic texts in Roman and Greek criticism; their original meanings and their influence on later tradition. Representative texts of English neoclassical criticism up to 1700. (GrD)
- 5713. LITERARY CRITICISM: POPE TO ELIOT.** (4 cr; prereq 5712)  
Major texts of English and American criticism from 1700 to the modern period. (GrD)

## Course Descriptions—Major Sequences

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- 5714. MODERN AND CONTEMPORARY CRITICAL THEORY.** (4 cr)  
Modern and "post modern" literary criticism: contemporary movements, theory, and practice. (GrD)
- 5753. LITERATURE AND THE OTHER ARTS.** (4 cr)  
An informal, highly tentative exploration of possible relationships of literature to drama, music, painting and sculpture, and architecture: how they influence one another and how their aesthetic and social roles are similar and different. Readings in English and American literature and in aesthetic theory; recordings; gallery visits. (GrD)
- 5815. HISTORY OF ENGLISH LANGUAGE.** (4 cr; prereq 5851 or #)  
The development of the English language from Old to Early Modern English: phonology, morphology, and syntax. (GrA,D)
- 5821. OLD AND MIDDLE ENGLISH DIALECTS.** (4 cr; prereq 5851 or #)  
Dialect differentiation in Old and/or Middle English, based on phonemic-graphemic theory with some attention to generative theory; close textual analysis of dialect examples. (GrA,D)
- 5831. AMERICAN ENGLISH.** (4 cr; prereq 5851 or #)  
History of the English language in the United States; significant regional variation. (GrA,D)
- 5843. AMERICAN SOCIAL DIALECTS.** (4 cr; prereq 5851 or #)  
Methods for and results of investigating social and class variation in American English; urban dialects. (GrA,D)
- 5851. STRUCTURE OF MODERN ENGLISH.** (4 cr)  
Modern English grammar dealing with English phonology, syntax, and semantics; variations and change in English. (GrA,D)
- 5860. STUDIES IN THE ENGLISH LANGUAGE.** (4 cr per qtr; prereq 5851 or #)  
Topic (English phonology, syntax, or semantics) specified in the *Class Schedule*. (GrA,D)
- 5871. THE LANGUAGE OF LITERATURE.** (4 cr; prereq 5851 or #)  
The place of linguistic analysis in a theory of literary criticism; stylistic analysis in Europe and America since 1920; examination of theories of linguistic description relevant to critical analysis; applications to texts in prose and poetry. (GrA,D)
- 5876. GRAMMAR AND RHETORIC.** (4 cr)  
Relationship between competence in English (described by a grammar—a syntax and semantics—of English) and effective performance (described by a rhetoric of English). (GrA,D)
- 5910 or 5920. TOPICS IN ENGLISH AND AMERICAN LITERATURE.** (4 cr per qtr)  
Topics annually specified in the *Class Schedule*. (GrD)
- 5940 or 5950. FIGURES IN ENGLISH AND AMERICAN LITERATURE.** (4 cr per qtr)  
Figures annually specified in the *Class Schedule*. (GrD)

## COMPOSITION—ENGLISH COMPOSITION (Comp)

Concurrent registration in introductory composition and in intermediate or advanced composition courses is not permitted.

**Placement in Composition Courses**—No student may register for any freshman course in English composition or communication without presenting a "memorandum on placement." On the basis of various factors, including examinations, the student is assigned to one of four categories:

*Category 1*—He is not required to take freshman composition or communication (he may, if he wishes, take Comp 1001-1002 or Comm 1001-1002), and he is eligible to take any course for which completion of or exemption from the English composition requirement is the sole prerequisite.

*Category 1A*—He is subject to the privileges and restrictions above; but he is eligible to take Comp 1006-1007-1008, and he receives 6 credits of advanced standing in composition.

**Category 2**—He must take Comp 1001-1002 or Comm 1001-1002.

**Category 3**—He must take Comp 0001; after passing it, he must take Comp 1002 or Comm 1002.

Comp 1001-1002 is an 8-credit, 2-quarter sequence offering guided practice in fundamental structural and stylistic features of exposition and argumentation. Comm 1001-1002 is an 8-credit, 2-quarter sequence directed to speaking as well as to writing. The student may satisfy the composition requirement for graduation by completing either of these sequences or by assignment to Category 1 or 1A.

**No-Credit Writing Laboratory**—In addition to regular composition courses, the Department of English offers the services of a writing laboratory to all University students on a no-charge, no-credit basis. Any student who wishes to receive individual instruction on a specific problem is invited to consult the laboratory. Faculty members from any department may refer students to the laboratory for instruction. Further information is available in the Freshman English office, 209 Main Engineering.

Any student who has already completed one or more quarters of freshman composition in another college or university must consult the Committee on Scholastic Standing before registering for any freshman course in English, composition, or communication.

**0001.\*\* PREPARATORY COMPOSITION.** (Prereq assignment to Category 3; see placement note above)

Remedial course in composition. Students remaining in the course until ready to enter Comp 1002 or Comm 1002 will receive credit. (GrA, if not used to meet English composition requirement)

**1001f,w-1002w,s.\*\* INTRODUCTORY COMPOSITION.** (4 cr per qtr; prereq assignment to Category 1, 1A, or 2...\$ or Δ for 1002)

Guided practice in the fundamental structural and stylistic features of exposition and argumentation. Not an introduction to literary studies or to humanities. (GrA, if not used to meet English composition requirement)

**1006-1007-1008.\*\* HONORS COURSE: FRESHMAN ENGLISH LITERATURE AND COMPOSITION.** (5 cr per qtr; prereq assignment to Category 1A; see placement note above)

Literature as the basis for discussion and writing. (GrA)

### Post-Freshman Composition and Creative Writing Courses

**1027.\*\* INTERMEDIATE COMPOSITION.** (4 cr; prereq ††; after first day new students must have Δ to attend)

Experience in writing under criticism. Mastery of expository forms (e.g., comparison, analysis, cause-effect, evaluation) and sound strategies of tone and diction applied to clear, accurate style. (GrA)

**1111-1114. INTRODUCTION TO CREATIVE WRITING**

A highly structured approach to creative writing for students who have done little writing. Development of techniques, definite assignments.

**1111-1112. INTRODUCTION TO POETRY WRITING I AND II.** (4 cr per qtr; prereq ††)

Workshop for beginning students. Discussion of student poems, numerous assignments, formal experiments, reading list in second quarter. No manuscript prerequisite. (GrD)

**1113-1114. INTRODUCTION TO FICTION WRITING I AND II.** (4 cr per qtr; prereq ††)

Principles of composition in the art of fiction. (GrD)

**3030. TOPICS IN ADVANCED COMPOSITION.** (4 cr [may be repeated for max 12 cr but no topic can be repeated]; prereq ††; after first day new students must have Δ to attend)

Nonfiction topics such as description and narration, argumentation, elements of writing, and writer's control of tone. (GrA)

\*\* Any student absent the first day will lose his place in class.

†† Must have fulfilled English composition requirement.

## Course Descriptions—Major Sequences

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- 3085. CONFERENCE COURSE IN ADVANCED COMPOSITION.** (4 cr; prereq  $\Delta$ )  
Frequent writing conferences for individual students; lectures and discussion sessions in cooperation with major department; special arrangements for IT and CLA students. (GrA)
- 3090. SPECIAL PROJECTS IN ADVANCED COMPOSITION.** (2 cr per qtr [6 cr max]; S-N only; prereq  $\#$ )  
Frequent writing conferences for individual students, in cooperation with major department. (GrA)
- 3101. INTERMEDIATE FICTION WRITING.** (4 cr; prereq  $\#$ )  
Course for those with some experience in fiction writing. Discussion of students' works and set texts; assignments and experiments. (GrD)
- 3104. INTERMEDIATE POETRY WRITING.** (4 cr; prereq  $\#$ )  
Course for those with some experience in poetry writing. Discussion of students' works and set texts; assignments and experiments. (GrD)
- 5101, 5102, 5103. ADVANCED FICTION WRITING.** (4 cr per qtr; S-N only; prereq  $\#$ )  
For students with considerable experience in fiction writing. (GrD)
- 5104, 5105, 5106. ADVANCED POETRY WRITING.** (4 cr per qtr; S-N only; prereq  $\#$  for 5104 and 5106)  
For students with considerable experience in poetry writing. Concentration in second quarter on contemporary poetry texts. (GrD)
- 5107, 5108. WRITING OF NONFICTION.** (4 cr per qtr; prereq 1027 or  $\#$ )  
Writing of nonfiction prose forms. 5107: The article and critical review. 5108: The essay. Stress on writer's voices, the art of persuasion, and stylistic choices. (GrA)

## Family Social Science (FSOs)

### *College of Home Economics*

#### Staff

*Chairman,* Richard Hey, 204 North Hall

*Professors:* Hey, Neubeck, Olson

*Associate Professors:* Jeary, Rosenblatt

*Assistant Professors:* Berry, Fowler, Henry

*Instructors:* Fuller, Novak

Courses in the Department of Family Social Sciences, interdisciplinary in nature, study the family as a social system, as a social institution, and in its interaction with other social institutions. Among subjects emphasized are service to families, enhanced marital and family relationships, preparation for graduate work, and knowledgeable home management.

Additional courses dealing with the family are available in the Department of Sociology and in the Institute of Child Development.

- 1001. DYNAMICS OF DATING, COURTSHIP, AND MARRIAGE.** (3 cr)  
Application of principles from behavioral sciences to dating, courtship, mate selection, engagement, mixed marriages, roles of men and women, interaction of marital spouses, marital stability. (GrC)
- 1002. DYNAMICS OF DATING, COURTSHIP, AND MARRIAGE.** (3 cr, §1001)  
For description, see 1001. For engaged or married students, though others may be admitted by special permission. (GrC)
- 1025f,w,s. PARENTHOOD.** (4 cr)  
Differing concepts of family roles—father, mother, son, daughter, sister, brother; their implications for parent-child and sibling interaction. Effects of parenthood on husband-wife relations. (GrC)

- 3015. LIFE STYLES OF EDUCATED AMERICAN WOMEN.** (4 cr; prereq #)  
The roles and statuses of American women compared and contrasted with those of men. Women's education: types, influences, uses. Possibilities and needs for change in terms of various objectives in the future. (GrC)
- 3260. HOME MANAGEMENT PRINCIPLES.** (3 cr; prereq AgEc 1030)  
Managerial aspects of homemaking; work simplification of household activities; financial records and budget making for the individual and the family. (GrC)
- 5001. HUMAN SEXUAL BEHAVIOR.** (4 cr; prereq 15 cr in psychology or sociology)  
Nature of sexual functioning; sexual development, ethics and attitudes, research problems. (GrC)

## FINNISH

See Scandinavian.

## Food Science and Nutrition (FScN)

*College of Home Economics*

*College of Agriculture*

### Staff

*Head,* Elwood F. Caldwell, 228 Food Science and Nutrition

*Professors:* Busta, Caldwell, Doyle, Gordon, Labuza, Morris, Morse, Swan, Thomas

*Associate Professors:* Addis, Breene, Csallany, Hegarty, McKay, Sander, Snyder, Tatini, Trammell

*Assistant Professors:* Davis, Mullan, Reineccius, Verstraete, Wartheson

*Instructors:* Asp, Billings, Culbertson, Jones, Meiske, Olson

Food science and nutrition span the broad range of activities centering around the processing, manufacture, and distribution of food, its preparation and serving in the home and in hotels, restaurants, or institutions, and its nutritional properties as related to the requirements of people in health and disease.

- 1010. MAN'S FOOD.** (4 cr)  
Man's nutritional needs; food composition, world food supply, consumption patterns, acceptance, quality programs and regulations, food preservation, commercial processes, packaging, marketing, national and international food programs. (GrB)
- 1012. FOOD FOR THOUGHT.** (4 cr)  
Nutritional requirements of man, basis of a balanced diet, effect of processing and storage on food quality and nutritional value, chemical additives and food safety, FDA, food fads, dieting, future world food production problems and answers. Individual 2-week dietary survey. (GrB)
- 1212. SCIENTIFIC PRINCIPLES OF FOOD PREPARATION I.** (4 cr; prereq 2 qtrs inorganic chemistry)  
Composition, nutritive value, and chemical and physical properties of foods; interaction and reaction of foods in food preparation procedures; evaluation of food products prepared in laboratory using quality standards; introduction to experimental study of foods. (GrB)
- 1213. SCIENTIFIC PRINCIPLES OF FOOD PREPARATION II.** (3 cr; prereq 1212)  
(Continuation of 1212) Individual and group projects to illustrate work area layouts and the sequence of tasks related to food preparation. (GrB)
- 1600. SOCIOCULTURAL ASPECTS OF NUTRITION.** (3 cr)  
Food habits of man in terms of historical, social, and cultural perspectives. Influence of different food patterns on nutritional status. (GrC)

## Foreign Study (FoSt)

### SPAN Program

#### Staff

*Administrative Officer*, Theofanis Stavrou, 652 Social Sciences Building

These courses are designed for members of the Student Project for Amity Among Nations (SPAN) foreign study groups. Course 3001-3002-3003 is open to others, however, with permission. 5960 is open only to those formally admitted to the program. Students with credit for both courses, upon evaluation of their language proficiency, may use them to meet the Route II language requirement.

**0900. STUDY ABROAD.** (No cr; prereq \$ of Office for Special Learning Opportunities)

Agreement between student and college to show that an individualized full-time study-abroad program has been approved.

**3001-3002-3003. LANGUAGE, CULTURE, AND SOCIETY.** (3 cr per qtr; prereq SPAN membership or \$)

Intensive study of the language, culture, and society of countries to be visited by SPAN groups, a separate section for each country. For further information, call Professor Theofanis Stavrou, 652 Social Sciences Building (373-4636). (CrC—6 cr only)

**5960. SEMINAR FOR FOREIGN STUDY.** (12 cr; apply to Professor Stavrou or SPAN office, 720 Washington Ave SE, 373-3677)

Directed field study (SPAN program) in selected foreign countries, investigating current economic, political, education, cultural, and religious patterns. Each student studies his host country and his project during year preceding summer abroad and writes comprehensive report upon returning.

## French and Italian

### FRENCH (Fren)

#### Staff

*Chairman*, Marilyn Schneider, 200A Folwell Hall; *Director of Undergraduate Studies*, Thomas D. O'Donnell, 316 Folwell Hall; *Coordinator of Graduate Studies*, Armand A. Renaud, 224 Folwell Hall

*Professors*: Lock, Pipa, Renaud, Waldauer

*Associate Professors*: Akehurst, Bauer, Mantini, Robinson, Schneider

*Assistant Professors*: Caplan, Chastain, Conley, Davidson, Kalb, O'Donnell, Sivert

The study of French embraces the French language, the culture, and literature of French-speaking countries, and the interrelationships between these phenomena.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1101-1102-1103; 1104-1105

#### Major Requirements

Minimum of 45 cr in courses numbered 3001 and above, to include: 3015, 3016, 3017, 3104

Three French literature courses numbered 3209 through 3305, one of which must be 3301, 3303, or 3305

D grades in remaining major courses will be acceptable. (Under the old major, D grades in major courses may be offset by A or B grades in the major.)

*Note*—Courses 3599, 3601, 3602, 3603, 3604, and 3605 may not be used by French majors as part of the major or of the 30 3xxx- or 5xxx-level credits outside the major. Majors may not take 3005.

For requirements for a teacher's certificate, see the *College of Education Bulletin*.

**Accelerated Sections**—Accelerated sections in the 1101-1102-1103 sequence allow highly motivated students to complete the background requirement and enter advanced courses more rapidly than was formerly possible. These sections which may award up to 10 extra credits, are composed of students recruited from regular 1101 and 1102 sections.

**General Education**—3599, 3601, 3602, 3603, 3604, and 3605 are open to all undergraduates, have no prerequisites, and count toward the Route II language requirement. 3005 is designed to enable students to acquire reading proficiency in French in 1 quarter.

**1101-1102-1103f,w,s. BEGINNING FRENCH.** (5 cr per qtr; students submitting 1 yr high school French may take 1102...those with 2 yrs may take 1103)

Speaking emphasis based on audiolingual approach. Students master fundamental structures of the language by learning to understand and express ideas in French and will be able to write anything they can say. See also Accelerated Sections above. (GrA)

**1104f,w,s. INTERMEDIATE FRENCH.** (5 cr; prereq 1103 or 3 yrs high school French)

Increases comprehension and active control of spoken French, while extending reading and writing skills. Structured oral discussion of audiovisually presented materials. (GrA)

**1105f,w,s. INTERMEDIATE FRENCH.** (5 cr; prereq 1104)

Readings of cultural and literary nature; progressively less structured discussion leading to free expression of ideas. (GrA)

**3005. READING FRENCH FOR RESEARCH.** (5 cr [no cr allowed for students with previous college French])

Designed to enable students to acquire reading proficiency in French in 1 quarter. (GrA)

**3015. FRENCH CONVERSATION AND COMPOSITION.** (5 cr; prereq 1105)

Combines traditional conversational and composition courses. Orthoepic in approach, seeking command of French in pronunciation and grammar. Pastiche work, free composition, translation from and into French. (GrA)

**3016. ADVANCED FRENCH COMPOSITION AND CONVERSATION.** (5 cr; prereq 3015 or #)

Continues and develops the work of 3015. (GrA)

**3017. ADVANCED PROBLEMS IN TRANSLATION.** (5 cr; prereq 3016, or superior achievement in 3015 and #)

French composition according to the traditional European method of "thème et version." (GrA)

**3021. PHONETICS AND DICTION.** (2 cr; prereq 3017 or #)

Thorough theoretical background in phonetics as applied to French. (GrA)

**3022. FRENCH PLAY.** (5 cr; prereq 3021 and #) (GrA)

**3029. ADVANCED CONVERSATION.** (2 cr; prereq 3015)

Seeks superior command of oral French. Present-day usage. (GrA)

**3104. INTRODUCTION TO FRENCH LITERARY TEXTS.** (5 cr; prereq 1105 or equiv)

Literary works representing principal genres examined through stylistic analyses and literary explications. Critical terminology; literary problems and techniques. Some sections taught in French. (GrD)

**3201. THE FRENCH LITERARY TRADITION.** (5 cr; prereq 3104)

Tradition and innovation in French literature; specific masterpieces and theoretical works. Taught in French. (GrD)

**3209. TOPICS IN MEDIEVAL FRENCH LITERATURE.** (5 cr; prereq 3104)

Reading and discussion of selected texts. Taught in French. (GrD)

## Course Descriptions—Major Sequences

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- 3219. TOPICS IN 16TH-CENTURY FRENCH LITERATURE.** (5 cr; prereq 3104)  
Reading and discussion of selected texts. Taught in French. (GrD)
- 3239. TOPICS IN 17TH-CENTURY FRENCH LITERATURE.** (5 cr; prereq 3104)  
Reading and discussion of selected texts. Taught in French. (GrD)
- 3259. TOPICS IN 18TH-CENTURY FRENCH LITERATURE.** (5 cr; prereq 3104)  
Reading and discussion of selected texts. Taught in French. (GrD)
- 3269. TOPICS IN 19TH-CENTURY FRENCH LITERATURE.** (5 cr; prereq 3104)  
Reading and discussion of selected texts. Taught in French. (GrD)
- 3289. TOPICS IN 20TH-CENTURY FRENCH LITERATURE.** (5 cr; prereq 3104)  
Reading and discussion of selected texts. Taught in French. (GrD)
- 3301. FRENCH LYRIC POETRY.** (5 cr; prereq 3104)  
Reading and discussion of selected texts, development of notions of convention and genre. Taught in French. (GrD)
- 3303. FRENCH THEATRE.** (5 cr; prereq 3104)  
Reading and discussion of selected texts, development of notions of convention and genre. Taught in French. (GrD)
- 3305. FRENCH NOVEL.** (5 cr; prereq 3104)  
Reading and discussion of selected texts, development of notions of convention and genre. Taught in French. (GrD)
- 3501, 3502. FRENCH CIVILIZATION AND CULTURE.** (5 cr per qtr; prereq 1105)  
Systematic study of development of French culture. Oral and written exercises. Taught in French. (GrC)
- 3503. CINÉMA ET CIVILISATION, 1895 TO PRESENT.** (5 cr; prereq 1105)  
Film as center of cultural consciousness, from Lumière to Godard/Gorin. (GrC)
- 3599. THE CONTEMPORARY SCENE IN FRANCE.** (5 cr; knowledge of French helpful but not necessary)  
Exploration of the term culture; acquaintance with French daily life; reduction of ethnocentrism; better understanding of American culture. (GrC)
- 3601, 3602. FRENCH LITERATURE IN ENGLISH TRANSLATION.** (5 cr per qtr; knowledge of French helpful but not necessary)  
Representative works, from medieval times to present, examined through movements, genres, or themes. (GrD)
- 3603. 20TH-CENTURY FRENCH THEATRE IN TRANSLATION.** (5 cr; knowledge of French helpful but not necessary)  
Significant plays of major 20th-century French dramatists: Apollinaire, Artaud, Cocteau, Giraudoux, Claudel, Anouilh, Sartre, Camus, Beckett, Genet, Ionesco, and others. (GrD)
- 3604. MODERN FRENCH CINEMA: ITS LITERARY AND CULTURAL IMPACT.** (5 cr; knowledge of French helpful but not necessary)  
French cinema as an innovative art form; its effects on French arts and modern culture; use of a different aesthetic vocabulary linked with French literary creation, 1920 to 1970. (GrC)
- 3605. EXISTENTIALISM IN LITERATURE AND THE ARTS OF 20TH-CENTURY FRANCE.** (5 cr; knowledge of French helpful but not necessary)  
The central role of the art object in the imagination of the existential writer; the art object in terms of existential aesthetics as revealed in novels, plays, and essays by existential writers. (GrD)
- 3701. THE DEVELOPMENT OF THE FRENCH LANGUAGE.** (5 cr; prereq 3015 or #)  
Origins and development of the French language. Readings of selected texts. Present stage and development of the language. (GrA)
- 3970. DIRECTED READINGS.** (1-5 cr per qtr; prereq undergrad,  $\Delta$ )
- 3980. DIRECTED INSTRUCTION.** (3-5 cr; prereq 3015, # and  $\Delta$ )
- 5012. STYLISTICS.** (5 cr; prereq 3017 or #) Kalb and staff  
Structural dimensions of literary works, principally as they relate to language. Examples from a variety of genres and periods. Taught in French. (GrD)
- 5013. INTRODUCTION TO FORMAL ANALYSIS.** (5 cr; prereq 3209 or above). Lock and staff  
Outstanding literary texts from Middle Ages to 20th century. How language, themes, and structure analyzed as a whole, in depth, lead to maximal appreciation of beauty and significance of great literary texts. (GrD)

- 5017. COMPOSITION ET STYLISTIQUE.** (5 cr; prereq 3017 or #) Davidson and staff  
Practical work in translation, imitation, and composition of fiction and nonfiction, prose and poetry, using both English and French texts. (GrA)
- 5204, 5205, 5206. MOUVEMENT DES IDÉES.** (3-5 cr per qtr; primarily for grad students; prereq 3209 or above)  
Taught in French. (GrD)
- 5207. OLD FRENCH.** (5 cr; prereq 3209 or above or #) Akehurst  
Preparation for reading medieval French texts in the original. (GrA)
- 5208. LITERATURE OF THE LATE MIDDLE AGES.** (5 cr; prereq 3209 or above)  
Poetry, narrative prose, and chroniclers from the period of the Hundred Years War. Charles d'Orléans, Villon, Christine de Pisan, Antoine de la Sale, Commynes, *Quinze Joyes*, *Cent Nouvelles nouvelles*, and others. (GrD)
- 5219. HUMANISM AND ITALIANISM IN THE LITERATURE OF THE 16TH CENTURY.**  
(5 cr; prereq 3209 or above) Renaud, Pipa  
Aspects of Italian civilization of the 14th-15th-16th centuries that led to the French Renaissance and the humanistic trends. Principally French and Italian literary works but also some paraliterary works. (GrD)
- 5261. ROMANTIC POETRY.** (5 cr; prereq 3209 or above) Sivert  
The great romantic poets, their innovations and contributions to the evolution of modern poetry. (GrD)
- 5269. FRENCH ROMANTICISM.** (5 cr; prereq 3209 or above) Lock  
Graduate survey of principal theoretical and literary works. (GrD)
- 5271. PROSE POETRY OF THE 19TH CENTURY.** (5 cr; prereq 3209 or above) Robinson  
Prose poems of Baudelaire, Rimbaud, and Lautréamont. (GrD)
- 5275. HUYSMANS AND VILLIERS DE L'ISLE-ADAM: THE REACTION.** (5 cr; prereq 3209 or above) Sivert  
Understanding of late 19th-century literature through study of the reaction to realism and naturalism in the works of Huysmans, Villiers de l'Isle-Adam, and others. (GrD)
- 5281. EARLY 20TH-CENTURY POETRY: APOLLINAIRE, BRETON, ELUARD.** (5 cr; prereq 3209 or above) Kalb  
Poetry as it emerged out of the "experiments" undertaken at the end of the 19th century that led to Apollinaire's concept of poetry, and to the Surrealist movement. (GrD)
- 5289. TOPICS IN AFRICAN LITERATURE.** (5 cr; prereq 3209 or above) Renaud, Caplan  
African values and views of reality compared with "European" values and views, through the analysis of literary creations. Comparison with other arts. (GrD)
- 5301. MEDIEVAL LYRIC POETRY.** (5 cr; prereq 5207 or #) Akehurst  
Origins, form, and content of lyric poetry from the "trouvers" to Villon. (GrD)
- 5303. MEDIEVAL FRENCH DRAMA.** (5 cr; prereq 5207 or #) Akehurst  
Medieval French theatre from its origins to the Renaissance. (GrD)
- 5305. MEDIEVAL FRENCH ROMANCE.** (5 cr; prereq 5207 or #) Akehurst  
"Roman courtois," with emphasis on Chrétien de Troyes. (GrD)
- 5307. MEDIEVAL FRENCH ALLEGORY AND SATIRE.** (5 cr; prereq 5207 or #) Akehurst  
Satire and allegory in the French *Fabliaux*, the *Roman de Renart*, and the *Roman de la rose*. (GrD)
- 5309. MEDIEVAL FRENCH EPIC.** (5 cr; prereq 5207 or #) Akehurst  
Origins, form, and history of the epic literature of the French Middle Ages. (GrD)
- 5311. RENAISSANCE POETRY BEFORE THE PLÉIADE.** (5 cr; prereq 3209 or above)  
Conley and staff  
The Grands rhétoriciens, Lemaire, Marot, Saint-Gelays, Louise Labé, and others; study of elegy, emblem, "blason," and "art poétique." (GrD)
- 5312. PLÉIADE AND BAROQUE.** (5 cr; prereq 3209 or above) Conley and staff  
Ronsard and Du Bellay; other poets of the Pléiade and the first baroque poets, including Sponde, Du Bartas, Desportes, Chassignet. (GrD)
- 5313. RENAISSANCE-BAROQUE DRAMA (EXCLUSIVE OF CORNEILLE).** (5 cr; prereq 3209 or above) Renaud and staff  
Dramatic genres, particularly tragedy, from Jodelle to Rotrou. (GrD)
- 5331. FRENCH POETRY FROM D'AUBIGNÉ TO LA FONTAINE.** (5 cr; prereq 3209 or above) Davidson and staff  
Movement from baroque to classicism, studied in the great verse creations of the 17th century. (GrD)

## Course Descriptions—Major Sequences

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- 5333. COMEDY OF THE 16TH AND 17TH CENTURIES (EXCLUSIVE OF MOLIÈRE).** (5 cr; prereq 3209 or above) Renaud  
Rebirth of comedy during the Renaissance; its encounter with traditional comic genres of the Middle Ages; elaboration into a new comedy that was a blend of heritages from Greece, Rome, Italy, Spain, and France itself. (GrD)
- 5335. THE NOVEL OF THE 17TH CENTURY.** (5 cr; prereq 3209 or above) Renaud (GrD)
- 5338. NONFICTION PROSE OF THE 16TH AND 17TH CENTURIES.** (5 cr; prereq 3209 or above)  
Significant prose writings of the 16th and 17th centuries other than the novel. (GrD)
- 5339. SHORT STORIES OF THE 16TH AND 17TH CENTURIES.** (5 cr; prereq 3209 or above) Renaud, Conley  
Development of narrative techniques and variants of short stories in France in 16th and 17th centuries.
- 5354. DRAMA OF THE 18TH CENTURY.** (5 cr; prereq 3209 or above) Waldauer, Caplan  
Tragedy, drama, comedy (emphasis on comedy). (GrD)
- 5355. NOVEL OF THE 18TH CENTURY.** (5 cr; prereq 3209 or above) Waldauer  
Emphasis on novels of Prévost, Marivaux, Rousseau, Diderot, and Laclos. (GrD)
- 5358. GNOMIC LITERATURE OF THE 17TH AND 18TH CENTURIES.** (5 cr; prereq 3209 or above) Davidson and staff  
Emergence of the genre in antiquity, the Middle Ages and the Renaissance; in-depth analyses of great realizations such as those of La Rochefoucauld, La Bruyère, Chamfort, Vauvenargues. (GrD)
- 5359. VOYAGERS AND PHILOSOPHIES IN THE 18TH CENTURY.** (5 cr; prereq 3209 or above)  
The 18th century view of "man" and its formation in voyage literature. (GrD)
- 5363. 19TH-CENTURY DRAMA.** (5 cr; prereq 3209 or above) Sivert  
From Alexandre Dumas to Henry Becque and Maeterlinck, with special attention to Hugo. (GrD)
- 5367. 19TH-CENTURY DRAMA: MUSSET.** (5 cr; prereq 3209 or above) Sivert and staff (GrD)
- 5368. SHORT STORIES OF THE 19TH CENTURY.** (5 cr; prereq 3209 or above) Lock and staff  
From Charles Nodier to Anatole France; particular attention to Daudet and Villiers de l'Isle-Adam. (See 5467 for Flaubert and Maupassant). (GrD)
- 5380. THE FRENCH NOVEL IN THE 20TH CENTURY.** (5 cr; prereq 3209 or above) Staff  
Trends in the novel in France during the 20th century. (GrD)
- 5381. CLAUDEL.** (5 cr; prereq 3209 or above) Kalb  
The poetry of the great 20th-century Catholic poet. (GrD)
- 5382. VALÉRY AND THE HERITAGE OF SYMBOLISM.** (5 cr; prereq 3209 or above) Kalb  
The poetry of Valéry; sources of his concept of poetry. (GrD)
- 5383. 20TH-CENTURY FRENCH DRAMA TO EXISTENTIALISM.** (5 cr; prereq 3209 or above) Bauer, Chastain, O'Donnell  
The main trends, themes, and dramatic theories from symbolist and surrealist drama to existentialism. (GrD)
- 5384. 20TH-CENTURY FRENCH DRAMA: EXISTENTIALISM TO THE PRESENT.** (5 cr; prereq 3209 or above) Bauer, Kalb  
Anouilh, Sartre, Camus, Genet, Ionesco, Beckett, Arrabal, and less-recognized dramatists of the last decade. (GrD)
- 5385. ART AND THE ARTIST IN THE CONTEMPORARY NOVEL.** (5 cr; prereq 3209 or above) Bauer  
The artist figure and the rôle of the artist in the contemporary French novel. (GrD)
- 5391. RECENT FRENCH POETRY.** (5 cr; prereq 3209 or above) Kalb (GrD)
- 5395. NOVEL OF L'ENTRE-DEUX GUERRES.** (5 cr; prereq 3209 or above) Kalb and staff  
Course complements others on the French novel of this century; works of Bernanos, Jules Romains, Colette, Duhamel, Giono, Giraudoux, Martin du Gard, and Saint-Exupéry. (GrD)
- 5396. EXISTENTIAL NOVEL.** (5 cr; prereq 3209 or above) Bauer  
Novelists from 1930's to present whose work reveals concern for what Malraux calls the "human condition": Malraux, Céline, Sartre, Camus, Blanchot, and Beckett. (GrD)

5397. **LE NOUVEAU ROMAN.** (5 cr; prereq 3209 or above) O'Donnell  
Last existentialist novels and innovations of Nathalie Sarraute, Alain Robbe-Grillet, Michel Butor, and others. (GrD)
5398. **FRENCH FICTION OF THE LAST DECADE.** (5 cr; prereq 3209 or above) O'Donnell (GrD)
5411. **SCEVE.** (5 cr; prereq 3209 or above) Renaud  
Poetry as knowledge and communication. The quest for self and reality through the complex concept of love. (GrD)
5415. **RABELAIS.** (5 cr; prereq 3209 or above) Davidson and staff  
*Gargantua* and *Pantagruel* in original text. (GrD)
5418. **MONTAIGNE.** (5 cr; prereq 3209 or above) Conley and staff  
The *Essais* studied in depth, partially in the light of the *Journal de Voyage*. (GrD)
5434. **BAROQUE TRAGEDY: CORNEILLE.** (5 cr; prereq 3209 or above) Renaud  
Plays studied as unique creations and in the perspective of the aesthetics of the time. (GrD)
5438. **PASCAL.** (5 cr; prereq 3209 or above) Davidson  
Though the literary originality of the *Provinciales* is analyzed, the course is principally devoted to *Les Pensées*. (GrD)
5443. **CLASSICAL COMEDY: MOLIÈRE.** (5 cr; prereq 3209 or above) Renaud (GrD)
5444. **CLASSICAL TRAGEDY: RACINE.** (5 cr; prereq 3209 or above) Renaud (GrD)
5455. **BAYLE AND FONTENELLE.** (5 cr; prereq 3209 or above)  
Major philosophical texts of Bayle and Fontenelle; the clandestine texts. (GrD)
5456. **MONTESQUIEU.** (5 cr; prereq 3209 or above)  
Works studied for literary merit and significance as contributions to social and political thought. (GrD)
5457. **ROUSSEAU.** (5 cr; prereq 3209 or above) Waldauer, Caplan (GrD)
5458. **VOLTAIRE.** (5 cr; prereq 3209 or above) Waldauer (GrD)
5459. **DIDEROT.** (5 cr; prereq 3209 or above) Waldauer (GrD)
5461. **BAUDELAIRE.** (5 cr; prereq 3209 or above) Robinson (GrD)
5462. **RIMBAUD.** (5 cr; prereq 3209 or above) Robinson (GrD)
5463. **HUGO.** (5 cr; prereq 3209 or above) Sivert (GrD)
5465. **STENDHAL.** (5 cr; prereq 3209 or above) Lock (GrD)
5466. **BALZAC.** (5 cr; prereq 3209 or above) Lock (GrD)
5467. **FLAUBERT, MAUPASSANT, AND NARRATIVE TECHNIQUES.** (5 cr; prereq 3209 or above) Lock (GrD)
5471. **MALLARMÉ.** (5 cr; prereq 3209 or above) Robinson (GrD)
5475. **ZOLA, GONCOURT, AND THE NATURALISTIC NOVEL.** (5 cr; prereq 3209 or above) Lock (GrD)
5485. **MAURIAC AND THE CATHOLIC NOVEL.** (5 cr; prereq 3209 or above) Kalb  
Novels of Mauriac, Julien Green, and Bernanos. (GrD)
- 5486-5487. **PROUST.** (5 cr per qtr; prereq 3209 or above) Lock (GrD)
5489. **SARTRE.** (5 cr; prereq 3209 or above) Bauer  
Creative works and critical essays. (GrD)
5509. **ITALIAN AVATARS OF FRENCH MEDIEVAL EPICS: BOIARDO, ARIOSTO, TASSO.**  
(5 cr; prereq at least one literature course in either French or Italian) Akehrst, Schneider  
A number of French epics; selected readings in Boiardo's *Orlando Innamorato*; close study of Ariosto's *Orlando Furioso* and Tasso's *Gerusalemme Liberata*. Other works examined briefly. Taught in English. (GrD)

## Course Descriptions—Major Sequences

- 5511. IDEALISM IN THE POETRY OF ITALY AND FRANCE: DANTE TO D'AUBIGNÉ.** (5 cr; prereq at least one literature course from one of the countries being studied or #) Renaud and staff  
From Dante's transmutation of "l'amour courtois" through Petrarch, Bembo, Tansillo, Scève, Ronsard, Du Bellay, Desportes, d'Aubigné and others, the superficially similar but different poetic uses of love and the beloved are studied to appreciate great literary realizations and various concepts of poetry and reality. Taught in English. (GrD)
- 5519. THE CONTINENTAL RENAISSANCE IN LITERATURE.** (5 cr; prereq at least one 3xxx- or 5xxx-level course in Italian, Spanish, French, or Portuguese literature, #) Renaud and others  
Origin and dissemination of ideas, attitudes, themes, and some literary genres in Italy, Spain, Portugal, and France. Taught in English. (GrD)
- 5523. INTERRELATION OF DRAMATIC LITERATURE OF FRANCE, ITALY, AND SPAIN IN THE 16TH AND 17TH CENTURIES.** (5 cr; prereq at least one course in the literature of one of the countries studied or #) Renaud and staff  
Theatre of antiquity—revival and rejuvenation in Italy, spread to and from Spain and France, return to Italy and France. Taught in English. (GrD)
- 5531. THE BAROQUE IN EUROPEAN LITERATURE: FRANCE AND ITALY.** (5 cr; prereq at least one 3xxx- or 5xxx-level course in the literature of France or Italy) Renaud and staff  
The baroque in literature as it spread through Europe. Movement of baroque from Italy, changing but rooted in a particular view of the world. Taught in English. (See also Span 5533, *The Baroque in European Literature: Spain.*) (GrD)
- 5538. NOVELLE, NOVELAS, AND NOUVELLES: FROM BOCCACCIO TO CERVANTES AND MME. DE LA FAYETTE.** (5 cr; prereq at least one 3xxx- or 5xxx-level course in French, Spanish, or Italian literature, #) Renaud and staff  
Boccaccio's tales; evolution of narrative techniques in Italy, Spain, and France. The "first modern novel"; *La Princesse de Cleves*, and elaboration of the realistic novel. Taught in English. (GrD)
- 5539. NARRATIVE TECHNIQUES AND THEMES IN LITERATURE OF FRANCE AND SPAIN FROM THE "LIBRO DE BUEN AMOR" TO "GIL BLAS DE SANTILLANE."** (5 cr; prereq at least one 3xxx- or 5xxx-level course in French or Spanish literature, #) Renaud and staff  
Realistic trends, including the picaresque, in literature of France and Spain between 14th and 18th centuries; special attention to 16th and 17th centuries. Taught in English. (GrD)
- 5561. 19TH-CENTURY POETIC THEORY.** (5 cr; prereq 3209 or above) Robinson  
Poetic theory concerning language, versification, and aesthetics of the 19th century. (GrD)
- 5568. FRENCH SYMBOLISM AND ITALIAN HERMETICISM.** (5 cr; prereq at least one pertinent course either in French or Italian literature or #) Pipa, Robinson  
Poetry of Rimbaud, Mallarmé, and Valéry, followed by that of Campana, Ungaretti, and Montale. (GrD)
- 5569. NATURALISM IN THE FRENCH AND ITALIAN NARRATIVE.** (5 cr; prereq at least one pertinent course either in French or Italian literature or #) Lock, Pipa  
Flaubert, Maupassant, Zola, and other naturalist writers; Verga, Deledda, Fogazzaro, and others. (GrD)
- 5581. POETICS OF THE 20TH CENTURY.** (5 cr; prereq 3209 or above) Kalb  
Innovations in versification, aesthetics, and doctrines. (GrD)
- 5588. ASPECTS OF CONTEMPORARY CRITICISM.** (5 cr, §CLit 5588; prereq 3209 or above for French grad cr; students who have no French must have reading knowledge of Russian, German, Italian, or Spanish) Bauer and staff  
Major aspects of criticism as practiced in contemporary France. Taught in English. (GrD)
- 5591. DADA AND SURREALISM.** (5 cr; prereq 3209 or above) Bauer  
Origins, activities, and literary accomplishments of French Dada and surrealism. (GrD)
- 5701-5702. STRUCTURE OF MODERN FRENCH: PHONOLOGY, MORPHOLOGY, SYNTAX.** (5 cr per qtr; prereq 3015 or #) Mantini  
Application of linguistics to study of present-day French. (GrA)
- 5900. TOPICS IN FRENCH LITERATURE.** (5 cr per qtr; prereq 3209 or above) (GrD)
- 5901. "LE DEUXIEME SEXE": WOMEN IN FRENCH LITERATURE.** (5 cr; prereq 3209 or above)  
Women as literary objects; misogyny to worship. Point of view in male and female authors. Social versus literary values. (GrD)

## ITALIAN (Ital)

### Staff

*Chairman:* Marilyn Schneider, 200A Folwell Hall

*Professor:* Pipa

*Associate Professors:* Mantini, Schneider

Italian studies begin with the language of Italy and ultimately center on the country's literature, from the early love sonnets through Dante to Pirandello and contemporary works. A broad cultural frame is provided by courses on civilization, literary tradition, and cross-disciplinary studies.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1101-1102-1103; 1104-1105 or, if eligible, 3041

#### Major Requirements

Minimum of 45 cr in courses numbered 3001 and above (excluding 3041), to include 3015, 3031, 3045

30 cr of Italian literature and/or civilization

D grades in remaining major courses will be acceptable. (Under the old major, D grades in major courses may be offset by A or B grades in the major.)

*Note*—Courses 3304, 3555, 5601, 5602, 5603, and 5609 may not be used by Italian majors as part of the major or as part of the 30 3xxx- and 5xxx-level credits outside the major.

For requirements for a teaching minor in Italian, see the *College of Education Bulletin*.

**Accelerated Sections**—Accelerated sections in the 1102-1103-1104 sequence allow highly motivated students to complete part of the background requirement in two quarters and to enter advanced courses rapidly. These sections are composed of students recruited from 1101 sections.

**General Education**—Nonspecialist students may profit from the group of literature and civilization courses in English (3304, 3555, 5601, 5602, 5603, and 5609), which count toward the Route II language requirement. They may acquire basic linguistic proficiency in either the normal 3-quarter course (1101-1102-1103) or in a 1-quarter accelerated course (3041).

#### 1101-1102-1103. BEGINNING ITALIAN. (5 cr per qtr)

Speaking, reading, and cultural objectives based on audiolingual approach. Students learn to understand and express fundamental ideas, to write anything they can say, and to master fundamental structures of the language. Includes audiovisual aids. See also Accelerated Sections above. (GrA)

#### 1104. INTERMEDIATE ITALIAN. (5 cr; prereq 1103 or equiv)

Consolidation of basic structures and development of oral fluency through readings and structured discussions. (GrA)

#### 1105. INTERMEDIATE ITALIAN. (5 cr; prereq 1104)

Readings of literary and cultural nature, leading to introductory knowledge of Italian literature and civilization. (GrA)

#### 3015. INTERMEDIATE ITALIAN CONVERSATION AND COMPOSITION. (5 cr; prereq 1105, or 1104 with "A" and recommendation of instructor)

Conversation and composition practice which aims for command of Italian in pronunciation and grammar. Structured and improvised conversation and discussions. (GrA)

#### 3031. WRITING TECHNIQUES AND GRAMMAR REVIEW. (5 cr; prereq 3015 or #)

Techniques of translation. Discussion in Italian of problems of expression and composition; review of grammar. (GrA)

## Course Descriptions—Major Sequences

- 3041. INTENSIVE ITALIAN FOR ROMANCE LANGUAGE MAJORS AND MINORS.** (5 cr; prereq 2 yrs of Romance language study or #)  
Material of first-year Italian covered through comparative study of French, Spanish, and Italian grammar; oral and reading practice. Completion of course with A or B satisfies Graduate School language requirement. (GrA)
- 3045. ADVANCED ITALIAN CONVERSATION AND COMPOSITION.** (5 cr; prereq 3015 or #)  
Seeks a superior command of oral Italian; emphasis on present-day usage; may include study and performance of a contemporary play. (GrA)
- 3104. ITALIAN STYLISTICS.** (5 cr; prereq 3015)  
Literary works representing principal genres examined through stylistic analyses and literary explications. Critical terminology; literary problems and techniques. Taught in Italian. (GrD)
- 3201. ITALIAN LITERARY TRADITION.** (5 cr; prereq 3015 or #)  
Tradition and innovation in Italian literature; discussion of specific masterpieces and theoretical works. Taught in Italian. (GrD)
- 3209. MEDIEVAL ITALIAN LITERATURE.** (5 cr; prereq 3015)  
Reading and discussion of selected texts. Taught in Italian. (GrD)
- 3219. RENAISSANCE AND POST-RENAISSANCE ITALIAN LITERATURE.** (5 cr; prereq 3015)  
Reading and discussion of selected texts. Taught in Italian. (GrD)
- 3289. MODERN ITALIAN LITERATURE.** (5 cr; prereq 3015)  
Reading and discussion of selected texts. Taught in Italian. (GrD)
- 3301. ITALIAN LYRIC POETRY.** (5 cr; prereq 3015)  
Reading and discussion of selected texts and development of notions of convention and genre. Taught in Italian. (GrD)
- 3303. ITALIAN DRAMA.** (5 cr; prereq 3015)  
Reading and discussion of selected texts and development of notions of convention and genre. Taught in Italian. (GrD)
- 3304. MARINETTI AND FUTURISM.** (5 cr; knowledge of Italian helpful but not necessary; does not count toward Italian major)  
Futurism in various aspects of poetry, figurative arts, and music; its impact on European culture during the first half of the 20th century. Taught in English. (GrD)
- 3305. ITALIAN NOVEL.** (5 cr; prereq 3015)  
Reading and discussion of selected texts and development of notions of convention and genre. Taught in Italian. (GrD)
- 3501. ITALIAN CIVILIZATION AND CULTURE.** (5 cr; prereq 1105)  
Development of Italian culture from the beginning to the Risorgimento. Taught in Italian. (GrC)
- 3502. MODERN ITALIAN CIVILIZATION AND CULTURE.** (5 cr; prereq 1105)  
Taught in Italian. (GrC)
- 3555. ITALIAN CULTURE IN THE MIDDLE AGES AND THE RENAISSANCE.** (5 cr; knowledge of Italian helpful but not necessary; does not count toward Italian major)  
Italian culture instrumental in shaping Western civilization. Relates cultural aspects of politics, religion, philosophy, science, music, and the arts. Taught in English. (GrC)
- 3970. DIRECTED READINGS.** (1-5 cr; prereq undergrad, Δ)
- 5042. INTENSIVE READING OF MODERN ITALIAN NARRATIVE LITERATURE.** (5 cr; prereq 3015 or 3041 or #) Pipa, Schneider  
20th-century authors analyzed from linguistic and literary points of view, to achieve high level of reading competency and understanding of contemporary Italian literary scene. Taught in Italian. (GrA)
- 5219. HUMANISM AND ITALIANISM IN THE LITERATURE OF THE 16TH CENTURY.** (5 cr; prereq 3209 or above) Pipa, Renaud  
Aspects of Italian civilization of the 14th, 15th, and 16th centuries that led to the French Renaissance and the humanistic trends. Principally French and Italian literary works but also some paraliterary works. (GrD)
- 5321. CHIVALRIC POETRY: BOIARDO, ARIOSTO, TASSO.** (5 cr; prereq 3015) Staff (GrD)
- 5328. RENAISSANCE PROSE WRITERS: MACHIAVELLI, CASTIGLIONE.** (5 cr; prereq 3015) Staff (GrD)

5331. **MODERN POETRY.** (5 cr; prereq 3015) Pipa, Schneider  
The Crepuscular and hermetic poets from Gozzano to Ungaretti, Montale, Saba, and Quasimodo. (GrD)
5337. **MANZONI AND THE 19TH-CENTURY NOVEL.** (5 cr; prereq 3015) Pipa, Schneider  
*I promessi sposi* and other selected novels. (GrD)
5384. **MODERN DRAMA.** (5 cr; prereq 3015) Pipa, Schneider  
Dramatists such as Pirandello, Ugo Betti, Diego Fabbri, and Eduardo de Filippo; evolution of modern drama. (GrD)
5385. **MODERN NARRATIVE.** (5 cr; prereq 3015) Pipa, Schneider  
Twentieth-century authors, such as Svevo, Moravia, Pavese, and Vittorini; evolution of the modern novel and novella. (GrD)
- 5401-5402-5403. **DANTE.** (5 cr per qtr; prereq 3015) Pipa  
Concentration on the *Divina Commedia*; Dante's minor works. (GrD)
5411. **PETRARCH.** (5 cr; prereq 3015) Staff (GrD)
5418. **BOCCACCIO.** (5 cr; prereq 3015) Staff (GrD)
5461. **LEOPARDI AND 19TH-CENTURY POETRY.** (5 cr; prereq 3015) Pipa, Schneider  
Leopardi's poetry; Carducci, Pascoli, and D'Annunzio. (GrD)
5568. **FRENCH SYMBOLISM AND ITALIAN HERMETICISM.** (5 cr; prereq at least one pertinent course in French or Italian literature or #) Pipa, Robinson  
Poetry of Rimbaud, Mallarmé, and Valéry, followed by that of Campana, Ungaretti, and Montale. (GrD)
5569. **NATURALISM IN THE FRENCH AND ITALIAN NARRATIVE.** (5 cr; prereq at least one pertinent course in French or Italian literature or #) Pipa, Lock  
Flaubert, Maupassant, Zola, and other naturalist writers; Verga, Deledda, Fogazzaro, and others. (GrD)
- 5601, 5602, 5603. **ITALIAN LITERATURE IN ENGLISH TRANSLATION.** (5 cr per qtr; does not count toward Italian major) Pipa, Schneider  
Representative works from medieval times to present examined through various movements, genres, or themes. (GrD)
5609. **DANTE (IN ENGLISH).** (5 cr; prereq #; does not count toward Italian major) Staff (GrD)
- 5701-5702. **ITALIAN LANGUAGE.** (5 cr per qtr; prereq #) Mantini (GrA)
5900. **TOPICS IN ITALIAN LITERATURE.** (5 cr per qtr; prereq 3209 or above) Staff (GrD)

## Genetics and Cell Biology (GCB)

College of Biological Sciences

### Staff

*Head*, Frederick Forro, Jr., 248A BioScience Center

*Regents' Professor*: Comstock

*Professors*: Anderson, Caldecott, Enfield, Forro, Herman (on leave, 1974-75), Reed, Rosenberg, Rubenstein, Snustad, Snyder, Woodward

*Associate Professors*: Cunningham, Fan, Hooper

*Assistant Professors*: Deppe, Sheppard

Genetics is the study of inheritance, including molecular mechanisms of gene action, human genetics, and the behavior of genes in populations of organisms.

Cell biology is the study of the structure, function, and replication of cells at the microscopic and molecular level.

**General Education**—Courses especially appropriate for nonmajors include Biol 1101, 5602; GCB 3201, 3002, 3022.

## Course Descriptions—Major Sequences

- 3002s. HUMAN GENETICS, SOCIAL AFFAIRS.** (3 cr [4 cr with term paper], §3022 or §Biol 1101 or §Biol 3032; for students in programs not directly related to biological sciences) Anderson, Reed  
Human genetics; study of individuals, families, populations, and races with respect to differences in intelligence, behavior, disease, and other matters of social concern. (CrB if 4 cr)
- 3022f,w,s. GENETICS.** (4 cr; primarily designed for students other than CBS majors and CLA biology majors; prereq Biol 1011)  
Mechanisms of heredity, their implications for biological populations and applications to practical problems. (CrB)
- 3201s. MOLECULAR BIOLOGY FOR ENGINEERS AND PHYSICAL SCIENTISTS.** (3 cr [4 cr with term paper]; not open to biology majors; prereq 2 qtrs chemistry, Math 1231 or 1331 or 1621 or #)  
Modern molecular biology; principles of biological structures and mechanisms of function at macromolecular and cellular levels of organization.
- 3970f,w,s. INDEPENDENT STUDY.** (Cr ar; prereq #, Δ)  
Individual study on selected topics or problems; selected readings and use of scientific literature.
- 3990f,w,s. LABORATORY RESEARCH.** (Cr ar; prereq #, Δ)  
Individual projects on selected topics and problems.
- 5022f,w,s. GENETICS.** (3 cr, §3022, §Biol 3032; not open to grad students in genetics)  
Mechanisms of heredity, their implications for biological populations and applications to practical problems.
- 5030f,w,s. LABORATORY: GENETICS.** (2 cr; prereq 3022 or 5022 or Biol 3032 or #)  
Investigative approaches to analysis of genetic problems. Focus on a given organism or related group of organisms (may differ from quarter to quarter).
- 5031f. INTERMEDIATE GENETICS I.** (3 cr; prereq 3022 or Biol 3032 and BioC 5002 or BioC 5742 or #)  
Mechanics of inheritance. Comparative organization of genetic material in prokaryotic and eucaryotic organisms. Use of mutation, complementation, and recombination as operational criteria for genetic analysis.
- 5032w. INTERMEDIATE GENETICS II.** (3 cr; prereq 5031)  
Action of the gene in molecular, cellular, and organismal development. Mechanisms of storage of genetic information, modes of information transfer, and mechanisms of regulating these processes in various biological systems.
- 5033s. INTERMEDIATE GENETICS III.** (3 cr; prereq 3022 or Biol 3032, course in genetics, course in biometry or statistics, or #)  
Genetic variation in quantitative traits, with special attention to fitness. Causes of change of equilibria in gene frequencies, heterosis and inbreeding depression, consequences of natural and artificial selection.
- 5042f. POPULATION, QUANTITATIVE GENETICS.** (3 cr; prereq 5033...Stat 5301 recommended)  
Selection with reference to population changes in gene frequencies and means of quantitative characters. Predicting effects of selection and related research. Logical analysis.
- 5043s. HUMAN GENETICS.** (3 cr; prereq 3022 or Biol 3032 or #)  
Inherited characteristics in man, particularly in relation to medicine, relationships of genetics in marriage, and social conditions.
- 5044w. METHODS IN HUMAN GENETICS.** (3 cr; prereq 5043 and PubH 5450 and #)  
Methods for research in human genetics. Importance of appropriate statistical techniques. Use of genetic concepts in exploring new problems. Individual study of current problems.
- 5051w. INTERMEDIATE CELL BIOLOGY.** (3 cr; prereq #...introductory biochemistry and molecular genetics recommended)  
Analysis of structure, replication, and function of general and specialized cell types at microscopic and molecular levels. Cell membranes, organelles, and macromolecular aggregates; cell division, secretion, regulation of macromolecule synthesis, cellular differentiation.
- 5052s. QUANTITATIVE TECHNIQUES, CELL BIOLOGY.** (3 cr; prereq #...calculus, introductory cellular or molecular biology, and biochemistry recommended)  
Use and detection of radioisotopes; theory and practice of analytical and preparative ultracentrifugation, chromatography, spectroscopy, and electron microscopy; tissue culture and subcellular particle fractionation.

- 5063s. THEORETICAL POPULATION BIOLOGY.** (3 cr; prereq 5033 or #, familiarity with differential and integral calculus)  
Population genetic theory as related to problems of natural populations.
- 5082s. MEMBRANES AND INTERFACES: PHYSICAL CHEMISTRY OF INTERFACES.** (3 cr; prereq #)  
Thermodynamics, statistical mechanics, electrical properties and experimental systems for the study of interfaces. Isolation, dynamic properties, chemistry, and model systems of biological membranes. Cell surface and contact relations.

## Geography (Geog)

### Staff

*Chairman*, Richard H. Skaggs, 414 Social Sciences Building; *Director of Undergraduate Studies*, Skaggs

*Professors*: Barrett, Borchert, Hart, Hsu, Lukermann, Mather, Porter, Schwartzberg, Tuan, Webb

*Associate Professors*: J. Adams, R. Adams, Brown, Rice, Skaggs

*Assistant Professors*: Barton, de Souza, Loomis, Scott, Squires

Geography, under most definitions, emphasizes the importance of the relative location of place and event, the character of regions, and the relations between culture and environment, including the processes through which social and physical changes occur.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1301 and 1401

#### Major Requirements

A minimum of seven 3xxx- or 5xxx-level courses, including five from the following:

3511 or 3531

One regional course at the 5xxx level

One topical course

One course chosen from 5102, 5376, 5381, 5422, 5442, 5443

One course chosen from 3801, 5011, 5012, 5801, 5811, 5849

**General Education**—Courses 1301 and 1401 deal with world patterns of resources, population, and production that are an essential part of general education. 3xxx- and 5xxx-level survey courses concerned with particular countries, continents, or regions of the world offer information of value to the nonspecialist.

**1301f,w,s. HUMAN GEOGRAPHY.** (4 cr) Hart, Rice, Schwartzberg, Scott, Tuan, Webb  
Geography of population and principal ways of life; capacity of earth for future population. (GrC)

**1302f,w,s. HUMAN GEOGRAPHY—LECTURE AND RECITATION.** (6 cr, §1301)  
For description, see 1301. (GrC)

**1401f,w,s. PHYSICAL GEOGRAPHY.** (5 cr) Barrett, Brown, Loomis, Skaggs, Squires  
Major features of distribution patterns of climate, relief, vegetation and soils; regional differences in problems of physical development. (GrC)

**1425f. INTRODUCTION TO METEOROLOGY.** (4 cr, §Soil 1262) Baker, Skaggs  
Nature of the atmosphere and its behavior. Atmospheric composition, structure, stability and motion; precipitation processes, air masses, fronts, cyclones and anticyclones; general weather patterns; meteorological instruments and observation; plotting and analysis of maps; forecasting. (GrB)

## Course Descriptions—Major Sequences

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- 1973. GEOGRAPHY OF THE TWIN CITIES.** (4 cr, §3973) Staff  
Major social and physical characteristics of the Twin Cities and their place in the urban network of the United States. (GrC)

### Regional Studies

- 3101f.s. GEOGRAPHY OF UNITED STATES AND CANADA.** (4 cr) Borchert, Hart, Mather  
Interaction of the aspirations and abilities of different groups of people with the complexities of the natural environment to produce regional differentiation of the U.S. and Canada. (GrC)
- 3111f. GEOGRAPHY OF MINNESOTA.** (4 cr) Borchert, Rice  
Physical resources, population, and commercial production. Field trips in eastern Minnesota. (GrC)
- 3121w. LATIN AMERICA.** (4 cr) Barrett, Mather  
Major features of physical and human geography of Latin America. (GrC)
- 3131. MIDDLE AMERICA.** (4 cr) Barrett  
Physical and human geography. Both internal and external areal relationships. (GrC)
- 3141w. AFRICA.** (4 cr) de Souza, Porter, Scott  
Regional differentiation of human groups and environments; culture contact and problems of underdeveloped countries south of the Sahara. (GrC)
- 3161f. EUROPE.** (4 cr) de Souza, Rice, Webb  
Broad cultural-economic realms in Europe (excluding U.S.S.R.); survey of areal organization of each realm. (GrC)
- 3181w. SOVIET UNION.** (4 cr) R Adams  
Systematic appraisal by regions of physical resources, population, and economic geography; problems and planning in U.S.S.R. compared with the U.S. (GrC)
- 3211. EAST ASIA.** (4 cr, §5211) Hsu  
Physical and human geography of China, Korea, and Japan; geographic aspects of population pressure, economic development, and international relations. (GrC)
- 3213w. SOUTHEAST ASIA.** (4 cr) Schwartzberg  
Physical and human geography of Burma, Thailand, Indochina, Malaya, Indonesia, and Philippines; geographic aspects of population pressure, development of resources, and international relations. (GrC)
- 3221. AUSTRALIA-NEW ZEALAND-OCEANIA.** (4 cr) Barrett  
Physical and human geography of Australia, New Zealand, Polynesia, and Melanesia; modification of aboriginal use after European contact, current land use trends in non-European societies, and use and modification of environment by Europeans. (GrC)
- 5101. HISTORICAL GEOGRAPHY OF NORTH AMERICA.** (4 cr) Lukermann  
Sequential analysis of settlement and economy in changing environment and resource pattern of North America in the period of frontier interaction, 1500-1900. (GrC)
- 5102. HISTORICAL GEOGRAPHY OF NORTH AMERICA.** (4 or 6 cr [6 cr with optional field trips]) Lukermann  
Sequential analysis of settlement and economy in changing environment and resource pattern of North America in the period of sectional industrialization, rural to urban change, and national metropolitan dominance. Optional field trips in Minnesota and Wisconsin. (GrC)
- 5111f. EASTERN UNITED STATES.** (4 cr) Hart  
Physical and human resources east of Great Plains. (GrC)
- 5112s. WESTERN UNITED STATES.** (4 cr) Mather  
Physical and human resources of western U.S. (GrC)
- 5113s. CANADA AND ALASKA.** (4 cr) Mather  
Physical and human geography. Internal and external areal relationships. (GrC)
- 5131. COLONIAL MEXICO AND THE CARIBBEAN.** (4 cr) Barrett  
Exploration, discovery, settlement, livelihood, and circulation to about 1800. (GrC)
- 5132f. SOUTH AMERICA.** (4 cr) Mather  
Physical resources, population, agriculture, manufacturing, and transportation in countries of South America. (GrC)
- 5141. AFRICA: SELECTED TOPICS.** (4 cr; prereq 3141 or §) de Souza, Porter, Scott  
Case studies of characteristic geographical problems. Topics, dealt with in a regional context, include population pressure, water management, industrialization, commercial and subsistence agriculture, and plural societies. (GrC)

- 5171w. WESTERN EUROPE.** (4 cr; prereq 5 cr in geography or §) R Adams, Rice  
Physical and human geography as a whole; intensive discussion of selected topics on British Isles, France, Low Countries, Rhine Basin. (GrC)
- 5172. EASTERN EUROPE.** (4 cr) R Adams, Rice  
Physical and human geography of the socialist realm of Eastern Europe with comparative analyses of individual countries; historical, economic, and political diversity with topical case studies. (GrC)
- 5173f. NORDEN.** (4 cr) Rice  
Cultural and political development of Scandinavia, Finland, and Iceland. Effects of changing resource appraisal upon patterns of economic activity and human occupancy. (GrC)
- 5181. U.S.S.R. REGIONS AND PLANNING.** (4 cr; prereq 3181 or §) R Adams  
Regionalization, production specialization, and interchange within U.S.S.R.; effects of policies of centralization and regional autonomy; present trends, prognosis, and comparisons with United States. (GrC)
- 5191. AGRICULTURAL MARKETING IN AFRICA.** (4 cr) Scott  
Cultural, ecological, and spatial analysis of structural change in rural Africa; the impact of commercialism on traditional socioeconomic institutions and the spatial behavior pattern of small landholders. (GrC)
- 5211. EAST ASIA: REGIONAL ANALYSIS.** (4 cr, §3211; prereq 5 cr in geography or §) Hsu  
Selected aspects of East Asian life. The effects, within a traditional context, of population growth and modern technology on the transformation of society and reorganization of space. (GrC)
- 5212f. SOUTH ASIA.** (4 cr) Schwartzberg  
Physical and human geography of India, Pakistan, Ceylon, Afghanistan, and the Himalayan kingdoms; geographic aspects of social structure, population pressure, economic development, and international relations. (GrC)
- 5332w. HISTORICAL GEOGRAPHY OF EUROPE THROUGH THE MIDDLE AGES.** (4 cr; prereq 3161 or §) Rice  
Cultural and economic regions of Europe up to the 15th century. Development of linguistic and religious patterns, types of rural settlement, and town and city networks from the Neolithic. (GrC)
- 5333s. HISTORICAL GEOGRAPHY OF EUROPE SINCE THE MIDDLE AGES.** (4 cr; prereq 3161 or §) Rice, Webb  
Historical geography of Europe since the 16th century. Areal organization in early modern times. Changes in spatial organization of polity, economy, and settlement. Twentieth-century Europe as a functional region. (GrC)

### Topical Studies

- 3321s. POLITICAL GEOGRAPHY.** (4 cr; prereq 1301 or §) Schwartzberg  
Scope and methods of political geography; selected concepts, problems, and areas. (GrC)
- 3331. ECONOMIC GEOGRAPHY I: INTRODUCTORY.** (4 cr) de Souza, R Adams, Scott  
World patterns of economic activity; appraisal of resources, production, circulation, and consumption; principles and potential of economic development. (GrC)
- 3341. INDUSTRIALIZATION AND WORLD TRADE.** (4 cr; prereq 3331 or §) R Adams  
Historical and cultural geography of economic regions; socioeconomic structure and trade relations; selected topics such as industrialization, economic growth, world trade, underdevelopment by nations. (GrC)
- 3343. LAND USE ECOLOGY.** (4 cr) Squires  
Study of man as an animal; the ecological principles of his existence and his present use of the earth. (GrC)
- 3355w. ENVIRONMENTAL ALTERATIONS.** (4 cr) Skaggs, Squires  
The kinds of disturbances man may introduce into ecosystems and integrated groupings of ecosystems, and the spatial distribution and organization of the effects. (GrC)
- 3361f. ENVIRONMENTAL EVALUATION AND ADAPTATION.** (4 cr) Tuan  
The making of "worlds" out of "environments"; survey of how different peoples evaluate and adapt to their natural surroundings; past and nonliterate cultures. (GrC)
- 3371f. URBAN GEOGRAPHY.** (4 cr) de Souza, J Adams, Webb  
Character, distribution, and development of cities in present-day world. Internal and external locational relationships. (GrC)

## Course Descriptions—Major Sequences

- 3377. THE DEVELOPMENT OF INDIGENOUS MARKETS IN THE THIRD WORLD.** (4 cr) Scott  
Comparative analysis of markets and marketing in the Third World; organizational structure, function, commodity exchange, economic efficiency, and contributions to rural economic growth and national integration. (GrC)
- 3378. MODERNIZATION AND THE THIRD WORLD.** (4 cr) de Souza  
Major concepts and ideas of modernization in the Third World; historical trends and impact of changes on spatial organization. (GrC)
- 3421f. CLIMATOLOGY.** (4 cr; prereq 1401 or #) Barrett, Loomis, Skaggs  
World distribution of climatic elements; methods of arranging climatic data; climatic classifications and world distributions of climatic types; general circulation; climatic change and climatic fluctuations. (GrC)
- 3431. PLANT AND ANIMAL GEOGRAPHY.** (4 cr) Squires  
Major distributional patterns of plants and animals on the earth. The operation of geographical factors (climate, land and sea distribution, soil) as well as biological factors (dispersal, evolution, competition) which have resulted in the distribution of trees and mammals. (GrB)
- 3441f. LANDFORM GEOGRAPHY.** (4 cr) Brown, Loomis  
Detailed consideration of landform resources in regional setting; emphasis on North America. (GrC)
- 3973. GEOGRAPHY OF THE TWIN CITIES.** (4 cr, §1973) Staff  
For description, see 1973. (GrC)
- 5372-5373. METROPOLITAN ANALYSIS I, II.** (4 cr per qtr) J Adams  
5372: Urban systems and metropolitan areas, structure and growth; daily urban systems; simulated urban systems; metropolitan population dynamics; social area analysis; transportation systems; travel behavior; land use; retail structure, change. 5373: Neighborhood transition; conflicts in housing, location of facilities, and urban renewal. (GrC)
- 5375-5376. AMERICAN CITIES—LOCATION AND GEOGRAPHIC DESIGN.** (4 or 6 cr per qtr; prereq #) Borchert  
5375: The spread of urbanization across the U.S.; differentiation of city sizes and functions within the nation's resource regions and circulation network; the evolution of today's system of cities and its regional and national management problems. 5376: The internal development of the major metropolitan areas of the U.S.; evolution of today's land-use patterns, activity systems, and metropolitan management problems. (GrC)
- 5377. URBANIZATION IN THE THIRD WORLD.** (4 cr) de Souza  
Application of Western concepts and theories to the urbanization process in the Third World; the question of whether urbanization in the Third World is repetitive of the Western experience. (GrC)
- 5381. SERVICES AND LOCATION THEORY.** (4 or 6 cr; prereq 3331 or #) R Adams  
Localization of economic activity; case studies of industries and services; location factors, models, and theory. (GrC)
- 5383s. TRANSPORTATION GEOGRAPHY.** (4 cr; prereq 3331 or #) R Adams  
Principles and theory of spatial development of transport systems; interaction of resource use and network growth; commodity and passenger flows; case studies at national, regional, and local (urban) levels. (GrC)
- 5385. GEOGRAPHY OF COMMUNICATIONS SYSTEMS.** (4 cr; prereq 12 cr social or behavioral sciences)  
Evolution, diffusion, and spatial structure of communication systems. Impact of communications media on settlement patterns and spatial behavior in advanced and developing nations. Interpersonal media. (GrA)
- 5391s. RURAL GEOGRAPHY.** (4 cr) Mather  
Geographic components and assemblages of rural settlement. World patterns and geographic problems of rural settlement on the American scene. (GrC)
- 5393. THE LOOK OF THE LAND.** (4 cr) Hart  
The major components of landscapes, interaction between man-made structures and distinctive rural landscapes in North America and Northwestern Europe. (GrC)
- 5422w. MICROCLIMATOLOGY.** (4 or 6 cr; prereq 3421 or #) Barrett, Skaggs  
Study of heat and moisture balance of the earth; reception and disposal of precipitation and energy in local natural and man-made environments. Field experience in measurement of energy flows available. (GrC)

- 5424. QUATERNARY CLIMATES.** (4 cr; prereq #) Skaggs, Squires  
The study of climatic variability during the Quaternary period; the evidence for and significance of such variability. (GrC)
- 5433w. DYNAMIC AND SYNOPTIC CLIMATOLOGY.** (4 cr; prereq 3421 or #) Skaggs  
Application of dynamic and synoptic meteorological theory to broad-scale climate genesis; introduction to explanatory climatological models. (GrC)
- 5442s. GEOMORPHOMETRY.** (4 or 6 cr) Brown, Loomis, Skaggs  
The theoretical, statistical, and descriptive applications of numerical techniques to geomorphic process and form problems. Optional field work credit available. (GrC)
- 5443w. GLACIAL AND PERIGLACIAL GEOMORPHOLOGY.** (4 or 6 cr) Loomis  
Geomorphic patterns and processes in present and past ice-modified landscapes; alpine and continental glacier-related settings in North America. (GrC)
- 5445. QUATERNARY PALEO GEOGRAPHY.** (4 cr) Squires  
An introduction to evidence of past environments with special reference to the Quaternary period. (GrB)

### History and Philosophy of Geography

- 3001. INTRODUCTION TO GEOGRAPHIC INQUIRY.** (4 cr) Barton, Lukermann, Porter  
Questions and approaches in geography (distance, direction, scale, location, hierarchy, metric, and space); examination of the analyses that these entail. (GrC)
- 3801. DEVELOPMENT OF GEOGRAPHIC THOUGHT.** (4 cr, §5801; prereq 15 cr in geography) Lukermann  
Concepts and methods of geography; differing schools of thought as expressed in contemporary geographic literature. (GrC)
- 5001-5002. GEOGRAPHICAL ANALYSIS I, II.** (4 cr per qtr) J Adams, Barton  
**5001:** Order, science and geography; measurement, relationship and classification; location and spatial interaction; spatial diffusion processes; spatial decision making. **5002:** Models of ecological conflict and equilibrium in man-environment relationships. (GrC)
- 5011-5012. GEOGRAPHIC EXPLANATION.** (4 cr per qtr) Barton  
**5011:** The nature and logical structure of explanation in human geography. Its correspondence to the causal interpretation of explanation as revealed by the empiricist tradition. The nature and metric of space. **5012:** The logical structure of explanations of location that are teleological or human action-oriented and the behavioral basis of geographic theory. (GrA)
- 5801. DEVELOPMENT OF GEOGRAPHIC THOUGHT.** (4 cr, §3801; prereq sr, 15 cr in geography) Lukermann  
For description, see 3801. (GrC)
- 5811. ENVIRONMENTALISM, ENVIRONMENT, AND THE QUALITY OF LIFE.** (4 cr; prereq #) Tuan  
Ideas about environmentalism; organization of the physical environment into human settings (rural and urban) as they affect life's ideals. (GrC)
- 5849. SPACE AND PLACE: A GEOGRAPHY OF EXPERIENCE.** (4 cr) Tuan  
How experience creates structure and meaning in space and environment. (GrC)

### Geographical Techniques

- 3311f,w,s. MAPS AND MAP INTERPRETATION.** (4 cr; prereq soph, 5 cr in geography or #) Brown, Hsu, Porter  
Uses and abuses of maps. Interpretation of topographic and statistical maps. Survey of map sources; the air photo as a map. Map analysis with minimum of drafting. (GrA)
- 3511f,w,s. INTRODUCTION TO CARTOGRAPHY.** (4 cr; prereq 5 cr in geography or #) Brown, Hsu, Loomis, Porter  
Principles of map design, compilation, specification, and drafting. Map symbols. History cartography. Projections—analysis of construction, properties, and uses. (GrA)
- 3531f. QUANTITATIVE METHODS.** (4 cr) R Adams, Barton, Hart, Skaggs  
Applications of quantitative techniques to problems of classification, measurement, area association and sampling, and comparative regional analysis. Statistical sources commonly used by geographers. (GrA)

## Course Descriptions—Major Sequences

- 3551w. INTRODUCTION TO REMOTE SENSING.** (4 cr; prereq 10 cr in geography or #)  
Brown, Loomis, Porter, Skaggs  
The theory and applications of imaging remote sensors to environmental problems. Remote sensor images in geographic studies. (GrA)
- 5511. CARTOGRAPHIC ANALYSIS.** (4 cr; prereq 3511, 3531, or #) Brown, Hsu, Porter  
Cartographic-quantitative analysis and display of geographical data. Principles of classification and areal sampling. The scale problem, pattern recognition, and surface smoothing. (GrA)
- 5512s. CARTOGRAPHY: TOPICS.** (4 cr; prereq 3511, 3531, or #) Brown, Hsu, Porter  
Advanced statistical mapping techniques, selected topics in cartography: visual perception, automation, spatial statistics, and history of cartography. (GrA)
- 5521-5522. COMPUTER APPLICATIONS IN GEOGRAPHY I, II.** (4 cr per qtr; prereq basic knowledge of Fortran or #) Hsu  
5521: Digitization and geocoding of locational information, programming for analysis and mapping of spatial statistics, mapping via line printer. 5522: The Calcomp plotter and CRT for geographical data analysis and display, design and programming for geographical research. (GrA)
- 5531w. QUANTITATIVE RESEARCH DESIGN.** (4 cr; prereq 3531, Soc 3801, or #) R Adams, Barton, Skaggs  
Formulation of quantitative problems for hypothesis testing, sampling, model building; applications to computer methods; study of literature and problem work. (GrA)

### Directed and Special Studies

- 3950. HONORS COURSE: UNDERGRADUATE SEMINAR.** (3 cr per qtr; prereq 10 cr in geography, 3.00 GPA, and #) Staff  
Supervised investigation of selected topics.
- 3970. DIRECTED READINGS.** (1-15 cr per qtr) Staff
- 3990. DIRECTED RESEARCH.** (1-15 cr per qtr) Staff
- 5353. SEMINAR FOR IN-SERVICE TEACHERS.** (3 cr; available only to in-service teachers) Hart  
Survey and discussion of the variety of materials, organizational approaches, and teaching strategies in geography available to secondary school teachers of geography and social studies. (GrC)
- 5900. TOPICS IN GEOGRAPHY.** (4 cr per qtr; prereq sr or grad and  $\Delta$ )  
Course in special topics and regions, offered by visiting professors in their research fields. (GrC)

## Geology and Geophysics (Geo)

*School of Earth Sciences*

*Institute of Technology*

### Staff

*Chairman, V. Rama Murthy, 106 Pillsbury Hall; Director of Undergraduate Studies, Clement G. Chase*

*Professors: Banerjee, Cooke, Mooney, Murthy, Shapiro, Sims, Sloan, Swain, Wright, Zoltai*

*Associate Professors: Hall, Hooke, Parham, Pfannkuch, Rapp, Sawkins (on leave, 1974-75), Weiblen*

*Assistant Professors: Alexander, Bradbury, Chase, Hudleston, Stout*

Geology is concerned with the physical, chemical, and biological processes that continuously restructure and redistribute the material on and within the earth, and the historical development of the earth through these shaping processes.

**B.A. MAJOR SEQUENCE**

**Required Preparatory Courses**

Chem 1004-1005, Math 1211-1221-1231 (sequences to be started fr yr); Engl 3085 (to be taken jr yr or no later than 1st-qtr sr yr)

**Major Requirements**

Core courses—soph yr, 1111f, 3401w, 3102s; jr yr, 3101f, 3112w, 3103s, 5110suI.

At least 16 science cr chosen from Biol 1011, Bot 1001, Chem 1006, 3100, 3301-3302-3303, CICS 3101, EBB 1004, Math 3066, 3142, Phys 1271-1281-1291 with 1275-1285-1295, Zool 1013

The department offers two B.S. degree options in the Institute of Technology, geology and geophysics. Students who contemplate scientific careers are urged to consult the department director of undergraduate studies about program choices.

- 1001f,w,s. **PHYSICAL GEOLOGY.** (5 cr; 3 lect hrs, one 2-hr lab, 1 rec hr per wk) Staff  
Scientific method and nature of the earth; main features of the world and the processes that have formed them. (GrB)
- 1001H. **HONORS SECTION: PHYSICAL GEOLOGY.** (5 cr; for nonscience majors)  
Taught by senior faculty. Introduction to the world of geology. Lectures, field trips, laboratory problems. (GrB)
- 1002f,w,s. **HISTORICAL GEOLOGY.** (4 cr; 3 lect hrs, one 2-hr lab per wk) Sloan  
Evolution of earth from its origin; succession of physical and biological events of past 600 million years. (GrB)
- 1007. **ENVIRONMENTAL GEOLOGY.** (4 cr, §1008; prereq 1001)  
Geological application in resource management, land use planning, etc. Geological evolution of the biosphere and the impact of man's activities on its resources. Geological hazards. The Twin Cities area as a geological environment. Lectures, laboratories, field trips. (GrB)
- 1008. **GEOLOGY AND MAN.** (4 cr, §1001, §1007)  
Man in his physical environment; the broad nature of earth science; geological hazards, natural resources, geological aspects of pollution and land use; soil composition as related to nutrition and disease. Lectures, laboratories, field trips. (GrB)
- 1011. **DRIFTING CONTINENTS.** (4 cr; 3 lect hrs, one 2-hr lab per wk) Sawkins, Chase  
The revolution in recent geological thinking. Integration of diverse geological elements—volcanoes, earthquakes, mountain chains, wandering continents, earth resources. (GrB)
- 1012f. **EARTH AS A PLANET.** (4 cr; 3 lect hrs, 1 lab per wk)  
A survey course. Origin and evolution of the earth; its structure and composition in relation to other planets; the cosmic abundances and mode of formation of elements in the solar system. (GrB)
- 1013f. **ORIGIN AND EVOLUTION OF LIFE.** (4 cr)  
Geological evidence of the origin and increasing complexity of living systems, including biogenesis, single-celled organisms, plants, animals, and ecosystems. Problems of extra-terrestrial life. (GrB)
- 1111f. **INTRODUCTORY PHYSICAL GEOLOGY.** (5 cr; for prospective majors and others desiring more intensive course; prereq high school or college chemistry or #; 3 lect hrs, 1 rec hr, and two 2-hr labs per wk) Stout, Chase (GrB)
- 3099f,w,s. **PROBLEMS IN GEOLOGY AND GEOPHYSICS.** (1-6 cr; prereq # and Δ)  
Research or problems selected on the basis of individual interests and background.
- 3101f. **SURFICIAL GEOLOGIC PROCESSES.** (5 cr; prereq 3102 and 3401 or #) Hooke  
Geologic processes at the surface of the earth. Geomorphology, limnology, groundwater geology, sedimentology. Field trips. (GrB)
- 3102s. **PETROLOGY.** (5 cr; prereq 3401) Stout  
The lithologic character and genesis of igneous and metamorphic rocks.

## Course Descriptions—Major Sequences

- 3103s. STRUCTURAL AND FIELD GEOLOGY.** (5 cr; prereq 3102 or #) Hudleston  
Primary and secondary structures of rocks; mechanics and modes of deformation, introduction to field methods in geology. Field trips.
- 3112w. EARTH HISTORY.** (5 cr; for prospective majors and others desiring more intensive course; prereq 1111 or #; 3 lect hrs, 1 rec hr, and two 2-hr labs per wk) Swain (GrB)
- 3401w. INTRODUCTORY MINERALOGY.** (5 cr; prereq 1001 or 1111 or #, 1 term college chemistry, Math 1201 or equiv; 3 lect and 6 lab hrs per wk) Stout, Zoltai  
Crystallography, crystal chemistry, and mineralogy. (GrB)
- 5002s. STRUCTURAL GEOLOGY.** (4 cr, §3103 or equiv; not open to geology, geophysics, geo-engineering, mineral resources engineering, and metallurgy-materials science majors; prereq 3401 or 5004 or #; 3 lect and 2 lab hrs per wk)  
Primary and secondary structures of rocks, mechanics and modes of deformation, structural techniques. Laboratory exercises in three-dimensional representation and solution of selected structural problems.
- 5004w. MINERALOGY.** (4 cr, §3401; not open to geology, geophysics and geological, mineral and metallurgical engineering majors; open to majors in agriculture, forestry, and home economics, and postgrad students in education; prereq 1001 or 1111 or #, 1 term college chemistry, Math 1201; 3 lect and 6 lab hrs per wk) Rapp  
Crystallography, crystal chemistry, and mineralogy. Descriptive and determinative mineralogy. Minerals in natural rock systems. (GrB)
- 5102s. PHYSICAL STRATIGRAPHY.** (4 cr; prereq 3103) Swain  
Modern literature and laboratory work in Paleozoic, Mesozoic, and Cenozoic stratigraphy; geosynclinal and shelf development, oceanic and lacustrine deposits.
- 5110. FIELD GEOLOGY.** (9 cr; restricted to students majoring in geology, geophysics, and geological engineering; prereq 3103 and #)  
Measurement of stratigraphic sections; study of fossils and igneous, sedimentary, and metamorphic rocks. Geological surveying on aerial photographs and topographic maps. Geologic map preparation. Geologic setting of mineral deposits.
- 5151f. INTRODUCTION TO PALEONTOLOGY.** (5 cr; prereq 1002 or 3112 or #) Sloan  
Morphology and classification of major fossil groups.
- 5152. INVERTEBRATE PALEONTOLOGY.** (5 cr; prereq 5151; 3 lect and 4 lab hrs per wk; offered on demand)  
Morphology, classification, and ecology of selected groups of invertebrate fossils.
- 5154f. VERTEBRATE PALEONTOLOGY I.** (5 cr; prereq 5151 or Zool 5124) Sloan  
Morphology, evolution, and stratigraphic distribution of fossil fish, amphibians, reptiles, and birds.
- 5155w. VERTEBRATE PALEONTOLOGY II.** (5 cr; prereq 5154 or Zool 5124) Sloan  
Morphology, evolution, and stratigraphic distribution of fossil mammals.
- 5251s. GEOMORPHOLOGY.** (5 cr; prereq 1001, Math 1111, Geo 3101 required and 3401 recommended for geology majors, or #) Hooke  
Quantitative study of landform processes in various regions of the earth and on other planets. Weathering, slope and shore processes, fluvial erosion and depositions, wind action, impact phenomena, and tectonics. Field trips first, fifth, seventh, and ninth Saturdays.
- 5252f. PROBLEMS IN GEOMORPHOLOGY.** (3 cr; prereq 5251) Hooke  
Selected geomorphic processes. Fluvial processes and arid region geomorphology.
- 5255. GLACIOLOGY.** (3 cr; prereq Math 3221 or equiv or #) Hooke  
Theories of glacial flow. Internal structures and heat flow in glaciers. Reading assignments, problems term paper.
- 5261. GLACIAL GEOLOGY.** (4 cr [5 cr with term paper]; prereq 1002 or 3112)  
Formation and characteristics of modern glaciers; erosional and depositional features of Pleistocene glaciers; history of Quaternary environmental changes in glaciated and nonglaciated areas. Field trips.
- 5301. INTRODUCTORY GEOCHEMISTRY.** (4 cr; prereq Chem 5501 or 5520 or ¶Chem 5501 or ¶5520) Hall, Murthy  
Application of thermodynamics to geologic problems. The origin and distribution of major and minor elements in the earth; differentiation history of the earth into crust, mantle, and core; thermodynamics, trace element distribution, and isotopic tracers in geological processes.

- 5351. METAL SULFIDE DEPOSITS.** (5 cr; prereq 3401, 3103 or #) Sawkins  
Nature and distribution of sulfide deposits; analysis of processes by which metals are concentrated in magmatic, hydrothermal, sedimentary environments.
- 5401. CRYSTAL CHEMISTRY OF MINERALS.** (4 cr; prereq 3401, 1 yr college chemistry; 3 lect and 2 lab hrs per wk) Zoltai  
Basic concepts of symmetry, packing, coordination, and bonding of atoms in crystal structures. Classification and discussion of crystal structures and crystal chemistry of minerals.
- 5452. IGNEOUS AND METAMORPHIC PETROLOGY.** (4 cr; prereq 3102, Chem 5502 or 5521, Math 3211 or #)  
Rock associations, textures, and structures of worldwide igneous provinces and metamorphic terranes. Petrogenesis in light of phase equilibria, experimental studies, and current interpretations. Laboratory, term paper.
- 5505. PHYSICS AND CHEMISTRY OF THE EARTH I.** (4 cr; prereq 1111 and Phys 1295) Mooney  
Earthquake seismology; physical structure of the earth's crust and deep interior; gravity field of the earth.
- 5506. PHYSICS AND CHEMISTRY OF THE EARTH II.** (4 cr; prereq 5505 or #) Murthy  
Origins and chemical evolution of the earth through geologic time.
- 5507. PHYSICS AND CHEMISTRY OF THE EARTH III.** (4 cr; prereq 5506 or #) Banerjee, Chase  
Gravity and magnetic fields of the earth; paleomagnetism, thermal history of the earth.
- 5511f. PRINCIPLES OF GRAVITY AND MAGNETIC EXPLORATION.** (3 cr; prereq Phys 1291) Chase  
Instrumentation, surveying techniques, reduction of data, interpretation, case histories.
- 5512w. PRINCIPLES OF SEISMIC EXPLORATION.** (3 cr, §5522; prereq Phys 1291)  
Reflection and refraction seismology; theory, interpretation, instruments.
- 5522s. PRINCIPLES OF REFRACTION SEISMIC EXPLORATION.** (2 cr, §5512; principally for civil engineering and geo-engineering students; prereq Phys 1291)
- 5601f. LIMNOLOGY.** (4 cr, §EBB 5601; prereq Chem 1005 or equiv and #) Shapiro  
Events occurring in lakes, reservoirs, and ponds, from their origins through study of their physics, chemistry, and biology. Interrelationships of these parameters. Effects of civilization on lakes. Laboratory, field trips.
- 5602. CASE STUDIES IN LIMNOLOGY.** (3 cr; prereq 5601 or Ecol 5601 and #)  
Analyses of specific studies of lakes and their problems.
- 5611s. GROUNDWATER GEOLOGY.** (4 cr; prereq 1001 or 1111, Math 1231, 1 qtr physics and chemistry, or #)  
Origin, occurrence, and movements of groundwater. Characteristics of major aquifers and aquitards. Exploratory investigations. Hydrogeologic units and boundaries. Principles and theoretical aspects of recharge. Quality of groundwater supplies.
- 5652. SEDIMENTOLOGY.** (4 cr; prereq 3101, 3102, 3103 and 5642 or #)  
Sedimentary processes and products; modern marine depositional environments. Clastic sedimentation on continental margins.

## German

### Staff

*Chairman*, Wolfgang F. Taraba, 219 Folwell Hall; *Director of Undergraduate Studies*, Gerhard H. Weiss, 221 Folwell Hall

*Professors*: Firchow, Hirschbach (on leave, 1974-75), Menze, Ramras, Taraba, Weiss, Wood

*Associate Professor*: Duroche

*Assistant Professors*: Alley, Clausing, Formanek, Plummer, Wakefield

*Instructor*: Lowry

German as a college-level discipline comprises the study of the spoken language and of German literature and culture.

## Course Descriptions—Major Sequences

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1301, or 4 years of high school German, or equiv

#### Major Requirements

Minimum of 36 cr in 3xxx-5xxx-level courses, including 3104 and 3105

At least 3 other German literature courses

(Courses in translation do not count toward the German major)

For requirements for a teacher's certificate, see the *College of Education Bulletin*.

**General Education**—German literature in translation courses 3601, 3602, 3603, 3604, 3610 have no prerequisites and offer a good introduction to the major trends of German literature and various aspects of German culture.

### DUTCH (Dut)

**1201-1202-1203. INTENSIVE DUTCH: BEGINNING AND INTERMEDIATE.** (8 cr per qtr; prereq a second language or #; 5 class meetings and 3 drill sections per wk) Wakefield

1201: Speaking, reading, and understanding Dutch. 1202: Composition and conversation; extensive readings. 1203: Survey of Dutch literature.

**3291. THE DUTCH NOVEL SINCE 1860.** (4 cr; prereq 1203) Wakefield (GrD)

**3401. DUTCH DRAMA OF THE GOLDEN AGE.** (4 cr; prereq 1203) Wakefield (GrD)

### GERMAN (Ger)

**1001-1002-1003. BEGINNING GERMAN: MEDIA AIDED.** (5 cr per qtr, §1101-1102-1103 or §1110; 2 CCTV lect per wk, small group instruction 3 times per wk; optional use of the computer for homework) Clausing, staff

Oral comprehension and speaking developed through study of German structures and basic speech patterns. Reading and writing skills. (GrA)

**1101-1102-1103. BEGINNING GERMAN.** (5 cr per qtr, §1001-1002-1003 or §1110; 5 class meetings per wk) Clausing, staff

Understanding, speaking, reading, and writing German through acquisition of basic speech patterns and reading and analysis of texts. Attention to all language skills, but emphasis on reading. Language laboratory. (GrA)

**1110. INDIVIDUALIZED BASIC GERMAN.** (1-15 cr, §1001-1002-1003 or §1101-1102-1103; German placement exam or personal placement recommended for students with previous German instruction at other institutions; meetings scheduled as required) Clausing, staff

Individualized instruction covering material of 1001-1002-1003 or 1101-1102-1103. Students enter at level indicated by language proficiency and work at own speed. Credit awarded according to number of units completed. (GrA)

**1301. INTERMEDIATE GERMAN.** (5 cr; prereq 1003, 1103 or third qtr of 1110 or 3 yrs high school German) Clausing, staff

Expansion of basic skills; selected texts. (GrA)

**3011-3012-3013. COMPOSITION AND CONVERSATION.** (4 cr per qtr; prereq 1301 or 4 yrs high school German) Clausing, staff

German grammar; colloquial usage and original compositions. Systematic development of everyday vocabulary. (GrA)

**3040. GERMAN PLAY.** (1-3 cr per qtr; prereq 1003 or 1103 or 1110)

Practice in use of standard German through participation in dramatic productions.

**3041f, 3042w, 3043s. ORAL INTERPRETATION OF GERMAN DRAMA.** (2 cr per qtr; prereq 3013 or equiv, #) Weiss

Dramatic reading of German plays to improve pronunciation and to prepare for German play production. (GrD)

- 3050. GERMAN PRONUNCIATION LABORATORY.** (1 cr per qtr; prereq #) Clausing, staff  
German pronunciation hints and practice in applying them. (GrA)
- 3104, 3105. READING AND ANALYSIS OF LITERARY TEXTS.** (4 cr per qtr; required of all German majors; prereq 1301 or 4 yrs high school German)  
Development of reading fluency and appreciation of literary values through literary interpretation and familiarization with critical terminology. 3104: Prose and drama. 3105: Drama and poetry. (GrD)
- 3291, 3292, 3293. MODERN GERMAN LITERATURE.** (4 cr per qtr; prereq 3104 and 3105)  
3291: From 1890 to 1918. 3292: From 1918 to 1933. 3293: From 1933 to present. (GrD)
- 3301, 3302, 3303. LYRIC POETRY FROM GOETHE TO RILKE.** (4 cr per qtr; prereq 3104 and 3105, or #) Taraba  
3301: Goethe period. 3302: Heine to end of 19th century. 3303: 20th century. (GrD)
- 3310. STUDIES IN MODERN GERMAN AUTHORS.** (4 cr per qtr; prereq 3104 and 3105, or #)  
Works of one author studied in depth (such authors as Kleist, Heine, Büchner, Hoffmannsthal, and others). (GrD)
- 3311, 3312, 3313. GERMAN DRAMA FROM LESSING TO PRESENT.** (4 cr per qtr; prereq 3104 and 3105, or #) Menze  
Outstanding German dramatic works. 3311: Classical period. 3312: 19th century. 3313: Naturalism, impressionism, expressionism. (GrD)
- 3331. DIE DEUTSCHE KOMÖDIE.** (4 cr; prereq 3104 and 3105) (GrD)
- 3341-3342. HONORS COURSE: PROSEMINAR IN GERMAN.** (4/2 cr; prereq candidacy for honors in German)  
3341: Significant themes in German literature, assigned readings. 3342: Students write papers supervised by professors of their choice. (GrD)
- 3401, 3402. LITERATURE FROM 1650 THROUGH THE CLASSICAL PERIOD.** (4 cr per qtr; prereq 3104 and 3105 plus one additional German literature course) (GrD)
- 3403. FAUST I.** (4 cr; prereq 3104 and 3105 plus one additional German literature course) Ramras (GrD)
- 3405. GERMAN ROMANTICISM.** (4 cr; prereq 3104, 3105) Duroche  
Reading in German literature of the Romantic period (ca. 1790-1830) and discussion of its intellectual-historical background. (GrD)
- 3450. SENIOR SEMINAR IN GERMAN LITERATURE.** (4 cr per qtr; prereq 3104 and 3105 plus two additional German literature courses, #)  
Study of one individual author or a specific aspect of German literature. (GrD)
- 3501. CONTEMPORARY GERMANY.** (4 cr; prereq 1 yr of college German or 3 yrs high school German)  
Culture and civilization of present-day Germany. (GrC)
- 3511, 3512, 3513. GERMAN CIVILIZATION AND CULTURE.** (4 cr per qtr; prereq 4 cr in literature courses 3104 and above) Weiss  
Movements and personalities in art, music, science, religion, and education. Discussions and lectures; demonstration materials. Lectures in German. (GrC)
- 3541. INTRODUCTION TO GERMAN FOLKLORE.** (4 cr; no knowledge of German required)  
A survey and assessment of folklore phenomena, including German fairy tales, legends, and myths; proverbs, sayings, nursery rhymes, riddles, jokes, and anecdotes; popular music and folk songs; superstitions and customs. The development of these phenomena will be studied, along with analyses of content and message of various examples of these genres, with some attention to their utilization and importance in the cultures of the German-speaking areas. (GrD)
- 3590. DIRECTED STUDIES IN GERMAN-SPEAKING COUNTRIES.** (5 cr per qtr; prereq 3501, #) Weiss  
Preparation for research abroad during quarter prior to departure; research completed while abroad. Written report and oral examination after return.
- 3601, 3602, 3603. GERMAN LITERATURE IN TRANSLATION.** (4 cr per qtr; requires no knowledge of German)  
Representative literary works from medieval to modern times, related to other literatures. (GrD)

## Course Descriptions—Major Sequences

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- 3604. GERMAN LITERATURE IN TRANSLATION AND THE FILM.** (4 cr; requires no knowledge of German)  
Modern German culture seen through literature and the film. Representative works related to historical and intellectual developments in modern Germany. Novelistic and cinematic treatment of similar thematic material. (GrD)
- 3610. MODERN GERMAN AUTHORS IN TRANSLATION.** (4 cr per qtr; requires no knowledge of German)  
Study in depth of one author, such as Thomas Mann, Kafka, Hesse, Brecht, Grass, or others. Selection of authors varies. (GrD)
- 3701. HISTORY OF GERMAN LANGUAGE.** (4 cr; prereq 3104 and 3105) Wakefield, Wood (GrA)
- 3702. BEGINNING MIDDLE HIGH GERMAN.** (4 cr; for jrs and srs; prereq 3104 and 3105) Firchow, Wakefield, Wood  
Middle High German grammar. Selected Middle High German literary texts. (GrA)
- Courses at the 5xxx level are open to seniors upon recommendation of advisers. Prerequisite: 3104 and 3105 plus 3 additional German literature courses, or equivalent, plus course prerequisites.*
- 5011. ADVANCED COMPOSITION AND CONVERSATION.** (4 cr; prereq 3013 or equiv) Clausing, staff (GrA)
- 5021. THE GRAMMAR OF STYLE.** (4 cr; prereq #) Wood  
Systematic analysis of language style, using objective criteria to generate statements about German language texts. (GrA)
- 5022. PROBLEMS IN COMPUTERIZED LANGUAGE INSTRUCTION.** (3 cr; prereq #)  
The implications for applied linguistics and classroom methodology of computerized instructional components (with reference to the Minnesota programs CALLS and MIL). (GrA)
- 5101, 5102, 5103. THE ANALYSIS AND TEACHING OF GERMAN.** (3 cr per qtr; required of all new teaching assistants in German department, may be satisfied by exam; prereq # for 5103) Clausing, Wakefield, Wood  
5101: Phonetics and phonology of modern German. 5102: Morphology and syntax of modern German. 5103: Theory and practice of teaching German.
- 5291, 5292, 5293. GERMAN LITERATURE I, II, III.** (4 cr per qtr)  
A survey of German literature from the beginning to the present. 5291: From the beginning until the middle of the 18th century. 5292: Literature from 1750 to 1880. 5293: Modern and contemporary literature. (GrD)
- 5331. CULTURAL ANALYSIS.** (4 cr; prereq 1 qtr of German Civilization and Culture or equiv) Weiss  
Techniques of cultural analysis (contrastive, anthropological, traditional) through examination of literary texts, newspapers, language usage, etc.; "cultural myths" and forms of humor. Is culture translatable? (GrC)
- 5371. THE RADIO PLAY AS LITERARY FORM.** (4 cr) Weiss  
Radio plays by such authors as Dürrenmatt, Frisch, Eich, Jens, Böll, and Grass; unique features dictated by the medium. (GrD)
- 5471, 5472. HUGO VON HOFMANNSTHAL.** (4 cr per qtr) Plummer  
5471: 1890-1900. Poetry, early drama, early prose. 5472: 1900-1929. Comedy, tragedy, opera, prose. (GrD)
- 5601, 5602, 5603. DRAMA IN TRANSLATION.** (4 cr per qtr; prereq 8 cr in theatre arts or in literature above 3001; requires no knowledge of German) Menze (GrD)
- 5970. DIRECTED READINGS.** (1-5 cr per qtr)

## YIDDISH (Ydsh)

- 1101-1102. BEGINNING YIDDISH.** (4 cr per qtr) Ramras  
Basic experience in speaking, reading, and writing Yiddish. (GrA)

## GREEK AND MODERN GREEK

See Classics.

**HEBREW**

See Middle Eastern Studies.

**HINDI**

See South Asian Languages.

**History (Hist)****Staff**

*Chairman*, Clarke A. Chambers, 614A Social Sciences Building; *Assistant Chairman*, J. Kim Munholland, 614B Social Sciences Building; *Director of Graduate Studies*, George Green, 633 Social Sciences Building; *Director of Honors*, James Tracy, 584 Social Sciences Building; *Director of Undergraduate Studies*, Romeyn Taylor, 668 Social Sciences Building

*Regents' Professor*: Jones

*Professors*: Alholz, Bamford, Berman, Chambers, Howe, Kopf, Lehmborg, Loehr, Murphy, Noble, Pflanze, Stavrou, Taylor, Thayer, Vecoli, Wright

*Associate Professors*: Bachrach, Brauer, Carroll, Green, Isaacman, Kaba, Kelly, Kieft, Marshall, Modell, Munholland, Noonan, Rudolph, Samaha, Schwartz, Spear, Tracy

*Assistant Professors*: Buffalohead, Farmer, McCrary, Phillips, Reyerson

*Instructors*: Gold, Lelyveld, McCaa

The History Department offers study on a wide variety of periods, areas, and topics within the range of past human experiences.

Prospective majors should consult with the director of undergraduate studies as early as possible.

**B.A. MAJOR SEQUENCE****Required Preparatory Courses**

Four introductory (1xxx-level) history courses (completed in first 2 years when possible). Juniors and seniors may substitute 3xxx-5xxx-level equivalent courses.

**Language Requirement** (for students admitted to majors after winter 1973)

Route I; or Route II plus a year of a second foreign language (or validation at that level); or Route II plus three courses from Soc 3801, 3802, 3803, PsyF 5120, 5122, 5510, all statistics courses, all mathematics courses above 1141, all CICS courses above 3101

**Major Requirements**

Minimum of seven 3xxx-5xxx-level history courses (four of them in area of concentration)

3961 (majors must sign up in department office the spring before the academic year in which they are to graduate)

**Distribution of the 12 Required Courses**

Two or more from "modern" and "premodern" categories; at least one from each of three geographical areas

Prospective history majors should obtain from the department office the *Description of the Undergraduate History Major*, which lists "modern" and "premodern" courses and suggests areas of concentration. It also gives information

## Course Descriptions—Major Sequences

about alternatives to some of the requirements. The bulletin board outside the undergraduate studies office shows course and other changes after July 1974.

Students who plan advanced work should acquire a reading knowledge of French, German, or other appropriate language in early undergraduate years.

**General Education**—History offerings numbered below 5500 are designed to serve the needs of students from all areas of the University. For freshmen and sophomores, any lxxx-level course fits the category general education and provides the basis for advanced work. For other students who have had no previous work in history, the department recommends courses numbered between 3001 and 3499.

**1001f, 1002w, 1003s. INTRODUCTION TO MODERN EUROPEAN HISTORY.** (4 cr per qtr; not open to jrs, srs) Bamford, Kieft, Munholland, Noonan, Phillips, Rudolph, Thayer, Wright

1001: Development of Western European civilization to 1715. 1002: Revolution, liberalism, and nationalism to 1870. 1003: 1870 to recent times. (GrC)

**1001Hf, 1002Hw, 1003Hs. HONORS COURSE: INTRODUCTION TO MODERN EUROPEAN HISTORY.** (4 cr per qtr; prereq #) Bamford, Kieft, Munholland, Noonan, Phillips, Rudolph, Thayer, Wright (GrC)

**1051f, 1052w, 1053s. ANCIENT CIVILIZATION.** (5 cr per qtr) Jones, Kelly

1051: Near East to 500 B.C. 1052: Greek civilization, 750 to 323 B.C. 1053: Roman civilization to 305 A.D. Lectures and 2 additional hours per week to discuss assigned readings. (GrC)

**1101f, 1102w, 1103s. MEDIEVAL AND RENAISSANCE HISTORY.** (4 cr per qtr, §3101, 3102, 3103) Bachrach, Reyerson, Tracy

1101: Early Middle Ages. 1102: High Middle Ages. 1103: Later Middle Ages and early Renaissance. (GrC)

**1111f, 1112w, 1113s. MEDIEVAL AND RENAISSANCE HISTORY WITH BASIC READINGS.** (6 cr per qtr; prereq #) Bachrach, Reyerson, Tracy

Students attend lectures in 1101, 1102, 1103 and meet with lecturer 2 hours per week to discuss readings, problems in historiography, and research methods relative to medieval and Renaissance history. (GrC)

**1121f, 1122w, 1123s. HONORS COURSE: MEDIEVAL, RENAISSANCE HISTORY.** (1 cr per qtr; prereq #, ¶1101, 1102, 1103 or ¶1111, 1112, 1113) Bachrach, Reyerson, Tracy

Students attend lectures in 1101, 1102, 1103 and meet with lecturer 1 hour per week to discuss readings, problems in historiography, and research methods relative to medieval and Renaissance history. (GrC)

**1151, 1152. ENGLISH HISTORY.** (4 cr per qtr, §3151, 3152) Altholz, Lehmborg

1151: England to the crisis of the 17th century. 1152: From the 17th century to the present. (GrC)

**1301, 1302. AMERICAN HISTORY.** (4 cr per qtr; prereq soph or CDS student) Berman, Brauer, Carroll, Chambers, Green, Howe, McCrary, Modell, Murphy, Spear

1301: Colonial, early national period through sectional crisis. 1302: Modern America. (GrC)

**1301H, 1302H. HONORS COURSE: AMERICAN HISTORY.** (4 cr per qtr; prereq soph and #) Berman, Brauer, Carroll, Chambers, Green, Howe, McCrary, Modell, Murphy, Spear (GrC)

**1310. TOPICS IN AMERICAN HISTORY.** (4 cr per qtr; prereq soph) Staff (GrC)

**1401, 1402. SURVEY OF LATIN AMERICAN HISTORY.** (5 cr per qtr, §3401, 3402) Schwartz

1401: The colonial period through independence. 1402: The national period. (GrC)

**1421, 1422. THE WORLD AND THE WEST.** (4 cr per qtr, §3421, 3422) Kopf, Marshall, Munholland, Rudolph

The political, economic, and cultural interaction between the peoples of Europe, Africa, America, and Asia. 1421: The era of European expansion, 1500-1850. 1422: The modern period of anti-Western nationalism, 1850-1970. (GrC)

**1431, 1432, 1433. HISTORY OF AFRICA.** (4 cr per qtr, §3431, 3432, 3433) Isaacman, Kaba (GrC)

- 1451f, 1452w, 1453s. **ASIAN CIVILIZATIONS.** (4 cr per qtr, §3451, 3452, 3453) Farmer, Kopf, Lelyveld, Marshall, Taylor  
1451: Ancient societies in East, South, and West Asia. 1452: 5th through the 18th centuries. 1453: The modern era. (GrC)
1461. **EAST ASIA: CLASSICAL FOUNDATIONS IN CHINA.** (4 cr, §3461) Farmer, Taylor  
Origins of civilization in Eastern Asia: archaeology, first cities, monarchies, first Chinese empire (Han), interactions with Vietnamese, Korean, and inner Asian societies, literature and major schools of thought. (GrC)
1462. **EAST ASIA: CULTURES OF CHINA AND JAPAN.** (4 cr, §3462) Marshall, Taylor  
Breakup of Han Empire, spread of Buddhism, distinctive and unified societies in China, Japan, Vietnam and Korea, Mongol conquests, the empires and kingdoms of East Asia on the eve of confrontation with Europe. (GrC)
1463. **EAST ASIA: CHINA AND JAPAN IN MODERN TIMES.** (4 cr, §3463) Farmer, Marshall  
Decline of Asian empires, European and American imperialism, Asian responses: nationalism, social revolution, reintegration, modernization in China, Japan, Vietnam, Korea, retreat of European and American empires. (GrC)
- 1951f, 1952w, 1953s. **WORLD MILITARY HISTORY: A SURVEY.** (2 cr per qtr, §Mil 1011, 1012, 1013; may not be used to satisfy requirements for majors in history)  
Loehr  
1951: From ancient times to the Thirty Years War. 1952: From 1648 to the Crimean War. 1953: From the American Civil War to World War II. (GrC)
- 1954su. **WORLD MILITARY HISTORY.** (5 cr; primarily for ROTC cadets)  
Telescopes 1951, 1952, 1953 for a 5-week summer course. (GrC)
- 3001f, 3002w, 3003s. **INTRODUCTION TO MODERN EUROPEAN HISTORY.** (4 cr per qtr, §1001, 1002, 1003) Bamford, Kieft, Munholland, Noonan, Phillips, Rudolph, Thayer, Wright (GrC)
- 3041, 3042. **LAW AND ORDER IN HISTORICAL PERSPECTIVE.** (4 cr per qtr; prereq § for fr and soph) Samaha  
Development of the concepts and practices of the Anglo-American system of criminal justice from English origins to maturity in modern America. Cultural values—especially the tension between individual and community—that shaped the American system of criminal justice. (GrC)
- 3051f, 3052w, 3053s. **ANCIENT CIVILIZATION.** (3 cr per qtr, §1051, 1052, 1053) Jones, Kelly (GrC)
- 3101f, 3102w, 3103s. **INTRODUCTION TO MEDIEVAL AND RENAISSANCE HISTORY.** (4 cr per qtr, §1101, 1102, 1103) Bachrach, Reyerson, Tracy (GrC)
- 3151, 3152. **ENGLISH HISTORY.** (4 cr per qtr, §1151, 1152) Altholz, Lehmsberg (GrC)
3200. **CONTEMPORARY PROBLEMS IN HISTORICAL PERSPECTIVE.** (4 cr per qtr)  
Comparative treatment of a selected contemporary problem (e.g., urbanization, social change, nationalism, intercultural conflict, revolution) in historical perspective. (GrC)
- 3347, 3348. **WOMEN IN AMERICAN HISTORY.** (4 cr per qtr) Boylan  
The economic, social, and political position of women over the course of American history. (GrC)
- 3357, 3358. **AMERICAN SOCIAL HISTORY: 19TH CENTURY.** (4 cr per qtr)  
Examines selected themes in the social history of the United States in the 19th century. (GrC)
- 3401, 3402. **SURVEY OF LATIN AMERICAN HISTORY.** (5 cr per qtr, §1401, 1402) Schwartz (GrC)
- 3421, 3422. **THE WORLD AND THE WEST.** (4 cr per qtr, §1421, 1422) Kopf, Marshall, Munholland, Rudolph  
For description, see 1421, 1422. (GrC)
- 3431, 3432, 3433. **HISTORY OF AFRICA.** (4 cr per qtr, §1431, 1432, 1433) Isaacman, Kaba (GrC)
- 3434, 3435. **SPREAD OF ISLAM.** (4 cr per qtr) Kaba  
3434: The introduction and spread of Islam into Africa. 3435: The process and agents of Islamization; the rise of the Islamic ideology for political purposes. (GrC)
- 3451f, 3452w, 3453s. **ASIAN CIVILIZATIONS.** (4 cr per qtr, §1451, 1452, 1453) Farmer, Lelyveld, Kopf, Marshall, Taylor (GrC)

## Course Descriptions—Major Sequences

- 3461. EAST ASIA: CLASSICAL FOUNDATIONS IN CHINA.** (4 cr, §1461) Farmer, Taylor  
For description, see 1461. (GrC)
- 3462. EAST ASIA: CULTURES OF CHINA AND JAPAN.** (4 cr, §1462) Marshall, Taylor  
For description, see 1462. (GrC)
- 3463. EAST ASIA: CHINA AND JAPAN IN MODERN TIMES.** (4 cr, §1463) Farmer, Marshall  
For description, see 1463. (GrC)
- 3464f, 3465w. MODERN CHINA.** (4 cr per qtr) Farmer  
3464: China in the Ming and Ch'ing, 1350-1750. 3465: China's response to the West, 1750-1911. (GrC)
- 3467f, 3468w. 20TH-CENTURY CHINA.** (4 cr per qtr) Farmer  
3467: The Republic. 3468: The People's Republic. (GrC)
- 3471. 20TH-CENTURY JAPAN.** (4 cr, §5471) Marshall  
The modern transformation, 1870's to 1970's. (GrC)
- 3472. EARLY MODERN JAPAN.** (4 cr, §5472) Marshall  
Tradition and change in Tokugawa society. (GrC)
- 3480. TOPICS IN SOUTH ASIAN HISTORY.** (4 cr per qtr) Kopf, Lelyveld  
Intensive examination of a problem in South Asian history. Topic to vary from year to year. (GrC)
- 3481, 3482, 3483. HISTORY OF SOUTH ASIA.** (4 cr per qtr, §5481, §5482, §5483)  
The history of South Asia from social, cultural, political, and economic perspectives.  
3481: Ancient India. History of South Asia from ca. 2000 B.C. to ca. 1200. 3482: India and Muslim dominance. History of South Asia from ca. 1200 through 1700. 3483: Modern India. South Asia under British rule and the rise of independent nation-states. (GrC)
- 3484. HISTORY OF SOUTHEAST ASIA.** (4 cr)  
Societies and states in Asian region bordered by culture and political spheres of China and India. (GrC)
- 3500. HISTORIOGRAPHY AND HISTORICAL METHOD SEMINAR.** (3 cr per qtr; prereq 2 unrelated history courses 3501 or above or #)  
Source types; problems of method inherent in various source materials; main currents in the Western historiographical tradition. (GrC)
- MidE 3501f, 3502w. ANCIENT ISRAEL.** (4 cr per qtr; no knowledge of Hebrew required)  
Paradise  
History of Israel and development of its religion against background of ancient Near East. (GrC)
- MidE 3541f-3542w-3543s. HISTORY OF ARABS.** (4 cr per qtr, §MidE 5511-5512-5513; prereq # for 3541) Chejne  
3541: Pre-Islamic days to downfall of Umayyads. 3542: Abbasids to fall of Baghdad in 1258. 3543: From crusades to modern times. (GrC)
- 3607, 3608. ECONOMIC AND SOCIAL HISTORY OF MEDIEVAL EUROPE.** (4 cr per qtr)  
Lewis  
3607: Medieval economic-social history, 300-1100. 3608: Medieval economic-social history, 1100-1500. (GrC)
- 3609. MILITARY HISTORY OF MEDIEVAL WESTERN EUROPE.** (5 cr) Bachrach  
Concept and conduct of war in Western Europe in the Middle Ages and the relation between military organization and society. (GrC)
- 3704, 3705. ECONOMY AND SOCIETY—EUROPE, 1348-1580 AND 1580-1750.** (4 cr per qtr) Phillips  
Structure and trends in the economy and society of early modern Europe, crucial to understanding an ancient regime and its people. Demography, agriculture, industry, commerce, and society. 3704: 1348-1580. 3705: 1580-1750. (GrC)
- 3754, 3755, 3756. HISTORY OF ITALY.** (4 cr per qtr)  
3754: From the late Middle Ages to the 17th century. 3755: From the late 17th century to 1870. 3756: From 1870 to the present. (GrC)
- 3757, 3758. HISTORY OF THE JEWS IN THE MODERN WORLD.** (4 cr per qtr) Meyer-son  
An intensive survey of Jewish history from the 17th century to the end of World War II.
- 3801, 3802. COLONIAL PERIOD OF AMERICAN HISTORY.** (4 cr per qtr) Carroll  
3801: English background, colonization to 1689. 3802: Provincial America, 1689-1765. (GrC)

- 3804, 3805. ERA OF THE AMERICAN REVOLUTION.** (4 cr per qtr) Howe  
3804: Causes and consequences of the Revolution. 3805: Establishing the new nation. (GrC)
- 3821, 3822, 3823. UNITED STATES IN THE 20TH CENTURY.** (4 cr per qtr)  
3821: From 1890 to 1920. 3822: 1920 to 1945. 3823: 1945 to present. (GrC)
- 3834, 3835. HISTORY OF CIVIL LIBERTIES AND CIVIL RIGHTS IN THE UNITED STATES.** (4 cr per qtr) Murphy  
3834: Liberty, equality, and justice in preindustrial American society. 3835: Civil liberties and civil rights in industrial America. (GrC)
- 3839. GREAT FIGURES IN AMERICAN JURISPRUDENCE.** (4 cr) Murphy  
Role of leading jurists and legal thinkers in shaping American public law. (GrC)
- 3841. AMERICAN BUSINESS HISTORY.** (5 cr) Green (GrC)
- 3861, 3862. HISTORY OF AMERICAN IMMIGRATION.** (4 cr per qtr) Vecoli  
3861: To 1880. 3862: Since 1880. (GrC)
- 3864, 3865. AFRO-AMERICAN HISTORY.** (4 cr per qtr) Spear  
3864: From 1619 through reconstruction. 3865: Since reconstruction. (GrC)
- 3881, 3882. HISTORY OF AMERICAN FOREIGN RELATIONS.** (4 cr per qtr) Brauer  
3881: 1775 to 1900. 3882: 1900 to present. (GrC)
- 3891, 3892. HISTORY OF THE SOUTH.** (4 cr per qtr) McCrary  
3891: Slavery and the antebellum South, 1607-1861. 3892: Reconstruction of Southern society, 1861 to present. (GrC)
- 3901, 3902. AMERICAN URBAN HISTORY.** (4 cr per qtr) Modell  
3901: Preindustrial America. 3902: Industrial America. (GrC)
- 3951-3952†. HONORS COURSE: HISTORY.** (4 cr per qtr; prereq candidacy for honors in history, #) (GrC)
- 3961f,w,s. MAJOR PAPER.** (5 cr; prereq Δ) (GrC)
- 3970. DIRECTED STUDIES.** (1-15 cr per qtr; prereq #)  
Qualified seniors may register for work on tutorial basis. (GrC)
- 3990. DIRECTED RESEARCH.** (1-15 cr per qtr; prereq #)  
Qualified students may register for work and training on a tutorial basis. (GrC)
- 5011, 5012. QUANTITATIVE METHODS IN HISTORICAL RESEARCH.** (4 cr per qtr; prereq one postsurvey course in any social science) Modell (GrC)
- 5021-5022. COMPARATIVE STUDY OF THE FAMILY IN HISTORY: INDIA AND AMERICA.** (4 cr per qtr; prereq #) Lelyveld, Modell  
Historical information on the family employed to test a series of hypotheses regarding change. The shift from agrarian to industrial society. (GrC)
- 5031-5032. A SOCIAL HISTORY OF ANGLO-AMERICAN LAW.** (4 cr per qtr) Samaha  
Law as a social institution. Development of the Anglo-American legal system from its inception as unsophisticated attempts to settle disputes by self-help to a complex structure relying on formal, professionalized judicial machinery supported by political power to enforce decisions. (GrC)
- 5041, 5042. EXPANSION OF EUROPE.** (3 cr per qtr)  
5041: Era of discovery, 1400-1736. 5042: Later colonization, 1763-WWII. (GrC)
- 5051f, 5052w, 5053s. ANCIENT NEAR EAST.** (3 cr per qtr) Jones (GrC)
- 5061, 5062, 5063. GREECE TO 200 B.C.** (3 cr per qtr) Kelly (GrC)
- 5071f, 5072w, 5073s. HISTORY OF ROME.** (3 cr per qtr) Jones (GrC)
- 5100. SELECTED TOPICS IN EARLY MEDIEVAL EUROPE.** (5 cr per qtr; prereq 1101 or 3101 or equiv or #...reading knowledge of French or German desirable) (GrC)
- 5111, 5112. EUROPE IN HIGH MIDDLE AGES.** (4 cr per qtr) Bachrach, Reyerson  
5111: The medieval revival, 1050-1200. 5112: The crisis of medieval civilization, 1200-1350. (GrC)
- 5115, 5116. MEDIEVAL LATIN HISTORIANS.** (4 cr per qtr; prereq good reading knowledge of Latin) Bachrach  
The writing of history in Western Europe during the Middle Ages. The idea of history, the philosophy of various historians, the techniques of research by medieval historians and chroniclers, history as literature, and the value of medieval histories to modern research scholars. All work done with original Latin texts. (GrC)

## Course Descriptions—Major Sequences

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- 5121, 5122. EUROPE IN THE RENAISSANCE.** (4 cr per qtr) Tracy  
5121: Italy, 1200-1530. 5122: Waning of the Middle Ages; France, Germany, Low Countries. (GrC)
- 5123, 5124. EUROPE IN THE AGE OF REFORMATION.** (4 cr per qtr) Tracy  
5123: Reformation and Counter-Reformation in Germany and Italy. 5124: Monarchy and revolution in France and the Netherlands. (GrC)
- 5131, 5132, 5133. BYZANTINE HISTORY.** (3 cr per qtr)  
5131: Later Roman Empire to 565. 5132: Rise of Byzantium to 976. 5133: From Basil II to 1453. (GrC)
- 5134f, 5135w, 5136s. HISTORY OF EARLY RUSSIA.** (4 cr per qtr; prereq #) Noonan (GrC)
- 5141, 5142, 5143. ENGLISH CONSTITUTIONAL HISTORY.** (4 cr per qtr) Samaha  
Evolution of English Constitution from Norman Conquest. Cultural values—especially the tension between individualism and community—that shaped English public law; their importance in forming one element in American constitutional development. (GrC)
- 5151, 5152, 5153. MODERN ENGLAND: TUDOR AND STUART PERIODS.** (4 cr per qtr) Lehmborg  
5151: 1485 to 1558. 5152: 1558 to 1625. 5153: 1625 to 1689. (GrC)
- 5171f, 5172w, 5173s. MODERN ENGLAND: 1783 TO PRESENT.** (4 cr per qtr) Altholz  
5171: 1783 to 1846. 5172: 1846 to 1901, Victorian era. 5173: 1901 to 1951, war and social change. (GrC)
- 5201, 5202. EARLY MODERN EUROPE.** (4 cr per qtr; offered when feasible) Bamford  
5201: Reformation and religious wars to 1648. 5202: The age of absolutism. (GrC)
- 5207, 5208. SOCIAL AND ECONOMIC HISTORY OF MODERN EUROPE.** (4 cr per qtr) Rudolph  
Problems of European economy and society, 1750 to the present. Economic and social structure and change; industrialization and its impact; social movements and social change; interrelationships between the economy and social-political structures. (GrC)
- 5211. FRANCE IN THE OLD REGIME.** (4 cr) Bamford (GrC)
- 5212. FRENCH REVOLUTION AND NAPOLEON.** (4 cr) Bamford (GrC)
- 5215. SPAIN UNDER THE HAPSBURGS, 1516-1701.** (4 cr) Phillips  
Politics, society, and the economy during the period of Spain's Golden Age. The Hapsburg dynasty, the Old World and the New, structures and trends of Spanish economy and society, Spain's European hegemony and decline. (GrC)
- 5221, 5222. 20TH-CENTURY EUROPE.** (4 cr per qtr) Munholland  
5221: Pre-1914 Europe to 1939. 5222: Europe since 1939. (GrC)
- 5231. MODERN FRANCE.** (5 cr) Munholland  
History of France from 1815 to present. (GrC)
- 5241, 5242, 5243. HISTORY OF GERMANY.** (4 cr per qtr) Pflanze  
5241: From 911 to 1648. 5242: From 1648 to 1815. 5243: From 1815 to 1933. (GrC)
- 5244, 5245. CENTRAL EUROPE.** (4 cr per qtr; prereq 1003) Wright  
5244: Central Europe to the Congress of Vienna. 5245: Central Europe since 1815. (GrC)
- 5247. HISTORY OF AUSTRIA.** (4 cr) Wright  
Austria from the 16th century through the Second Republic. (GrC)
- 5264, 5265, 5266. MODERN RUSSIA.** (4 cr per qtr) Stavrou  
5264: 18th-century background. 5265: The 19th century. 5266: Revolutions and Soviet regime. (GrC)
- 5271, 5272, 5273. HISTORY OF SCANDINAVIA.** (4 cr per qtr) Gold  
5271: Medieval Scandinavia. 5272: 16th, 17th, and 18th centuries. 5273: Modern Scandinavia (19th and 20th centuries). (GrC)
- 5274, 5275. MODERN NEAR EAST: OTTOMAN EMPIRE AND SUCCESSOR STATES.** (4 cr per qtr) Stavrou  
5274: From 1792 to Congress of Berlin. 5275: From Congress to present. (GrC)
- 5276. INTELLECTUAL AND CULTURAL HISTORY OF MODERN GREECE.** (5 cr) Stavrou  
Literary and cultural contributions of modern Greece in national and European contexts. (GrC)

- 5281, 5282, 5283. INTELLECTUAL AND CULTURAL HISTORY OF MODERN EUROPE.** (4 cr per qtr) Thayer  
5281: The 18th century and its background. 5282: Early 19th century. 5283: Late 19th and 20th centuries. (GrC)
- 5284, 5285, 5286. DIPLOMATIC HISTORY OF EUROPE IN THE 19TH AND 20TH CENTURIES.** (4 cr per qtr) Kieft  
5284: 1789 to 1871. 5285: 1871 to 1918. 5286: 1918 to present. (GrC)
- 5287. DIPLOMATIC HISTORY OF EUROPE FROM 1648 TO 1789.** (4 cr) Kieft (GrC)
- 5289. HISTORY OF EUROPEAN PENAL SYSTEMS.** (4 cr) Bamford  
Comparative analysis of European systems. (GrC)
- 5294, 5295. PROBLEMS IN THE ECONOMIC HISTORY OF RUSSIA AND EASTERN EUROPE.** (4 cr per qtr) Rudolph  
5294: Pre-1917. 5295: 1917 to present. (GrC)
- 5317, 5318. AMERICAN HISTORY, 1850-1900.** (4 cr per qtr) Loehr  
5317: 1850-1865. 5318: 1865-1900. (GrC)
- 5331, 5332. AMERICAN CONSTITUTIONAL HISTORY.** (4 cr per qtr) Murphy  
5331: English and colonial background through the middle period. 5332: Law as social control in modern America. (GrC)
- 5341, 5342. AMERICAN ECONOMIC HISTORY.** (4 cr per qtr) Loehr  
5341: Colonial period to 1865. 5342: 1865 to present. (GrC)
- 5344, 5345. HISTORY OF AMERICAN LABOR.** (4 cr per qtr) Berman  
5344: Preindustrial experience and early industrialization. 5345: Labor in the mature industrial society. (GrC)
- 5349. AMERICAN AGRICULTURAL HISTORY.** (3 cr; prereq #; offered when feasible) (GrC)
- 5361, 5362, 5363. DEVELOPMENT OF THE AMERICAN POLITICAL PROCESS.** (4 cr per qtr) Howe, McCrary, Murphy  
5361: Colonial period through the first party system. 5362: Mass political parties, critical elections, and the Civil War party system, 1828-1896. 5363: Progressivism, the New Deal coalition, and the contemporary party system. (GrC)
- 5371, 5372. RECENT INTELLECTUAL HISTORY OF THE UNITED STATES.** (4 cr per qtr) Noble (GrC)
- 5379. PROBLEMS IN COLONIAL AMERICAN HISTORY.** (4 cr; prereq 3801 or 3802 or #) Carroll  
Colonial, intellectual, and cultural history. (GrC)
- 5389. SOVIET RUSSIAN-AMERICAN RELATIONS, 1917 TO PRESENT.** (4 cr) Brauer  
Russian-American relations since the Russian Revolution; political, diplomatic, economic, and military problems and American foreign policy. (GrC)
- 5419. HISTORY OF ARGENTINA.** (4 cr)  
Political, social, and economic history of Argentina since independence. (GrC)
- 5420. TOPICS IN LATIN AMERICAN HISTORY.** (4 cr per qtr; prereq #) Schwartz  
Historical themes common to the Latin American area. Course content changes from quarter to quarter. (GrC)
- 5421, 5422. HISTORY OF BRAZIL.** (4 cr per qtr) Schwartz  
5421: Survey of colonial Brazilian development, 1500-1808. 5422: Modern Brazil, 1808 to present. (GrC)
- 5424, 5425. HISTORY OF MEXICO.** (4 cr per qtr) Schwartz  
5424: Pre-Columbian period through colonial era. 5425: Development of the Mexican nation. (GrC)
- 5426. HISTORY OF THE ANDEAN REPUBLICS.** (4 cr)  
Historical development of Bolivia, Colombia, Ecuador, and Peru since independence. (GrC)
- 5429. SLAVERY IN THE AMERICAS.** (4 cr, §SSci 3507) Isaacman, Schwartz, Spear  
Slavery in the Americas from the African origins of the trade to emancipation. (GrC)
- 5431. ISLAM AND NATIONALISM: WEST AFRICA AND SOUTH ASIA.** (4 cr; prereq previous course work relevant to Islam, West Africa, or South Asia or #) Kaba, Lelyveld  
Religious and political ideologies and movements in two regions of Islamic civilization during European colonial domination. (GrC)

## Course Descriptions—Major Sequences

- 5432, 5433. PROBLEMS IN CONTEMPORARY AFRICA.** (4 cr per qtr) Kaba  
5432: Introduction and spread of Islam in Africa. 5433: Process of Islamization and political influence of Islamic ideology. (GrC)
- 5444, 5445. PROBLEMS IN CENTRAL AND SOUTHERN AFRICAN HISTORY.** (4 cr per qtr; open to soph who have passed 1431, 1432, 1433) Isaacman (GrC)
- 5447. PROBLEMS IN EAST AFRICA.** (4 cr) Isaacman  
Advanced course in African history focusing on specific themes and methodological problems. (GrC)
- 5454, 5455. MUSLIMS IN MODERN INDIAN HISTORY.** (4 cr per qtr) Lelyveld  
5454: Decline of the Mughals and establishment of British rule, 1757-1857. 5455: Cultural and social change; political mobilization of Indian Muslims, 1857-1947. (GrC)
- 5458, 5459. MODERN SOUTH ASIA: SOCIAL HISTORY.** (4 cr per qtr) Kopf, Lelyveld  
Problems in the social history of South Asia. (GrC)
- 5461, 5462. CHINESE HISTORY TO A.D. 1368.** (4 cr per qtr) Taylor  
5461: To 211 B.C. 5462: To 1368. (GrC)
- 5464. EARLY MODERN CHINA: THE MING AND EARLY CH'ING, 1350-1750.** (4 cr)  
Farmer  
Political and social institutions in early Ming; 16th and 17th century social and cultural trends; Manchu conquest and early Western contacts. (GrC)
- 5465. CHINA'S RESPONSE TO THE WEST, 1750-1911.** (4 cr) Farmer  
Decline of imperial system; Western impact; cultural crisis and revolution. (GrC)
- 5467. REPUBLICAN CHINA: THE NATIONALIST REVOLUTION, 1900 TO PRESENT.**  
(4 cr) Farmer  
Development of Chinese nationalism, interventions of Soviet Union, Japan and the United States, failure of Kuomintang. (GrC)
- 5468. PEOPLE'S REPUBLIC OF CHINA: THE COMMUNIST REVOLUTION, 1900 TO PRESENT.** (4 cr) Farmer  
Introduction of Marxism to China; rise of Communist party; restructuring Chinese society. (GrC)
- 5471. 20TH-CENTURY JAPAN.** (5 cr, §3471) Marshall  
The modern transformation, 1870's to 1970's. (GrC)
- 5472. EARLY MODERN JAPAN.** (5 cr, §3472) Marshall  
Tradition and change in Tokugawa society. (GrC)
- 5477. STATE AND SOCIETY IN TRADITIONAL CHINA.** (4 cr; prereq 1451 and 1452 or 3451 and 3452 or 1461 and 1462 or 3461 and 3462 or §) Taylor  
Social change in China from beginning of Chou dynasty (ca. 1000 B.C. to ca. 1400 A.D.); origin and adaptation of the state in the changing social context. (GrC)
- 5489. HISTORY OF HINDUSTANI CULTURE.** (4 cr, §Indc 5533) Lelyveld, Silver (GrC)
- 5491. HISTORY OF BANGLADESH.** (4 cr, §Indc 5491; prereq some course work in history of South Asia)  
A descriptive and analytical history of the linguistic and cultural unit, Bengal, from the 4th century B.C. to the creation of the modern state, Bangladesh, in 1972. (GrC)

### Proseminars

- 5501f-5502w-5503s†. HISTORY OF INDIA.** (4 cr per qtr) Kopf (GrC)
- 5510. TOPICS IN EAST ASIAN HISTORY.** (4 cr per qtr; prereq §) Farmer, Marshall, Taylor  
Readings in Western languages on history of China, Japan, and associate areas (e.g., Vietnam and Korea) for graduate students, especially those from other departments or areas with history preparing secondary fields in East Asian history. (GrC)
- 5511f, 5512w†. CHINESE HISTORY TO A.D. 1368.** (3 cr per qtr) Taylor (GrC)
- 5514, 5515. MODERN CHINA.** (4 cr per qtr; prereq §)  
Topics and issues in historical literature. (GrC)
- 5517, 5518. 20TH-CENTURY CHINESE HISTORY.** (3-5 cr per qtr; prereq §) Farmer  
Topics, issues, and research strategies. (GrC)
- 5519. 20TH-CENTURY CHINESE HISTORY.** (5 cr; prereq §) (GrC)
- 5521, 5522. CURRENT INTERPRETATIONS AND TOPICS IN JAPANESE HISTORY.** (5 cr per qtr; prereq §) (GrC)

5534. **SOUTHEAST ASIAN HISTORY.** (3 cr) (GrC)
5547. **HISTORIOGRAPHY OF MODERN SOUTH ASIA.** (5 cr)  
Historical literature of modern South Asia; definition of the major problem facing students in the field. (GrC)
5549. **EAST AND SOUTH ASIA.** (3 cr, §Anth 5971, §Geog 5299, §Ortl 5551, §Pol 5486)  
Interdepartmental staff  
Integrating course for students majoring in East and South Asia area studies program. (GrC)
- 5551f-5552w-5553s†. **ANCIENT HISTORY.** (3 cr per qtr) Jones (GrC)
- 5561f-5562w-5563s†. **ANCIENT HISTORY.** (3 cr per qtr) Kelly (GrC)
- 5601f, 5602w, 5603s. **EARLY MEDIEVAL WESTERN EUROPE.** (3 cr per qtr; prereq 1101 or 3051 or equiv, reading knowledge of French or German, #) Bachrach (GrC)
- 5611f-5612w-5613s. **MEDIEVAL HISTORY.** (3 cr per qtr; prereq 1 yr of medieval history or equiv, reading knowledge of French or German, #) Bachrach, Reyerson (GrC)
- 5621, 5622, 5623. **EUROPE IN THE RENAISSANCE.** (3 cr per qtr)  
5621: Italian Renaissance. 5622: France, Germany, and Italy. 5623: Intellectual history. (GrC)
- 5624, 5625, 5626. **EUROPE IN THE 16TH CENTURY.** (3 cr per qtr; offered alt yrs) Tracy  
5624: Intellectual history. 5625: German Reformation. 5626: France and the Netherlands. (GrC)
- 5634, 5635. **MEDIEVAL RUSSIAN HISTORY.** (3 cr per qtr; prereq 5134, 5135, 5136 or # and reading knowledge of Russian, French, or German) Noonan (GrC)
- 5641f-5642w-5643s. **MEDIEVAL ENGLISH HISTORY.** (3 cr per qtr; prereq 1 yr of medieval history or equiv, reading knowledge of French or German, #) (GrC)
- 5651f-5652w-5653s†. **ENGLISH HISTORY: TUDOR AND STUART PERIODS.** (3 cr per qtr) Lehmborg (GrC)
- 5671f-5672w-5673s†. **MODERN ENGLAND: 1783 TO PRESENT.** (3 cr per qtr) Altholz (GrC)
- 5711f-5712w-5713s†. **FRENCH REVOLUTION AND NAPOLEON.** (3 cr per qtr) Bamford (GrC)
- 5721, 5722. **RECENT EUROPEAN HISTORY.** (4 cr per qtr; prereq lect course in 20th-century Europe or WWII or #) Munholland (GrC)
- 5731f-5732w-5733s†. **17TH-CENTURY FRANCE.** (3 cr per qtr; prereq reading knowledge of French) Bamford (GrC)
- 5741f, 5742w. **GERMANY AND CENTRAL EUROPE IN 18TH CENTURY.** (3 cr per qtr) Wright (GrC)
- 5744-5745-5746†. **19TH-CENTURY GERMANY.** (3 cr per qtr; prereq 5242, 5243 and reading knowledge of German) (GrC)
- 5761f-5762w-5763s†. **RUSSIAN HISTORY.** (3 cr per qtr; prereq 5136 and reading knowledge of Russian, German, or French or #) Stavrou (GrC)
- 5771f-5772w-5773s†. **SCANDINAVIAN HISTORY.** (3 cr per qtr) (GrC)
5774. **READINGS IN THE MODERN NEAR EAST: THE OTTOMAN EMPIRE AND THE SUCCESSOR STATES.** (3 cr; prereq 5274, 5275) (GrC)
- 5777-5778†. **HISTORY OF THE HAPSBURG MONARCHY.** (3 cr per qtr) Wright (GrC)
- 5781-5782†. **MODERN EUROPEAN INTELLECTUAL HISTORY.** (3 cr per qtr) Thayer (GrC)
- 5784, 5785†. **DIPLOMATIC HISTORY OF 19TH- AND 20TH-CENTURY EUROPE.** (3 cr per qtr) Kieft  
5784: From 1815 to 1914. 5785: From 1914 to present. (GrC)
- 5787-5788†. **RELIGIOUS HISTORY OF MODERN EUROPE.** (3 cr per qtr) Altholz (GrC)
- 5791f-5792w-5793s†. **EUROPEAN ECONOMIC HISTORY SINCE 1500.** (3 cr per qtr) Rudolph (GrC)
- 5794f-5795w-5796s†. **HISTORY OF EUROPEAN COMMERCE.** (3 cr per qtr) Bamford (GrC)

## Course Descriptions—Major Sequences

5797. **METHODS OF HISTORICAL DEMOGRAPHY.** (4 cr) Phillips  
Early modern Europe (16th and 18th centuries). (GrC)
- 5801-5802†. **17TH- AND 18TH-CENTURY AMERICAN HISTORY.** (4 cr per qtr; prereq #)  
Carroll (GrC)
5805. **THE AMERICAN REVOLUTION.** (4 cr; prereq #) Howe  
The conceptual and methodological problems involved in writing of the American Revolution; the existing historical literature. From about 1763 through the Constitution. (GrC)
5806. **JACKSONIAN AMERICA.** (4 cr) Howe  
American society, thought, and politics during the decades prior to 1850. Historical methodology and conceptual approaches as they relate to these years. (GrC)
5811. **19TH-CENTURY AMERICAN HISTORY.** (4 cr) McCrary (GrC)
5812. **SLAVERY, CIVIL WAR, AND RECONSTRUCTION.** (4 cr) McCrary  
Interdisciplinary approach to the social and political history of the slaveholding South, the sectional controversy, Civil War and Reconstruction. (GrC)
- 5817f-5818w-5819s†. **AMERICAN HISTORY, 1850-1900.** (3 cr per qtr) Loehr (GrC)
- 5821f-5822w†. **AMERICAN HISTORY IN 20TH CENTURY.** (4 cr per qtr; prereq #)  
Chambers (GrC)
- 5831f, 5832w. **AMERICAN POLITICAL AND CONSTITUTIONAL HISTORY.** (4 cr per qtr; prereq #) Murphy (GrC)
- 5841f-5842w-5843s†. **AMERICAN ECONOMIC HISTORY.** (3 cr per qtr) Loehr (GrC)
- 5844f-5845w-5846s†. **AMERICAN LABOR HISTORY.** (3 cr per qtr) Berman (GrC)
- 5847, 5848. **AMERICAN BUSINESS HISTORY.** (4 cr per qtr; prereq #) Green (GrC)
- 5854-5855†. **AMERICAN URBAN HISTORY.** (3 cr per qtr) (GrC)
- 5861-5862†. **HISTORY OF AMERICAN IMMIGRATION.** (3 cr per qtr) Vecoli (GrC)
- 5864w-5865s†. **AFRO-AMERICAN HISTORY.** (4 cr per qtr; prereq # for 5864...5864 for 5865) Spear (GrC)
- 5871f-5872w†. **INTELLECTUAL HISTORY OF THE UNITED STATES IN 19TH, 20TH CENTURIES.** (4 cr per qtr) Noble (GrC)
- 5881, 5882. **AMERICAN FOREIGN RELATIONS.** (4 cr per qtr; prereq #) Brauer (GrC)
- 5897-5898-5899†. **LITERATURE OF AMERICAN HISTORY.** (3 cr per qtr; required of grad students planning PhD programs in American history; prereq #)  
Problems of historiography and survey of major interpretations in American history. (GrC)
- 5901f-5902w-5903s†. **LATIN AMERICAN HISTORY.** (5 cr per qtr; prereq reading knowledge of Spanish) Schwartz (GrC)
5930. **TOPICS IN COMPARATIVE THIRD-WORLD HISTORY.** (5 cr per qtr)  
Recurring themes in Third-World history. (GrC)
5931. **HISTORY OF AFRICA.** (3 cr; prereq 5431, 5432 or #) (GrC)
5932. **AFRICAN HISTORIOGRAPHY.** (4 cr; prereq # for jrs and srs) Kaba (GrC)
5939. **METHODOLOGY FOR THE STUDY OF AFRICAN HISTORY.** (3 cr) (GrC)
- 5941, 5942, 5943. **AFRICAN HISTORY.** (3 cr per qtr; prereq #) Kaba  
Research training centering on West and North Africa. (GrC)
- 5944, 5945, 5946. **AFRICAN HISTORY.** (3 cr per qtr; prereq #) Isaacman  
Research training centering on East, Central, and South Africa. (GrC)
- 5951, 5952†. **HISTORY OF HISTORICAL THOUGHT.** (4 cr per qtr) Pflanze (GrC)
- 5954, 5955. **INTERDISCIPLINARY APPROACHES TO HISTORY.** (3 cr per qtr; prereq #) (GrC)
5957. **SOCIAL HISTORY OF ANGLO-AMERICAN LAW.** (4 cr) Samaha  
Law as a cultural and social institution rather than a means to social control. Law in action as opposed to law in books; law and institutions in the legal order to social, cultural, and economic developments. (GrC)
- 5961w-5962s†. **EXPANSION OF EUROPE.** (3 cr per qtr) (GrC)

5964. **ATLANTIC COMMUNITY: EARLY MODERN ORIGINS.** (3 cr) (GrC)  
5970. **DIRECTED STUDIES.** (1-15 cr per qtr; prereq #)  
Qualified senior and graduate students may register for work on tutorial basis. (GrC)  
5990. **DIRECTED RESEARCH.** (1-15 cr per qtr; prereq #)  
Qualified senior and graduate students may register for work on tutorial basis. (GrC)

## History of Medicine (HMed)

### *Medical School*

#### Staff

*Chairman and Director of Undergraduate Studies,* Leonard G. Wilson, 510 Diehl Hall

*Professor:* Wilson

*Assistant Professor:* Eyler

The history of medicine studies the development of medicine in relation to science and culture and to diseases prevalent at various historical periods. It explores the influence of economic and social conditions on medicine and medical institutions.

- 5024f. **MEDICINE IN ANTIQUITY AND THE MIDDLE AGES.** (4 cr) Eyler  
Medical knowledge, practices, and institutions in primitive, ancient Middle Eastern, Graeco-Roman, and medieval societies. (GrC)  
5025w. **MEDICINE IN EARLY MODERN TIMES, 1500-1800.** (4 cr) Eyler  
Renaissance and Enlightenment; impact of major epidemics; advances in anatomy and physiology; changing concepts of psychopathology; the rise of surgery; transformations in the medical professions and medical education. (GrC)  
5026s. **MEDICINE SINCE 1800; EMPHASIS ON AMERICA.** (4 cr) Eyler  
Colonial and early American medical professions; leadership and influence of European medicine; public health movement; the advent of major surgery; the germ theory of disease and the therapeutic revolution; psychiatry; health care insurance. (GrC)  
5102s. **MEDICINE AND SOCIETY IN THE ENLIGHTENMENT.** (3 cr; prereq #; limited to 15 students) Eyler  
Seminar. Interrelations of medicine and society from the late 17th to the early 19th century. (GrC)

## History of Science and Technology (HSci)

### *Institute of Technology*

#### Staff

*Coordinator,* Roger H. Stuewer, 428 Tate Laboratory of Physics

*Professor:* Stuewer (on leave, 1974-75)

*Assistant Professor:* Shapiro

The history of science and technology studies the origins and development of science and technology and their relations to the social, cultural, and philosophical currents of their times.

Courses in the field may be taken to support majors in existing departments or programs, as well as to broaden knowledge of the nature and development of science and technology. New courses in the history of technology and of the biological sciences will be added in the next 2 years. Phys 5923, 5924, 5925 are recommended for students interested in the history of the physical sciences.

## Course Descriptions—Major Sequences

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- 1811, 1812, 1813. INTRODUCTION TO HISTORY OF SCIENCE.** (4 cr per qtr) Shapiro  
*1811: Ancient and Medieval*—Babylonian mathematics and astronomy; Greek natural philosophy, mathematics, astronomy, and biology; Aristotle; mechanics and optics in the Middle Ages. *1812: The Scientific Revolution*—Copernican revolution; physics of Galileo, Descartes, and Newton; circulation and respiration; microscopy; the "new science." *1813: The 19th and 20th Centuries*—Geology; Darwin and evolution; aether and electricity; nuclear physics and nuclear weapons. (GrC)
- 5111f. PHYSICAL SCIENCES IN ANTIQUITY.** (4 cr) Shapiro  
Mathematics and astronomy in Babylonia; Greek mathematics, Euclid and Archimedes; Aristotle's physics and cosmology; the emergence of mathematical and experimental natural science in Greece; Ptolemaic astronomy. (GrC)
- 5825s. PHYSICS AND SOCIETY IN 20TH-CENTURY AMERICA.** (4 cr) Stuewer  
Nineteenth-century heritage; 20th-century discoveries and physical theories; growth of physics in America after WW I; the intellectual migration of the 1930's; nuclear physics, the Manhattan project, and the atomic bomb; spies, McCarthyism and Oppenheimer; current and past contributions of Minnesota physicists. (GrC)
- 5970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq #)

## College of Home Economics

The College of Home Economics offers courses carrying CLA credit in several areas: design, family social science, food science and nutrition, textiles and clothing, and youth studies (see separate listings under these headings). Permission to gain CLA credit in other courses is sometimes granted by the CLA Scholastic Committee and the chairmen of the departments concerned. For many HE courses, tally cards must be obtained at the CLA Class Reservations office, 12 Johnston Hall.

Students registered in the College of Home Economics may earn interdepartmental B.S. degrees in a variety of areas; a joint major in home economics education is also possible. For information, consult the Home Economics office, 200 McNeal Hall, St. Paul Campus.

## Honors Program

CLA Honors programs are described fully on pages 21 and 22. Honors sections of many courses and other special Honors courses offer advanced study opportunities at all undergraduate levels to students of high motivation and ability. The Honors seminars for Honors juniors and seniors and the Honors colloquia, open to all freshmen and sophomores, explore topics not offered in regular CLA courses, a large number of them of an interdisciplinary nature. Departmental Honors programs and graduation with honors are available.

The Honors office, 115 Johnston Hall, provides Honors student advising and full information about current seminar and colloquia topics and other opportunities.

**0010. HONORS COLLOQUIUM.** (No cr; prereq fr or soph)

## Humanities (Hum)

### Staff

*Chairman*, Paul D'Andrea, 310 Ford Hall

*Professors*: Ames, Bryan, Kwiat, Roshwald, Tapp

*Associate Professors*: Bauer, D'Andrea, Hershbell

*Assistant Professors*: Alley, Klinger, Leppert, Penn, Thomas, Zimmerman

*Instructor*: Fontaine

Humanities offers integrated and cross-cultural study of eras of civilization and major humanistic problems, drawing on literature, philosophy, history, and the arts, and relevant aspects of the social and natural sciences. This interdisciplinary breadth of perspective provides understanding about men and women not as verbal or economic beings only, but as heirs to and creators of civilization, concerned with values and the development of the whole person.

## B.A. MAJOR SEQUENCE

### Major Requirements

25 humanities cr, at least 5 in European Heritage courses and 15 in European Heritage or Modern World (no more than 10 at the lxxx level), and 5 in any 3xxx- or 5xxx-level humanities course except the proseminars

9 cr in humanities proseminars

45 3xxx-5xxx-level cr, distributed thus: 18 to 21 cr from anthropology, geography, history, linguistics, philosophy, political science, psychology, sociology; 24 to 27 cr in literature (any language, ancient or modern), history of art, history of music, history of theatre, studio arts, studio music, theatre or oral interpretation

**1001f,w,s. HUMANITIES IN THE MODERN WORLD I.** (5 cr, §3001, §Rhet 1301)

Old Regime, French Revolution and Napoleonic era, neoclassicism and romanticism; Pope, Voltaire, Rousseau, Burke, Goethe, and Tolstoy. (GrC,D)

**1002f,w,s. HUMANITIES IN THE MODERN WORLD II.** (5 cr, §3002, §Rhet 1302; prereq 1001)

Industrial Revolution, liberalism and socialism, individualism; Smith, Malthus, Carlyle, Marx, Ibsen, Mill, Zola, Flaubert, Tolstoy, and Dostoevski. (GrC,D)

**1003f,w,s. HUMANITIES IN THE MODERN WORLD III.** (5 cr, §3003, §Rhet 1303; prereq 1002)

Impact of science and theory of evolution; religion and morals in changing world; Darwin and evolutionists, Nietzsche, Kierkegaard, Chekhov, Turgenev, Mann. (GrC,D)

**1004f,w,s. HUMANITIES IN THE MODERN WORLD IV.** (5 cr, §3004, §Rhet 3381; prereq 1001 or 1002 or 1003)

Humanities between the two world wars. Communism, fascism, Freudianism, modern art and philosophy, existentialism. Lenin, Freud, Joyce, T. S. Eliot, Kafka, and others. (GrC,D)

**1001Hf, 1002Hw, 1003Hs, 1004Hw,s. HONORS COURSE: HUMANITIES IN THE MODERN WORLD.** (5 cr per qtr, §corresponding qtr of 1001, 1002, 1003, 1004...§Rhet 1301 for 1001...§Rhet 1302 for 1002...§Rhet 1303 for 1003...§Rhet 3381 for 1004; prereq § or Δ; limited to 15 students of demonstrated ability in humanities classes, in other courses, or in high school achievement) (GrC,D)

**1009. INTRODUCTION TO SCIENCE AND HUMANITIES.** (5 cr)

The relation between science and the humanities. (GrC,D)

**1011f, 1012w, 1013s. EUROPEAN HERITAGE.** (5 cr per qtr, §corresponding qtr of 3011, 3012, 3013...§Rhet 3321 for 1011...§Rhet 3322 for 1012...§Rhet 3323 for 1013)

Masterpieces of European civilization from Homer to Cervantes. Literature, philosophy, theology, arts of Greece, Rome, Middle Ages, and Renaissance. Ideals and forces of continuing importance to modern world. *1011*: Greek heritage. *1012*: Roman and medieval heritage. *1013*: Renaissance and Reformation. (GrC,D)

**1101w,s. THE LIFE OF THE MIND: INTRODUCTION TO METHODS IN THE HUMANITIES.** (5 cr)

Exploration of some of the ways of reading and appreciating poetry, sculpture, history, philosophy, painting, rhetoric, music, and film, by studying works by a variety of creative figures such as Stevens, Einstein, Henry Moore, Bach, Lincoln, Plato, Genet, Euclid, Joyce, and Fellini. (GrD)

**3001f,s, 3002w,s, 3003f,s. HUMANITIES IN THE MODERN WORLD.** (5 cr per qtr, §corresponding qtr of 1001, 1002, 1003...§Rhet 1301 for 3001...§Rhet 1302 for 3002...§Rhet 1303 for 3003; prereq jr or sr)

Similar to 1001, 1002, 1003; more reading, papers. (GrC,D)

## Course Descriptions—Major Sequences

- 3004f,w,s. HUMANITIES IN THE MODERN WORLD.** (5 cr, §1004, §Rhet 3381; prereq jr or sr)  
Similar to 1004; more reading, papers. (GrC,D)
- 3004H. HONORS COURSE: HUMANITIES IN THE MODERN WORLD.** (5 cr, §1004, §Rhet 3381; limited to 20 students of demonstrated ability in humanities courses or in other courses; prereq # or Δ) (GrC,D)
- 3005. HUMANITIES IN THE MODERN WORLD V.** (5 cr; prereq 1004 or 3004)  
Intellectual climate of Western world since World War II. Existentialism and "the absurd," alienation, irrationalism, anti-hero in literature, new theology, Zen. (GrC,D)
- 3006. CREATIVE IMAGINATION IN THE 20TH CENTURY.** (5 cr)  
Creativity in the 20th century through study of painters, sculptors, musicians, and writers such as Marcel Duchamp, Pablo Picasso, John Cage, and André Gide. The choice of artists will vary. (GrC,D)
- 3009. MAN BEFORE HISTORY.** (5 cr) Ames  
Search for meaning in the myth of a lost terrestrial paradise: the abundant plain of Eden or worldwide technological mastery? Scientific evidence of the cultural advances of prehistoric man. Correlations with literature, folklore, and certain anomalies of archaeology, geography, and psychology. Readings in Campbell, Fairservis, Gordon, Milton, de Santillana. (GrC)
- 3011, 3012, 3013. EUROPEAN HERITAGE.** (5 cr per qtr, §corresponding qtr of 1011, 1012, 1013...§Rhet 3321 for 3011...§Rhet 3322 for 3012...§Rhet 3323 for 3012; prereq jr or sr)  
Similar to 1011, 1012, 1013; more reading; papers. (GrC,D)
- 3014. EUROPEAN HERITAGE: THE AGE OF THE BAROQUE.** (5 cr) Thomas  
Interdisciplinary approach to 17th-century European culture. Significant relationships between philosophy, literature, art, and music. Works by Bernini, Monteverdi, Caldéron, Rembrandt, Kepler, Descartes, Molière, Grimmelshausen, Handel, and Bach. (GrD)
- 3038. THE POLITICAL NOVEL.** (5 cr; prereq jr, sr, or #) Zimmerman  
Selected novels by major authors from Stendahl to the present; theories of human nature; relationship of the individual and society; philosophy of history and political action; experience and ideology; the political novel as a genre. (GrC,D)
- 3044f,w,s. HONORS THESIS.** (3 cr; prereq sr, candidate for magna or summa honors in humanities, Δ) (GrD)
- 3045. RACIAL THOUGHT: A CONCEPTUAL SURVEY, 19TH AND 20TH CENTURIES.** (5 cr; prereq jr, sr, or #) Penn  
"Racial" thought as historically and conceptually diverse philosophic and cultural ideologies; divergent "racial" outlooks against the background of particular philosophic, scientific, and religious aspirations. Gobineau, Disraeli, Renan, Taine, Chamberlain, Putnam, Benedict, Montague, and others. (GrC,D)
- 3049. SCIENCE AND HUMANITIES.** (5 cr; prereq jr, sr, or #) Penn  
"Warfare" between the scientific and humanistic cultures, through documents from Ficino and Vives to Polanyi, Koestler, Bronowski, and A. Huxley. Humanistic scholarship and methodological character of sciences, creativity in arts and sciences, science and human values. (GrC,D)
- 3055. THE CONCEPT OF CLASSICISM.** (5 cr; prereq jr, sr, or #) Lowry  
Changing views of classicism in Europe from the 17th century to the present, studied on the basis of literary texts, aesthetic criticism, music, art, and architecture. (GrD)
- 3061. COUNTER-FAITHS IN CONTEMPORARY NOVELS.** (5 cr; prereq 1004 or 3004)  
Tapp  
Writings of Camus, Clarke, Heinlein, Hesse, Huxley, Kazantzakis, Sartre, Skinner, Vonnegut as embodiments of alternative faith perspectives and sensibilities that have emerged from alienation from the Western past. (GrC)
- 3071. SELF-REALIZATION IN 20TH-CENTURY LITERATURE.** (5 cr; prereq jr, sr, or #)  
Kliger  
Quest for meaning and the process of individuation critically explored in works of 20th-century literature. (GrD)
- 3099. THEORIES OF CULTURE.** (5 cr; prereq jr, sr, or #) Penn  
Development of systematic "theories of culture" from Plato to Eliot and Marcuse from the standpoint of conflicting ideologic perspectives concerning man and society. Aristotle, Augustine, Vico, Hegel, Arnold, Dilthey, Croce, Cassirer, and others. (GrC)

- 3101f, 3102w, 3103s. THE MEANING OF HUMANITY: SOCIETY AND TECHNOLOGY: COMMUNITY.** (4 cr per qtr) Roshwald  
 3101: The essence of man and the factors determining his course, explored through theories such as those of Marx, Freud, Plato. 3102: Impact of technology on human conditions; the attitude of man toward technology, examined philosophically and sociologically. 3103: Meaning of man as a social being in various groups in which human beings participate. (GrC,D)
- 3104f, 3105w, 3106s. LIBERTY: A CONCEPTUAL AND INSTITUTIONAL ANALYSIS.** (4 cr per qtr; prereq 3104 for 3105...3105 for 3106 or §) Roshwald  
 3104: Meaning of liberty, in theory and practice. Individual and collective liberty. Liberty and civilization. Conflict among different values of liberty. 3105: Liberty and the comparative study of civilizations. How different civilizations deal with varieties of liberties. 3106: Colloquium discussing the implications of 3104 and 3105. (GrC,D)
- 3204. THE MODERN GREEK EXPERIENCE.** (5 cr) Stavrou  
 Critical survey of modern Greek literary and cultural contributions as symbols of national frustrations, aspirations, and accomplishments. (GrC)
- 3301. A TIME TO LAUGH: A STUDY OF THE COMIC SPIRIT.** (5 cr) D'Andrea  
 Interdisciplinary survey of comedy as it occurs through time and across world cultures in literature, drama, folk ritual and tale, social convention, language, sport, and film. (GrC,D)
- 3501s, 3502s, 3503s. COMPARATIVE SOTERIOMORPHISM.** (4 cr per qtr; offered succeeding spring qtrs) Tapp  
 The "saviors" of various cultures afford insights into the creation, maintenance, and changing of humankind's values. Traditions surrounding these figures as literary and philosophical imagination, as art history, and as mirrors of psychosocial structures. 3501: Krishna through the ages. 3502: Buddha through the ages. 3503: Jesus through the ages. (GrC)
- 3910. HONORS COURSE: TOPICS IN THE HUMANITIES.** (4 cr per qtr; prereq jr, sr, or §)  
 Topics specified in *Class Schedule*. (GrD)
- 3970f,w,s. DIRECTED STUDIES.** (Cr ar; prereq §)  
 Course designed to permit the student to pursue his interests in special reading and/or study. (GrC,D)
- 3980f,w,s. DIRECTED INSTRUCTION.** (1-3 cr; prereq student must have previously taken course for credit)
- 5030f,w,s. HUMANITIES PROSEMINAR.** (3 cr per qtr; prereq sr; limited to 15 students)  
 Integrated review of humanities materials: arts, sciences, and civilization. (GrC,D)
- 5030Hf,w,s. HONORS COURSE: HUMANITIES PROSEMINAR.** (3 cr per qtr; for honors candidates in humanities and others with overall grade average of B or better; prereq sr and §; limited to 15 students)  
 See 5030. (GrC,D)
- 5063. POLITICAL THEORY AND UTOPIA.** (4 cr, §Pol 5663; prereq Pol 1001 or 9 cr of social science or §) Sibley, Zimmerman  
 Great utopias from viewpoint of political theorist; idea of planning in ideal states; achievement of utopia; stability and change in great utopias; problem of authority and law; anarchist, socialist, and conservative utopias. (GrD)

## Interdepartmental Majors

Individually designed Bachelor's degree programs are available under the interdepartmental major plan. Ten such programs have been authorized, in American studies, classical civilization, humanities, Jewish studies, Latin American studies, preparation for theology, religious studies, social welfare, urban studies, and women's studies. Others with differing emphases may be planned.

An interdepartmental major permits a student to devise a B.A. program that meets his personal needs. It resembles a formal major sequence in providing balance, unity, and areas of concentration; but it is distinctive in its individualized and usually unduplicated design. The plan defines its maker's objectives and

## Course Descriptions—Major Sequences

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outlines integrated course selections in several groups, usually from three or more departments. The plan is expected to lead toward the "senior project," a major paper based on research related to its writer's principal educational purposes.

Degree requirements are substantially those of the B.A. program outlined on page 10, except that the "30 3xxx- or 5xxx-level credits outside the major" stipulation is omitted and the area of major concentration must include 80 credits, 60 of them in 3xxx- or 5xxx-level courses.

Planning advice and information about these programs are available in the Interdepartmental Majors office, 114 Johnston Hall (376-3030).

### Interdepartmental Study (ID)

Interdepartmental directed study registration provides opportunity for individual students to plan and carry out study and research in topics that do not fall within the scope of an existing department or program. These opportunities, especially appropriate for interdepartmental majors, are available to all students in the college.

A student in an interdepartmental course works with an adviser in the Office for Special Learning Opportunities (OSLO), 201A Westbrook Hall, and with two or more instructors. The course outline, which the student presents to OSLO for approval, should show his objectives, the subject matter he is to study, his proposed study methods, means of evaluation, and the consent of instructors involved. Further information is available at OSLO.

Similar opportunities are available, in somewhat more limited areas, under LFA 3970, NSci 3970, and SSci 3970.

**3970. DIRECTED STUDIES.** (3-15 cr per qtr; prereq # of Office for Special Learning Opportunities staff)

Individual readings and research on topics that cross departmental lines.

### International Relations (IntR)

#### Staff

*Director*, Davis B. Bobrow, 1246B Social Sciences Building; *Director of Undergraduate Studies*, Robert T. Kudrle, 1246A Social Sciences Building

*Professor*: Bobrow

*Assistant Professor*: Kudrle

#### Adjunct Faculty

*Professors*: Browne (Speech-Communication), Carter (Journalism), Chipman (Economics), Coen (Economics), Floripe (Spanish and Portuguese), Holt (Political Science), Howell (Speech-Communication), Kopf (History), Lindsay (Journalism), McLaughlin (Political Science), Riggs (Political Science), Rogers (World Affairs Center), Schwartzberg (Geography), Smith (Economics), Swanson (Agricultural Education)

*Associate Professors*: Benjamin (Political Science), Brauer (History), Hopmann (Political Science), Kennedy (Sociology), Kieft (History), Munholland (History)

*Assistant Professors*: Blue (Political Science), NimtZ (Political Science), Schoettle (Political Science), Walcott (Political Science)

International relations is concerned with human activities that connect the boundaries among nations and cultural areas or cross their boundaries.

The program offers multidisciplinary curricula to acquaint students with methodological and substantive approaches to international relations. They include courses from the social sciences and humanities and, in some concentrations, from professional schools and colleges.

The three major curricula are general international relations, international development, and international and cross-cultural communication. Each includes a required core of courses from at least four subject areas, electives to satisfy individual interests and objectives, and opportunity to take one or more of the program's interdisciplinary proseminars, designed to integrate the diverse approaches to which students will be exposed. Students without equivalent proficiency are required to complete specified 3xxx-5xxx-level courses in one modern foreign language.

The diversity of the requirements necessitates an early start in planning major programs. Students are urged to complete preparatory work, including that in the foreign language, in freshman and sophomore years.

The bulletin *Programs in International Relations*, which details requirements, may be obtained from the Harold Scott Quigley Center of International Studies.

## **B.A. MAJOR SEQUENCE**

### **Required Preparatory Courses**

Requirements vary according to the major curriculum chosen

### **Major Requirements**

At least 48 cr in one area of concentration, as approved by major advisers  
Satisfaction of foreign language requirement

**3091f,w,s. HONORS COURSE: SUPERVISED RESEARCH PAPER.** (3 cr; prereq sr honors candidate in international relations,  $\Delta$ )

**5801. INTERNATIONAL VIOLENCE AND PEACE.** (4 cr, §Pol 5885; Pol 5884 recommended) Hopmann, Job

Normative issues surrounding international violence; causes of violence and possible mechanisms for creating international peace; alternative future structures of the international system related to the limitation of violence and the attainment of peace. (GrC)

**5802. THE PROSPECTIVE WORLD ECONOMY.** (4 cr, §Econ 5421; prereq Econ 5401 or 5431 or §) Smith

Alternative patterns for a future world economy and their implications for the economic welfare of nations. World institutions and their relation to growth and survival problems in a world economy. (GrC)

**5803. THE STEADY STATE EARTH.** (4 cr) Blackshear, Hickman

Course sensitizes undergraduates to the constraints imposed by physical factors on the options available to man's society. (GrC)

**5804. MODERNIZATION, EQUALITY, AND SOCIAL JUSTICE.** (4 cr; prereq 12 cr in social sciences) Ellenbogen, Henry

Effects of modernization on distribution of scarce resources and civil rights. Forms of intervention to modify the opportunity structure; consideration of policy alternatives; comparative approach between and within nations. (GrC)

**5811. INTERNATIONAL BARGAINING AND NEGOTIATION.** (4 cr, §Pol 5886; Pol 5884 recommended) Hopmann, Walcott

The relationship of the international bargaining and negotiation process to the resolution of international conflict and the establishment of international order. (GrC)

**5812. INTERNATIONAL ORGANIZATION AND WORLD FUTURES.** (4 cr, §Pol 5888) Riggs

Study of world organizations; present structures; desirable futures; advantages and disadvantages of various theoretical and practical approaches to world order, emphasizing international functionalism and regional integration. (GrC)

## Course Descriptions—Major Sequences

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- 5831. ANALYSIS OF WORLD FUTURES MODELS.** (4 cr; prereq #) Job, Starr  
Issues surrounding man's continued growth and depletion of global resources; "quantitative models" to analyze large social systems; world futures models; projections of future world states; alternatives and limitations to such models.
- 5901. APPROACHES TO INTERNATIONAL RELATIONS.** (4 cr; prereq major in international relations)  
Proseminar designed to synthesize the approaches of different academic disciplines to the study of major problems of international relations. Topics vary yearly.
- 5902. DECISION MAKING IN INTERNATIONAL RELATIONS.** (4 cr; prereq major in international relations)  
Proseminar designed to synthesize different approaches to international relations through student participation in decision making roles in experimental, simulated situations.
- 5903. ANALYSIS OF INTERNATIONAL POLICY PROBLEMS.** (4 cr; prereq major in international relations)  
Proseminar designed to synthesize analytic approaches to international policy problems. Topics vary yearly.

## ISLAMIC

See Middle Eastern Languages.

## ITALIAN

See French and Italian.

## JAPANESE

See East Asian Languages.

## Jewish Studies

### Staff

*Assistant Professors:* Paradise, Reisman

*Instructor:* Jospe

### Adjunct Faculty

*Professors:* Berman (History), Cooperman (Sociology), Jones (History), Krislov (Political Science), Ramras (German), Roshwald (Humanities)

*Associate Professors:* Bachrach (History), Kraabel (Classics)

*Assistant Professor:* Penn (Humanities)

*Lecturer:* Flagler (Labor Education Service)

This new program, drawing on courses in a number of CLA departments, provides a background in the languages and literatures, the history, and the art and archaeology of the ancient Near East.

- 1034. INTRODUCTION TO JUDAISM.** (4 cr) Jospe  
Concepts, movements, and institutions in the evolution of classical Judaism, as manifested in the literature of festivals of the Jewish people from Second Commonwealth times to the present. (GrC)

- 3142, 3143. THEMES IN MEDIEVAL THOUGHT.** (4 cr per qtr)  
Major Jewish philosophers, including Saadia Gaon, Yehudah Halevi, and Maimonides. Topics such as faith and reason, proofs of God, creation, good and evil, Jewish peoplehood, particularism and universalism. (GrC)

**3521. THE HOLOCAUST.** (4 cr)

Nazi destruction of Jewish life in Europe, 1933-1945. Historical, social background of European Jewish communities. Anti-Semitism and Naziism. Ghettos under Nazi rule; social and cultural organization, government. Nazi terror and destruction; Jewish resistance; historical consequences. (GrC)

**5621. COMPARATIVE SOCIOLOGY OF JEWISH COMMUNITIES.** (4 cr; prereq Soc 1001 or 1002 or #) Cooperman

Historical, cross-societal analysis of Jewish communities. Social organization, structure of Diaspora communities. Sephardic, Ashkenazic, Asian communities. Jews in American society: demography, social ecology, social psychology, stratification patterns. (GrC)

**Pol 5457. POLITICS AND GOVERNMENT IN ISRAEL.** (4 cr; prereq Pol 1051 or #) Krislov, Nimitz

Governmental structure of Israel and its political matrix. Problems of a society created under external stress, with planned institutions. The role of nominally ideological parties in a pragmatic political arrangement; conflict over a theocratic base for a modern secular state. (GrC)

## Journalism and Mass Communication (Jour)

### Staff

*Director*, Robert L. Jones, 112 Murphy Hall; *Head, News-Editorial Sequence*, George S. Hage; *Head, Advertising Sequence*, Willard L. Thompson; *Head, Broadcasting Sequence*, Irving E. Fang; *Head, Photographic Communication Sequence*, R. Smith Schuneman

*Professors*: Carter, Emery, Fang, Gillmor, Hage, Jones, Lindsay, Schuneman, Sim, Thompson, Tichenor, Wilson

*Associate Professors*: Brovald, Harris, Wackman

*Assistant Professor*: Ward

*Instructors*: Brown, Dennis, Ismach, Mark (lecturer)

Study in the School of Journalism and Mass Communication concerns the theories and practices of mass communication media, historical and contemporary, and the development of skills and techniques requisite for successful practice of written, oral, and visual mass communication.

Preparation for careers in these fields rests on a broad liberal education, a knowledge of the social and professional responsibilities of the journalist, and beginning competence in journalistic procedures. About three-fourths of the work of a journalism major is in social science and humanities courses and other areas of liberal education, and the remainder in journalism courses (many of which have liberal education emphases).

The school offers B.A. programs in four professional areas; M.A. professional and research programs, and Ph.D. programs in mass communication. The school encourages qualified students to consider coordination of B.A. with prospective M.A. work, through careful planning with advisers in the junior year. Such a program yields expanded specialized preparation for professional or research activities. It may involve a double or an interdepartmental major.

### B.A. MAJOR SEQUENCES

All courses for the major except those marked below with a double asterisk (\*\*) must be taken on the A-B-C-D-N basis. No B.A. program may include more than 48 journalism credits.

#### Required Preparatory Courses

All Sequences—1001, 1005, Econ 1001-1002\*\* or 1014-1015\*\* or 3001-3002,\*\* Pol 1001,\*\* Hist 1301-1302\*\* or 3822-3823,\*\* *News-Editorial Se-*

## Course Descriptions—Major Sequences

quence—1101, 1701 or 3776, Comp 1027; \*\* *Advertising Sequence*—1201, Comp 1027, \*\* Psy 1001; \*\* *Broadcast Journalism Sequence*—1101, 1701 or 3776, Spch 1101 \*\* or 1102; \*\* *Photographic Communication Sequence*—1101, 1301, 1701 or 3776. Typewriting skill expected of all students.

### Major Requirements

*News-Editorial Sequence*—3121, 3155, 5131 or 5133, 5501, 5601; One course chosen from 5141, 5143, 5144, 5171, 3173; 8 additional 3xxx-5xxx-level journalism cr to minimum of 32

*Advertising Sequence*—3231, 3241, 5251, 5501, 5261, 5274; Mktg 3000; advertising management emphasis: 5263 and 4 additional 3xxx- or 5xxx-level cr; creative emphasis: 5272 and 4 additional 3xxx- or 5xxx-level cr (5221, 5233, 5252 recommended)

*Broadcast Journalism Sequence*—3121, 3401, 3451, 5402 or 5444, 5442, 5611; One or more courses chosen from 5501, 5615, 5721; 4 additional 3xxx- or 5xxx-level journalism cr (3421, 3486, 5444 recommended); Spch 3201, 3203 or 3204 (3211, 5202, 5204, 5231, 5232 also recommended)

*Photographic Communication Sequence*—5353 or 3401, 5376 or 5402, 3121 or 3486, 5615, 5501 or 5721; 8 additional 3xxx- or 5xxx-level journalism cr to minimum of 30 (Spch 3201, 3204, ArtS 3704, 3705 or 5701, 5702 recommended)

**Specialized Professional Emphases**—Specialized programs reinforcing professional directions may be planned in consultation with advisers; it is often wise to plan such programs over 5-year periods. Full information about the wide range of career opportunities to which the sequences described above, as well as the specialized programs, may lead may be obtained from school advisers or from the *School of Journalism Bulletin* (available in 111 Murphy Hall). Among the special majors that may be arranged, in consultation with advisers, through combinations of the work in the established sequences are broadcast advertising, creative graphic arts, magazine and free-lance journalism, media management, public relations, and (in collaboration with the College of Agriculture) agricultural journalism.

Students expecting to specialize at the graduate level in advertising or mass communication research should elect 5531 and work in statistics chosen in consultation with graduate advisers.

**General Education**—1003, 1011, and 3021 are planned especially for non-majors. 1001 and 1005 are open without prerequisites. Courses dealing primarily with social aspects of mass communication, open to nonprofessional students, are 5171, 5251, 5252, 5501, 5531, 5549, 5601, 5603, 5606, 5611, 5615, 5721, 5777, 5801, 5825.

**1001f,w,s. INTRODUCTION TO MASS COMMUNICATIONS.** (2 cr; prereq C avg in fr composition or communication, exemption, or §) Brovald

Nature, functions, and responsibilities of communication media and agencies from point of view of professional journalist. News, opinion, entertainment, and persuasion functions; specialized communication; aspects of advertising. (GrA)

**1003w. COMMUNICATION IN THE MODERN WORLD: MASS MEDIA.** (4 cr, §Spch 1103)

Mass media and their social and cultural effects. Interaction between audience and media. Popular arts. Related areas of communication: advertising, public relations, propaganda. Future of mass media. (GrC)

**1005w,s. VISUAL COMMUNICATION.** (3 cr; prereq 3rd-qtr fr) Schuneman, Brown

Functions of visual communication in news and advertising for print and electronic media. Evaluation and criticism of current typography, photography. Lectures (CCTV), recitations.

- 1011w,s. JOURNALISTIC TECHNIQUES FOR NONMAJORS.** (5 cr; prereq English composition or equiv, C avg) Sim  
General view of the printed mass media. Forms of news and feature stories; basics of mass communication law. Basics of publications editing, headlines, makeup for business publications. Lectures and laboratory. (GrA)
- 1101w,s. REPORTING.** (5 cr; prereq C or better in 1001 and in 1005 or grad, type 35 wpm, passing score on MET) Fang, Hage, Ismach, Sim, Ward  
Fact gathering and journalistic writing. Problems in judgment and handling of news and news features. (GrA)
- 1201f,w,s. PRINCIPLES OF ADVERTISING.** (4 cr; prereq soph, 1001, ¶(Comp 1027...Jour 1001 or ¶1001 for jrs and srs) Thompson, Mark  
Theory, principles, and functions of advertising; its role in economic, social, and marketing structure. Newspapers, magazines, radio, television as advertising media.
- 1301f,w,s. BEGINNING PHOTOJOURNALISM.** (4 cr; prereq 1001, 1005, or ¶1005) Schuneman, Brown  
Photography as creative communication. Fundamentals of photography; use of news cameras; basic darkroom processes. Lectures and laboratory.
- 1701w,s. MASS COMMUNICATIONS LAW.** (2 cr; prereq 1001, ¶1101) Gillmor, Sim  
Origins and background of press law. Libel: its defenses, penalties. Right of privacy; problems of fair trial. Law and self-regulation in advertising, in broadcast media. Copyright, obscenity statutes. (GrC)

Courses at the 3xxx and 5xxx levels are open to students with fewer than 84 cr only by permission of the Scholastic Committee.

### Survey Courses

- 3021s. MASS COMMUNICATIONS AND THE NEWS.** (4 cr; not open to journalism majors)  
Fang, Lindsay, Sim  
The mass media in contemporary society: structure, organization, professional norms, audience composition. Press and broadcasting; role of media in news dissemination. (GrC)
- 3051. SURVEY OF JOURNALISM TECHNIQUES.** (5 cr; open only to grad or adult special students without undergrad majors or minors; offered when feasible)  
Concentrated survey of and practice in principal journalistic techniques. Fundamentals of fact gathering and writing, editing for news media. Lectures and laboratory.

### News-Editorial

- 3121f,w,s. PUBLIC AFFAIRS REPORTING.** (4 cr; prereq soph with B avg in 1001 and 1101...for jr, 1101, C avg, Comp 1027, or #) Hage, Ismach, Dennis  
Reporting and editing news of courts and municipal, county, state, federal administrative, and legislative agencies.
- 3155f,w,s. PUBLICATIONS EDITING.** (4 cr; prereq 3121) Sim, Brovald, Ismach  
Selection and editing of news-editorial content of newspapers, brochures, magazines. Newspaper makeup, magazine format. Press association teletype service. Lectures and laboratory.
- 3173f,w. MAGAZINE WRITING AND EDITING.** (4 cr; prereq 3121 or 1101 and #) Hage  
Writing feature articles for general, class, and trade publications; marketing; problems of magazine editing, layout, design, makeup.
- 3176w. BUSINESS AND INDUSTRIAL JOURNALISM.** (4 cr; prereq 1011 or 3121 or 3241)  
Wilson  
Content, staff, design, and production of business and company publications. Gathering material and writing feature articles for the business and company press.
- 3182s. SUPERVISION OF SCHOOL PUBLICATIONS.** (4 cr; for those who plan to advise high school or college newspapers, yearbooks, magazines; prereq 1011 or 3121)  
Sim  
Editorial content, staff organization, editing, typography, makeup, business management.
- 3193s. COMMUNITY NEWSPAPER.** (4 cr; prereq 1101 or 1011 or #) Sim, Brovald  
The community newspaper (weekly and small daily) as an editorial product and as a business. Aspects of news, opinion, advertising, production. Role of the editor in the community.

## Course Descriptions—Major Sequences

- 3776f. MASS COMMUNICATIONS LAW.** (4 cr; prereq 1001 or 1011, 1101 or #) Gillmor  
Origins and background of principles of press law. The press and the First Amendment. Libel and its defenses. Confidentiality of newsmen's sources. Pornography, free press and fair trial. Freedom of information, the public's right to know. Access to the media. Privacy. Advertising law, lobbying, antitrust. Regulation of advertising. (GrC)
- 5131f,w,s. INTERPRETIVE REPORTING.** (4 cr; prereq sr, 3121) Carter, Ward  
Advanced problems in gathering material and specialized reporting about government, politics, social problems, and the arts.
- 5133w. SPECIALIZED REPORTING: SOCIAL AND PHYSICAL SCIENCES.** (4 cr; prereq 3121 or 3176 or #) Tichenor  
Role of journalistic communication in science; scientist-journalist relationships; communicating results of scientific investigations to public, specialized audiences, industry.
- 5141f,w. OPINION WRITING IN AMERICA.** (4 cr; prereq sr, journalism major) Carter, Emery  
Oral and written analysis of major political, economic, and social developments. Persuasive communication in newspapers and magazines; columnists; commentators.
- 5142. INTERPRETATION OF CONTEMPORARY AFFAIRS.** (4 cr; prereq sr, journalism major; offered when feasible)  
Major economic developments and their social and political impacts; interpretation in editorial and interpretative articles.
- 5143s. INTERPRETATION OF SCIENCE AND TECHNOLOGY.** (4 cr; prereq 5133, 5501 or #) Tichenor  
Scientific research and technological development as reported in mass and specialized media; critical study of science content in media; audience impact.
- 5144f. URBAN JOURNALISM I: THEORY AND PRACTICE.** (4 cr; prereq 3121, 5131, or grad, professional experience, or #) Ismach  
The role and performance of mass media in reporting urban problems; specialized reporting and commentary; urban media policy and news gathering techniques; critical analysis of media content; reporting projects and appropriate readings.
- 5171s. CRITICAL WRITING.** (4 cr; prereq a 3xxx- or 5xxx-level writing course and #; offered 1976 and alt yrs) Hage  
Book, theater, and motion picture reviews. Leading cities and critical periodicals. Weekly reviews. (GrD)

### Advertising

- 3231f,s. ADVERTISING GRAPHICS.** (4 cr; prereq 1005 or 1201) Wilson  
Principles of design and layout; preparation of copy for print and film; uses of type; type legibility; illustration; printing processes.
- 3241f,s. ADVERTISING COPYWRITING.** (4 cr; prereq 1201, 3231) Harris  
Advertising appeals and strategy; development and presentation of advertising for print and broadcast. Individual and group projects.
- 5221f,w. GRAPHIC ARTS: PROCESSES.** (4 cr; prereq 3121 or 3231 or 8 cr in 3xxx- or 5xxx-level courses in art and design) Wilson  
Processes in graphic communication. Technique and production of illustration. Significant graphic arts developments. (GrD)
- 5233s. GRAPHIC DESIGN ANALYSIS.** (4 cr; prereq 3155, 5221, or 3231, 5221, or #) Wilson  
Technological development in graphics and its effect on format and efficiency; historical and current trends; field studies, creative problems.
- 5251f,w. PSYCHOLOGY OF ADVERTISING.** (4 cr, \$Psy 5751; prereq Psy 1001) Jones  
Psychological principles, research techniques, and applications in advertising and selling. Consumer attitudes and behavior. Psychological mechanisms upon which advertising effectiveness depends.
- 5252s. PSYCHOLOGY OF CREATIVITY IN ADVERTISING.** (4 cr; prereq 5251 or Psy 5751; offered when feasible)  
The theories, mechanisms, and correlates of creativity. Theoretical, experimental, and pragmatically derived "explanations" and examples. Supervised practicum sessions. (GrC)
- 5261f,w. ADVERTISING: MEDIA ANALYSIS.** (4 cr; prereq 1201, Mktg 3000, or #) Brovald  
Characteristics of print and electronic media; their role in advertising; selection and scheduling; rate structures and policies; evaluation and use of media and market measurements and data.

- 5263s. ADVERTISING CAMPAIGN PLANNING AND MEDIA STRATEGY.** (4 cr; prereq 3241, 5261, or #)  
Relation of campaign strategy to media measurement, evaluation, and planning. Coordination of advertising campaigns; media scheduling and purchasing.
- 5272w. ADVERTISING COPY-GRAPHICS.** (4 cr; for sr advertising majors; prereq sr, 3231, 3241, 5251) Wilson, Harris  
Copy and graphics design for print and television advertising. Preparation and presentation of ads and commercials for consumer, business, industrial, corporate, and public service advertisers.
- 5274f,w,s. CURRENT ADVERTISING DEVELOPMENTS AND PROBLEMS.** (4 cr; prereq sr, 5251, 5261, and either 5263 or 5272) Thompson  
Creative, management, research, media, and technical developments in advertising. Case studies in advertising-marketing process.

### **Photographic Communication**

- 5353w. PHOTOGRAPHIC COMMUNICATION.** (4 cr; prereq 1005, 1101, 3121 or ¶3121, or 3241) Schuneman  
Photographic communication in the mass media. Multichannel communication theories, communicative overtones. Visual sources, layout, objectivity in editing. Experimental creative projects.
- 5376f,w. ADVANCED PHOTOJOURNALISM.** (5 cr; prereq 1005, 1301, 3121 or ¶3121) Schuneman, Brown  
Materials and processes for visual reporting in newspapers and magazines. Thematic visual series. Dynamics of visual content; pattern, texture, movement. Use of miniature camera, light, and lighting. Color photography.
- 5377s. DOCUMENTARY PHOTOGRAPHY.** (4 cr; prereq 5353, 5376) Schuneman  
Definition, scope, research, and approaches of the documentary picture story for magazines, picture books, and multimedia presentations. Series, sequences, essays. Photographic markets.

### **Broadcast Journalism**

- 3401f,w. BASIC CINEMATOGRAPHY.** (4 cr; prereq 1001, 1005, and #) Brown  
Practice and theory in film communication. Creative and technical applications in television news, documentary, and advertising films.
- 3421w. RADIO AND TELEVISION STATION ADMINISTRATION.** (4 cr; prereq 5611 or Δ)  
Role of the broadcasting station in American life. Basic issues in station operation; frequency and channel allocations, cross-channel affiliations.
- 3451f. TELEVISION AND RADIO NEWS.** (5 cr; prereq 1101 or #; 2 lect, 3 lab, 3 news production hrs per wk) Fang  
Techniques of writing, interviewing, delivery, audio tape editing, graphics preparation. Production of radio newscasts and a radio documentary.
- 3486w. RADIO AND TELEVISION SCRIPT WRITING.** (4 cr; prereq 3121 or 3241 and # for journalism majors...1001 and # for speech-radio majors) Harris  
Planning and writing scripts for broadcast in variety of program areas.
- 5402w,s. FILM PRODUCTION.** (5 cr; prereq 3401 and 1101 or 3486 or Spch 3201) Brown  
Planning, shooting, and editing silent and sound film. Creative production. Lectures, laboratory work, field experience.
- 5442w. ADVANCED TELEVISION NEWS.** (5 cr; prereq 3451; 2 lect, 3 lab, 3 news production hrs per wk) Fang  
Newspaper editing; preparation and delivery of television newscasts. Current problems; legal and ethical considerations.
- 5444s. TELEVISION AND RADIO DOCUMENTARY.** (4 cr; prereq 5442; 1 hr lect, field and lab hrs as needed) Fang  
Scope and techniques. Production of television or radio news documentaries of broadcast quality.

## Course Descriptions—Major Sequences

### Theory and Methodology

- 5501f.s. COMMUNICATION AND PUBLIC OPINION I.** (4 cr, §Soc 5355; prereq 15 cr in social science departments) Carter, Tichenor, Wackman  
Theories of the communication process and of persuasion and attitude change. Interpersonal and mediated communication in diffusion of information and in opinion formation. (GrC)
- 5515. COMMUNICATIONS ANALYSIS: CONTENT, AUDIENCES, EFFECTS.** (4 cr; prereq §; offered when feasible)  
Quantitative methods in studying mass media content, audiences, and effects.
- 5531w. COMMUNICATION AND PUBLIC OPINION II.** (5 cr; prereq 5501 or Soc 5355)  
Carter, Tichenor, Wackman  
Advanced study of theories and research findings on opinion formation, persuasion, and diffusion of information. Social science contributions to studies of the process and effects of mass communication.
- 5549f. PUBLIC RELATIONS.** (4 cr; prereq 15 cr in social science departments...§ for non-majors) Lindsay  
Public relations practice and principles. Process and applications in a variety of institutional settings. Critique of public relations efforts in contemporary society.

### History of Journalism

- 5601f.s. HISTORY OF JOURNALISM.** (4 cr) Emery, Schuneman, Dennis  
American newspapers and periodicals, from beginnings in Europe to present day; rise of radio and television; relation of communication developments to political, economic, and social trends. (GrC)
- 5603s. TOPICS IN HISTORY OF JOURNALISM.** (4 cr; prereq 5601) Emery  
Significant individuals, newspapers, and periodicals in the United States, 1865-1920. Individual research projects. (GrC)
- 5606s. LITERARY ASPECTS OF JOURNALISM.** (4 cr; prereq §; offered 1975 and alt yrs)  
Hage  
Literary aspects of journalism as exemplified in, and influenced by, English and American writers, past and present. Lectures, discussions, weekly papers. (GrD)
- 5611s. DEVELOPMENT OF AMERICAN BROADCASTING.** (4 cr) Lindsay, Paulu  
Historical and economic development of radio and television in United States; government regulation, industry self-regulation, forms of social control; issues in contemporary broadcasting. (GrC)
- 5615w. DEVELOPMENT OF PHOTOJOURNALISM AND DOCUMENTARY FILM.** (5 cr)  
Schuneman  
History of visual communication and its utilization by the mass media. Principal contributors, visual styles, and changing evaluative criteria, 1839 to present. Analysis of important films, photographs. Individual research projects. (GrC)

### Social Institutions

- 5721w.s. MASS MEDIA IN A DYNAMIC SOCIETY.** (4 cr; prereq 1201 or 3121 for journalism majors...§ for others) Dennis, Gillmor, Ismach, Ward  
Economic, political, and social determinants of character and content of mass communications. Patterns of operations, effect on content, and relative social utility. Theory of mass society. (GrC)
- 5731s. CURRENT COMMUNICATIONS PROBLEMS.** (4 cr; prereq journalism sr and §) Dennis  
Individual projects in analyses of current communications problems in light of their social, economic, and technological environment.
- 5731Hs. HONORS COURSE: CURRENT COMMUNICATIONS PROBLEMS**  
See 5731.
- 5777f. CONTEMPORARY PROBLEMS IN FREEDOM OF SPEECH AND PRESS.** (4 cr; prereq 15 cr in social science departments) Gillmor  
Anglo-American concept of freedom and responsibility, constitutional development in United States, areas of present tension. Bill of Rights and journalism today.

## International Communication

**5801f. INTERNATIONAL COMMUNICATION.** (4 cr; prereq 15 cr in social science departments) Carter, Lindsay

Global telecommunications, channels, artifacts of international mass communication. Problems in free flow of information. Roles of international organizations, journalism. Mass communication in social, political, educational, economic development. (GrC)

**5825w. WORLD COMMUNICATION SYSTEMS.** (4 cr; prereq 15 cr in social science departments) Lindsay

Description and analyses, divergencies and congruence in the world's mass communication systems. Putative issues raised by novel additions to the global telecommunications grid. Effects and import of near- and deep-future communications. (GrC)

## Projects

**5970f,w,s. ADVANCED PROJECTS IN JOURNALISM.** (1-4 cr [8 cr max]; prereq journalism major, B avg, #)

**5970Hf,w,s. HONORS COURSE: ADVANCED PROJECTS IN JOURNALISM**  
See 5970.

## LANDSCAPE ARCHITECTURE

See Architecture.

## LATIN

See Classics.

## Latin American Studies (LAS)

### Staff

*Chairman*, Ward J. Barrett, 414 Social Sciences Building

### Adjunct Faculty

*Professors*: Barrett (Geography), Carter (Journalism), Coen (Economics), Ellenbogen (Sociology), Floripe (Spanish), Hamilton (Portuguese), Mather (Geography), Miller (Anthropology), Narvaez (Spanish), Riedel (Music), Southall (Afro-American Studies), Torbert (Art History)

*Associate Professors*: Ingham (Anthropology), Madrid (Spanish), Schwartz (History), Vidal (Spanish)

*Assistant Professors*: Grimes (Spanish), Gudeman (Anthropology), Hendricks (Student Life Studies), Johnson (Library), Menanteau (Sociology), Phillips (History), Puleston (Anthropology), Wynia (Political Science)

This program is designed, through a combination of area and language courses, to prepare specialists in aspects of Latin American knowledge and activities.

Its integrated multidisciplinary pattern leads to a B.A. degree. Students may select from a wide range of courses and facilities on Twin Cities campuses and in foreign study programs. The degree program prepares students for teaching, research, government service, work in mass communications, and graduate study.

## B.A. MAJOR SEQUENCE

### Required Preparatory Courses

Completion of Span 1105 or Port 1105 (use of proficiency exams toward this requirement is encouraged); Hist 1401 or 3401, 1402 or 3402 (preferably in sequence)

### Major Requirements

16 cr chosen from at least three departments and courses in this list: Afro 3301, Anth 5222, 5223, 5521, Econ 5311, 5341, Geog 3121, 3131, 5131, 5132, LAS 5101, 5710, 5970, Pol 5455, Soc 5315, Spch 5452

8 cr chosen from ArtH 5911, LAS 5101, 5710, 5970, Mus 5704, 5705, Port 3211, 3212, 3213, 3501, 3502, 3603, 5210, 5220, 5230, 5970, Span 3001, 3014, 3021, 3104, 3251, 3252, 3253, 3512, 3601, 3604, 3605, 3910, 3940, 5551, 5553, 5581, 5584, 5910, 5940

12 or more cr from courses listed above or from Hist 5419, 5421, 5422, 5424, 5429, 5901, 5902

Additional adviser-approved cr to bring major total to 48

Up to 10 of the major credits may be taken on S-N; with adviser approval, up to 15 may be taken under independent study or directed research options. The adviser determines assignment of credits to categories.

Field experience in Latin America is encouraged, and credit for it may be arranged. Students are urged to use on-campus opportunities for cross-cultural experience prior to field work.

Degree candidates must arrange integrated programs in consultation with advisers. Advising for the program is available in 114 Johnston Hall.

### 3131. INTRODUCTION TO LATIN AMERICAN STUDIES. (4 cr) Staff

Overview and survey of contributions made by various disciplines to the study of important features of the culture and political and economic systems of Latin America.

### 5101. METHODS AND SOURCES FOR LATIN AMERICAN STUDIES. (5 cr; prereq reading knowledge of Spanish or Portuguese or #)

Research sources, particularly bibliographic; reference materials and principal works. Prepares students for discipline-centered research. (GrC)

### 5710. PROSEMINAR: INTERDISCIPLINARY TOPICS IN LATIN AMERICAN STUDIES.

(4 cr per qtr; prereq #; reading knowledge of Spanish or Portuguese usually required) Interdisciplinary approach to specialized topics. Team taught by professors from two or more disciplines. (GrC)

### 5970. DIRECTED STUDIES. (Cr ar; prereq #)

## Library School (Lib)

### Staff

*Director*, Wesley Simonton, 419 Walter Library; *Director of Undergraduate Studies*, Joan Leigh

*Professors*: Berninghausen, McDiarmid, Shove, Simonton, Stanford

*Associate Professors*: McClaskey, Olson

*Assistant Professors*: Brekhus, Leigh, Rohde

The Library School offers a Master's degree program as the minimum preparation for professional careers in library and information service. Admission requirements are described in the *Library School Bulletin* and in the *Graduate School Bulletin*.

Lib 5101, 5221, and 5401 are open as electives to CLA juniors and seniors, particularly those who wish to determine vocational interest in the field.

Undergraduates planning careers in college, public, or special libraries are invited to visit the Library School office, 419 Walter Library, for advice. CLA undergraduates who wish to prepare for school librarianship should either transfer to the College of Education to earn the teaching certificate required in addition to library science course work, or inquire in the Library School office about a special program available after graduation from the College of Liberal Arts.

- 5101. INTRODUCTION TO LIBRARIES AND LIBRARIANSHIP.** (5 cr) McClaskey, McDiarmid  
Librarianship as a profession; development of libraries as social agencies; principles of library administration and management.
- 5221. RECORDS OF KNOWLEDGE.** (4 cr) Leigh, Rohde  
History and development of the records of knowledge in relation to the communication problems of society; principles of selection and dissemination to meet library clientele information needs. (GrC)
- 5401. ORGANIZATION OF INFORMATION I.** (4 cr) Brekhus, Simonton  
Methods and problems involved in the description, subject organization and retrieval of records of knowledge and information in bibliographies, library catalogs, and machine-based systems.

## Linguistics (Ling)

### Staff

*Chairman*, Bruce T. Downing, 142 Klaeber Court; *Director, Program in English as a Second Language*, Betty Wallace Robinett, 152 Klaeber Court; *Director of Undergraduate Studies*, Michael B. Kac, 134 Klaeber Court

*Professor*: Robinett

*Associate Professors*: Downing, Hutchinson, Sanders

*Assistant Professors*: Kac, Miranda, Sheldon

*Instructors*: Houlihan, Petersen

Linguistics is the science concerned with the nature of human language and the principles governing its structure, acquisition, use, and change.

### B.A. MAJOR SEQUENCE

#### Major Requirements

3001, 3301, 3601, 5201, 5302

12 additional cr in 3xxx- or 5xxx-level linguistics courses (no more than 8 in one area, such as phonology or syntax)

3 yrs college study in one foreign language, or 2 yrs in one and 1 in a second (requirement may be satisfied by examination); 4 cr in history and/or structure in the language studied

A list of courses in other departments that may be elected as part of a linguistics major is available in the department office.

**General Education**—1001, 3001, 3005, 3301, 5001, 5003, 5301, 5501, 5502, 5601, 5602, 5605, 5606, 5607, 5701, 5741, 5742, 5805, 5811, 5821

**1001. THE NATURE OF HUMAN LANGUAGE.** (3 cr; may not be used as prereq for advanced courses in linguistics)

Basic facts and theories concerning human language and their relevance to the study of human behavior. (GrA)

## Course Descriptions—Major Sequences

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- 3001. INTRODUCTION TO LINGUISTICS.** (4 cr, §5001, §3005)  
The field of linguistics; syntax, semantics, phonology; language learning and psychology of language; universals of language; language in society; language change; educational applications; history of linguistics. (GrA)
- 3005. LINGUISTICS FOR FOREIGN LANGUAGE TEACHERS.** (4 cr, §3001, §5001)  
Linguistics and its relevance to problems of foreign language teaching. (GrA)
- 3051-3052. HONORS COURSE: LINGUISTICS.** (4 cr per qtr; prereq candidacy for honors in linguistics) (GrA)
- 3301. PHONETICS.** (4 cr, §5301, §5003; prereq 3001 or 5001 or #)  
Physiology and acoustics of speech sounds; practice and drill in production and perception. (GrA)
- 3601. INTRODUCTION TO HISTORICAL LINGUISTICS.** (4 cr; prereq 3001 or #)  
Processes of language change in phonology, syntax, and semantics; origin of language; language families; development of writing. (GrA)
- 3970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq linguistics major, #) (GrA)
- 5001. INTRODUCTION TO LINGUISTICS.** (4 cr, §3001, §3005)  
For description, see 3001. (GrA)
- 5003. APPLIED PHONETICS.** (4 cr; prereq 5001 or #)  
Primarily for teachers of English as a second language. (GrA)
- 5006. EXPERIMENTAL PHONETICS.** (4 cr; prereq 3301 or 5301 or #)  
Physiological and instrumental studies of speech. Laboratory projects. (GrA)
- 5008. TOPICS IN EXPERIMENTAL PHONETICS.** (4 cr; prereq 5006 or #) (GrA)
- 5011-5012-5013. MATHEMATICAL LINGUISTICS.** (4 cr per qtr; prereq linguistics major or #)  
The propositional and first-order predicate calculi; nonclassical logics; set theory; axiomatics; algebra; grammar; automata theory. (GrA)
- 5201, 5202. INTRODUCTION TO SYNTAX.** (4 cr per qtr; prereq 3001 or 5001 or #)  
Principles of syntactic analysis and explanation; practice in grammar construction using data from a variety of languages. (GrA)
- 5206, 5207, 5208. ADVANCED SYNTAX.** (4 cr per qtr; prereq 5202, 5302, or #)  
Current issues in syntactic theory; problems of formalization and explanation; alternatives to standard theories. (GrA)
- 5211. SEMANTICS.** (4 cr; prereq 5202, 5302, or #)  
The linguistic analysis and explanation of synonymy, analyticity, presupposition, and other meaning phenomena in natural language; comparison of alternative theories of meaning. (GrA)
- 5301. PHONETICS.** (4 cr, §3301, §5003; prereq 3001 or 5001 or #)  
For description, see 3301. (GrA)
- 5302. INTRODUCTION TO PHONOLOGY.** (4 cr; prereq 3301 or 5301 or #)  
Principles of phonological analysis and explanation; practice in constructing phonological descriptions using data from a variety of languages. (GrA)
- 5303, 5304, 5305. ADVANCED PHONOLOGY.** (4 cr per qtr; prereq 5202, 5302, or #)  
Current issues in phonological theory; problems of formalization and explanation; alternatives to standard theories. (GrA)
- 5501-5502. AMERICAN INDIAN LINGUISTICS.** (4 cr per qtr; prereq 5202, 5302, or #) (GrA)
- 5601, 5602. LANGUAGE CHANGE AND LINGUISTIC RECONSTRUCTION.** (4 cr per qtr; prereq 3601 or #)  
Nature of phonological and grammatical change; scope and limits of internal and comparative reconstruction. (GrA)
- 5605, 5606, 5607. INDO-EUROPEAN LINGUISTICS.** (4 cr per qtr; prereq 3601 or #)  
The reconstruction of Proto-Indo-European phonology, morphology, and syntax; principal developments in major Indo-European languages. (GrA)
- 5691. HISTORY OF LINGUISTICS.** (4 cr; prereq 3601, 5202, 5302, or #) (GrA)
- 5701. CONTRASTIVE LINGUISTICS.** (4; prereq 5003 or #)  
Comparison of related sets of data in different languages; implications for linguistic theory and foreign language learning. (GrA)

- 5702. SECOND-LANGUAGE ACQUISITION.** (4 cr; prereq 3001 or 5001, 5701 or ¶5701 ...5201, 5302 strongly recommended, or #)  
Investigation of second-language acquisition; implications for linguistic theory and theories of language learning. (GrA)
- 5711. FIELD METHODS IN LINGUISTICS.** (4 cr; prereq 5202, 5302, or #) (GrA)
- 5721-5722. LINGUISTICS AND ENGLISH AS A SECOND LANGUAGE.** (3 cr per qtr; prereq 3001 or 5001 or #)  
Application of linguistics to materials, methods, and practicum. (GrA)
- 5723. LINGUISTICS AND ENGLISH AS A SECOND LANGUAGE.** (3 cr; prereq 5722 or #)  
Application of linguistics to the evaluation and preparation of materials. (GrA)
- 5741-5742. LINGUISTIC DESCRIPTION OF MODERN ENGLISH.** (4 cr per qtr; prereq 3001 or 5001 or #)  
Word and sentence structure in present-day English. (GrA)
- 5751-5752. APPLIED TRANSFORMATIONAL GRAMMAR.** (4 cr per qtr)  
Transformational grammar from 1957 to present; techniques of grammar construction, evaluation, and presentation; role of grammar in teaching composition skills. (GrA)
- 5805. PSYCHOLINGUISTICS.** (4 cr; prereq 5202, 5302, or #)  
Empirical studies of natural language acquisition and processing. (GrA)
- 5811. ETHNOLINGUISTICS.** (4 cr; prereq 3001 or 5001 or #)  
Intersection of linguistic and nonlinguistic cultural dimensions. (GrA)
- 5821. SOCIOLINGUISTICS.** (4 cr; prereq 3001 or 5001 or #)  
Social determinants of linguistic diversity, variability, and change; multilingualism; problems of linguistic minorities; language behavior and social control. (GrA)
- 5910. SEMINAR IN LINGUISTICS.** (4 cr per qtr; prereq #) (GrA)
- 5970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq linguistics major, #) (GrA)

## Literature and Fine Arts (LFA)

Literature and Fine Arts offerings are interdisciplinary courses designed to apply the methods and insights of more than one discipline to specific problems or broad subject areas of literature and fine arts and their interaction with society. Because some of the courses are experimental in nature, changes in course listings occur with some frequency. Latest information will be found in the current *Class Schedule* or in the Experimental Courses office, 106 Johnston Hall. (Courses of similar nature are described under Natural Science and Technology and Social Science headings in this bulletin.)

- 3770. HONORS READING PROGRAM.** (2 cr per qtr; S-N only; open to honors candidates only)  
Integrated readings and seminars centered on topics of current interest within the humanities.
- 3970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq # of Office for Special Learning Opportunities staff)
- 5701. THE COMPUTER IN THE CREATIVE ARTS.** (4 cr; prereq #) Hanson, Leavitt  
The role of the computer as a creative medium; active and passive techniques in music, dance, drama, studio arts. (GrA)
- 5702. NONQUANTITATIVE COMPUTER STUDIES IN STYLE AND LANGUAGE.** (4 cr; prereq #) Dilligan  
Nonquantitative approaches to the analysis of literary text; input-output problems specific to literary texts. (GrD)
- 5703. SNØBØL FOR THE HUMANIST AND SOCIAL SCIENTIST.** (4 cr; prereq #) Hanson  
The SNØBØL computer language; programming applications and techniques, especially for students in the humanities and the social sciences. (GrA)
- 5704. FØRTRAN FOR THE HUMANIST AND SOCIAL SCIENTIST.** (4 cr; prereq #) Leavitt  
The FØRTRAN computer language; programming applications and techniques, especially for students in the humanities and the social sciences. (GrA)

## MARATHI

See South Asian Languages.

## Mathematics (Math)

*Institute of Technology*

### Staff

*Chairman*, Johannes Nitsche, 127 Vincent Hall; *Associate Head*, Howard Jenkins; *Director of Undergraduate Studies*, James Thompson; *Director of Graduate Studies*, William Pruitt

*Regents' Professor*: Serrin

*Professors*: Aeppli, Aronson, Cameron, Chacon, Ellis, Fabes, S. Gaal, Gil de Lamadrid, Green, Jain, Kallianpur, Littman, Loud, Marden, Markus, McCarthy, Meyers, Miller, Nitsche, Orey, Pedoe, Pohl, Pour-El, Pruitt, Reich, Reito, Riviere, Sell, Sibuya, Storvick, Weinberger

*Associate Professors*: Agard, Berger, Brauer, Eagon, Fristedt, Fuhrken, Gershenson, Goldman, Harris, Jenkins, Jodeit, Joichi, Kahn, Keynes, Kinderlehrer, Miracle, Prikry, Richards, Richter, Sattinger, Stenberg, Striebel, Thompson

*Assistant Professors*: Asimov, Bausum, Baxter, Chen, L. Gaal, Gulliver, Hardt, Harper, Heath, Langton, McGehee, Moh, Roberts, Shapiro, Sheets, Spruck, Weaver, White

*Instructor*: Silberstein

The School of Mathematics offers a program leading to the B.A. in the College of Liberal Arts and one leading to the bachelor of mathematics degree in the Institute of Technology. Details of the B.Math program may be found in the *Institute of Technology Bulletin*.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1211-1221-1231\*\* or 1311-1321-1331\*\* or 1611-1621††

3511, 3521, 3531 or 3611-3621 or 3211, 3221 or 3211, 3142 and 3066 or 5521

*Notes*: 1. 5521 counts toward major requirements below. 2. Those who do not take 3531 should take 3675 before attempting 5xxx-level courses.

#### Major Requirements

36 or chosen from 3675 and any courses at the 5xxx level. Must include 5601-5602 or 5612-5613 and 5242-5243 or 5282-5283 or 5282, 5273

**Placement of Students**—Entering freshmen can learn in their college offices their "classification numbers" (placement scores) based on high school records, ACT tests, and placement exams. Those with inadequate preparation must take 1201 (Pre-calculus) before entering required courses above. Those with sufficiently high scores may enter 1611. Advanced standing students are placed in courses according to previous records and, in some cases, placement exams.

Information about Honors courses and graduation with honors may be obtained at the Mathematics office, 127 Vincent Hall.

\*\* Should be followed by 3511, 3521, 3531.

†† Should be followed by 3611-3621.

- 0009f,w,s. PREPARATORY MATHEMATICS.** (No cr; for students whose background in algebra is insufficient; 5 hrs per wk; special fee)  
Covers high school higher algebra.
- 1001f-1002w. MATHEMATICS.** (4 cr per qtr, §1421 or §1221 or above for 1001...§1431 or §1231 or above for 1002; for students not planning to register for courses in usual mathematics curriculum; prereq high school geometry and high school higher algebra or §)  
Genesis of mathematics in applied problems and in imagination; currently important areas of research and application; aesthetic, cultural, humanistic qualities. Illustrative material. (GrA)
- 1005f,w,s-1006f,w,s. FOUNDATIONS OF ARITHMETIC.** (3 cr per qtr; for pre-elementary education students only [no cr for other CLA students]; prereq 1 yr elementary algebra, 1 yr high school geometry or equiv or  $\Delta$ )  
Logical and axiomatic basis of rules for arithmetical operations with integers, rational and irrational numbers; real number line and inequalities as necessary background for teaching arithmetic in elementary school; topics from geometry and congruences; history of the subject and its role in our culture and civilization.
- 1008f,w,s. TRIGONOMETRY.** (3 cr; prereq plane geometry, high school higher algebra, mathematics placement score, ¶1111)  
Analytic trigonometry, identities, equations, properties of the functions; right and oblique triangles without logarithmic computation. (GrA)
- 1111f,w,s. COLLEGE ALGEBRA AND ANALYTICAL GEOMETRY.** (5 cr, §1141, §1201, §1411, §1441; prereq high school higher algebra and mathematics placement score)  
Functions, graphs, quadratic equations, progressions, inequalities, complex numbers, theory of equations, permutations and combinations, probability, systems of equations, determinants, conics and standard position, logarithms. (GrA)
- 1131f,w,s. FINITE MATHEMATICS.** (5 cr; for students in the social sciences, behavioral sciences, and pre-business administration; prereq high school higher algebra and mathematics placement score)  
Elementary computer programming, logical analysis, probability and stochastic models, Markov chains, linear systems and programming, matrix operations, and applications. (GrA)
- 1142f,w,s. INTRODUCTION TO CALCULUS.** (5 cr, §1211; for students in pre-business administration, pre-pharmacy, and others requiring a minimal amount of calculus; students who plan to take several qtrs of mathematics should register for the sequence 1211-1221-1231; prereq 1111 or 1131 or 1141 or 1201 or mathematics placement score)  
Derivatives, integrals, differential equations, maxima and minima, partial differentiation, applications. (GrA)
- 1201f,w,s. PRE-CALCULUS.** (5 cr, §1111; for students who intend to take a calculus sequence but lack preparation; prereq high school higher algebra, high school trigonometry or 1008, mathematics placement score)  
Inequalities, analytical geometry; complex numbers, binomial theorem; mathematical induction; functions and graphs; trigonometric, exponential and logarithmic functions. (GrA)
- 1211-1221-1231f,w,s. ANALYSIS I-II-III.** (5 cr per qtr; prereq grade of C or better in 1201 or high school higher algebra, trigonometry, geometry, and mathematics placement score for 1211; grade C or better required to continue in sequence)  
Analytical geometry and calculus of functions of one variable, applications. (GrA)
- 1311f-1321w-1331s. COMPUTER CALCULUS I-II-III.** (5 cr per qtr; prereq grade of C or better in 1201 or high school higher algebra, trigonometry, geometry, and mathematics placement score for 1311; grade C or better required to continue in sequence)  
Essentially the same as 1211-1221-1231 and 1611-1621, except that it uses pedagogical techniques. (GrA)
- 1511f-1521w-1531s. HONORS CALCULUS.** (5 cr per qtr; prereq  $\Delta$ )  
Calculus of functions of one variable with emphasis on theory. Basic concepts and proofs; computational aspects. (GrA)
- 1611f-1621w. ANALYSIS I-II.** (5 cr per qtr; prereq 4 yrs high school mathematics incl trigonometry and  $\Delta$ ...a grade of C or better in 1611 for 1621)  
Accelerated sequence for high ability students (continued in 3611-3621). Covers contents of 1211-1221-1231. (GrA)

## Course Descriptions—Major Sequences

- 3057f. ACTUARIAL SCIENCE PRINCIPLES—LIFE AND HEALTH INSURANCE.** (4 cr, §Ins 3230; prereq 1142 or §)  
How to calculate net premiums, gross premiums, reserves, and nonforfeiture values for major life insurance contracts. The impact of assumed mortality, interest, and expense assumptions. (GrA)
- 3066f,w,s. ELEMENTARY DIFFERENTIAL EQUATIONS.** (4 cr, §3221, §5512, §5521; prereq 1231 or equiv)  
Elementary course in techniques of problem solving. First- and second-order equations, linear equations of higher order. (GrA)
- 3071f-3072w-3073s. HISTORY OF MATHEMATICS.** (2 cr per qtr; for students with general knowledge of mathematics and curiosity about historical development of mankind; prereq 1331 or 1231)  
Development of main branches of contemporary mathematics within framework of history of ideas and techniques. Impact of thought of previous generations. Term paper each quarter. 3071: Greek mathematics. 3072: Creation of calculus. 3073: Topics in history of mathematics. (GrA)
- 3099. SEMINAR: MATHEMATICAL PROBLEMS.** (4 cr; prereq 3211, 3221 or equiv)  
Problems ranging from elementary algebra and geometry through undergraduate mathematics. (GrA)
- 3142f,w,s. INTRODUCTION TO LINEAR ALGEBRA.** (4 cr, §3221, §3511; prereq 2 qtrs calculus)  
Vectors, systems of linear equations, matrices, determinants, eigenvalues, applications. Techniques and some proofs of theorems. (GrA)
- 3161f,w,s. SYNTHETIC METRIC GEOMETRY.** (4 cr; prereq 1211 or 1311 or equiv)  
Euclidean geometry; ruler and compass constructions and theorems on triangle and circle not studied in high school plane geometry. (GrA)
- 3211f,w,s. ANALYSIS IV.** (5 cr, §3411, §3521; prereq grade of C or better in 1231 or equiv)  
Partial differentiation, chain rule, implicit functions, applications. Multiple integrals in two and three dimensions. (GrA)
- 3221f,w,s. INTRODUCTION TO LINEAR ALGEBRA AND LINEAR DIFFERENTIAL EQUATIONS.** (5 cr, §3142, §3511; prereq 1231 or equiv)  
Vectors, systems of linear equations, matrices, determinants, bases, eigenvalues. Linear differential equations and systems with constant coefficients, initial value problem and general solution, variation of parameters for inhomogeneous equations. (GrA)
- 3231f,w,s. VECTOR ANALYSIS.** (4 cr, §5601-5602; prereq grade of C or better in 3211 or equiv)  
Scalar and vector products, derivatives, geometry of space curves, del operator, line and surface integrals, divergence and Stokes' theorem, transformation of coordinates, dyadics, applications. (GrA)
- 3511f,w,s. ANALYSIS IV.** (4 cr, §3142, §3221; primarily for mathematics majors, and mathematics majors in the College of Education; prereq 1231, 1331, 1531, or 1621)  
Abstract approach to the study of finite dimensional vector spaces. Linear independence, linear transformations, matrices and determinants. (GrA)
- 3521f,w,s. ANALYSIS V.** (4 cr, §3211, §3411; primarily for mathematics majors, and mathematics majors in the College of Education; prereq 3511)  
Calculus of several variables relying heavily on linear algebra. Differentiation and integration of functions of several variables, coordinate systems, Jacobian of a map, implicit function theorem. (GrA)
- 3531f,w,s. ANALYSIS VI.** (4 cr, §3675; primarily for mathematics majors, and mathematics majors in the College of Education; prereq 3521)  
(Continuation of 3521) Differential equations, vector analysis. (GrA)
- 3581f. FOUNDATIONS OF ARITHMETIC.** (4 cr; prereq 3411 or 3211)  
Sets, relations, order. Real number system. Continuous functions. (GrA)
- 3582w. FOUNDATIONS OF ALGEBRA.** (4 cr; prereq 3411 or 3211)  
Groups, rings, fields. Applications to number theory and polynomials. (GrA)
- 3583s. FOUNDATIONS OF GEOMETRY.** (4 cr; prereq 3161)  
Axiomatics. Non-Euclidean geometry. Theorems of Desargues and Pappus. (GrA)
- 3611s-3621f. ANALYSIS III-IV.** (5 cr per qtr; prereq 1621 for 3611)  
Unified treatment of multivariable calculus and linear algebra. (GrA)
- 3675f,w,s. INTRODUCTORY MATHEMATICS.** (4 cr, §3531; prereq 1231 or 1331 or equiv)  
Prepares the sophomore mathematics major for theoretical courses of the junior and senior years. (GrA)

**5005-5006. TOPICS IN THE MATHEMATICS OF PRIMARY SCHOOLS.** (4 cr per qtr; for pre-elementary education students only [no cr for other CLA students]; prereq 1005-1006 with a grade of B or better in both courses, or #)

This course is intended to provide a broad survey of mathematical topics for primary teachers who are interested in mathematics.

**5070. TOPICS IN THE HISTORY OF MODERN MATHEMATICS.** (4 cr [may be repeated for cr with  $\Delta$ ]; prereq one 5xxx-level mathematics sequence or equiv)

Mathematical developments within the last 200 years. (GrA)

**5090. CALCULUS REFRESHER.** (5 cr; prereq 4 qtrs of calculus or #)

Review of standard calculus topics. Differentiation of elementary functions, differentials, the definite integral, techniques of integration, applications of integration, polar coordinates, infinite series, approximating partial differentiations and multiple integrations.

**5151f. ELEMENTARY SET THEORY.** (4 cr; prereq 3211 or 3411)

Basic properties of operations on sets, cardinal numbers, simply ordered sets, well-ordered sets, ordinal numbers, axiom of choice, axiomatics. (GrA)

**5152w. ELEMENTARY MATHEMATICAL LOGIC.** (4 cr, §5162; prereq 3211 or 3411)

Sets and relations; statement calculus; Boolean algebras; predicate calculus, models, validity and truth; examples of first order theories as illustrations of the axiomatic method; the completeness theorem; the incompleteness theorem and metamathematics. (GrA)

**5154s. AN INTRODUCTION TO RECURSIVE FUNCTION THEORY.** (4 cr; prereq 3211 or 3411 or #)

Alternative definitions of computability (viz., etc.); primitive, partial, and general recursive functions; Church's thesis; Kleene's normal form theorem and recursive theorem; recursive and recursively enumerable sets; applications to mathematical logic. (GrA)

**5157f-5158w-5159s. MATHEMATICS OF SYMBOL MANIPULATION SYSTEMS.** (4 cr per qtr; prereq 1211 or 1311, 3rd-yr standing or #)

5157: Finite automata theory: switching circuits, Boolean algebra, and propositional logic. Kleene's theorem on regular sets. Algebraic aspects of finite automata: minimization, decomposition, synthesis. 5158: Computability of numerical functions: proofs for basic result connecting abstract models of programmed digital computers, Turing machines, and general recursive functions. Normal form theorem. Universal machines. Unsolvability of halting problem. 5159: Symbol manipulation systems: formal systems of Herbrand-Gödel and Post. Post's normal form theorem. Formal grammars; theory of Chomsky on context-free and other languages and related automata. Transduction of languages by automata. (GrA)

**5162f-5163w-5164s. MATHEMATICAL LOGIC.** (4 cr per qtr; prereq 3211 with 3221 or 3411 with 3142 or Phil 5202 or #)

Propositional and predicate calculi, models for systems of logic, recursive functions, decision and completeness problems. (GrA)

**5200. TOPICS IN ALGEBRA.** (4 cr [may be repeated for cr with  $\Delta$ ]; prereq #)

Topics vary from quarter to quarter. (GrA)

**5209w,s. THEORY OF NUMBERS.** (4 cr; prereq 3211 or 3411)

Elementary properties of integers; prime and composite numbers; Euclid's algorithm; congruences; theorems of Fermat and Wilson; primitive roots; indices; Diophantine equations. (GrA)

**5242f,w-5243w,s. LINEAR ALGEBRA WITH APPLICATIONS.** (4 cr per qtr; §5283-5284; prereq 3221 or 3142 or 3511)

Systems of linear equations, finite dimensional linear spaces, bases, linear transformations, matrices, determinants, eigenvalues, reduction to canonical forms, quadratic and bilinear forms, applications. (GrA)

**5244s. GROUP THEORY.** (4 cr; prereq 3221 or 3142 or 3511)

Permutation groups; groups related to geometrical configuration; invariant subgroups, Jordan-Hölder composition theorem, Sylow groups, Abelian groups, elementary divisors, applications. (GrA)

**5273w,s-5274s. MODERN APPLIED ALGEBRA.** (4 cr per qtr; prereq 5282 or 5242 and 5243)

5273: Sets, functions, binary relation, graphs, unary algebras, monoids and groups, morphisms, subgroups, permutations, Lagrange's theorem, binary group codes, encoding and decoding, block codes, Hamming codes, lattices and partially ordered sets. 5274: Rings, integral domains, morphisms, direct sums, ideals and quotient rings, Euclidean domains, polynomial rings, polynomial codes, shift registers, unique factorization roots of unity, finite fields, simple extensions, Bose-Chaudhuri Hocquenghem codes, recurrent sequences. (GrA)

## Course Descriptions—Major Sequences

- 5282f-5283w-5284s. FUNDAMENTAL STRUCTURES OF ALGEBRA.** (4 cr per qtr, §5244 for 5282; prereq 3675, 3211 or 3142 or 3511)  
Theory course, principally for students planning mathematics graduate work. Group theory: normal subgroups, homomorphism, automorphisms, the theorems of Lagrange, Cayley, and Sylow. Ring theory: rings, ideals, integral domains, Euclidean rings, polynomial rings, fields. Linear algebra: abstract approach to vector spaces, linear transformations; the theory of canonical forms, including the Jordan and rational. (GrA)
- 5300. TOPICS IN GEOMETRY.** (4 cr [may be repeated for cr with  $\Delta$ ]; prereq  $\Phi$ )  
Topics vary from quarter to quarter. (GrA)
- 5341f,w-5342w,s. INTRODUCTION TO TOPOLOGY.** (4 cr per qtr; prereq 3675 and 3211 or 3411 or 3521)  
Set theory: axiom of choice, Zorn's Lemma. Metric spaces: completeness, compactness, continuity. Basic Point Set Topology: countability and separation axioms, Urysohn's Lemma, compactness, connectedness, product spaces. (GrA)
- 5359. NON-EUCLIDEAN GEOMETRY.** (4 cr; prereq 3211 or 3411)  
Foundations of Euclidean geometry. Euclid's fifth postulate and its implications. Hyperbolic plane geometry and trigonometry. Elliptic plane geometry and trigonometry. Consistency of non-Euclidean geometry. (GrA)
- 5366f-5367w-5368s. GEOMETRY.** (4 cr per qtr; prereq 3211 or 3411)  
Selected chapters of geometry—convex bodies, projective geometry, geometry and imagination, elementary algebraic geometry, geometry of transformation groups, axiomatic geometry, geometrical constructions. (GrA)
- 5375f. DIFFERENTIAL GEOMETRY.** (4 cr; prereq 3231 or 5602)  
Plane and space curves. Frenet formulas, elementary theory of surfaces. (GrA)
- 5376w-5377s. DIFFERENTIAL GEOMETRY.** (4 cr per qtr; prereq 5375 and 1 qtr linear algebra)  
Introduction to differential forms. Advanced theory of surfaces, integral geometry, Riemannian geometry. (GrA)
- 5404w. VARIATIONAL PROBLEMS.** (4 cr; prereq 5602 or 5512 or  $\Phi$ )  
Euler-Lagrange equations, isoperimetric problems, geodesics, Fermat's and Hamilton's principles, methods of Rayleigh-Ritz, eigenvalues and eigenfunctions. (GrA)
- 5427-5428. APPLIED MATHEMATICS FOR SOCIAL AND BIOLOGICAL SCIENCES.** (4 cr per qtr; not acceptable for mathematics majors as part of their mathematics program; prereq 3211 with 3221 or 3411 with 3142)  
Mathematical tools and concepts other than statistics useful in behavioral sciences. Matrices, functions of several variables, probability, difference equations, learning models, two-person games. (GrA)
- 5441s. MATHEMATICAL THEORY OF FLUID FLOW.** (4 cr; prereq 3231 or 5602, and 5568 or 5572)  
General equations of fluid mechanics; thermodynamics. Classical constitutive equations. Specialization to various subfields of fluid mechanics, hydrostatics, barotropic perfect fluids, gas dynamics, and viscous flow theory. Examples of exact solutions. (GrA)
- 5457f-5458w-5459s. METHODS OF APPLIED MATHEMATICS.** (4 cr per qtr; prereq 3211 and 3221 or equiv)  
Analytic tools used in applications of mathematics; emphasis on technique. Real and complex variables, matrices, ordinary and partial differential equations, calculus of variations, asymptotic expansions, etc. (GrA)
- 5472f-5473w. INTRODUCTION TO NUMERICAL ANALYSIS.** (4 cr per qtr, §CICS 5301, §CICS 5302; prereq 3211, 3221, CICS 1100)  
5472: Finite differences, interpolation, summation of series, numerical integration, Euler-MacLaurin formula and asymptotic expansions. Numerical solutions of systems of algebraic and transcendental equations. Newton's and Graeffe's method. 5473: Approximation of functions and least squares. Approximate solution of ordinary and partial differential equations. Moulton's, Runge's relaxation and iteration methods. Calculation of eigenvalues of matrices and differential problems, Rayleigh-Ritz method. Integral equations. (GrA)
- 5476s. THEORY OF APPROXIMATION IN NUMERICAL ANALYSIS.** (4 cr; prereq 5473, 5568 or 5573)  
Orthogonal functions, Chebyshev approximations, trigonometric approximations, saturation classes, rational approximations, approximations in several variables, spline interpolation and approximations, use of approximation in computing. (GrA)

- 5512f,w,s. DIFFERENTIAL EQUATIONS.** (4 cr, §5523; prereq 3211 and 3066 or 3221 or equiv)  
 First- and second-order equations. Power series solutions. Bessel functions, Legendre polynomials. Boundary value problems. Mostly a technique course; mainly for students who wish to learn relevant mathematical facts and methods. (GrA)
- 5514s. INTEGRAL EQUATIONS.** (4 cr; prereq 3211 and 3221 or equiv)  
 Integral equations; Fredholm formula, Neumann series, Laplace transforms, successive approximations, and numerical methods. Relation of integral equations to systems of linear algebraic equations and to differential equations. (GrA)
- 5521f,w,s-5522w,s-5523s. INTRODUCTION TO ORDINARY DIFFERENTIAL EQUATIONS.** (4 cr per qtr; prereq 3142 or 3221 or 3511, 3211 or 3411 or 3521)  
 5521: Existence and uniqueness theorems; successive approximations; differential inequalities; linear systems; fundamental matrix solutions; linear systems with constant coefficients; variation of parameters. 5522: Phase plane analysis; Poincare-Bendixson theory; linear and nonlinear oscillations; stability theory; asymptotic behavior of solutions; control theory. 5523: Formal and convergent of power series solutions majorant method; regular and irregular singular points; error estimates perturbation methods. (GrA)
- 5541-5542-5543. SPECIAL FUNCTIONS IN MATHEMATICAL ANALYSIS.** (4 cr; prereq 5568 or 5573)  
 Properties of gamma, hypergeometric, Bessel, and Hermite functions. Applications to mathematical physics. Relationship between symmetry groups and special functions. (GrA)
- 5567f,w. FOURIER SERIES AND BOUNDARY VALUE PROBLEMS.** (4 cr, §5571; prereq 3211, 3221 or equiv)  
 Partial differential equations of theoretical physics. Fourier series, proof of convergence, orthogonal systems. Sturm-Liouville systems, solution of boundary value problems by separation of variables, applications. (GrA)
- 5568w,s. ELEMENTARY THEORY OF COMPLEX VARIABLES.** (4 cr; prereq 3231, or 5602, or equiv course in vector analysis)  
 Derivative and integral of a function of a complex variable. Cauchy's integral theorem and formula, residues. Application to evaluation of integrals, conformal mapping. (GrA)
- 5569s. OPERATIONAL MATHEMATICS.** (4 cr; prereq 5568)  
 Laplace transforms, Fourier transforms, inversion theorems; applications to differential equations. (GrA)
- 5571f-5572w-5573s. ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS.** (4 cr per qtr, §5567, §5568; prereq 5603 or 5613)  
 Partial differential equations of theoretical physics, one-dimensional wave equations, characteristics, classification of second-order equations, heat and Laplace equations, uniqueness, maximum principle, orthogonal systems, Fourier series, separation of variables. Complex numbers, derivatives and integrals of analytic functions, elementary functions and their geometry. Cauchy's integral theorem and formula, Laurent expansions, evaluation of contour integrals by residues. Fourier and Laplace transforms and their inversion, method of residues, applications to ordinary and partial differential equations, applications of heat, wave, and Laplace equations. (GrA)
- 5600. TOPICS IN ANALYSIS.** (4 cr [may be repeated for cr with  $\Delta$ ]; prereq §)  
 Topics vary from quarter to quarter. (GrA)
- 5601f,w-5602w,s-5603s. ADVANCED CALCULUS.** (4 cr per qtr; prereq 3211 or 3411)  
 5601: Differentiation of functions of several variables; vector algebra; curves in three dimensions; directional derivative and gradient inverse transformation and implicit function theorems; change of variables in multiple integrals. 5602: Line and surface integrals; Stokes' theorem; convergence of infinite series; orthogonal functions; uniform convergence; integration and differentiation of series. 5603: Real numbers; continuous functions; limits; properties of continuous functions; differentiation; the Riemann integral; improper integrals. (GrA)
- 5606-5607. CRITICAL REASONING IN MATHEMATICAL ANALYSIS.** (4 cr per qtr, §5612; prereq 3211 or 3411)  
 Elementary concepts of mathematical analysis, used mainly to develop in the student an understanding of mathematical rigor. (GrA)
- 5612f-5613w-5614s. INTRODUCTION TO ANALYSIS.** (4 cr per qtr; principally for students planning to take grad work with a mathematics major, as preparation for grad courses in analysis; prereq 3675, 3521 or 3211 with 3221 or 3411 with 3142)  
 Theory of real numbers; elements of point set theory; limits; differentiation; multivariable analysis. (GrA)

## Course Descriptions—Major Sequences

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- 5615s. LEBESGUE INTEGRAL.** (4 cr; prereq 5602 or 5612 or 5607 or #)  
Basic limit theorems. Comparison with Riemann integral. Lebesgue measure. Absolute continuity. (GrA)
- 5625s. DEVELOPMENT OF NUMBER SYSTEMS.** (4 cr, §5612; prereq 3211 or 3411)  
Systematic construction of real number system by extension from natural numbers via rational numbers to irrational numbers; negative numbers, properties of the system; operations with numbers and laws governing operations. (GrA)
- 5661-5662. PROBABILITY WITH TECHNOLOGICAL APPLICATIONS.** (4 cr per qtr; prereq Stat 5131 and #)  
Spectral analysis of stationary processes, linear and nonlinear transformations, prediction and smoothing, recurrent events, random walk and diffusion, Markov chains, Poisson processes. (GrA)
- 5679. PROBABILITY.** (4 cr, §5681; prereq 3211 or 3411 or 3521)  
Elementary principles of probability, total and compound probability, expectation, repeated trials, and as time permits topics chosen from the following: Stirling's formula, the probability integral, geometrical probability, probability of causes, Bayes' theorem, errors of observation, principle of least squares. (GrA)
- 5681f-5682w-5683s. INTRODUCTION TO PROBABILITY.** (4 cr per qtr; prereq 5602 or Stat 5133 or #)  
Logical development and various applications of probability. Probability spaces, random variables, central limit theorem; Markov chains. (GrA)
- 5701f,s. COMBINATORICS.** (4 cr per qtr; prereq 3211 or 3411 and 3rd-yr standing...soph-level linear algebra is helpful)  
Basic concepts in combinatorics. Enumeration including binomial counting, permutations, generating functions, inclusion exclusion principle, recurrence relations. Application. Matching theory and designs. (GrA)
- 5702w. INTRODUCTION TO GRAPH THEORY.** (4 cr per qtr; prereq 3211 or 3411 and 3rd-yr standing...soph-level linear algebra is helpful)  
Basic concepts of graph theory, topics from connectedness, Eulerian graphs, trees, matrices, Hamiltonian graphs, coloring problems, plane graphs, enumeration. Applications. (GrA)
- 5703. COMBINATORIAL ALGORITHMS AND OPTIMIZATION.** (4 cr; prereq 3211 or equiv and knowledge of some programming language)  
An introduction to basic algorithmic methods in combinatorics with special emphasis on optimization.
- 5900. TUTORIAL COURSE IN ADVANCED MATHEMATICS.** (Cr ar; prereq #)  
Qualified students whose needs are not met by courses offered may make special arrangements for obtaining content of other graduate courses. (GrA)
- 5910. PROBLEMS COURSE.** (4 cr [may be repeated for cr with  $\Delta$ ]; prereq #)  
Problem-solving techniques in many areas of mathematics, from elementary to advanced levels, adapted to students of varied backgrounds. (GrA)
- 5920f,w,s. MATHEMATICS ORIENTATION SEMINAR.** (1 cr [may be repeated for max of 3 cr]; prereq mathematics major with 3rd-yr standing or #)  
A nonstructured seminar; primarily a "discussion course" providing an opportunity to discuss topics that do not fit into the standard curriculum. (GrA)

## Medical School

B.A. degrees may be earned with concentrations in two Medical School departments, Microbiology and Physiology. Other courses in the school that carry CLA credit are in the Departments of Anatomy and the History of Medicine (see listings under the four headings).

## Microbiology (MicB)

### Medical School

#### Staff

*Head*, Dennis W. Watson, 1060 Mayo Memorial Hospital; *Director of Undergraduate Studies*, Edwin L. Schmidt, 1027 Mayo Memorial Hospital and 229 Soils

*Professors:* Anderson, Brand, Busta, Dworkin, Greene, Hall, Jenkin, Johnson, Lindorfer, McKhann, Plagemann, Quie, Rogers, Schmidt, Tsuchiya, Wannamaker, Watson, Zinneman

*Associate Professors:* Chapman, Douglas, Elliott, Gray, Needham, Prince, Schachtele

*Assistant Professors:* Cleary, Germaine, Klein, Liljemark, McKay, Peterson, Reilly, Schmidtke, Sudo, Zissler

Microbiology is the branch of biological science dealing with the nature and activities of microorganisms, the distinctive microscopic life forms that recycle the elements in aquatic, atmospheric, and soil environments. Their potentialities may be directed to the benefit of man in industry, agriculture, and medicine, or to his harm in disease and spoilage. As remarkably useful model systems for research, they play a key role in the development of modern biology.

Elementary Microbiology (MicB 1101) is open to students in occupational therapy, mortuary science, and dental hygiene upon permission of the Department of Microbiology.

## B.A. MAJOR SEQUENCE

### Required Preparatory Courses

Biol 1011, 1103 or 1106; Chem 1004-1005, 3100-3101, 3301-3302, 3303 or Biol 3021; Math 1211-1221-1231 or 1311-1321-1331 or 1611-1621; Phys 1031-1032

### Major Requirements

3103 or 5105 or VMic 3103 or Biol 3013; MicB 5216, 5321, 5900

12-13 3xxx- or 5xxx-level cr in microbiology or related courses

A major leading to the B.S. degree is available through the College of Biological Sciences.

**3103f.\*\* GENERAL MICROBIOLOGY.** (5 cr; prereq soph with C avg in prereq courses to major sequence, or jr with 10 cr in chemistry and 5 cr in biological sciences or #) Schmidt

Morphology, physiology, taxonomy, and ecology of bacteria. Practical applications of fundamental principles.

**5105f.\*\* BIOLOGY OF MICROORGANISMS.** (4 cr, §3103, §Biol 3013; prereq 5 cr in biological sciences, Chem 3302, Biol 3021, or #) Dworkin

Taxonomy, anatomy, physiology, biochemistry, and ecology of microbes. Molecular structure in relation to bacterial function.

**FScN 5120w. FOOD MICROBIOLOGY**

See *College of Agriculture Bulletin*.

**FScN 5122s. SANITATION AND PROCESS MICROBIOLOGY**

See *College of Agriculture Bulletin*.

**PubH 5171f,s. ENVIRONMENTAL MICROBIOLOGY**

See *School of Public Health Bulletin*.

**5216w. IMMUNOLOGY.** (4 cr; prereq 3103 or 5105 or Biol 3013) Gray

Nature of antigens and antibodies; chemical basis of serologic specificity; qualitative and quantitative aspects of antigen-antibody reactions; theories of antibody production; cellular antigens and blood grouping; nature of complement and its role in immunologic phenomena; mechanisms of hypersensitivity; hypersensitivity-like states and immunologic diseases; transplantation and tumor immunity; host-parasite interactions. Laboratory.

**5218w. IMMUNOLOGY.** (3 cr; prereq 3103 or 5105 or Biol 3013) Gray

Same as 5216 without laboratory.

**5232s.\*\* MEDICAL MICROBIOLOGY.** (4 cr; not open to medical students; prereq 5216)

Klein

Pathogenic bacteria, fungi, and viruses, with emphasis on mechanisms of pathogenicity and virulence; properties of microorganisms and their animal hosts which influence the rate of host-parasite relations analyzed from genetic and metabolic view. Laboratory.

\*\* Microscope required. Students may obtain use of microscope by purchasing \$3 microscope cards from the bursar.

## Course Descriptions—Major Sequences

- 5233f\*\* MICROORGANISMS AND DISEASE.** (7 cr; not open to microbiology majors; prereq 10 cr in chemistry and 5 cr in biological sciences or #) Johnson  
Nature of microorganisms, immunology, medical bacteriology, virology, mycology, parasitology, and principles of disease control.
- FScN 5320f. ADVANCED DAIRY AND FOOD MICROBIOLOGY**  
See *College of Agriculture Bulletin*.
- 5321w. PHYSIOLOGY OF BACTERIA.** (3 cr; prereq 3103 or 5105, or Biol 3013, 10 cr in organic chemistry or biochemistry, 3 cr in genetics) Rogers  
Chemical and physical organization of bacteria as related to function; growth; energy metabolism including oxidations and fermentations; nutritional requirements; antimicrobial agents; autotrophic mechanisms; microbial differentiation.
- 5322w. PHYSIOLOGY OF BACTERIA LABORATORY.** (2 cr; prereq 5321 or §5321 and a lab course in basic bacteriology) Rogers  
Techniques employed in study of bacterial physiology and metabolism.
- 5424s.\*\* BIOLOGY OF VIRUSES.** (4 cr; prereq 5321 or Biol 3021) Plagemann  
Structure, composition, and properties of bacterial, plant, and animal viruses; their interaction with cells and effects on host cell metabolism; biochemistry of viral replication; techniques in study of viruses and viral infections; viral tumorigenesis. Laboratory.
- 5612s. ECOLOGY OF SOIL MICROORGANISMS.** (4 cr, §Soil 5612; prereq 3103 or 5105; or Biol 3013, #; offered 1974-75 and alt yrs) Schmidt  
Soil as a microhabitat; nature of microbial population of soil; interactions among microorganisms in soil ecosystem; significant activities of soil microorganisms.
- 5900f,w,s. TOPICS IN MICROBIOLOGY.** (1 cr; open to microbiology undergrad majors) Schmidt, staff  
Seminars on research programs, historical perspectives, significant emerging fields, professional societies and publications, and career opportunities.
- 5970f,w,s. SPECIAL PROBLEMS.** (Cr ar; prereq #) Staff

## Middle Eastern Studies and Languages

### Staff

*Chairman*, associate dean for Humanities and Fine Arts, 205½ Folwell Hall

*Professors*: Chejne, Farah

*Assistant Professors*: Bashiri, Koury, Paradise, Reisman

*Instructor*: Jospe

The department offers B.A. degrees in Middle Eastern studies and in Arabic and Hebrew; an M.A. is available in Arabic. In its Islamic section the department offers instruction in Arabic, Persian, and Turkish languages, and in its Hebrew section instruction in Hebrew, Akkadian, and Aramaic languages.

## MIDDLE EASTERN STUDIES (MidE)

*Majors may elect either a Hebraic or Islamic emphasis. No knowledge of a Middle Eastern language is required for nonmajors.*

### Middle Eastern Studies—Hebraic

#### B.A. MAJOR SEQUENCE

Heb 1101-1102-1103, 3011-3012-3013

3 civilization courses centered on the language

5 3xxx-5xxx-level courses chosen with adviser's approval

#### Civilization

**3101s. ANCIENT NEAR EASTERN TEXTS IN TRANSLATION.** (4 cr)

Representative texts of the Sumero-Akkadian literary and historical tradition. Relationships of the Mesopotamian traditions, particularly to the *Old Testament*. (GrD)

\*\* Microscope required. Students may obtain use of microscope by purchasing \$3 microscope cards from the bursar.

- 3107, 3108. EMERGENCE OF CLASSICAL JUDAISM.** (4 cr per qtr; no knowledge of Hebrew required)  
Classical Judaism during the formative periods of Christianity and Islam: teaching of the Pharisees, development of Rabbinic thought, Judeo-Islamic symbiosis, medieval Jewish philosophy and mysticism. (GrC)
- 3115. MIDRASH IN TRANSLATION.** (4 cr; no knowledge of Hebrew required)  
Ancient writings as living texts for future generations; use of the Bible by ancient rabbis to solve moral, theological, and literary problems. Midrash as revelation of their values and solutions to contemporary problems.
- 3501, 3502. ANCIENT ISRAEL.** (4 cr per qtr; no knowledge of Hebrew required)  
History of Israel and development of its religion. Biblical literature in the cultural, historical, and religious milieu of its origin. (GrC)

### **Religion**

- 3117. THE DEAD SEA SCROLLS: THE INTERTESTAMENTAL PERIOD.** (4 cr; no knowledge of Hebrew required)  
Jewish sectarianism in the pre-Christian period; position of the Dead Sea sect. Qumran texts in English; communal organization, modes of worship, theology, and Messiah concept as a precursor to later religious developments.
- 3125. MAIMONIDES' GUIDE FOR THE PERPLEXED.** (4 cr; no knowledge of Hebrew required)  
Medieval Jewish philosophy; problems of creation, providence, revelation, prophecy, and the law against the background of classical and medieval thought. (GrC)
- 3126. THEMES IN MODERN JEWISH THOUGHT.** (4 cr)  
Jewish identity since emancipation. Mendelsohn, Reform Judaism, Neoorthodox Judaism, Conservative Judaism, Cohen, Rosenzweig, Buber, Political Zionism, Spiritual Zionism, Reconstructionism. (GrC)

### **Literature**

- 3315. CONTEMPORARY ISRAELI LITERATURE IN TRANSLATION.** (4 cr)  
Modern short stories and poetry. Works of Agnon, Yizhar, Hazaz, Yechoshua, Greenberg, Amihai, Pagis, and others. Alienation, crisis of faith, war, genocide, and freedom. (GrD)

## **Middle Eastern Studies—Islamic**

Islamic studies include instruction in the Arabic, Persian, and Turkish languages. Cultural, historical, and literary aspects of the Middle East are treated in courses that use translations and in those that use original-language sources.

### **B.A. MAJOR SEQUENCE**

#### **Major Requirements**

- Arab or Per 1101-1102-1103, 3011-3012-3013  
3 civilization courses centered on language selected  
5 3xxx-5xxx-level courses chosen with adviser's approval

#### **Civilization**

- 3511, 3512. INTRODUCTION TO IRANIAN CIVILIZATION.** (4 cr per qtr)  
3511: Iranian civilization from the Achaemenids to the rise of the Samanids; the role of the common man. 3512: From the fall of the Samanids to the present; the role of the common man.
- 3531. INTRODUCTION TO ISLAMIC CULTURE.** (4 cr)  
Civilization of the Islamic peoples in medieval and modern times. The religion of Islam, its rise and expansion, Islamic institutions, social, cultural, literary, and artistic manifestations.
- 3531H. HONORS COURSE: INTRODUCTION TO ISLAMIC CULTURE.** (4 cr)  
Students attend lectures in 3531 and meet with lecturer one additional period each week.
- 3541-3542-3543. HISTORY OF THE ARABS.** (4 cr per qtr)  
3541: From pre-Islamic days to downfall of Umayyads of Damascus. 3542: From Abbasids to fall of Baghdad in 1258. 3543: From Crusades to modern times.
- 3541H-3542H-3543H. HONORS COURSE: HISTORY OF THE ARABS.** (4 cr per qtr)  
For description, see 3541-3542-3543. Students attend 3541-3542-3543 lectures and meet with lecturer one additional period each week.
- 3551-3552. INTELLECTUAL LIFE IN ISLAM.** (4 cr per qtr)  
3551: Rise of Muslim scholarship during 1st century of Islam. 3552: Branches of Muslim scholarship in medieval times.

## Course Descriptions—Major Sequences

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### 3591-3592-3593. SURVEY OF ISLAMIC CIVILIZATION. (5 cr per qtr)

3591: The Golden Age of Islam, Baghdad, Cordova, Cairo, and Bokhara in the 9th and 10th centuries. 3592: Islamic Renaissance in the 15th and 16th centuries; Ottomans, Safavids, and Moghuls. 3593: The 19th and 20th centuries, Western challenge and Islamic response.

### 5121. THE MIDDLE EAST IN WORLD AFFAIRS: OTTOMAN PERSIAN SPHERE, 1300-1789. (4 cr)

Rise and efflorescence of the Il-Khanid, Timurid, and Safawid civilizations in Persia and of the Ottoman in West Asia: historical, institutional, cultural, socio-economic development, and contacts with the West. (GrC)

### 5523. THE MIDDLE EAST IN WORLD AFFAIRS: THE 19TH CENTURY. (4 cr)

Structure of society; cultural and political impact of the West; revivalist and nationalist trends; reformist movements; separatist movements. (GrC)

### 5525. THE MIDDLE EAST IN WORLD AFFAIRS: THE ARAB WORLD, TURKEY AND IRAN, 1915 TO THE PRESENT. (4 cr)

Struggle for independence; rise of Turkey and Iran; problems of social, cultural, economic, and literary developments; modernizing trends; role in international affairs. (GrC)

## Religion

### 1036. THE RELIGION OF ISLAM. (4 cr, §RelS 1036)

The rise of Islam in its historical context; the role of Muhammad, Koran, traditions; fundamentals and observances of the faith; sectarian movements; the spread of Islam into Asia and Africa; the Baha'i and Black Muslim components; reformist movements and change. (GrC)

### 3555. ZOROASTRIANISM. (4 cr; no knowledge of Persian required)

Zoroastrianism as revealed in the Gathas and expanded in the Vendidad. (GrC)

### 5545. ISLAMIC MYSTICISM. (4 cr)

The rise of Sufism, from asceticism to theosophical mysticism; the leading historical personalities, their beliefs and preachings; relationship to Orthodox Islam and non-Muslim mystical movements; concepts and organizations; the place of Sufism in modern religious trends. (GrC)

### 5546. THEOLOGICAL AND MYSTICAL DOCTRINES OF ISLAM. (4 cr)

Classical works of scholastics and mystics; jurists and philosophers; landmarks of Islamic religious beliefs and institutions. Content analysis, commencing with the Qur'an and the traditions. (GrC)

## Literature

### 3201. SURVEY OF ARABIC LITERATURE IN TRANSLATION: PRE-ISLAMIC TO 1500. (4 cr)

The golden age of Arabic poetry: poets, themes and trends; new developments in the classical age; the rise of belletristic writings; prose styles; folk literature; Bidpai Fables and the Arabian Nights: selected readings; narrative genres, sacred and profane. (GrC)

### 3202. SURVEY OF ARABIC LITERATURE IN TRANSLATION: THE REVIVAL AGE, 1800 TO THE PRESENT. (4 cr)

Revivalist and rejuvenative trends in poetry; the free verse movement, poets and themes; the poetry of social consciousness; the rise of the novel, novella, short stories; leading fiction and drama writers. (GrC)

### 3351. MODERN ARABIC DRAMA IN TRANSLATION. (4 cr)

Beginnings in the 19th century to the present.

### 5401. BIBLIOGRAPHY OF MIDDLE EAST STUDIES. (4 cr; prereq knowledge of at least one European language other than English and familiarity with at least one Middle Eastern language desirable)

Source materials, reference works, and guides to the literature of the Islamic Middle East.

### 5601. PERSIAN FICTION IN TRANSLATION. (4 cr)

Persian fiction from its earliest stages to the present; *The Blind Owl* of Hedayat and *The Patient Stone* of Chubak. (GrD)

### 5602. PERSIAN POETRY IN TRANSLATION. (4 cr)

Persian poetry from its earliest stages to the present, through the application of recent linguistic and literary techniques. (GrD)

## AKKADIAN (Akka)

- 5011-5012-5013. **ELEMENTARY AKKADIAN.** (4 cr per qtr; for advanced undergrads by permission only and for grad students)  
Cuneiform script. Akkadian grammar, written drills, readings from historical annals, law collections, religious and epic literature.

## ARABIC (Arab)

### B.A. MAJOR SEQUENCE

#### Major Requirements

- 3011-3012-3013, 5011-5012-5013, MidE 3201-3202  
9 additional cr in courses numbered 3xxx or above
- 1101-1102-1103. **BEGINNING LITERARY ARABIC.** (5 cr per qtr)  
Fundamentals of Arabic, based on an audiolingual method; aural comprehension, pronunciation, practical reading knowledge. Basic grammar.
- 1111-1112-1113. **BEGINNING SPOKEN ARABIC.** (5 cr per qtr)  
Study of one modern dialect. Laboratory practice.
- 3011-3012-3013. **INTERMEDIATE ARABIC.** (4 cr per qtr; prereq 1103 or #)  
Review of grammar; analysis of cultural and literary texts; contemporary short stories (third quarter).
- 5011-5012-5013. **ADVANCED LITERARY ARABIC AND COMPOSITION.** (5 cr per qtr; prereq 3013 or #)  
Literary styles and genres in classical and modern writings; compositions based on texts studied.
5014. **STRUCTURE OF ARABIC.** (4 cr; prereq 2 yrs of Arabic or #)  
Main structure of Arabic, classical and colloquial.
5121. **READINGS IN ISLAMIC THEOLOGICAL AND PHILOSOPHICAL TEXTS.** (4 cr; prereq 5013 or #)
- 5211-5212. **READINGS IN CLASSICAL ARABIC LITERATURE.** (4 cr per qtr; prereq 5013 or #) (GrD)
5231. **ARABIC LITERATURE IN THE 19TH-20TH CENTURIES.** (4 cr; prereq 5013 or #)
5311. **HISPANO-ARABIC POETRY.** (4 cr; prereq 5503 or #)
5405. **IBN KHALDUN.** (4 cr; prereq 5503 or #)
5406. **IBN HAZM OF CORDOVA.** (4 cr; prereq 5503 or #)
- 5501-5502-5503. **HISPANO-ARABIC LITERATURE AND CULTURE.** (4 cr per qtr; prereq #)  
Literary styles and genres in classical and modern writings; compositions based on texts studied. (GrD)
5701. **DIALECT ANALYSIS.** (4 cr; prereq knowledge of Arabic and #)  
Differences and contrasts in various Arabic dialects.
5711. **READINGS IN ARAB GRAMMARIANS.** (4 cr; prereq 5013 or #)
- 5721-5722. **SEMINAR: DEVELOPMENT OF ARABIC LANGUAGE AND LITERATURE.** (4 cr per qtr)  
5721: Arabic from pre-Islamic times to middle of 8th century. 5722: Arabic in the Golden Age of Abbasids.
5970. **DIRECTED READINGS.** (Cr ar; special problems for advanced students; prereq 5013 or #)  
Reading and periodic consultations.
5990. **HONORS COURSE: DIRECTED RESEARCH.** (Cr ar; prereq 5970 or #)  
Individual studies for honors work at advanced level.

## ARAMAIC (Aram)

**5011, 5012, 5013. ARAMAIC.** (4 cr per qtr; for students preparing for biblical studies, ancient history majors, and students specializing in Semitic languages; recommended for students of Talmud; prereq 1 yr Hebrew or Arabic or #)

**5011:** Biblical Aramaic—grammar and fluency in reading biblical and ancient Aramaic.  
**5012:** Syriac—grammar and fluency of reading Syriac texts. **5013:** Aramaic inscriptions—epigraphy, morphology, and syntax of old Aramaic inscriptions from 9th to 5th centuries B.C.

## HEBREW (Heb)

The study of Hebrew language and literature chronologically ranges from earliest biblical times until the present and geographically encompasses the literatures of Israel and all major centers of the Jewish Diaspora.

The major sequence in Hebrew provides a sound knowledge of modern spoken and written Hebrew and acquaintance with all genres of Hebrew literature, from the biblical period to the present. The program also offers courses in literature, religion, and Jewish thought for which no knowledge of foreign language is necessary.

Formal arrangements exist to provide study in accredited Israeli universities abroad.

## B.A. MAJOR SEQUENCE

### Major Requirements

3015-3016-3017, 2 qtrs of Bible study, 2 qtrs of Rabbinics study, 2 qtrs of modern literature, 1 course using materials in translation

For students with advanced standing, qualifying exams will be given during first and last weeks of fall quarter and last weeks of winter and spring quarters. Students with slight acquaintance with Hebrew should consider taking 1102-1103. Consult department secretary.

**1101f-1102w-1103s. BEGINNING HEBREW.** (5 cr per qtr; students with elementary or high school background may be required by instructor to transfer to a course at appropriate level)

Speaking, reading, and writing modern Hebrew. Aural comprehension, pronunciation, and basic grammar, including biblical syntax.

**1012w-1013s. BEGINNING INTENSIVE HEBREW.** (5 cr per qtr; prereq qualifying exam, for which students receive 5 cr)

Beginning Hebrew for students with previous experience in elementary Hebrew. Course covers all of 1101-1102-1103.

**1301. SURVEY OF HEBREW GRAMMAR.** (4 cr; for students who have ability to read simple texts but desire firm grammatical foundation; prereq at least 3 yrs study below college level or #)

Grammatical forms and patterns; systematic analysis of Hebrew texts, oral drills, and composition.

**3011f-3012w-3013s. INTERMEDIATE HEBREW.** (4 cr per qtr; prereq 1103, qualified fr or #)

Modern short stories, contemporary idiom, newspaper articles, biblical narratives. Review of fundamentals of grammar. Course conducted chiefly in Hebrew.

**3015f-3016w-3017s. ADVANCED MODERN HEBREW.** (4 cr per qtr; prereq 3013 or #)

(Continuation of 3013) Basic structure; understanding fluent native speech; self-expression in speech and composition; comprehension of advanced literature and the Hebrew press. Course conducted in Hebrew.

**3111, 3112. RABBINICAL TEXTS.** (4 cr per qtr; prereq 3013, 3017 or 3202 or #)

Selections from Talmud, Midrash, and Codes. (GrD)

- 3121f, 3122w, 3123s. MEDIEVAL HEBREW LITERATURE.** (3 cr per qtr; prereq 3013 or #)  
**3121, 3122:** Medieval Hebrew Bible commentaries. Medieval Jewish biblical commentators: Rashi, Ibn Ezra, Kimchi, Abrovanel, etc. Sources and methods of each. Recommended for students of biblical literature. **3123:** Medieval Hebrew poetry. Representative poets from Middle Ages: Yani, Kalir, Ibn Gabirol, Halevy, etc. (GrD)
- 3131w-3132s. TALMUDIC TEXTS.** (4 cr per qtr; prereq 3017 or 3202 or #)  
 Consecutive study of a tractate of the Babylonian Talmud. Linguistic and historical problems. (GrC)
- 3201, 3202. A BOOK OF THE BIBLE.** (4 cr per qtr; prereq 3013 or #)  
 Scientific study of a book of the Bible. Modern scholarly trends and medieval exegesis. Intensive analysis of a selected text. (GrD)
- 3201H, 3202H. HONORS COURSE: A BOOK OF THE BIBLE.** (4 cr per qtr; prereq 3013 or #)  
 Students attend lectures in 3201, 3202 and meet with lecturer one additional period each week. (GrD)
- 3301. MODERN HEBREW ESSAY.** (4 cr; prereq 3017 or #)  
 Works from 19th- and 20th-century Hebrew essayists. Jewish nationalism, literary criticism, social and political issues, religion, and philosophy.
- 3304. MODERN HEBREW SHORT STORY.** (4 cr; prereq 3017 or #)  
 Works of Agnon, Hazaz, Yizhar, Yehoshua, and others. The disintegration of traditional society, freedom, militarism, alienation, genocide, and other themes.
- 3307. MODERN HEBREW POETRY: 1880 TO THE PRESENT.** (4 cr; prereq 3017 or #)  
 Major Israeli poets such as Rachel, Lamdan, Shlonsky, Leah Goldberg, Alterman, Greenberg, Pagis, Amihai, Ravikovitch, and others.
- 3980. DIRECTED INSTRUCTION.** (1-5 cr; prereq #)  
 Observation and discussion of language classes. Gradually increased participation of student in preparation and presentation of instructional materials to an elementary class. Evaluation of the materials, teaching techniques. Periodic seminars with instructor and other departmental staff on problems of language teaching.
- 5104f, 5105w. PROBLEMS IN BIBLICAL STUDIES.** (4 cr per qtr; for majors and others adequately prepared to read Bible in Hebrew; prereq 3202 or #)  
 Scholarly issues in modern biblical studies. Scientific methodology and use of research tools.
- 5701. INTRODUCTION TO COMPARATIVE STUDY OF SEMITIC LANGUAGES.** (4 cr; prereq grad or # and 1 yr of two Semitic languages)  
 Historical survey of linguistic development in Semitic languages. Phonology and morphology.
- 5711. NORTHWEST SEMITIC INSCRIPTIONS.** (4 cr; prereq 3013 or #)  
 Introduction to Paleo-Hebrew script. Morphology, phonology, syntax, and linguistic changes in early Hebrew, Moabite, Phoenician, and Punic inscriptions.
- 5970. DIRECTED READINGS.** (Cr ar; special problems for advanced students; prereq 3013 or #)
- 5990. HONORS COURSE: RESEARCH.** (Cr ar; prereq 5970 or #)  
 Independent research under guidance of faculty member. *Must begin fall quarter.*

## **PERSIAN (Per)**

- 1101f-1102w-1103s. BEGINNING MODERN PERSIAN.** (5 cr per qtr)  
 Audiolingual course in spoken and written modern Persian.
- 3011f-3012w-3013s. INTERMEDIATE MODERN PERSIAN.** (4 cr per qtr; prereq 1103 or #)  
 Grammar drills, reading, and discussion, in Persian, of graded texts in modern Persian.
- 5011. STRUCTURE OF PERSIAN.** (4 cr; prereq 3013 or #)  
 The phonology, morphology, and syntax of Persian; linguistic skills necessary for understanding the workings of modern standard Persian. (GrA)
- 5970. DIRECTED READINGS.** (Cr ar; special problems for advanced students; prereq 3013 or #)  
 Readings and periodic consultations.

## Course Descriptions—Major Sequences

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5990. DIRECTED RESEARCH: SEMINAR IN LITERARY CRITICISM. (4 cr per qtr; prereq 5013 or #)  
Application of modern techniques of literary criticism to classical Persian poetry. (GrD)

### TURKISH (Turk)

1101-1102-1103. INTRODUCTION TO TURKISH GRAMMAR AND READING. (5 cr per qtr)  
Vocabulary forms and syntax; intensive graded reading and speaking.

5970. DIRECTED READING. (Cr ar; special problems for advanced students; prereq 1103 or #)

### MILITARY SCIENCE

See Reserve Officers' Training Corps.

### Music (Mus)

#### Staff

*Chairman*, Roy A. Schuessler, 104 Scott Hall; *Coordinator of Advising*, Adrian Lauritzen, 104d Scott Hall

*Professors*: Argento, Bencriscutto, Fetler, Fleischer, Laudon, Riedel, Schuessler, Weiser

*Associate Professors*: Freed, Lauritzen, Massmann, Stokes, Ware, West

*Assistant Professors*: Cardamone, Guhl, Ivory, Kagan, Lancaster, McNab, Sutton, Tartaglia

*Instructors*: Byrne, Humphries, Jorgenson

The Department of Music offers B.A. degrees with specializations in applied music, history and literature, theory, composition and theory, and piano pedagogy. It also offers B.F.A. degrees for students of marked ability who plan to follow professional careers.

Graduation requirements are in accordance with the regulations of the National Association of Schools of Music, of which the department is a member.

Music majors must participate in performance ensembles appropriate to their major concentrations every quarter in residence. Students must play or sing qualifying performances before entering the junior year and must pass piano proficiency tests as early as possible after becoming music majors.

Scholarship auditions are held annually in Scott Hall during spring quarter. Information about scholarships, fees for courses and individual lessons in applied music, and performance levels for entrance to and completion of applied music and elective-credit courses can be obtained from the department office, 106 Scott Hall.

Transfer students are placed in departmental programs on the basis of examinations in theory, applied music, and music history.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

Freshman year: 1501-1502-1503, 1511-1512-1513, 1201 through 1225 or 1301 through 1325, 1603; sophomore year: 1504-1505-1506, 1514-1515-1516, 1201 through 1225 or 1301 through 1325, 1604-1605-1606

## Major Requirements

*Applied Music (Instrumental)*—36 cr in applied music, senior recital, 3541-3542-3543, 12 additional 3xxx-5xxx-level music cr

*Applied Music (Vocal)*—36 cr in applied voice, senior recital, 5741-5742-5743, 12 additional 3xxx-5xxx-level music cr

*History and Literature*—24 cr in applied music, 3541-3542-3543, 5501-5502-5503, 18 additional 3xxx-5xxx-level music history and literature cr

*Composition and Theory*—24 cr in applied music, 3541-3542-3543, 5501-5502-5503, 5551-5552-5553, 5561-5562-5563, 6 additional 3xxx-5xxx-level music cr

*Theory*—24 cr in applied music, 3541-3542-3543, 5501-5502-5503, 5561-5562-5563, 12 additional 3xxx-5xxx-level music cr

*Piano Pedagogy*—30 cr in 1201 or 1301 and 3201 or 3301, a public performance, 3541-3542-3543, 5351-5352-5353, 5354-5355-5356, 6 additional 3xxx-5xxx-level music cr

## B.F.A. MAJOR SEQUENCE

The B.F.A. permits greater concentration in music than does the B.A. The B.F.A. generally requires 48 credits in applied music; English composition plus 43 distribution credits in Groups A, B, and C; and the remaining credits in courses in music appropriate to the major concentration. Full details may be obtained from the department office.

## APPLIED MUSIC COURSES

(0-2 cr per qtr, \$60; 4 cr per qtr, \$120)

Instrument	Applied: Elective				Applied		Applied: Performance	
	Non-Cr.	1xxx level	3xxx level	Grad	1xxx level	3xxx level	1xxx level	3xxx level
Piano	0101	1101	3101	5101	1201	3201	1301	3301
Harpsichord	0102	1102	3102	5102	1202	3202	1302	3302
Organ	0103	1103	3103	5103	1203	3203	1303	3303
Voice	0104	1104	3104	5104	1204	3204	1304	3304
Violin	0105	1105	3105	5105	1205	3205	1305	3305
Viola	0106	1106	3106	5106	1206	3206	1306	3306
Cello	0107	1107	3107	5107	1207	3207	1307	3307
Double Bass	0108	1108	3108	5108	1208	3208	1308	3308
Flute	0109	1109	3109	5109	1209	3209	1309	3309
Oboe	0111	1111	3111	5111	1211	3211	1311	3311
Clarinet	0112	1112	3112	5112	1212	3212	1312	3312
Saxophone	0113	1113	3113	5113	1213	3213	1313	3313
Bassoon	0114	1114	3114	5114	1214	3214	1314	3314
French Horn	0115	1115	3115	5115	1215	3215	1315	3315
Trumpet	0116	1116	3116	5116	1216	3216	1316	3316
Trombone	0117	1117	3117	5117	1217	3217	1317	3317
Baritone	0118	1118	3118	5118	1218	3218	1318	3318
Tuba	0119	1119	3119	5119	1219	3219	1319	3319
Percussion	0121	1121	3121	5121	1221	3221	1321	3321
Harp	0122	1122	3122	5122	1222	3222	1322	3322
Guitar	0123	1123	3123	5123	1223	3223	1323	3323
Accordion	0124	1124	3124	5124	1224	3224	1324	3324
Sitar	0125	1125	3125	5125	1225	3225	1325	3325

## Course Descriptions—Major Sequences

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- 1001f,w,s. FUNDAMENTALS OF MUSIC.** (4 cr; for non-music majors) Lauritzen  
Basic musical symbols, vocabulary, rhythm, design, scale structures, intervals, chords.  
Basic piano skills; simple accompaniments. (GrD)
- 1021f,w. INTRODUCTION TO MUSIC.** (5 cr, §3021) Sutton  
Music in the repertoire of our culture—forms and styles from 17th through 20th centuries. Aural analyses, relationships of large units of musical form. (GrD)
- 1151f-1152w-1153s. PIANO: CLASS LESSONS.** (2 cr per qtr; prereq 1001 for non-music majors..# for others for 1151)  
Skills at the keyboard in harmonization, improvisation, sight reading, accompaniment, repertory, technique. Group learning. (GrD)
- 1161f-1162w-1163s. VOICE: CLASS LESSONS.** (2 cr per qtr)  
Fundamentals of vocal production: posture, respiration, phonation, and articulation. (GrD)
- 1171f-1172w-1173s. GUITAR: CLASS LESSONS.** (2 cr per qtr)  
Fundamentals for the beginning folk-guitarist. Progressive development of skills. 1171: Strumming techniques, harmonizations in basic keys. 1172: Advanced strumming techniques, bass runs, finger-picking strums. 1173: Melodic techniques, advanced harmonizations. (Student must furnish his own guitar.) (GrD)
- 1410f,w,s. BAND.** (1 cr per qtr; prereq #) Bencriscutto  
Concert Band Ensemble; Symphony Band Ensemble; Symphony Bands I and II; Marching Band. Concert and Symphony Bands perform standard and contemporary repertory. Marching Band performs at University functions. (GrD)
- 1420f,w,s. ORCHESTRA.** (1 cr per qtr; prereq #) Massmann  
Symphonic repertory through performance. Minimum of one concert per quarter. Players from all colleges are invited to participate. Major choral works with the University Chorus, guest and student soloists, appearances on tours. (GrD)
- 1430f,w,s. UNIVERSITY CHORUS; CONCERT CHOIR; WOMEN'S CHORUS; MEN'S CHORUS; ST. PAUL CAMPUS CHORUS.** (1 cr per qtr; prereq #) Lancaster, Jorgenson  
*Sec. 1,2,3—University Chorus:* Major symphonic works with Minnesota Orchestra, University Symphony Orchestra, University Concert Band. *Sec. 3—Concert Choir:* Ensemble chosen from the University Chorus. *Sec. 4—Women's Chorus:* Rehearsals and performances of standard women's chorus material. Appearances at on- and off-campus functions. *Sec. 5—Men's Chorus:* Standard men's chorus material as well as special arrangements. Appearances at on- and off-campus functions. *Sec. 6—St. Paul Campus Chorus:* At least one public appearance a quarter; special events connected with St. Paul Campus. (GrD)
- 1440f,w,s. ENSEMBLE.** (1 cr per qtr; prereq #)  
Performance of chamber music of major and minor composers: sonatas, trios, quartets, quintets, etc. Combinations of vocal and instrumental chamber ensemble materials. (GrD)
- 1501f-1502w-1503s. MATERIALS AND STRUCTURE OF MUSIC I.** (2 cr per qtr; prereq music major) Humphries  
1501: Clefs, transposition, modes, meter and rhythm, triads, part writing, cadences, dominant seventh chord. 1502: Nonchord tones, modulation, secondary dominants, design and elaboration of harmonic progressions. 1503: Diatonic seventh, secondary diminished seventh, augmented sixth and Neapolitan chords, variation and ternary forms. (GrD)
- 1504f-1505w-1506s. MATERIALS AND STRUCTURE OF MUSIC II.** (2 cr per qtr; prereq 1503) Humphries  
Melodic, harmonic, and rhythmic concepts; contemporary materials and procedures; larger musical structures. (GrD)
- 1507su-1508su. SURVEY OF MELODIC AND HARMONIC PROCEDURES.** (3 cr per qtr; prereq #) Humphries  
Melodic and harmonic structure. (GrD)
- 1511f-1512w-1513s. EAR-TRAINING AND SIGHT-SINGING I.** (2 cr per qtr; prereq music major) Humphries  
Melodic, harmonic, and rhythmic dictation; sight-singing; clef-reading; musicianship drills. (GrD)
- 1514f-1515w-1516s. EAR-TRAINING AND SIGHT-SINGING II.** (2 cr per qtr; prereq 1513) Humphries  
Further development of aural skills presented in 1511-1512-1513. (GrD)

- 1517su-1518su. EAR-TRAINING AND SIGHT-SINGING.** (3 cr per qtr; prereq #) Humphries  
Aural skills with concentration on sight-singing, interval recognition, melodic and harmonic dictation, and vocal improvisation. (GrD)
- 1521f-1522w-1523s. KEYBOARD TRAINING.** (2 cr per qtr; primarily for piano and organ majors; prereq 1503 and 1513) Humphries  
Keyboard harmony; realization of figured basses; score reading; transposition, improvisation. (GrD)
- 1603s-1604f-1605w-1606s. HISTORY OF WESTERN MUSIC.** (4 cr per qtr; prereq 1502) Laudon  
Musical styles and forms, 9th through 20th centuries; their identification through listening practice. 1603: Romanesque, Gothic, and Renaissance eras. 1604: Baroque era. 1605: Classical-Romantic era. 1606: 20th century. (GrD)
- 1804. WORLD MUSIC.** (4 cr) Kagan  
Music in universal perspective. Traits distinguishing styles and cultural factors that influence musical creativity. Music of different cultures in juxtaposition to examine forms and traits, to develop listening abilities and an understanding of man's musical expressions. (GrD)

### Courses for Non-Music Majors

- 3021w,s. INTRODUCTION TO MUSIC.** (5 cr, §1021; open to jr and sr non-music majors) Sutton  
Similar to 1021 in organization and content but more extensive. (GrD)
- 5027f, 5028w, 5029s. HISTORY OF MUSICAL STYLES.** (4 cr per qtr) Cardamone  
Stylistic developments in history of Western music, 9th century to present day. 5027: Middle Ages, Renaissance, Baroque period. 5028: Classical period, early Romantic period, nationalism. 5029: 1850 to present. (GrD)

### Performance Practice

- 5182f. BAROQUE PERFORMANCE PRACTICE.** (4 cr; prereq sr or grad, 1506, 1606, or #) Laudon  
Ornamentation, phrasing, articulation, and improvisation in music of period 1550-1759. Music instruction books of the period; analysis and performance of baroque music in baroque style. (GrD)

### Pedagogy and Conducting

- 5351f-5352w-5353s. PIANO PEDAGOGY I.** (2 cr per qtr; prereq 12 cr in 1101 or 1201 or 1301 or 1151-1152-1153 or #; offered 1974-75 and alt yrs) Guhl  
Demonstration and discussion of group piano instruction at the elementary level. Literature appropriate to conceptual learning through the discovery approach. (GrD)
- 5354f-5355w-5356s. PIANO PEDAGOGY II.** (2 cr per qtr; prereq 12 cr in 1101 or 1201 or 1301 or 1151-1152-1153 or #; offered 1975-76 and alt yrs) Guhl  
Principles of piano pedagogy. Survey of teaching materials; application of applied principles and techniques in a directed teaching setting. (GrD)
- 5357f, 5358w, 5359s. GRADUATE PIANO SEMINAR.** (2 cr per qtr; prereq #; offered 1975-76 and alt yrs) Weiser, Freed, McNab  
Problems in piano study instruction and performance. Terminology, repertory, evolution of piano construction, performance practice from baroque to contemporary literature. (GrD)
- 5361f-5362w-5363s. VIOLIN PEDAGOGY I.** (2 cr per qtr; prereq 12 cr in 1205 or 1206 or 1305 or 1306 or #) Massmann, West, Tartaglia  
Teaching private violin students at beginning, intermediate, and advanced levels. Discussion and demonstrations of pedagogical techniques. (GrD)
- 5371f-5372w-5373s. DICTION FOR SINGERS.** (2 cr per qtr; prereq 12 cr of 1204 or #)  
Introduction to International Phonetic Association alphabet; principles used in singing pronunciation of English, Italian, German, and French. 5371: English and Italian. 5372: German. 5373: French. (GrD)
- 5375-5376. VOCAL PEDAGOGY.** (4 cr per qtr; prereq 18 cr applied voice, MuEd 3431, and/or #)  
Anatomical study of the vocal mechanism. Principles and techniques of vocal production. Teaching methods and application of knowledge in a directed teaching situation. (GrD)

## Course Descriptions—Major Sequences

- 5384-5385. CHORAL CONDUCTING.** (4 cr per qtr; prereq #; offered 1975-76 and alt yrs) Lancaster  
Advanced study of choral conducting—hand techniques, sound control, articulation, breath control, intonation, etc. (GrD)
- 5387-5388. INSTRUMENTAL CONDUCTING.** (4 cr per qtr; prereq #)  
Advanced study of instrumental conducting—conducting techniques, score analysis, performance practice. (GrD)
- 5399f,w,s. PERFORMANCE IN CONDUCTING.** (2 cr; prereq 5388 or 5385, #)  
Preparation and conducting, with documentation, of an ensemble program. (GrD)

### Ensembles and Miscellany

- 3401f, 3402w. INTERDISCIPLINARY HONORS SEMINAR: MUSIC, STUDIO ARTS, THEATRE.** (2-4 cr per qtr, §ArtS 3401, §Th 3401, §ArtS 3402, §Th 3402; pre-req jr, sr honors candidate, #) Argento (GrD)
- 3440f,w,s. ENSEMBLE.** (1 cr per qtr; prereq audition)  
Performance of chamber music of major and minor composers; sonatas, trios, quartets, quintets, etc. Combinations of vocal and instrumental chamber ensemble materials. (GrD)
- 5370. VOCAL PERFORMANCE SEMINAR.** (2 cr per qtr; prereq 18 cr in applied voice and #)  
Vocal performance in a seminar setting. Performance problems—stage deportment, interpretation, vocal technique, and lyric diction. (GrD)
- 5410f,w,s. BAND.** (1 cr per qtr; prereq audition) Bencriscutto  
Concert Band Ensemble; Symphony Band Ensemble; Symphony Bands I and II; Marching Band. Concert and Symphony Bands perform standard and contemporary repertory. Marching Band performs at University functions. (GrD)
- 5420f,w,s. ORCHESTRA.** (1 cr per qtr; prereq audition) Massmann  
Symphonic repertory through performance. Players from all colleges are invited to participate. Major choral works with the University Chorus, guest and student soloists. (GrD)
- 5430f,w,s. UNIVERSITY CHORUS; CONCERT CHOIR; WOMEN'S CHORUS; MEN'S CHORUS; ST. PAUL CAMPUS CHORUS.** (1 cr per qtr; prereq audition) Lancaster, Jorgenson  
*Sec. 1,2,3—University Chorus:* Major symphonic works with Minnesota Orchestra, University Symphony Orchestra, University Concert Band. *Sec. 3—Concert Choir:* Ensemble chosen from the University Chorus. *Sec. 4—Women's Chorus:* Rehearsals and performances of standard women's chorus material. Appearances at on- and off-campus functions. *Sec. 5—Men's Chorus:* Rehearsals and performances of standard men's chorus material as well as special arrangements. Appearances at on- and off-campus functions. *Sec. 6—St. Paul Campus Chorus:* At least one public appearance a quarter; special events connected with St. Paul Campus. (GrD)
- 5440f,w,s. ENSEMBLE.** (1 cr per qtr; prereq audition)  
Performance of chamber music of major and minor composers (sonatas, trios, quartets, quintets, etc.). Combinations of vocal and instrumental chamber ensemble materials. (GrD)
- 5450f,w,s. COLLEGIUM MUSICUM.** (1 cr per qtr; prereq audition) Staff  
Small ensemble of singers and instrumentalists for study and performance of early music. (GrD)
- 5460f,w,s. CONTEMPORARY MUSIC ENSEMBLE.** (2 cr per qtr; prereq audition; offered when feasible) Stokes  
Practice and performance of recent music for various combinations of vocal and instrumental ensembles. (GrD)
- 5467-5468-5469. STAGE MOVEMENT AND ACTING FOR SINGERS.** (4 cr per qtr; prereq audition, #)  
Techniques of stage movement and acting styles; application of techniques to music theatre. (GrD)
- 5470f,w,s. OPERA WORKSHOP.** (3 cr per qtr; prereq ability to sing arias satisfactorily, audition) Sutton  
Preparation and performance of operatic arias and scenes; combined problems of musical and dramatic interpretation. A fully staged production. (GrD)
- 5490f,w,s. CHAMBER SINGERS.** (2 cr per qtr; prereq audition) Lancaster  
Mixed chorus of 16 to 20 voices. Performances each quarter. (GrD)

- 5950. TOPICS IN MUSIC.** (1-5 cr per qtr; exact number of cr and prereq designated according to the nature of each offering)  
Selected topics. For topics, see current *Class Schedule*.

## Music Theory and Composition

- 3541f-3542w-3543s. COUNTERPOINT.** (2 cr per qtr; prereq 1506) Fetler  
Strict 16th-century and Bach-style counterpoint in two and three parts; writing of canons, motets, inventions, fugues. A creative course. Writing musical examples by means of analysis within prescribed styles. (GrD)
- 3571. MUSIC CALLIGRAPHY.** (2 cr; prereq music or music education major; offered when feasible)  
Techniques and forms of notation; manuscript preparation and layout; duplication methods; general copyright procedures. (GrD)
- 3584, 3585. MUSIC: ITS MEANING AND STRUCTURE.** (4 cr per qtr) Fetler  
Selected works of various periods, including recent developments. Purpose, meaning, continuity, direction in music. Relationship of spontaneity and theoretical principles. (GrD)
- 5501f, 5502w, 5503s. ADVANCED MATERIALS AND STRUCTURE OF MUSIC.** (2 cr per qtr; prereq 1506) Argento  
Stylistic study of musical materials and structures. 5501: Before 1850. 5502: 1850-1950. 5503: Since 1950, electronic, aleatoric, mathematical procedures. New attitudes and notational practices. (GrD)
- 5511. ADVANCED EAR TRAINING I.** (3 cr; prereq 1516 or #) Fetler  
Dictation of melodic, harmonic, and rhythmic materials in a variety of styles. Contemporary sonorities. (GrD)
- 5512. ADVANCED EAR TRAINING II.** (3 cr; prereq 1516 or #) Fetler  
Dictation of melodic, harmonic, rhythmic, and contrapuntal materials. Twentieth-century tone combinations, meters, and rhythms. Tonal, polytonal, and atonal exercises. Tonal memory. (GrD)
- 5521f, 5522w, 5523s. KEYBOARD HARMONY.** (2 cr per qtr; primarily for piano and organ majors; prereq 1506, sr, or grad) Humphries  
Practical study of diatonic and chromatic harmony at the piano. Realization of figured bass music of the 17th and 18th centuries. Performance of choral, orchestral, and chamber music of Classical and early Romantic periods from open score, using all clefs. (GrD)
- 5532. ANALYSIS II.** (3 cr; prereq 1506) Stokes  
Procedures and techniques of analysis applied to music composed since ca. 1950. (GrD)
- 5533. ANALYSIS III.** (3 cr; prereq 1506) Fetler  
Representative masterworks of the 20th century. (GrD)
- 5537. SCORE STUDY (CHORAL).** (4 cr; prereq sr or grad and #)  
Choral scores ranging from the Renaissance through the 20th century. Reading of choral and choral-orchestral scores at the piano, including scores employing C clefs and transposing instruments. (GrD)
- 5541f-5542w-5543s. ADVANCED COUNTERPOINT.** (2 cr per qtr; prereq 3543; offered 1974-75 and alt yrs) Fetler  
Practice in writing three- and four-voice fugues; contrapuntal devices and problems; polyphonic works of periods from *Ars Nova* to the present day. (GrD)
- 5551f, 5552w, 5553s. COMPOSITION I.** (2 cr per qtr; prereq 1506) Argento, Fetler, Stokes  
Original work in various forms. Study of a variety of techniques and styles of composition, followed by development of original approaches. (GrD)
- 5554f, 5555w, 5556s. COMPOSITION II.** (2 cr per qtr; prereq 3543, 5553) Argento, Fetler, Stokes  
Original works in various forms. (GrD)
- 5560. ELECTRONIC MUSIC LABORATORY.** (2 cr per qtr; prereq 3791 or #) Stokes  
Electronic music techniques and compositional methods. Performance in combination with instruments and voices. (GrD)
- 5561f-5562w-5563s. ORCHESTRATION.** (2 cr per qtr; prereq 1506) Argento  
Scoring instruments of the orchestra for ensemble combinations and full orchestra. (GrD)

## Course Descriptions—Major Sequences

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- 5564. BAND ARRANGING.** (4 cr; prereq 1506, 5563 or MuEd 3516 or #; offered 1975-76 and alt yrs) Schultz  
Scoring techniques for wind and percussion instruments. Scoring for band. Creative arrangements for marching or concert band. (GrD)

### History and Literature

- 3708. BLACK MUSIC PRIOR TO WORLD WAR I.** (5 cr, §Afro 3105) Southall  
Musical contributions and achievements of Black Americans in the United States during the 19th and early 20th centuries. (GrD)
- 3709. AFRICAN MUSIC IN THE AMERICAN HERITAGE.** (4 cr, §Afro 3301) Southall  
Links between African music and music of Black America, West Indies, South and Central America. The Afro-Cuban style and modern jazz. (GrD)
- 3791. INTRODUCTION TO ELECTRONIC MUSIC.** (4 cr; prereq 4 cr in music or #) Stokes  
Musical literature to which electronic materials contribute. Listeners, discussions, and readings. Exercises in the use of equipment. (GrD)
- 3807f, 3808w. MUSIC IN ASIAN AND PACIFIC CULTURES.** (5,4 cr) Kagan  
Living music; ancient traditions of Asia's civilizations. Music and musical instruments: use and function in Australia, New Guinea, Polynesia, South and East Asia, Southeast Asia, island cultures. (GrD)
- 3970f,w.s. DIRECTED STUDIES.** (1-15 cr per qtr; prereq #, Δ) Staff  
Independent research and study under faculty guidance. Subjects selected according to strengths and interests of individual students. (GrD)
- 3980f,w.s. DIRECTED TEACHING.** (1-4 cr; prereq #, Δ) Staff (GrD)
- 5601f-5602w-5603s. HISTORY OF OPERA.** (3 cr per qtr; prereq 9 cr in history of music or history of art or history of theatre or European history from 1600 or #) Argento  
Origins of opera; development as a musicodramatic form through analysis of libretto and music of representative masterpieces of the late Renaissance, Baroque, Classical, Romantic, and Contemporary periods. (GrD)
- 5604f, 5605w. HISTORY OF CHURCH MUSIC.** (4 cr per qtr; prereq 1606 or #; offered 1974-75 and alt yrs) Riedel  
Trends, relationship of music to various theologies and liturgies. (GrD)
- 5607. GREGORIAN CHANT.** (4 cr; prereq 1606 or #; offered when feasible) Riedel  
Introduction to Gregorian chant, its forms and style. (GrD)
- 5608. LEITURGIA.** (4 cr; prereq 1606 or #; offered alt yrs) Riedel  
Liturgies ranging from the Roman chant to the 20th century. (GrD)
- 5611. HYMNOLOGY.** (4 cr; prereq 6 cr in 1603-1604-1605-1606 or #; offered when feasible) Fleischer, Riedel  
History of hymn texts and tunes. Byzantine and Roman hymns. Lutheran, Anglican, Baptist, Congregational, Methodist, Presbyterian, Unitarian, and other hymns. History of hymn books. History of hymn settings. (GrD)
- 5631. MUSIC IN MIDDLE AGES.** (4 cr; prereq 1606) Cardamone  
Development of Western musical style from the time of its earliest records to Machaut: Gregorian chant and accretions to the liturgy, chivalric song traditions in Spain, France, and Germany; organum, clausula, and motet. (GrD)
- 5632w-5633s. THE MUSIC OF HUMANISM: ARS NOVA AND RENAISSANCE.** (4 cr per qtr; prereq 5631) Cardamone  
Stylistic achievements in the history of part music, 1350-1600: French, Italian, English, German song forms; Franco-Flemish mass and motet, diffusion of Franco-Flemish style; mannerism and musical depiction of text; rise of instrumental music; stylistic analysis. (GrD)
- 5634f-5635w-5636s. MUSIC IN BAROQUE ERA.** (3 cr per qtr; prereq 1606; offered 1974-75 and alt yrs) Laudon  
Vocal, instrumental, and sacred styles of Baroque era. (GrD)
- 5637f-5638w-5639s. MUSIC IN GALANT AND CLASSIC PERIODS.** (3 cr per qtr; prereq 1606; offered 1975-76 and alt yrs) Laudon  
The transition from late baroque to galant and classical styles. (GrD)

- 5641, 5642. MUSIC IN ROMANTIC ERA.** (5,4 cr; prereq 1606 or #; offered 1975-76)  
Riedel  
Romanticism as a complex of individual styles with common elements, developed by composers so as to resolve conflicts between their artistic heritage and their environment. Relationship to literary trends; nationalism. (GrD)
- 5661. GEORGE FRIEDRICH HANDEL: LIFE AND WORKS.** (4 cr; prereq 1606 or #) Riedel  
Musical culture in middle and northern Germany during 17th and 18th centuries. Oratorio in Italy, France, Germany, and England. G. F. Handel's work, with emphasis on his oratorios. Handel and England. (GrD)
- 5662. HEINRICH SCHÜTZ: LIFE AND WORKS.** (4 cr; prereq 8 cr in music history or history of art or German literature or political history to 1700 or #) Riedel  
Political events in 17th-century Germany, Europe; Protestant hymn, psalm literature. Their musical elaborations in works of Schütz. Madrigals, monodies, sacred concerti and cantatas, passions. (GrD)
- 5663. LASSO AND PALESTRINA.** (4 cr; prereq 8 cr in music history or Renaissance and baroque art, or political history to 1700, or general history of Western philosophy or #) Riedel  
Council of Trent. Influence on sacred music of 16th century. Lasso's cosmopolitan style, Palestrina's a cappella style. Palestrina style, 17th, 18th centuries. Caecilianism of 19th, 20th centuries. (GrD)
- 5664. CHARLES IVES: LIFE AND WORKS.** (4 cr) Riedel  
Detailed study of Ives' compositions. Ives and American transcendentalism. Ives and the Progressive party. Ives as a 19th- and 20th-century composer. (GrD)
- 5665. RABINDRANATH TAGORE; MUSIC AND POETRY.** (4 cr) Kagan  
Life, philosophy, works. Influences: Europe, India's classical and folk traditions. Poetic forms and themes. Influence upon Bengali literature. Songs, operas, with bilingual texts. (GrD)
- 5666. STRAVINSKY.** (4 cr) Cardamone  
Changing styles and aesthetic principles of Stravinsky as seen in representative compositions and writings; contributions to artistic life in Europe and America (particularly ballet). (GrD)
- 5701, 5702. AMERICAN MUSIC.** (4 cr per qtr; prereq 1606 or 8 cr in American history or American studies or #) Riedel  
From colonial times to present. American Indian music; sacred music in America, Puritan New England to the present time; jazz; music education; the symphony orchestra; contemporary music. (GrD)
- 5704, 5705. LATIN AMERICAN MUSIC.** (4 cr per qtr; offered 1975-76 and alt yrs) Riedel  
Pre-Maya and pre-Inca times through colonial period to present. Music of Indians in Brazil, Inca countries. Afro-American, Ibero-Latin American music. Folk, popular, contemporary music. (GrD)
- 5707. SCANDINAVIAN MUSIC.** (4 cr; prereq major in music or Scandinavian or humanities or #; offered when feasible)  
Music of Norway, Sweden, Finland, Denmark, Iceland; historical backgrounds, folk music, church music, and the music of today. (GrD)
- 5741, 5742. VOCAL LITERATURE.** (4 cr per qtr; prereq 12 cr in 1104 or 1204 or 1304 or #; offered 1975-76 and alt yrs) Schuessler, Sutton  
Literature and pedagogy: performance of representative songs from major and minor composers. Significant vocal techniques from major schools of singing as they relate to song performance. (GrD)
- 5744f, 5745w, 5746s. PIANO LITERATURE.** (2 cr per qtr; prereq 12 cr in 1101 or 1201 or 1301 or #; offered 1974-75) Weiser  
The history of keyboard literature suitable for piano performances from end of 16th century to present. Performance illustrations, recordings. (GrD)
- 5747. ORGAN LITERATURE.** (2 cr; prereq grad organ and musicology students or #; offered 1974-75) Fleischer  
Organ literature and playing from 14th century to the present. Mutual influence of organ construction and composition; national schools of organ playing. (GrD)
- 5748. INTRODUCTION TO PIPE ORGAN BUILDING.** (2 cr; prereq organ major...other music students with #; offered when feasible)  
Construction, scaling, voicing, and tuning of organ pipes; layouts of mixtures; evaluation of specifications; construction and evaluation of different types of chests and actions; historical styles of organ building. (GrD)

## Course Descriptions—Major Sequences

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- 5754. CHORAL LITERATURE: RENAISSANCE THROUGH BAROQUE ERAS.** (4 cr; prereq sr or grad and #) Lancaster  
Sacred and secular choral works of the Renaissance and Baroque eras. (GrD)
- 5755. CHORAL LITERATURE: CLASSICAL ERA THROUGH THE 20TH CENTURY.** (4 cr; prereq sr or grad and #) Lancaster  
Sacred and secular choral works of the Classical era through the 20th century. (GrD)
- 5810. ASIAN MUSIC IN PERFORMANCE.** (2 cr; prereq #) Kagan, staff  
Development of vocal and instrumental skills through applied training and lecture demonstrations. (GrD)
- 5811. TRADITIONAL INDIAN MUSIC: THE SACRED AND THE PROFANE.** (5 cr) Kagan  
Vedic chant and regional folk music. Musical analysis and associations with belief systems, social institutions, history, and aesthetic expression. Music theory of India, notational systems, tonal and rhythmic materials, and classifications, musical forms and performance practice. (GrD)
- 5841. MUSIC BIBLIOGRAPHY.** (4 cr; prereq 1606 or #) Riedel  
Music bibliographies, reference materials, and monuments of music. (GrD)
- 5844, 5845. INTRODUCTION TO MUSICOLOGY.** (4 cr per qtr; prereq 5841 or #; offered 1975-76 and alt yrs) Riedel  
Scope, aims, methods, and resources of research in musicology; acoustics, psychology, sociology, and theory. (GrD)
- 5861. INTRODUCTION TO ETHNOMUSICOLOGY.** (5 cr; prereq #; offered 1974-75 and alt yrs) Kagan  
Scope, aims, methods, and resources of research in ethnomusicology. Transcription and analysis of preliterate, folk, and high-art music of the world. Analysis of style, form, usage, and function. Approaches to musical typology and comparative studies. (GrD)
- 5863. MUSICAL INSTRUMENTS OF THE WORLD.** (4 cr; offered 1975-76 and alt yrs) Kagan  
Organology; classification and comparative study of musical instruments in all cultures; history, distribution, structure, technology, acoustics. Instruments in literature, myths, iconography. (GrD)

## Natural Science and Technology (NSci)

*College of Biological Sciences*

*Institute of Technology*

The natural sciences are concerned with investigating the biological universe, the physical universe, and the technology that human society has developed in its attempts to improve the quality of life.

The courses listed here are designed for students majoring in fields other than the sciences. Because some of the offerings are experimental in nature, changes in course listings occur with some frequency. Latest information will be found in the current *Class Schedule* or from the Experimental Courses office, 106 Johnston Hall. (Courses of similar nature are described under Literature and Fine Arts and Social Science headings in this bulletin.)

**Biological Universe—See Biology**

### Physical Universe

- 1004f,w. PHYSICAL WORLD: PHYSICS.** (4 cr, §any other physics courses; prereq 1 yr high school algebra)  
Topics selected to illustrate the methods of science and to acquaint students with the physical universe. (GrB)

- 1005w,s. PHYSICAL WORLD: CHEMISTRY.** (4 cr, §any other chemistry courses; prereq 1 yr high school algebra...high school chemistry and NSci 1004 recommended)  
Fundamental concepts of chemical bonding, structure of matter, and the forces operating in the physical world. Scientific methods and principles developed in lecture, lecture experiments, and laboratory to help students understand their environment and problems faced in improving it. (GrB)
- 1006s. PHYSICAL WORLD: GEOLOGY.** (4 cr; prereq 1005 or §)  
Essential elements of geology. Earth science topics that illustrate methods of science and acquaint students with the earth as a physical and chemical system. Laboratory, field trips. (GrB)
- 3011. CHEMISTRY IN ART.** (4 cr; prereq major in studio arts, art history, design, art education, or §; 3 lect plus lab)  
Basic chemistry of materials and processes used by artists. Pigments and dyes, vehicles, solvents, plastics, metals, ceramics, photography, print processes, lasers, health hazards. (GrB)

### Technology and Man

*Credit in these courses is not available to Institute of Technology students.*

- 3101. INTRODUCTION TO ENVIRONMENTAL TECHNOLOGY.** (4 cr; prereq high school physics or chemistry)  
Technological aspects of protecting man and the environment from man's activities. Sources and magnitude of pollution problems in air, water, noise, solid waste. Environmental quality standards, pollution abatement options, technological limitations. (GrB)
- 3201. PERSPECTIVE ON COMPUTERS AND SOCIETY.** (4 cr; prereq high school algebra)  
The history of automatic computing, the current state of computer technology, the ethics and politics of massive information technologies; future trends. (GrB)
- 3301. ENERGY, POWER, AND SOCIETY.** (4 cr; prereq high school algebra, physics or chemistry)  
The need for energy and its use in society. Concepts of energy and power; problems of pollution and waste disposal. (GrB)
- 3401. TRANSPORTATION.** (4 cr; prereq high school physics, chemistry, algebra, and plane geometry)  
Physical and technological aspects of local, intercity, and space transportation. Criteria for evaluating transportation systems. Natural limits in transportation. New concepts. (GrB)
- 3770. HONORS READING PROGRAM.** (2 cr per qtr; S-N only; open to honors candidates only)  
Integrated readings and seminars centered around topics of current interest within the natural sciences.
- 3970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq # of Office for Special Learning Opportunities staff)

### NAVAL SCIENCE

See Reserve Officers' Training Corps.

## Northwest European Language and Area Studies

Director, J. Allen Simpson, 210 Folwell Hall

Courses in the program of the Center for Northwest European Language and Area Studies are offered by seven departments: Art History, Geography, German, History, Philosophy, Political Science, and Scandinavian. The courses appear under department headings in this bulletin.

## NORWEGIAN

See Scandinavian.

## PERSIAN

See Middle Eastern Languages.

## Personal Orientation (PO)

*Student Counseling Bureau*

### 1001. HOW TO STUDY. (2 cr; does not count toward BA degree)

Practical assistance in developing efficient study and concentration methods, preparing for examinations, and improving reading skill. Student attitudes and motivations and their relation to satisfactory performance.

## PHILOLOGY

See Classics.

## Philosophy (Phil)

### Staff

*Chairman*, H. E. Mason, 399 Ford Hall; *Director of Undergraduate Studies*, Douglas Lewis, 305 Ford Hall

*Professors*: Earman, Gunderson, Hochberg, Hopkins, Mason, Maxwell (on leave, 1974-75), Sartorius, Terrell, Wallace

*Associate Professors*: Dahl (on leave, 1974-75), Dolan, Eaton, Hanson (on leave, 1974-75), Lewis, Savage

*Assistant Professors*: Arnaud, Harper, Peterson, Root

Philosophy, under most definitions, includes study of the most general causes and principles of things, principles of human actions and conduct, general principles of particular branches of knowledge, and ideas developed on these matters.

## B.A. MAJOR SEQUENCE

### Required Preparatory Courses

1001 or 3201; 1002

### Major Requirements

Minimum of 35 3xxx-5xxx-level cr, including: 3003 or 3003H and at least 5 additional cr in history of philosophy

At least 15 cr at the 5xxx level

**General Education**—Students interested in moral and social issues will find 1003, 1004, 3302, and 5xxx-level ethics and political philosophy courses of value. Courses in logic (1002 and 3201) and philosophy of science (3631) will be of value to science majors. Courses in aesthetics, philosophy of language, and history

of philosophy contain material of interest to nonspecialists. Students intending to enter theological seminaries or other institutions of religious training should note the special pretheology curriculum.

- 1001f,w,s. LOGIC.** (5 cr) Staff  
The application of formal techniques for evaluating arguments. (GrA)
- 1002f,w,s. INTRODUCTION TO PHILOSOPHY.** (5 cr; open to 3rd-qtr fr) Staff  
Problems, principal methods and schools of philosophy; historical and contemporary views. (GrC)
- 1002H. HONORS COURSE: INTRODUCTION TO PHILOSOPHY.** (5 cr; prereq Honors regis or #) Staff  
For description, see 1002. (GrC)
- 1003f,w,s. ETHICS.** (5 cr) Staff  
Problems that arise when human beings attempt to think systematically about conduct and value. (GrC)
- 1004. INTRODUCTION TO POLITICAL PHILOSOPHY.** (5 cr) Staff  
Central concepts and principal theories of political philosophy. (GrC)
- 1410. SELECTED TOPICS IN MORAL AND POLITICAL PHILOSOPHY.** (5 cr per qtr) Staff  
Moral and political philosophy seen through intensive study of a single topic—non-violence, justice, social choice, anarchy, medical ethics. (GrC)
- 3001f, 3002w, 3003s, 3004f. GENERAL HISTORY OF WESTERN PHILOSOPHY.** (5 cr per qtr) Staff  
Major developments in Western philosophic thought from its beginnings among Greeks to end of 19th century. 3001: Greek philosophy, pre-Socratics, Socrates, Plato, Aristotle. 3002: Stoicism, Epicureanism, and medieval Christian synthesis. 3003: Modern philosophy from Descartes through Hume. 3004: Later modern philosophy from Kant through 19th century. (GrC)
- 3001Hf, 3002Hw, 3003Hs, 3004Hf. HONORS COURSE: GENERAL HISTORY OF WESTERN PHILOSOPHY.** (5 cr per qtr; prereq Honors regis or #) Staff  
For description, see 3001, 3002, 3003, 3004. Honors recitation section. (GrC)
- 3201f. ELEMENTS OF SYMBOLIC LOGIC I.** (5 cr, §5201) Arnaud, Dolan  
Development of a formalized language. Syntax and semantics of sentential and first-order predicate logic. Deductive systems. (GrA)
- 3202w. ELEMENTS OF SYMBOLIC LOGIC II.** (5 cr, §5202; prereq 3201 or #) Arnaud, Dolan  
Further study of first-order predicate logic: identity, axiomatic development. Various metatheorems: soundness, consistency, and completeness. (GrA)
- 3231. INTRODUCTION TO THE PHILOSOPHY OF LANGUAGE.** (5 cr, §5231; prereq 1001 or 3201 or 5201 or #) Dolan, Mason, Peterson, Root, Wallace  
Central topics in the philosophy of language, theories of reference, linguistic truth, relation of language and thought, translation and synonymy. (GrA)
- 3231H. HONORS COURSE: INTRODUCTION TO THE PHILOSOPHY OF LANGUAGE.** (5 cr; prereq Honors regis or #)  
For description, see 3231. (GrA)
- 3302. MORAL PROBLEMS OF CONTEMPORARY SOCIETY.** (5 cr) Mason, Dahl, Sartorius  
Fundamental moral dilemmas of today. (GrC)
- 3502. INTRODUCTION TO AESTHETICS.** (5 cr) Eaton  
Development of aesthetic theories from Plato to Tolstoy. (GrD)
- 3521. PHILOSOPHY OF RELIGION.** (5 cr; prereq 10 cr in philosophy) Hopkins  
Ground and sanctions of religion, according to various philosophies. (GrC)
- 3631. LOGIC OF SCIENTIFIC REASONING.** (5 cr, §5631; prereq 1001 or 3201) Hanson, Maxwell  
Principles of scientific method; contemporary approaches to scientific inference. (GrA)
- 3900. HONORS COURSE: UNDERGRADUATE SEMINAR.** (5 cr per qtr; prereq Honors regis and 10 cr in 3xxx-5xxx-level philosophy courses) Staff  
Topics of contemporary interest, varying from quarter to quarter.
- 3911. PHILOSOPHY OF MODERN LITERATURE.** (5 cr; prereq major or minor in philosophy or literature, or #; offered when feasible) Eaton, Kliger, Terrell  
Basic philosophical ideas in modern civilization as expressed in major works of literature. (GrD)

## Course Descriptions—Major Sequences

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- 3970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq #) Staff
- 3980. DIRECTED INSTRUCTION.** (1-5 cr; prereq #) Staff
- 3990. HONORS COURSE: THESIS.** (5 cr per qtr; prereq sr, Honors regis in philosophy, GPA of 3.50 or better in previous work)  
Individual assignments carried out under direction of faculty member.
- 5003. AMERICAN PHILOSOPHY FROM WILLIAM JAMES.** (5 cr; prereq 1002 or 1 qtr history of philosophy or #; offered when feasible)  
Among philosophers discussed: Peirce, James, Dewey, Lewis. (GrC)
- 5004. SOCRATIC DIALOGUES.** (5 cr; prereq 3001 or #) Harper, Hopkins, Lewis, Peterson  
Early Socratic dialogues of Plato; Socratic method and paradoxes. (GrC)
- 5005. PLATO.** (5 cr; prereq 3001 or #) Harper, Hopkins, Peterson  
Major dialogues. (GrC)
- 5008. ARISTOTLE.** (5 cr; prereq 1 qtr history of philosophy or #) Dahl, Harper, Peterson  
Selected passages from major works. Aristotle's relationship to Plato. (GrC)
- 5012. PLATO AND ARISTOTLE.** (5 cr; prereq 3001 or #; offered when feasible) Dahl, Harper, Peterson  
Comparative presentation of metaphysical and epistemological views; problems of universals. (GrC)
- 5020. PROBLEMS IN POST-ARISTOTELIAN PHILOSOPHY.** (4 cr per qtr, §Clas 5020; prereq 3001 or 3002 or 3900 or 5008 or 5012 or Clas 5085 or 5086 or #) Harper  
Problems in philosophy after Aristotle and before Augustine. Topics may include Stoics, Epicureans, Cynics, Sceptics, neo-Pythagoreans, middle and late Platonists. (GrC)
- 5021. MEDIEVAL PHILOSOPHY.** (5 cr; prereq 3001 or 3002 or #) Hopkins  
Selected topics in writings of medieval philosophers: Augustine, Anselm, Aquinas, Scotus, and Ockham. (GrC)
- 5033. RATIONALISM.** (5 cr; prereq 3003 or #; offered when feasible) Lewis  
Descartes, Spinoza, and Leibniz. (GrC)
- 5034. DESCARTES.** (5 cr; prereq 3003 or #) Lewis, Root  
Philosophical works. (GrC)
- 5035. SPINOZA.** (5 cr; prereq 3003 or #; offered when feasible) Lewis  
Detailed study of the *Ethics*. (GrC)
- 5036. LEIBNIZ.** (5 cr; prereq 3003 or #; offered when feasible) Arnaud, Lewis, Wallace  
Selected philosophical writings. (GrC)
- 5037. LOCKE AND LEIBNIZ ON LANGUAGE AND MIND.** (5 cr; prereq 5 cr in philosophy or #) Gunderson, Root  
Locke's *Essay*: Books I and III and Leibniz's reply in his *New Essays*; relating the controversy to current and historical issues concerning language and the mind. (GrA)
- 5041. LOCKE.** (5 cr; prereq 3003 or #) Gunderson, Lewis, Terrell  
Detailed study of the *Essay Concerning Human Understanding*. (GrC)
- 5042. BERKELEY.** (5 cr; prereq 3003 or #) Lewis, Terrell  
Detailed study of Berkeley's philosophical works. (GrC)
- 5043. HUME.** (5 cr; prereq 3003 or #) Terrell  
Detailed study of Hume's *Treatise* and *Inquiry*. (GrC)
- 5044. LATER EMPIRICISM.** (5 cr; prereq 3003 or #; offered when feasible) Terrell  
Empiricist traditions, principally in Great Britain, from Hume to Russell. (GrC)
- 5046. KANT.** (5 cr; prereq 3003 or 3004 or #) Arnaud, Mason  
Selected passages from major works. (GrC)
- 5052. BRENTANO.** (5 cr; prereq 3003 or #; offered when feasible) Terrell  
Philosophy of Brentano; significance in background of contemporary philosophy. (GrC)
- 5054. KIERKEGAARD.** (5 cr; prereq 1 qtr history of philosophy or #) Mason  
Major philosophical works. (GrC)
- 5068. LATER PHILOSOPHY OF WITTGENSTEIN.** (5 cr; prereq 5231 or 3003 or #) Mason  
Wittgenstein's *Philosophical Investigations*. (GrC)
- 5101. METAPHYSICS.** (5 cr; prereq 1 qtr history of philosophy or #) Arnaud, Dolan, Hochberg, Wallace  
Recent attempts to discover general principles characteristic of reality. (GrA)

- 5105. THEORY OF KNOWLEDGE.** (5 cr; prereq 1001 or 3201 or #) Dolan, Earman, Maxwell, Savage  
 Logical structure and experiential roots of knowledge. Meaning, validity, truth, reason, reality. (GrA)
- 5201. ELEMENTS OF SYMBOLIC LOGIC I.** (5 cr, §3201) Arnaud, Dolan  
 For description, see 3201. (GrA)
- 5202. ELEMENTS OF SYMBOLIC LOGIC II.** (5 cr, §3202; prereq 3201 or 5201 or #)  
 Arnaud, Dolan  
 For description, see 3202. (GrA)
- 5203. INTERMEDIATE SYMBOLIC LOGIC.** (5 cr; prereq 3202 or 5202) Hanson, Wallace  
 Axiomatic development of first-order predicate logic and first-order number theory; proofs of limitative results such as undecidability of predicate logic and incompleteness of number theory. Significance of limitative results. (GrA)
- 5211. NONCLASSICAL LOGICS.** (5 cr; prereq 3202 or 5202 or Math 5162 or #) Hanson  
 Modal, many valued, and intuitionistic logics. (GrA)
- 5221. PHILOSOPHY OF LOGIC.** (5 cr; prereq 3202 or 5202 or Math 5162 or #) Hochberg, Wallace  
 Logic and reality; relation of logic to mathematics; theory of descriptions, paradoxes; identity. (GrA)
- 5231. INTRODUCTION TO THE PHILOSOPHY OF LANGUAGE.** (5 cr, §3231; prereq 1001 or 3201 or 5201 or #) Arnaud, Dolan, Mason, Peterson, Root, Wallace  
 For description, see 3231. (GrA)
- 5232. TOPICS IN THE PHILOSOPHY OF LANGUAGE.** (5 cr; prereq 3231 or 5231 or #)  
 Arnaud, Dolan, Mason, Peterson, Root, Wallace  
 Detailed study of topics surveyed in 5231 or some other topic central to the philosophy of language. (GrA)
- 5301. HISTORY OF ETHICS: BRITISH MORALISTS.** (5 cr; prereq 1003 or 1 qtr history of philosophy or #) Terrell  
 Ethical theory in Great Britain from 17th through 19th centuries. (GrC)
- 5302. HISTORY OF ETHICS: SELECTED CLASSICAL MORALISTS.** (5 cr; prereq 1003 or 1 qtr history of philosophy or #) Dahl  
 Moral philosophy outside of British tradition (see 5301). Specific topics announced in *Class Schedule*. (GrC)
- 5311. ETHICAL THEORY.** (5 cr; prereq 1003 or #) Dahl, Mason, Wallace  
 Distinguishing characteristics of a moral judgment; examination of representative theories. (GrC)
- 5321. THEORIES OF JUSTICE.** (5 cr; prereq 1003 or 1004 or 5311 or #) Mason  
 Philosophical accounts of the concept and principles of justice. (GrC)
- 5324. ETHICS AND EDUCATION.** (5 cr; prereq 10 cr philosophy or education or #) Terrell  
 Recent studies relating ethical theory and philosophy of education; theories of moral development and moral education. (GrC)
- 5414. POLITICAL PHILOSOPHY.** (5 cr; prereq 1004 or #) Dolan, Sartorius  
 Central concepts and principal theories of political philosophy. (GrA)
- 5415. PHILOSOPHY OF LAW.** (5 cr; prereq 1003 or 1004 or 3302 or social science major or #)  
 Sartorius  
 Analytical accounts of law and legal obligation. (GrC)
- 5501. PRINCIPLES OF AESTHETICS.** (5 cr; prereq 3502 or #) Eaton, Gunderson  
 Standards of evaluation; aesthetic experience; representation, meaning. (GrD)
- 5512. PHILOSOPHY AND LITERARY CRITICISM.** (5 cr; prereq 5 cr in philosophy or #)  
 Eaton, Gunderson, Wallace  
 Goals and aims of literary criticism and the problems that arise in attempting to justify principles of criticism. (GrD)
- 5601. PHILOSOPHY OF SCIENCE.** (5 cr; prereq 1001 or 3201 or #) Earman, Maxwell  
 Meaning, methods, and implications of modern science. Basic concepts, presuppositions, and procedures. (GrA)
- 5611. PHILOSOPHY OF THE SOCIAL SCIENCES I.** (5 cr; prereq 15 cr in philosophy or social sciences or #)  
 Criteria for describing and explaining human actions; problems of objectivity, reduction, freedom. (GrC)

## Course Descriptions—Major Sequences

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- 5612. PHILOSOPHY OF THE SOCIAL SCIENCES II.** (5 cr; prereq 5611; offered when feasible)  
Intensive study of certain topics in 5611, plus analysis of models and measurement. (GrC)
- 5615. MINDS, BODIES, AND MACHINES.** (5 cr; prereq 5 cr in philosophy or §) Gunderson  
Philosophical relevance of cybernetics, artificial intelligence, and computer simulation. (GrC)
- 5621. PHILOSOPHY OF HISTORY.** (5 cr; prereq 10 cr in philosophy or 15 cr in history)  
Hopkins, Mason  
Philosophical interpretations of history; philosophical aspects of historical methods. (GrC)
- 5631. LOGIC OF SCIENTIFIC REASONING.** (5 cr, §3631; prereq 1001 or 3201) Hanson, Maxwell  
For description, see 3631. (GrA)
- 5701. SURVEY OF CONTEMPORARY PHILOSOPHY.** (5 cr; prereq 3003 or §) Staff  
Current systematic and critical philosophies, as represented by principal exponents. (GrC)
- 5720, 5730, 5740. STUDIES IN CONTEMPORARY PHILOSOPHERS.** (5 cr per qtr; prereq 3003 or §) Staff  
Selected individual philosophers. Specific topics announced in *Class Schedule*.
- 5760, 5770. SELECTED TOPICS IN PHILOSOPHY.** (5 cr per qtr; prereq 5 3xxx-5xxx-level cr in philosophy or §) Staff  
Selected philosophical problems of contemporary interest. Specific topics announced in *Class Schedule*.
- 5781. CONTEMPORARY EXISTENTIALISM.** (5 cr; prereq 3003 or 3004 or 5054 or §)  
Hochberg, Hopkins, Mason  
Selected topics in writings of existentialist philosophers since Kierkegaard. (GrC)
- 5970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq §) Staff
- 5990. DIRECTED RESEARCH.** (1-5 cr per qtr; prereq §) Staff

## Physical Education (PE)

### *College of Education*

#### **Staff**

*Chairman*, John F. Alexander, 224 Cooke Hall; *Coordinator of Nonprofessional Program*, Eva Lou Dillon, 219 Cooke Hall

Physical education courses open to CLA students serve both recreational and professional and general educational purposes. CLA students may count up to 6 PE credits toward degrees. (College of Education students must have 3 or more PE credits toward their degrees.)

Beginning activity courses require no prerequisite. Skills or experience may substitute for listed prerequisites for courses at more advanced levels. Advisers are available in Cooke Hall and Norris Gymnasium to provide information about appropriate levels.

Registration for courses numbered below 1500 takes place at 12 Johnston Hall (Minneapolis) or Coffey Hall (St. Paul); for those numbered 1500 or above at 1425 University Avenue S.E., Minneapolis. Students should make sure their "physical-fitness ratings" (provided by the Health Service) qualify them for courses they select. Towels, lockers, and uniforms may be rented for PE classes; fees are paid at 115 Morrill Hall (women only), Cooke Hall, or Coffey Hall.

To be assured of a place in a class, a student must attend its first meeting. All courses are for 1 credit unless otherwise indicated.

#### **Adapted Activities**

**1001. ACTIVITIES FOR THE HANDICAPPED.** (Prereq § for women; activity rating 4)

1101. ACTIVITIES FOR THE HANDICAPPED. (Prereq # for women; activity rating 4)

1201. ACTIVITIES FOR THE HANDICAPPED. (Prereq # for women; activity rating 4)

### Aquatics

1004. DIVING, SPRINGBOARD. (Prereq 1007 for men . . . 1308 for women; activity rating 1)

1007. SWIMMING. (Activity rating 1)

1104. DIVING, SPRINGBOARD. (Prereq 1007 or equiv; activity rating 1)

1107. SWIMMING. (Prereq 1007 or equiv; activity rating 1)

1204. DIVING, SPRINGBOARD. (Prereq 1007 or equiv; activity rating 1)

1205. SCUBA AND SKIN DIVING. (Prereq 1107 or equiv; activity rating 1)

1207. SWIMMING. (Prereq 1107 or equiv; activity rating 1)

1306. SENIOR LIFESAVING. (Prereq ability to swim 440 yards; activity rating 1)

1307. SWIMMING. (Prereq 1207 or equiv; activity rating 1)

1308. SWIMMING AND DIVING. (Prereq 1207 or equiv; activity rating 1)

1309. SYNCHRONIZED SWIMMING. (Prereq 1207 or equiv; activity rating 1)

1410. WATER SAFETY INSTRUCTOR. (2 cr; prereq current American Red Cross Senior Lifesaving certificate; activity rating 1)

### Combatives

1034. JUDO. (Activity rating 1,2)

1035. KARATE. (Activity rating 1,2)

1039. WRESTLING. (Activity rating 1,2)

1134. JUDO. (Prereq 1034 or equiv; activity rating 1,2)

1135. KARATE. (Prereq 1035 or equiv; activity rating 1,2)

1139. WRESTLING. (Prereq 1039 or equiv; activity rating 1,2)

### Conditioning

1014. CONDITIONING. (Activity rating 1,2)

1015. WEIGHT TRAINING. (Activity rating 1,2)

1016. POSTURE AND INDIVIDUAL EXERCISE. (Activity rating 1,2,3)

### Dance

1022. BALLROOM DANCE. (Activity rating 1,2,3)

1023. FOLK AND SQUARE DANCE. (Activity rating 1,2)

1024. MODERN DANCE. (Activity rating 1,2) (GrD)

1122. BALLROOM DANCE. (Prereq 1022 or equiv; activity rating 1,2,3)

1123. FOLK AND SQUARE DANCE. (Prereq 1023 or equiv; activity rating 1,2)

1124. MODERN DANCE. (Prereq 1024 or equiv; activity rating 1,2) (GrD)

1224. MODERN DANCE. (Prereq 1124 or equiv; activity rating 1,2) (GrD)

1324. MODERN DANCE. (Prereq 1224 or equiv; activity rating 1,2) (GrD)

1325. MODERN DANCE, COMPOSITION. (2 cr; prereq 1224 or equiv; activity rating 1,2) (GrD)

1425. MODERN DANCE, COMPOSITION. (2 cr; prereq 1325 or equiv; activity rating 1,2) (GrD)

## Course Descriptions—Major Sequences

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- 1426. MODERN DANCE, PRODUCTION.** (3 cr; prereq 1224 or #; activity rating 1,2) (GrD)
- 1515-1615-1715. MODERN DANCE TECHNIQUE AND IMPROVISATION I, II, AND III.** (2 cr per qtr; prereq physical education major or dance minor)  
Basic technique of modern dance and its relationship to form, design, and exploration of movement. (GrD)
- 1517. ETHNIC DANCE HERITAGE I.** (2 cr per qtr [8 cr max])  
Relationship of dance to the culture from which it evolves; emphasis each quarter on native American, East Indian, Afro-American, or Spanish dance. (GrD)
- 1518-1618-1718. BALLET I, II, AND III.** (2 cr per qtr)  
*1518:* Fundamental technique of classical ballet. *1618-1718:* Intense discipline instruction in the technique of ballet. (GrD)
- 3180. HISTORY AND TRENDS IN DANCE.** (3 cr; prereq #)  
History and philosophy of dance; relation to allied arts. (GrD)
- 3390. DANCE COMPOSITION.** (2 cr; prereq advanced modern dance or equiv)  
Principles of composition with practical application. (GrD)
- 3391. DANCE COMPOSITION.** (2 cr; prereq 3390 or equiv)  
Advanced theory and practice; various approaches to dance composition. (GrD)
- 3392. DANCE PRODUCTION.** (3 cr; prereq #)  
Culmination of dance composition with a dance production; experience in stagecraft and costuming. (GrD)
- 3395. ADVANCED IMPROVISATION.** (Prereq 1515-1615-1715 or #)  
Exploration and spontaneous invention through greater awareness of space, movement, and the community environment. (GrD)
- 3396. DANCE REPERTORY THEATRE.** (3 cr per qtr [9 cr max]; prereq audition or #)  
Technique and improvisation related to the construction and performance of a dance theatre work under the direction of a guest choreographer; professionally oriented dance experience for advanced students. (GrD)
- 3397. DANCE ACCOMPANIMENT.** (3 cr; prereq 1515-1615 or #).  
Relationship between dance and music as a means of accompanying warmups, technique sequences and compositional ventures. (GrD)

### Foundations of Physical Activity

- 1055. FOUNDATIONS OF PHYSICAL ACTIVITY.** (2 cr; activity rating 1,2)

### Fundamental Movement

- 1020. FUNDAMENTALS, MOVEMENT.** (Activity rating 1,2)
- 1121. RHYTHMIC ANALYSIS.** (Prereq 1020 or #; activity rating 1,2)

### Gymnastics

- 1017. RHYTHMIC GYMNASTICS.** (Activity rating 1,2)
- 1046. APPARATUS.** (Activity rating 1,2)
- 1060. TUMBLING, FLOOR EXERCISE, AND TRAMPOLINE.** (Activity rating 1,2)
- 1146. APPARATUS-GYMNASTICS.** (Prereq 1046 or equiv; activity rating 1,2)
- 1160. TUMBLING, FLOOR EXERCISE, AND TRAMPOLINE.** (Prereq 1060 or equiv for women; activity rating 1,2)
- 1246. APPARATUS-GYMNASTICS.** (Prereq 1146 or equiv; activity rating 1,2)

### Individual or Dual Sports and Activities

- 1032. BADMINTON.** (Activity rating 1,2)
- 1033. FENCING.** (Activity rating 1,2)
- 1036. PADDLEBALL-HANDBALL.** (Activity rating 1,2)
- 1037. SQUASH RACQUETS.** (Activity rating 1,2)

1038. TENNIS. (Activity rating 1,2)  
1045. ANGLING. (Activity rating 1,2,3)  
1047. ARCHERY. (Activity rating 1,2,3)  
1048. BOWLING. (Activity rating 1,2,3)  
1049. CAMPING. (Activity rating 1,2,3)  
1050. GOLF. (Activity rating 1,2,3)  
1051. HUNTING. (Activity rating 1,2,3)  
1052. RIFLE MARKSMANSHIP. (Activity rating 1,2,3)  
1053. ICE SKATING. (Activity rating 1,2)  
1057. SKIING. (Activity rating 1,2)  
1058. PHYSICAL EDUCATION FOR FAMILY LIVING. (Activity rating 1,2,3)  
1059. TRACK AND FIELD. (Activity rating 1,2)  
1132. BADMINTON. (Prereq 1032 or equiv; activity rating 1,2)  
1133. FENCING. (Prereq 1033 or equiv; activity rating 1,2)  
1138. TENNIS. (Prereq 1038 or equiv; activity rating 1,2)  
1145. ANGLING. (Prereq 1045 or equiv; activity rating 1,2,3)  
1147. ARCHERY. (Prereq 1047 or equiv; activity rating 1,2,3)  
1148. BOWLING. (Prereq 1048 and 125 average for men . . . 1048 and 120 average for women; activity rating 1,2,3)  
1150. GOLF. (Prereq 1050 or equiv for women; activity rating 1,2,3)  
1154. FIGURE SKATING. (Prereq 1053 or equiv; activity rating 1,2)  
1157. SKIING. (Prereq 1057 or equiv; activity rating 1,2)  
1159. TRACK AND FIELD. (Prereq 1059 or equiv; activity rating 1,2)  
1238. TENNIS. (Prereq 1138; activity rating 1,2)  
1248. BOWLING. (Prereq 160 average; activity rating 1,2)  
1250. GOLF. (Prereq 1150 for women; activity rating 1,2,3)  
1254. FIGURE SKATING. (Prereq 1154 or equiv; activity rating 1,2)  
1256. SKATING, ICE DANCING. (Prereq 1154 or equiv; activity rating 1,2)

### Team Sports and Activities

1067. BASKETBALL. (Activity rating 1,2)  
1068. CURLING. (Activity rating 1,2,3)  
1069. FIELD HOCKEY. (Activity rating 1,2)  
1070. HOCKEY, ICE. (Prereq 1053 or equiv; activity rating 1,2)  
1071. LACROSSE. (Activity rating 1,2)  
1072. SOCCER. (Activity rating 1,2)  
1073. SOFTBALL. (Activity rating 1,2)  
1074. VOLLEYBALL. (Activity rating 1,2)  
1080. OFFICIATING FOOTBALL-BASKETBALL. (Activity rating 1,2)  
1081. OFFICIATING BASKETBALL-VOLLEYBALL. (Prereq 1067 and 1074; activity rating 1,2)  
1082. OFFICIATING HOCKEY-BASKETBALL-VOLLEYBALL. (Activity rating 1,2)  
1083. OFFICIATING SWIMMING-WRESTLING-SOFTBALL-TRACK. (Activity rating 1,2)  
1167. BASKETBALL. (Prereq 1067 or equiv; activity rating 1,2)  
1172. SOCCER. (Prereq 1072 or equiv; activity rating 1,2)

## Course Descriptions—Major Sequences

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1173. **SOFTBALL.** (Prereq 1073 or equiv; activity rating 1,2)

1174. **VOLLEYBALL.** (Prereq 1074 or equiv; activity rating 1,2)

### Freshman and Varsity Sports

(Men only; prereq #; activity rating 1,2 for all)

1386. **FRESHMAN BASEBALL**

1387. **FRESHMAN BASKETBALL**

1388. **FRESHMAN CROSS-COUNTRY**

1389. **FRESHMAN FOOTBALL**

1390. **FRESHMAN GOLF**

1391. **FRESHMAN GYMNASTICS**

1392. **FRESHMAN HOCKEY**

1393. **FRESHMAN SWIMMING**

1394. **FRESHMAN TENNIS**

1395. **FRESHMAN TRACK AND FIELD**

1396. **FRESHMAN WRESTLING**

1486. **VARSITY BASEBALL**

1487. **VARSITY BASKETBALL**

1488. **VARSITY CROSS-COUNTRY**

1489. **VARSITY FOOTBALL**

1490. **VARSITY GOLF**

1491. **VARSITY GYMNASTICS**

1492. **VARSITY HOCKEY**

1493. **VARSITY SWIMMING**

1494. **VARSITY TENNIS**

1495. **VARSITY TRACK AND FIELD**

1496. **VARSITY WRESTLING**

### Independent Study

1497. **INDEPENDENT STUDY.** (1-6 cr; prereq 3 physical education cr and  $\Delta$ )

## Physics and Astronomy

*Institute of Technology*

### Staff

*Head*, Morton Hamermesh, 325 Tate Laboratory of Physics; *Associate Head for Graduate Studies*, Ronald E. Brown, 311 Tate Laboratory of Physics; *Associate Head for Undergraduate Studies*, Laurence J. Cahill, 148 Tate Laboratory of Physics; *Administrative Officer*, David Holets, 331 Tate Laboratory of Physics

*Regents' Professor*: Nier

*Professors*: Bayman, Blair, Cahill, Cooke, Courant, G. Freier, P. Freier, Gasiorowicz, Geffen, Giese, Greenlees, Hamermesh, Hintz, Hobbie, Johnson, Kaufmanis, Kellogg, Mantis, Ney, Stein, Stuewer, Suura, Tang, Waddington, Wernitz, Winckler, Zimmermann

*Associate Professors:* Broadhurst, Brown, Coleman, Dehnhard, Goldman, Halley, Jones, Lilley, Marquit, Pepin, Poppe, Roll, Rosner, Ruddick, Weyhmann

*Assistant Professors:* Campbell, Davidson, Ellis, Humphreys, Peterson, Shapiro, Warner

*Instructor:* DeGeer

## PHYSICS (Phys)

Physics is concerned with the properties of matter and the laws that describe its behavior. An exact science based on precise measurement, its objective is the kind of understanding which leads to the formulation of mathematical relationships between measured quantities. A Bachelor's degree in physics can be earned in either CLA or IT (for the IT program, see the *Institute of Technology Bulletin*). Each provides preparation for graduate school, work in industry, secondary school teaching, or such professional schools as law, business, or medicine.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

Math 1211-1221-1231 or 1311-1321-1331 or 1611-1621 (to gain firm background in calculus, more calculus is recommended)

Phys 1271-1281-1291, 1275-1285-1295

#### Major Requirements

3011-3012, 3511-3512-3513, 5120, 5011-5012-5013 or 5101-5102

Additional cr in physics or astronomy 5xxx-level courses to total 40

Majors urged to take three additional 5xxx-level physics or mathematics or computer science courses

Students planning graduate work in physics advised to take 5021-5022, 5023-5024, and 5101-5102

**General Education**—A detailed comparison of beginning physics courses is available in 148 Tate Laboratory of Physics.

1. Non-calculus courses: 1014-1024 with lab 1015-1025, 1031-1032, 1061, 3801, 5091, NSci 1004

2. Premed courses: 1104-1105-1106 or 1271-1281-1291 with 1275-1285-1295

3. Calculus-level: 1271-1281-1291 with 1275-1285-1295; 1121-1122 (for architects)

Prerequisites for any physics course may be waived by  $\Delta$  or  $\#$ . Students with credit in 1014-1024, 1031-1032, 1041-1042, 1051-1052, 1061, 1104-1105-1106, 1121-1122, or 1271-1281-1291 will not normally receive credit for corresponding courses in other physics sequences. Credit for nonlaboratory physics courses may be earned by special examination (see page 24).

Students preparing for majors in the College of Education in natural science with a physics core or in physical science with a physics major concentration are required to include 1271-1281-1291 and 1275-1285-1295 or other work prerequisite to 3011, followed by 3011 and other prescribed 3xxx-5xxx-level courses. Details for these majors are described in the *College of Education Bulletin*.

## Course Descriptions—Major Sequences

- 1014-1024. INTRODUCTORY PHYSICS: CONCEPTS IN PHYSICS.** (4 cr per qtr; cannot be used as prereq for physics or biological science majors; prereq high school algebra and plane geometry; may be taken with or without the accompanying lab 1015-1025; 3 lect hrs and 1 problem hr per wk)  
Principles of physics. Mechanics, electricity and magnetism, waves, and 20th-century physics (relativity and quantum theory). Primarily for students interested in the ideas of 20th-century physics. (GrB)
- 1015-1025. INTRODUCTORY PHYSICS LABORATORY.** (1 cr per qtr; S-N only; prereq 1014 or ¶1014 for 1015...1024 or ¶1024 for 1025; 2 lab hrs per wk)  
Laboratory in conjunction with 1014-1024. (GrB)
- 1031-1032. INTRODUCTORY PHYSICS: MEASUREMENT AND APPLICATIONS.** (5 cr per qtr; prereq high school algebra and plane geometry; 4 class hrs and one 2-hr lab or problem session per wk)  
Lectures, problem sessions, laboratory. Applications of physics: mechanics, random processes, gases and fluids, electric circuits, feedback and control, waves, light, optical instruments, atoms and spectra, nuclei, radioactivity. Primarily for students interested in technical areas. (GrB)
- 1061. PHYSICS OF HUMAN MOTION.** (4 cr; prereq 1 yr high school algebra; 3 lect-discussions per wk and one 2-hr gym lab every 2 wks)  
Classical mechanics applied to motion of human bodies in work, athletics, dance. Hydrodynamics and swimming. Physics of muscles. Five gymnasium labs. (GrB)
- 1104-1105-1106. GENERAL PHYSICS.** (5 cr per qtr; primarily for premedical students; prereq Math 1142, high school trigonometry or Math 1008 for 1104; 4 lect, 1 quiz, 2 lab hrs per wk)  
1104: Mechanics. 1105: Heat and electricity. 1106: Sound and light. Laboratory (GrB)
- 1121-1122. PHYSICS FOR ARCHITECTS.** (5 cr per qtr; prereq Math 1211 or ¶1211; 4 lect and one 2-hr lab per wk)  
Principles useful to prearchitecture students. Mechanics, heat, electric circuits, light, properties of materials. (GrB)
- 1271-1281-1291. GENERAL PHYSICS.** (4 cr per qtr; prereq completion or concurrent regis in Math 1221, 1321, 1621 or equiv for 1271...completion or concurrent regis in Math 1231, 1331, 1621 or equiv for 1281; may be taken with or without lab 1275-1285-1295; 3 lect, 1 problem, and 1 quiz hr per wk)  
Calculus-level general physics course. 1271: Mechanics. 1281: Heat, electricity. 1291: Magnetism, optics. (GrB)
- 1275-1285-1295. GENERAL PHYSICS LABORATORY.** (1 cr per qtr; S-N only; prereq 1271-1281-1291 or ¶1271-1281-1291; 2 lab hrs per wk)  
Laboratory exercises in general physics. (GrB)
- 3011. OSCILLATIONS.** (4 cr; prereq 1291, Math 3211 or equiv; 3 lect and 1 problem session per wk)  
Physical and mathematical study of harmonic oscillator. Transient behavior; resonance; impedance; mechanical and electrical examples; coupled systems; traveling and standing waves in one dimension; Fourier Series.
- 3012. WAVES AND OPTICS.** (4 cr; prereq 3011; 3 lect and 1 problem session per wk)  
Waves in two and three dimensions. Standing waves; interference; diffraction, polarization; radiation. Examples emphasizing electromagnetic radiation.
- 3015. LABORATORY IN OSCILLATIONS AND WAVES.** (1 cr; prereq 3011, 3012 or ¶3012; 3 lab hrs per wk)  
Laboratory exercises in oscillations and waves.
- 3501. MODERN PHYSICS.** (4 cr, §3511-3512-3513; prereq 1291 or 1106; 3 lect and 1 problem session per wk)  
Descriptive course in modern physics; quantum mechanics, hydrogen atom, multielectron atoms, molecular structure, quantum statistics, thermal radiation, solid state physics, nuclear physics.
- 3505. PHYSICS LABORATORY.** (1 cr; prereq 3501 or ¶3501; 2 lab hrs per wk)  
Laboratory experiments in modern physics.
- 3511-3512-3513. MODERN PHYSICS.** (4 cr per qtr; prereq 1291 or 1106, Math 1231 for 3511...Math 3221 or 3066 or equiv for 3512; 3 lect and 1 problem session per wk)  
Introductory course in special relativity, quantum mechanics, atomic, molecular, solid state, and nuclear physics. Emphasis on experimental phenomena.
- 3515. PHYSICS LABORATORY.** (1 cr; prereq 3513 or ¶3513; 3 lab hrs per wk)  
Laboratory experiments in atomic, solid state, and nuclear physics.

- 3801. INTRODUCTION TO THE PHYSICS OF PHOTOGRAPHY.** (5 cr; prereq high school algebra, some photographic experience; 3 lect, 1 discussion, and 2 lab hrs per wk)  
Principles of optics, electricity applied to photographic processes. Image formation; intensity, color of illumination; exposure of photographic materials. Understanding technical literature applied to pictorial photography (or tone reproduction); line reproduction. (GrB)
- 3900. INDUSTRIAL SUMMER EMPLOYMENT.** (1 cr; prereq 3 yrs of academic work plus deptl approval during previous spring qtr)  
Ten weeks of employment (contracted by the student) in professional or semiprofessional work in physics. Written report approved by the employer and the department.
- 3970. DIRECTED STUDIES.** (1-5 cr; prereq #,  $\Delta$ )  
Independent study in physics, in areas arranged by student and faculty member.
- 5011-5012-5013. MECHANICS, ELECTRICITY, AND MAGNETISM.** (4 cr per qtr, §5021-5022, §5023-5024; prereq 1291, Math 3211, 3221, or equiv; 4 lect hrs per wk)  
Theoretical mechanics and electricity and magnetism.
- 5021-5022. INTRODUCTION TO ANALYTIC MECHANICS.** (4 cr per qtr, §5011-5012-5013; prereq 3011, Math 3231 or equiv; 3 lect and 1 problem hr per wk)  
Analytic course in Newtonian mechanics. Vectors and vector operators; angular momentum; central force problem; system of particles; tensors; rigid bodies; moving coordinate systems; continuous media; Lagrange's equations. Mathematics beyond prerequisites developed as required.
- 5023-5024. INTRODUCTION TO ELECTRIC AND MAGNETIC FIELDS.** (4 cr per qtr, §5011-5012-5013; prereq 3011, Math 3231 or equiv; 3 lect hrs and 1 problem hr per wk)  
Classical theory of electric and magnetic fields making free use of vector algebra and vector calculus. Maxwell's equations for free space and material media. Wave solutions.
- 5025. SPECIAL TOPICS IN ELECTRIC AND MAGNETIC FIELDS.** (4 cr; prereq 5013 or 5024; 3 lect and 1 problem hr per wk)  
Special topics selected by instructor.
- 5031-5032-5033. TOPICS IN MATHEMATICAL PHYSICS.** (4 cr per qtr; prereq two 5xxx-level mathematics courses; 3 lect and 2 problem sessions per wk)  
Survey of mathematical techniques needed for physics. Application of mathematical methods to physical problems.
- 5051-5052-5053. CLASSICAL PHYSICS.** (4 cr per qtr; prereq 5013 or both 5022 and 5024 or #, advanced calculus or #; 3 lect hrs and 1 problem session per wk)  
Classical mechanics, special relativity, and classical electrodynamics. Applications of advanced mathematical techniques.
- 5090. PHYSICS OF MUSICAL INSTRUMENTS.** (3 cr [no cr for physics grad students], §MuEd 5750; prereq #)  
Seminar: physical characteristics, processes in playing musical instruments. Nonmathematical, to improve performance and teaching skills. Electronic methods to sense and display cues to assist performance and teaching.
- 5091. PHYSICAL ACOUSTICS OF MUSIC.** (5 cr [no cr for physics grad students]; prereq 1 yr high school algebra and jr, sr, or grad standing in music or music education or equiv background in music theory and practice, as certified by instructor; 3 lect, 1 discussion, 3 lab hrs per wk)  
Principles of physics and acoustics as they relate to musical sounds, musical instruments, and the electronic production and reproduction of musical sounds. Laboratory. (GrB)
- 5101-5102. INTRODUCTION TO QUANTUM MECHANICS.** (4 cr per qtr; prereq 3512; 3 lect and 1 problem hr per wk)  
Mathematical techniques of quantum mechanics. Wave packets; Schrodinger equation, angular momentum; radial equation; spin, perturbation theory; collision theory.
- 5120. EXPERIMENTAL PHYSICS.** (4 cr; prereq 3513,  $\Delta$ ; 6 lab hrs per wk)  
Techniques and methods in physics research laboratories. Experiments in high vacuum, mass spectroscopy, solid state, atomic, and nuclear physics.
- 5151-5152-5153. QUANTUM MECHANICS.** (4 cr per qtr; prereq 5102 or equiv, advanced calculus or #; 3 lect hrs and 1 problem session per wk)  
Development from first principles. Schrodinger equation, angular momentum, scattering, matrix representations, spin, approximation methods, interaction with electromagnetic field, identical particles, applications to atomic systems.

## Course Descriptions—Major Sequences

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- 5162. INTRODUCTION TO PLASMA PHYSICS.** (4 cr; prereq 5011-5012-5013 or 5022 and 5024 or #)  
Magnetohydrodynamics and properties of collisionless plasmas, applications to magnetic field of earth and sun and to plasma confinement. Transport phenomena and effects of collisions.
- 5201-5202. THERMODYNAMICS, STATISTICAL MECHANICS.** (4 cr per qtr; prereq 3501 or 3511, Math 3211 or 3411 or equiv; 3 lect and 1 problem hr per wk)  
Formulation of basic laws of thermodynamics concerning temperature, energy, and entropy; application to simple systems. Transport phenomena; principles of statistical mechanics.
- 5203. INTRODUCTION TO SOLID STATE PHYSICS.** (4 cr; prereq 5202 or #; 3 lect and 1 problem session per wk)  
Structure; thermal, magnetic, and dielectric and electronic properties of crystalline solids.
- 5231-5232-5233. INTRODUCTION TO SOLID STATE PHYSICS.** (4 cr per qtr; for grad and advanced undergrad students in physics, science, and engineering; 4 lect per wk)  
5231: Crystal structure and binding; diffraction; phonons; thermal and dielectric properties of insulators. 5232: Free-electron model; band structure; semiconductors; diamagnetism; paramagnetism; ferromagnetism and antiferromagnetism. 5233: Optical phenomena, lasers; superconductivity; surface properties; ferroelectricity.
- 5301. INTRODUCTION TO NUCLEAR PHYSICS.** (4 cr; prereq 5102 or equiv; 3 lect and 1 problem session per wk)  
Static properties and dynamic processes of atomic nuclei. Survey for nonspecialists; first course for those intending to specialize in nuclear physics.
- 5351. EXPERIMENTAL PARTICLE PHYSICS.** (4 cr; prereq 3513; 3 lect hrs per wk and field trips)  
Interactions of particles and photons with matter and radiation. Detectors for particles and photons used in elementary particle, nuclear, and cosmic ray physics.
- 5371. INTRODUCTION TO ELEMENTARY PARTICLE PHYSICS.** (4 cr; prereq 5102 or #)  
Relativistic kinematics; mass, spin, isospin, and strangeness of elementary particles; SU3 classification; particle reactions and decays; experimental methods of detection and analysis.
- 5401. INTRODUCTION TO CONTEMPORARY PROBLEMS IN COSMIC RAY AND SPACE PHYSICS.** (4 cr; primarily for students specializing in other branches of physics; prereq #; offered alt yrs)  
Cosmic rays, their characteristics, their motion in the interplanetary and interstellar medium. X-rays and radio astronomy.
- 5441. INTRODUCTORY METEOROLOGY.** (4 or 5 cr; prereq 1291 and Math 3231 or #; 4 class meetings and 1 optional lab per wk)  
Atmospheric phenomena, primarily on a large scale. The theory and practice of meteorological observation, weather prediction, and interpretation of climatological data.
- 5442. DYNAMIC METEOROLOGY.** (4 cr; prereq 5441 or #)  
Fluid dynamics of large scale atmospheric flow; discussion of mathematical models of simple flow processes; modeling for numerical prediction, energetics, planetary boundary flow.
- 5451. CLOUD PHYSICS.** (3 cr; prereq Math 3211 or equiv, 1 yr general physics; 3 lect hrs per wk)  
Composition of the atmosphere, past, present, and future. Thermodynamics of atmosphere with condensable water; properties and growth of drops and ice crystals; particles in the atmosphere. Open laboratory.
- 5452. CLOUD SYSTEMS.** (3 cr; prereq Math 3211 or equiv, 1 yr general physics; 3 lect hrs per wk)  
Circulation, energy balance of atmosphere. Radar techniques for analyzing cloud systems. Cloud structure and motion. Open laboratory.
- 5453. ELECTRICAL PROPERTIES OF CLOUDS.** (3 cr; prereq Math 3211 or equiv, 1 yr general physics; 3 lect hrs per wk)  
Structure, thermodynamics and electrical properties of water and ice. Ions in the atmosphere. Generation of charge and its effects on cloud processes. Generation of lightning and properties of lightning discharges. Open laboratory.

- 5551. TOPICS IN PHYSICS FOR BIOLOGY AND MEDICINE: MECHANICS AND MOLECULAR PHYSICS.** (4 cr [no cr for grad students in physical sciences]; prereq general physics and calculus)  
 Statics: forces in bones and joints. Graphical analysis. Statistical physics: entropy, reversibility, Boltzmann factor and Nernst equation, Brownian movement, free energy. Fluid flow. Osmosis. Heat loss.
- 5552. TOPICS IN PHYSICS FOR BIOLOGY AND MEDICINE: ELECTRICITY AND SIGNALS.** (4 cr [no cr for physics grad students]; prereq general physics and calculus)  
 Electricity, circuits (electrocardiogram, networks, nerve conduction); transducers, amplifiers; oscillators; feedback and control; signal analysis (Fourier analysis, correlation functions, power spectra).
- 5553. TOPICS IN PHYSICS FOR BIOLOGY AND MEDICINE: LIGHT, ATOMS, AND NUCLEI.** (4 cr [no cr for physics grad students]; prereq 5552 or familiarity with with oscillators and signal analysis)  
 Optics: lenses and instruments; diffraction and resolution; polarized light. Atoms: dispersion, absorption, line spectra, molecular spectra, X-rays, nuclear radiation. Nuclei: nuclear size, mass, decay.
- 5804. OPTICS LABORATORY.** (4 cr; prereq 3012 or 5805 or #; two 3-hr labs per wk)  
 Optics experiments: modern optics, properties of lasers, spatial filters, light modulation, microwaves, Kerr cell, holography, Faraday effect, Zeeman effect, optical pumping, etc.
- 5805. CONTEMPORARY OPTICS.** (4 cr; prereq 3012 or #; 3 lect and 1 problem hr per wk)  
 Theory of lasers and their applications in holography, nonlinear optics, etc. Nonlinear optics. Optics of anisotropic media. Theory of image formation and spatial filtering. Properties of optical detectors.
- 5851. ELECTRONIC MEASUREMENT.** (5 cr; prereq 3011 or #; 3 lect and 3 lab hrs per wk)  
 Electronic measurement of physical properties. Energy and measurement; noise and bandwidth; processing of repetitive and random signals.
- 5852. ELECTRONIC CONTROL.** (5 cr; prereq 3011 or #; 3 lect and 3 lab hrs per wk)  
 Digital and analog control: digital logic; pneumatic, electromechanical and semiconductor systems; feedback; servosystems; mixed systems.
- 5853. ELECTRONIC COMPONENTS.** (5 cr; prereq 3011 or #; 3 lect and 3 lab hrs per wk)  
 Electronic components, electrical behavior, and use in circuit design.
- 5923. HISTORY OF 16TH- THROUGH 18TH-CENTURY PHYSICS.** (4 cr; prereq general physics or #)  
 Internal conceptual developments in physics and astronomy from scientific revolution (Copernicus; Gilbert, Galileo, Bacon, Newton, Huygens, etc.) to end of 18th century (Euler, Franklin, Coulomb, Laplace, etc.). Relationships to social, philosophical, and theological influences treated as appropriate.
- 5924. HISTORY OF 19TH-CENTURY PHYSICS.** (4 cr; prereq general physics or #)  
 Internal conceptual developments in physics in 19th century (Young, Fresnel, Oersted, Ampere, Faraday, MacCullagh, Maxwell, Hertz, Lorentz, Lavoisier, Rumford, Dalton, Mayer, Joule, Helmholtz, Carnot, Clausius, Kelvin, Boltzmann, Mach, etc.). Relationships to social, philosophical, and theological influences.
- 5925. HISTORY OF 20TH-CENTURY PHYSICS.** (4 cr; prereq general physics or #)  
 Internal conceptual developments in relativity (Michelson, Lorentz, Poincare, Einstein, etc.), quantum mechanics (Planck, Einstein, Rutherford, Bohr, Sommerfeld, Ehrenfest, Pauli, Millikan, Compton, Heisenberg, de Broglie, Schrodinger, Born, etc.), and nuclear physics (Chadwick, Gamow, Fermi, etc.). Relationships to social, philosophical, and theological influences.
- 5950. SENIOR SEMINAR.** (Cr ar; primarily for sr physics majors,  $\Delta$ )
- 5990. DIRECTED RESEARCH: ELEMENTARY PHYSICAL INVESTIGATION.** (Cr ar; prereq 3rd yr,  $\Delta$ )  
 Problems, experimental or theoretical, of special interest to students. Written reports.

## ASTRONOMY (Ast)

Students with special interest in astronomy may major in physics, taking appropriate elective courses in astronomy and physics (no major in astronomy is offered). The Department of Physics assigns astronomy advisers to students who wish this kind of program.

## Course Descriptions—Major Sequences

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**General Education**—Ast 1011 is a descriptive course for the general student; 1021 is a slightly more mathematical version for those who have had high school trigonometry and physics or chemistry. 1201 is designed as a second course for nonmajors.

**1011. DESCRIPTIVE ASTRONOMY.** (5 cr, §1021)

The sun, the moon, the planets and their motions; the constellations and the stellar universe to which the sun belongs. Nonmathematical. (GrB)

**1021. INTRODUCTION TO ASTRONOMY.** (5 cr, §1011; prereq high school trigonometry and physics or chemistry)

Solar system, stars, galaxies, and cosmology. A more mathematical and physical discussion than 1011. (GrB)

**1201. TOPICS IN ASTROPHYSICS.** (4 cr; prereq 1011 or 1021 or equiv, §)

Current research problems in astronomy and astrophysics. Discussion and participation by class members. Nonmathematical. (GrB)

**3051. INTRODUCTION TO ASTRONOMY AND ASTROPHYSICS.** (4 cr; prereq 1 yr calculus and Phys 1106 or 1291 or §)

Known facts about the solar system, galaxy, and extragalactic universe. How the information is obtained; conclusions that can be inferred from these observations.

**5161. ASTROPHYSICS OF DIFFUSE MATTER.** (4 cr; prereq 3051 and Phys 3511 or §)

Diffuse matter in the solar system, interstellar and extragalactic space; the radiation field in these environments. Gaseous nebulae, radio astronomy and nonthermal radio sources, cosmic rays, some aspects of cosmology.

**5162. ASTROPHYSICS OF CONDENSED MATTER.** (4 cr; prereq 3051 and Phys 3511 or §)

Luminosities, temperatures, masses, and densities of stars; their mechanisms for energy generation. Chemical composition of stars and the probable course of stellar evolution.

## Physiology (Phsl)

### Medical School

#### Staff

*Chairman and Director of Graduate Studies*, Eugene Grim, 424 Millard Hall;  
*Director of Undergraduate Studies*, Gordon Kepner

*Emeritus Professor*: Visscher

*Professors*: Bacaner, Cavert, Fox, Grim, Harvey, Johnson, Lifson, Lorber, Seeds, Terzuolo

*Associate Professors*: Bloedel, Lee, Levitt, Meyer, Poppele, Purple, Rescigno

*Assistant Professors*: Kepner, Knox, Kronenberg, Stish, Wangenstein

*Instructors*: Bloom, Paradise, Wittmers

*Lecturers*: Evans, Fohlmeister, Love, Martinson, Soechting

Physiology aims to understand the functions of the human body by pursuing systematic studies on cells, tissues, and organisms. The emphasis is on discovering the mechanisms underlying normal and pathological functions in terms of the physical and chemical laws that govern them.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1 year each of college chemistry, physics, and mathematics (through integral calculus)

#### Major Requirements

3055, 3056

20 3xxx-5xxx-level cr in approved courses from related fields such as mathematics, physics, and chemistry

**General Education**—1001 is designed for nonscience students.

- 1001f. HUMAN PHYSIOLOGY.** (4 cr; prereq high school biology, high school chemistry or #; 3 hrs lect, 2 hrs dem/conf per wk) Kepner  
Human organ systems, normal and pathological functions, feedback regulation and control. Everyday aspects of body function and health. (GrB)
- 1002w. HUMAN PHYSIOLOGY.** (4 cr; primarily for dental hygienists and occupational therapists; prereq 1 qtr biology, 1 qtr chemistry or #; 3 hrs lect, 2 hrs dem per wk) Blackshear (GrB)
- 3051w. HUMAN PHYSIOLOGY.** (5 cr; primarily for nursing and physical therapy students; prereq 1 yr chemistry, biology; 4 hrs lect, 2 hrs dem per wk) Love
- 3052f, 3053w. PRINCIPLES OF PHYSIOLOGY.** (3 cr per qtr; prereq 1 yr each college chemistry, physics, mathematics through integral calculus) Johnson
- 3055f, 3056w. PRINCIPLES OF PHYSIOLOGY.** (5 cr per qtr; prereq 1 yr each college chemistry, physics, mathematics through integral calculus) Johnson
- 3061f, 3062s. TOPICS IN MATHEMATICAL BIOLOGY.** (4 cr per qtr; prereq Math 1231; 2 hrs lect, 1 hr conf per wk) Rescigno  
**3061:** Laws of population growth; dynamics of isolated species; interaction of several species. Quantitative aspects of competition and predation. **3062:** Theory of compartments. Models for absorption, distribution, and elimination of substances by living organisms. Steady-state, turnover, open, and closed systems.
- 3070w. HUMAN PHYSIOLOGY.** (7 cr; primarily for pharmacy students; prereq physical chemistry, human or mammalian anatomy; 5 hrs lect, 1 hr conf, 3 hrs lab per wk) Staff
- 3091. HONORS COURSE: READINGS IN PHYSIOLOGY.** (Cr ar [may be repeated]; open to honors candidates in physiology only) Staff  
Topics selected; written or oral reviews prepared and discussed on tutorial basis.
- 3092. HONORS COURSE: PROBLEMS IN PHYSIOLOGY.** (Cr ar [may be repeated]; open to honors candidates in physiology only) Staff  
Selected laboratory problems; written reports prepared and discussed.
- 3970. DIRECTED STUDIES.** (Cr ar; prereq #,  $\Delta$ ) Staff  
Independent study in physiology on topics not covered by regular courses.
- 5094f-5095w. HUMAN PHYSIOLOGY.** (3 cr per qtr; primarily for grad nursing students; prereq biochemistry and human or mammalian anatomy; 3 hrs lect) Kepner, Poppele
- 5101w. HUMAN PHYSIOLOGY.** (8 cr; primarily for dentistry students; prereq courses in biochemistry and human or mammalian anatomy; 5 hrs lect, 2 hrs conf, 3 hrs lab per wk) Staff
- 5103f. GENERAL PHYSIOLOGY.** (3 cr; prereq physical chemistry; offered even years only) Grim, Johnson, Kepner, Levitt, Lifson  
Mechanisms of membrane transport and energy transformation in cells, tissues, and organisms.
- 5104w. NEUROPHYSIOLOGY.** (4 cr; prereq neuroanatomy and #; offered odd years only) Knox, Poppele, Purple, Terzuolo
- 5105s. CARDIOVASCULAR PHYSIOLOGY.** (4 cr; prereq #; offered odd years only) Bacaner, Cavert, Fox, Lorber
- 5106f. RESPIRATORY PHYSIOLOGY.** (4 cr; prereq #; offered odd years only) Kronenberg, Wangenstein
- 5107w. ALIMENTARY PHYSIOLOGY.** (3 cr; prereq #; offered even years only) Grim, Lifson
- 5108s. NEPHROLOGY.** (3 cr; prereq #; offered even years only) Harvey
- 5109f,w,s. SYSTEMS ANALYSIS FOR BIOLOGISTS.** (3 cr; prereq calculus through introduction to differential equations, or #) Rescigno
- 5110s-5111su†. HUMAN PHYSIOLOGY.** (6/5 cr; primarily for Phase A3 and A4 med students; prereq anatomy, biochemistry, 5110 for 5111; 4 hrs lect, 6 hrs lab per wk; 5111 extends 7 wks beyond end of spring qtr) Staff
- 5113s. PROBLEMS IN PHYSIOLOGY.** (Cr ar; prereq #) Staff  
Topics assigned for readings or laboratory study; conferences.

## Course Descriptions—Major Sequences

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5116s. **BIOPHYSICAL APPROACHES TO PHYSIOLOGY.** (4 cr; prereq 3055 or #; 2 hrs lect, 2 hrs conf per wk) Kepner  
Basic concepts of membrane permeability and transport; fundamental and classic research papers that provide the physical-chemical foundations for these concepts.

### POLISH

See Slavic and East European Languages.

### Political Science (Pol)

#### Staff

*Chairman*, Thomas M. Scott, 1414 Social Sciences Building; *Director of Undergraduate Studies*, Robert Eyestone, 1408 Social Sciences Building

*Professors*: Backstrom, Chase, Flanigan, Fogelman, Holt, Krislov, McLaughlin, Riggs, Sibley, Sorauf, Turner

*Associate Professors*: Benjamin, Eyestone, Gieske, Hopmann, Scott, Shively

*Assistant Professors*: Arnaud, Ball, Blue, Gray, Koeppen, Kvavik, Nimitz, Shaw, Walcott, Wynia

*Instructors*: Job, Kernell, Morris

Political science is concerned with authoritative decision making in political systems and with the processes and activities, particularly governmental, by which a society makes decisions as well as the values by which the decisions are judged.

The required background courses provide a general knowledge of the American political system and of the political systems of other areas of the world. They introduce the student to the principal terms and analytical concepts of political science. The major sequence during the junior and senior years adds deeper knowledge of selected fields within political science.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1001, 1051

#### Major Requirements

At least 36 cr in 3xxx- or 5xxx-level political science courses (not more than 16 cr in any one field nor more than 28 cr in any two fields). The recognized fields are shown by subheads among the course descriptions.

The major in international relations is described on page 153.

**Seminars, Fieldwork, Internships, and Satellite Courses**—Three-credit seminars in the xx99 series, available throughout the year, will include discussion and individual research focused upon specific topics or problem areas. They offer close involvement with faculty and opportunities for creative research. Topics will be announced before the quarters in which they are to be offered. Enrollment in each seminar is limited to 15.

Opportunities for fieldwork and internships are available up to a maximum of 8 credits.

“Satellite” courses (1010), each limited to 15 students, will be offered in conjunction with certain lxxx-level courses. In them students may pursue specialized

topics related to the more general concerns of the courses to which the "satellites" are attached. Only students already enrolled in regular courses to which "satellites" are attached will be admitted. Topics and instructors will be announced at the beginning of the regular courses.

*Note for Graduate Students*—Graduate students who are not graduate majors in political science may take 5xxx-level courses in political science for credit, subject to the requirement of additional work beyond that assigned to undergraduates. Such courses may be used for graduate minors or "related fields" in political science for M.A. degrees, and in part for Ph.D. minors. See the *Graduate School Bulletin*.

**General Education**—All 1xxx-level political science courses are suited to the needs of students who wish some introduction to political science. Most 3xxx- or 5xxx-level courses also are appropriately considered "general" and many are elected by students not majoring in political science. All political science courses except those in the 90 series (those courses whose last two digits range from 90 to 99) are available to nonmajors on the S-N grading system.

- 1001. AMERICAN GOVERNMENT AND POLITICS.** (5 cr) Staff  
Principles, organization, processes, functions of government, and the interplay of political forces in United States—national, state, and local. Attention throughout to current issues. (GrC)
- 1025. WORLD POLITICS.** (4 cr) Blue, Riggs, staff  
Introduction to contemporary international relations; forms of state interaction; problems of conflict and cooperation. (GrC)
- 1026. AMERICAN FOREIGN POLICY.** (4 cr) Hopmann, Riggs, staff  
Introduction to institutions and processes that determine American foreign policy. (GrC)
- 1027. URBAN POLITICS.** (4 cr) Nimtz, Scott, staff  
Urban politics and issues facing American cities. Emphasis on political conflicts over economic and social problems. (GrC)
- 1031. AMERICAN PUBLIC POLICY.** (4 cr) Eyestone, Gray, Schoettle, staff  
Analysis of several major public policy issues such as social welfare policy, education policy, economic policy, national security policy. Emphasis on forces molding policy choices and the impact of such choices. (GrC)
- 1041. CONTEMPORARY POLITICAL IDEOLOGIES.** (4 cr) Arnaud, Fogelman, staff  
Major modern and contemporary ideologies, such as liberalism, democracy, conservatism, socialism, communism, facism, nationalism, imperialism, racism. Emphasis on adequacy of alternative ideologies for the analysis and solutions of current political and social issues. (GrC)
- 1051. INTRODUCTION TO POLITICAL ANALYSIS.** (5 cr) Benjamin, Fogelman, Holt, staff  
Topics such as formation of political communities, political participation, policy making, compliance, legitimacy, political development, types of political systems. Emphasis on empirical and normative problems. Applications to major contemporary systems. (GrC)

### Special Courses

Most 3xxx- and 5xxx-level courses are listed by their more or less specialized fields. A group of "special" courses, not assigned to these fields, is listed here.

- 3070. DIRECTED FIELD STUDIES.** (1-4 cr max; prereq #, Δ)  
Students may obtain credit for faculty supervised research related to work in political or governmental organizations. (GrC)
- 3080. INTERNSHIP.** (4 cr [8 cr max]; S-N only) Backstrom, Eyestone, staff  
Internship with government or community organizations, arranged through and supervised by the department. (GrC)
- 3085. QUANTITATIVE MATERIALS IN POLITICAL SCIENCE.** (4 cr; prereq 1051 or 18 cr in 3xxx-5xxx-level political science courses or #) Flanigan, Shively  
Techniques of data analysis used in major areas in political science. Emphasis on understanding theory construction, measurement problems, and measures of association.

## Course Descriptions—Major Sequences

- 3110, 3111, 3112. HONORS COURSE: SEMINARS AND THESIS.** (Cr ar; prereq 6 cr in political science, consult major adviser) Eyestone, Wynia, staff
- 3399, 3499, 3599, 3699, 3799, 3899. ADVANCED SEMINARS.** (3 cr per qtr; prereq jr or sr, and §)  
Advanced analysis with supervised research and writing in selected areas of political theory, comparative government and politics, international relations, politics and behavior, American government systems and processes, and public law. (GrC)
- 3970. DIRECTED STUDIES.** (1-6 cr max; prereq § and Δ)  
Supervised individual reading and research.

### Political Theory

- 5659. AMERICAN POLITICAL THOUGHT.** (4 cr; prereq 1051 or 9 cr in social science or §) Ball, Shaw, Sibley  
From colonial times to present: Puritanism; Constitution; utopianism; Calhoun; history of anarchist, socialist, populist, and syndicalist thought; social Darwinism; conservatism; political thought in law and literature. (GrC)
- 5661. PROBLEMS OF DEMOCRACY.** (4 cr; prereq 1051 or 9 cr in social science or §) Ball, Shaw  
Postulates and implications; moral foundations; democratic theory and the economic order; liberty and authority; equality; representation; spiritual order; critics of democracy. (GrC)
- 5662. RECENT POLITICAL THOUGHT.** (4 cr; open to jrs, srs only; prereq 1051 or 9 cr in social science or §) Arnaud, Ball, Shaw  
Main currents from Marx to present, including socialist, anarchist, liberal, and conservative thought; problems such as alienation and political obligation. (GrC)
- 5663. POLITICAL THEORY AND UTOPIA.** (4 cr; prereq 1051 or 9 cr in social science or §) Sibley  
Selected great utopias from viewpoint of the political theorist; the idea of planning an ideal state; achievement of utopia; stability and change in great utopias; problems of authority and law; anarchist, socialist, and conservative utopias. (GrC)
- 5664. DEVELOPMENT OF POLITICAL THOUGHT: ANCIENT.** (4 cr; prereq 1051 or 9 cr in social science or §) Ball, Sibley  
Hebrew ideas, Moses to Second Isaiah; classical Greek thought; Plato and Aristotle; primitive natural law; Cynics and Stoics; theory in Roman Republic and Empire; 1st-century Christianity. (GrC)
- 5665. DEVELOPMENT OF POLITICAL THOUGHT: MIDDLE AGES.** (4 cr; prereq 1051 or 9 cr in social science or §) Ball, Sibley  
Early Christianity and the Church fathers; moral theory and political theory; empire and church in ideology; Roman and canon law; theory of persecution; St. Thomas; 14th- and 15th-century conceptions. (GrC)
- 5666. DEVELOPMENT OF POLITICAL THOUGHT: EARLY MODERN.** (4 cr; prereq 1051 or 9 cr in social science or §) Ball, Sibley  
Machiavelli; idea of sovereignty; Protestant conceptions; English civil war; Hobbes, Spinoza, Locke, idea of progress; Godwin, Burke, Rousseau, rise of romanticism; German idealism. (GrC)
- 5667. RECENT EMPIRICAL THEORY.** (4 cr; prereq 1051 or §; offered alt yrs) Fogelman, Morris  
Selected empirical theories such as theories of power, systems theory, game theory, structural functionalism, and conflict theory. Emphasis on the usefulness of these formulations in political analysis. (GrC)

### Comparative Government and Politics

- 5441. WESTERN EUROPEAN GOVERNMENT AND POLITICS.** (5 cr; prereq 1051 or 12 cr in social science or §) Arnaud, Holt, Shively, staff  
Political institutions in their social settings; problems of power and responsibility; governmental stability; political decision making, government, and economic order. (GrC)
- 5443. GOVERNMENT AND POLITICS OF THE SOVIET UNION.** (4 cr; prereq 1051 or 12 cr in social science or §) Turner  
The rise of Bolshevism; sources and nature of Bolshevik ideology; history and institutional character of the Soviet regime; sources of power; role of the party and functional groups; patterns of change. (GrC)

- 5444. GOVERNMENT AND POLITICS OF SCANDINAVIAN COUNTRIES.** (4 cr; prereq 12 cr in social science) Kvakik  
Scandinavian political institutions and behavior; the Scandinavian pattern of party politics, the functions of interest groups, and legislative behavior. Voting patterns and voter alignments. (GrC)
- 5446. GOVERNMENT AND POLITICS OF SOUTH ASIA.** (5 cr; prereq 12 cr of 3xxx-5xxx-level courses in social science) Blue  
Governmental institutions in historical and social settings. Dynamic processes of modernization within a democratic institutional framework. Implementation of public policies involving social and economic development, including agrarian reform, population control, and industrial growth. (GrC)
- 5448. GOVERNMENT AND POLITICS OF AFRICAN COUNTRIES.** (4 cr; prereq 1051 or 12 cr in social science or #) Nimtz  
Political institutions and behavior in sub-Saharan African countries in their social and cultural settings; influence of class and tribal structure; parties and elections; source and nature of ideologies; economic and social policies. (GrC)
- 5453. JAPANESE GOVERNMENT AND POLITICS.** (4 cr; prereq 1051 or 12 cr in social science or #) Benjamin, Turner  
Constitutional and political development in Japan; political ideas, government, political parties, and problems. (GrC)
- 5454. CHINESE GOVERNMENT AND POLITICS.** (4 cr; prereq 1051 or 12 cr in social science or #) Benjamin, Turner  
Traditional Chinese society; the fragmentation of China and the rise of the Communist power; sources and nature of Communist Chinese ideology; institutional character of the Communist party system; sources of power; role of the party and functional groups; patterns of change. (GrC)
- 5455. LATIN AMERICAN GOVERNMENT AND POLITICS.** (5 cr; prereq 1001 or #) Wynia  
Latin American political heritage, political processes, and contemporary public policy issues; resolution of the problems of social, economic, and political change in selected countries. (GrC)
- 5457. POLITICS AND GOVERNMENT IN ISRAEL.** (4 cr; prereq 1051 or #) Krislov, Nimtz  
Governmental structure of Israel and its political matrix. Problems of a society created under external stress, with planned institutions. The role of nominally ideological parties in a pragmatic political arrangement; conflict over a theocratic base for a modern secular state. (GrC)

### International Relations

- 5323. AMERICAN DEFENSE POLICY**  
For description, see American Governmental Systems and Processes subheading below.
- 5876. FOREIGN POLICY, DECISION MAKING.** (4 cr) Hopmann  
The processes through which states make and implement foreign policy decisions, with examples from the foreign policies of several states including the United States. (GrC)
- 5877. COMPARATIVE FOREIGN POLICY.** (4 cr) Hopmann  
Comparative analysis of the foreign policies of major states; national and international determinants of foreign policy behavior. (GrC)
- 5881. INTERNATIONAL LAW I.** (5 cr) McLaughlin  
Growth and character of international law system; sources, use of legal materials, and evidence; relation to municipal law; subjects (individuals, states, international agencies); treaties and other international agreements; principles and problems of jurisdiction. (GrC)
- 5882. INTERNATIONAL LAW II.** (5 cr) McLaughlin  
Diplomatic agents and consuls—their functions and jurisdictional immunities; rights of aliens; law developed by international organizations; pacific settlement of disputes; hostile measures short of war; intervention; war and neutrality. (GrC)
- 5884. INTERNATIONAL POLITICS I.** (4 cr) Hopmann, Job  
The structure of the international system: balance of power, bipolar systems, other types of international systems; theories of stability, change, conflict, and cooperation. (GrC)
- 5885. INTERNATIONAL VIOLENCE AND PEACE.** (4 cr, §IntR 5801; 5884 strongly recommended) Hopmann, Job  
Normative issues surrounding international violence; causes of violence and possible mechanisms for creating international peace; alternative future structures of the international system related to the limitation of violence and the attainment of peace. (GrC)

## Course Descriptions—Major Sequences

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- 5886. INTERNATIONAL BARGAINING AND NEGOTIATION.** (4 cr, §IntR 5811; 5884 recommended) Hopmann, Walcott  
The relationship of the international bargaining and negotiation process to the resolution of international conflict and the establishment of international order. (GrC)
- 5887. INTERNATIONAL SECURITY ORGANIZATION I.** (4 cr) Riggs  
The United Nations and its antecedents; decision making in international organizations; global and regional organization for international security, disarmament, and dispute settlement. (GrC)
- 5888. INTERNATIONAL ORGANIZATION AND WORLD FUTURES.** (4 cr, §IntR 5812)  
Riggs  
Study of world organizations; present structures; desirable futures; advantages and disadvantages of various theoretical and practical approaches to world order, emphasizing international functionalism and regional integration. (GrC)

### Politics and Behavior

- 3751. FIELDWORK IN POLITICS.** (4 cr; prereq 1001) Backstrom, Eyestone, staff  
See also 3352, 3353 under American Governmental Systems and Processes. Field study of political organization, leadership, and campaigns in local communities and state of Minnesota. (GrC)
- 5304. ORGANIZATIONAL BEHAVIOR.** (4 cr; prereq 1001) Walcott  
Operation and significance of complex, formal organizations in the political system; public bureaucracy. Communication and influence processes; decision making and innovation; relation of organization to environment. (GrC)
- 5737. POLITICAL PARTIES.** (4 cr; prereq 1001 or §) Sorauf  
Role and functions of the party in American government; party composition and organization; process of nomination and policy formulation; regulation of party organization and activities. (GrC)
- 5738. POLITICAL CAMPAIGNS AND ELECTIONS.** (4 cr; prereq 1001 or §) Backstrom  
National, state, and local campaigns and elections; fieldwork in local political parties and election campaigns. (GrC)
- 5739. THE POLITICS OF ETHNIC COMMUNITIES.** (4 cr; prereq 6 cr in social science)  
Koeppen, Nimitz  
Cross-cultural study of politics of ethnic communities; emphasis on the politics of Black communities in the United States. Internal community politics and their local and national political systems. (GrC)
- 5767. PUBLIC OPINION AND VOTING BEHAVIOR.** (5 cr; prereq 1001 or §) Flanigan, Koeppen, Shively  
Major factors influencing electoral decisions; political attitude formation and change. (GrC)
- 5768. POLITICAL CULTURE: SOCIAL BASIS OF POLITICAL BEHAVIOR.** (5 cr; prereq 1001 or §...5767 recommended) Flanigan, Koeppen, Shively  
Social and environmental influences on political attitudes and political participation; political elites and the politics of mass society. (GrC)
- 5769. POLITICAL LEADERSHIP.** (4 cr; prereq 1051; offered alt yrs) Benjamin, Nimitz, Wynia  
Comparative political leadership that emphasizes political recruitment patterns, executive and legislative behavior, and political power structures in industrial and nonindustrial states. (GrC)
- 5771. COMPARATIVE PUBLIC POLICY.** (4 cr; prereq 1051 or §; offered alt yrs) Wynia  
Policy making and administrative implementation in high and low income countries; content and impact of economic development and social welfare policies. (GrC)
- 5772. COMPARATIVE POLITICAL ORGANIZATION.** (4 cr; prereq 1051 or §; offered alt yrs) Kvakik, Nimitz  
Political group activity in different polities; individual behavior in group systems affecting public policy. (GrC)
- 5773. POLITICAL DEVELOPMENT.** (4 cr; prereq 1051 or §; offered alt yrs) Benjamin, Holt, Wynia  
Political problems of new nations; political consequences of breakdown of traditional society; problems of developing new institutional forms and procedures. (GrC)

- 5774. COMPARATIVE POLITICAL PARTICIPATION.** (4 cr; prereq 1051 or #: offered alt yrs) Blue, Nimitz, Shively  
Comparative study of the relationship of mass political behavior to governmental activity. (GrC)

### American Governmental Systems and Processes

- 3352, 3353. FIELD WORK IN GOVERNMENT.** (4 cr per qtr; prereq 1001; 3353 offered when feasible) Backstrom, Eyestone, staff  
(See also 3751 under Politics and Behavior) Field study of politics, leadership, organization, and activities in local and state government. In even-numbered years, fieldwork deals with local government officials; in odd-numbered years, with state legislators. (GrC)
- 5303. THE AMERICAN DEMOCRACY.** (4 cr; prereq 1001 or 6 cr in social science or #) Koeppe, Sorauf  
Integrated overview of the American political system, its institutions and processes. Political decision making, influence, and elites in the American society. Evaluation and critical examination of the practice and reality of democracy in the United States. (GrC)
- 5306. THE EXECUTIVE AND THE BUREAUCRACY.** (4 cr; prereq 1001 or #) Schoettle, Walcott, Kernell  
The executive branch, including the presidency and administrative and regulatory bureaucracies; the interaction of formal structures and political actors; recruitment, the development of institutional structures, advisory systems, legislative relations, budgetary and policy control. (GrC)
- 5308. LEGISLATIVE PROCESS.** (4 cr; prereq 1001 or #) Backstrom, Eyestone, Shaw, Kernell  
The American Congress and state legislatures; internal organization, the committee system, party leadership, relationships with executives and administrative agencies; legislative policy making; interest group, party, and constituency influences on the legislative process. (GrC)
- 5309. JUDICIAL PROCESS.** (4 cr; prereq 1001 or #) Krislov, Sorauf  
Structure of American judiciary; selection of judges; process of litigation; influences on judicial decisions; impact of and compliance with decisions; role of Supreme Court in American political system. (GrC)
- 5315. STATE GOVERNMENT.** (4 cr; prereq 1001 or #) Backstrom, Gray  
Political institutions and behavior in American states; interstate comparisons and comparisons between state and national political systems. (GrC)
- 5321. AMERICAN ECONOMIC POLICY.** (4 cr; prereq 1001 or #) Eyestone, Schoettle  
Economic policy-making processes; major policy issues such as fiscal and monetary policy, subsidies, economic regulation, and direct controls; assessment of governmental impact on the private economic sector. (GrC)
- 5322. AMERICAN SOCIAL POLICY.** (4 cr; prereq 1001 or #) Eyestone  
American government actions affecting the distribution of social benefits such as health care, education, and housing; social burdens such as taxation and regulation of social conduct. Relationships between government action and social problems; possibilities for change. (GrC)
- 5323. AMERICAN DEFENSE POLICY.** (4 cr; prereq 1001 or #) Schoettle  
Major substantive policy issues such as American strategic theory and general war capabilities; limited war theory and capabilities; arms control and disarmament. Defense policy-making processes in the executive office, the Congress, the Department of Defense, the military services, and the private sector. Implications of American defense policies for foreign and domestic policy. (GrC)
- 5327. LOCAL GOVERNMENT.** (4 cr; prereq 1001 or #) Backstrom, Scott  
Development of local political systems in the U.S.: relationship of government and political structures to economic and social characteristics of communities; the role of local government in the federal system; influences on decision-making patterns in various types of communities. (GrC)
- 5328. METROPOLITAN GOVERNMENT AND POLITICS.** (4 cr; prereq 1001 or #) Nimitz, Scott  
Contemporary metropolitanism; development and definition of major metropolitan problems; governmental-political responses to such problems, including development of federal and state programs; the politics of metropolitan reform efforts. (GrC)
- 5876. FOREIGN POLICY, DECISION MAKING**  
For description, see International Relations subheading above.

## Course Descriptions—Major Sequences

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### Public Law

- 3561, 3562. INTRODUCTION TO LEGAL SYSTEMS.** (4 cr per qtr; prereq jr or #; offered alt yrs) Krislov, McLaughlin  
Elementary survey, primarily for social science students, of principal legal systems of the Western world. Emphasis upon organization, procedures, methods of growth, relation to political and economic systems, basic juristic conceptions. 3561: Roman law and European derivatives. 3562: Anglo-American law. (GrC)
- 5501, 5502. PRINCIPLES OF AMERICAN CONSTITUTION I, II.** (5 cr per qtr; prereq 1001 or equiv) Chase, Krislov  
Nature of constitutions, judicial review, organization and powers of national government; national—state and interstate relations; due process; civil rights and civil liberties. (GrC)

### PORTUGUESE

See Spanish and Portuguese.

### Psychological Foundations (PsyF)

#### College of Education

- 3370. HUMAN RELATIONS AND GROUP DYNAMICS.** (1-4 cr, §3870)  
Small-group training theory and methods, to help students understand their own behavior, the behavior of other individuals, and group and organizational behavior.
- 5121. BASIC PRINCIPLES OF MEASUREMENT.** (3 cr; prereq 5110 or 8110 or Psy 3801 or equiv)  
Fundamental concepts, principles, and methods in educational and psychological measurement; educationally useful properties of tests; types and uses of derived scores; factors influencing reliability and validity. (GrA)

### Psychology (Psy)

#### Staff

*Chairman*, John G. Darley, N218 Elliott Hall; *Executive Assistant*, Dennis Keierleber, 257 Elliott Hall

*Professors*: Berdie, Berscheid, Bouchard, Burkhardt, Butcher, Campbell, Darley, Dawis, Dunnette, Fox, Garnezy, Gottesman, Hafner, Heistad, Jenkins, LaBerge, Lofquist, Lykken, MacCorquodale, Malmquist, Meehl, Neubeck, Overmier, Pick, Roberts, Schofield, Shaw, Tellegen, Thompson, Williams, Wirt

*Associate Professors*: Scarr-Salapatek, Weiss, Weitzel

*Assistant Professors*: Arabie, Devine, Peterson, Snyder, Viemeister

Psychology is concerned with the behavior of organisms in terms of environmental, genetic, physiological, and social determinants and correlates.

All students contemplating a major in psychology must obtain instruction materials in the undergraduate advising office, 105 Elliott Hall.

#### B.A. MAJOR SEQUENCE

##### Required Preparatory Courses

1001, 1004-1005†\*\*

##### Major Requirements

2 courses chosen from 3011, 3031, 3051, 5011, 5012-5013, 5014, 5015, 5017, 5018, 5019, 5031, 5054, 5061, 5062, 5071

\*\* Should be taken as soon as possible after completion of 1001.

2 courses chosen from 3101, 3124, 3201, 3604, 5501, 5701, 5702, 5703, CPsy 3301, 5303

3801\*\*

4 elective 3xxx-5xxx-level psychology courses

1 or 2 optional elective 3xxx-5xxx-level psychology or child psychology courses or approved psychological foundations or counseling and student personnel psychology courses (approved list in 105 Elliott Hall)

Psychology courses at the 3xxx-5xxx level must total at least nine, with a minimum total of 32 credits (CPsy 3301 and 5303 may be included), but all 3xxx-5xxx-level courses chosen for the major must not exceed 44 credits.

Psychology majors, especially those considering graduate work, are urged to elect courses in mathematics and in the natural, social, and physical sciences. Prospective graduate students should take further work in statistics and computer programming.

Students not planning graduate work in psychology may, with adviser assistance, design programs that prepare for such paraprofessional service as interviewing, personnel work, mental health work, counseling, and research technician work.

Those interested in child psychology are encouraged to elect courses offered through the Institute of Child Development. They may consider majors in that area—double majors in psychology and child psychology are not permissible. Psychology majors are restricted in the number of child psychology courses acceptable for the major.

**General Education**—A number of psychology courses are designed for non-majors as well as for majors. The department recommends 1001, 3011, 3031, 3051, 3101, 3124, 3201, and 3604 as contributions to general education.

**1001f,w,s. GENERAL PSYCHOLOGY.** (5 cr; prereq soph or 3rd-qr fr with B avg)

Introduction to study of human behavior. Prerequisite for all advanced courses in psychology. (GrC)

**1001Hw. HONORS COURSE: GENERAL PSYCHOLOGY.** (5 cr; prereq #) LaBerge

**1004f,w-1005w,sf. INTRODUCTORY LABORATORY PSYCHOLOGY.** (3 cr per qtr; prereq soph, 1001 or ¶1001) Staff

Experiments illustrating contemporary subject matter such as sensory psychology, psychophysics, perception, motivation, verbal behavior, animal and human learning, problem solving, and psychological measurement. (GrC)

**3011f. INTRODUCTION TO PSYCHOLOGY OF LEARNING.** (4 cr; prereq 1001, 1005 or Biol 1107 or #) Peterson

Basic methods in study of learning. Fundamental concepts and principles governing the learning process. (GrC)

**3031s. SENSATION AND PERCEPTION.** (4 cr; prereq 1001, 1004) Burkhardt

The psychological, biological, and physical aspects of sensory experience in humans and animals. Major emphasis on the senses of vision and hearing. (GrB)

**3051w. INTRODUCTION TO COGNITIVE PSYCHOLOGY.** (4 cr; prereq 1001, 1005 or ¶1005) Shaw

Basic research problems and theoretical concepts in study of cognitive factors in perception, memory, and concept formation. (GrC)

**3101f. INTRODUCTION TO PERSONALITY.** (4 cr, §5101; prereq 1001) Tellegen

Concepts of personality; personality theory; empirical research in the field of personality; personality assessment. (GrC)

**3124s. PSYCHOLOGY OF INDIVIDUAL DIFFERENCES.** (4 cr; prereq 3801) Dunnette

The differential method in study of human behavior. Impact and importance of individual differences in modern society; instruments of measurement and behavior prediction in differential psychology; the major determinants of individuality. (GrC)

\*\* Should be taken as soon as possible after completion of 1001.

## Course Descriptions—Major Sequences

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- 3201w. INTRODUCTION TO SOCIAL PSYCHOLOGY.** (4 cr; prereq 1001) Snyder  
Theories and research in social psychology. The effects upon the individual's attitudes and behavior of other persons, mass communications, and group membership.
- 3604f. INTRODUCTION TO ABNORMAL PSYCHOLOGY.** (4 cr, §5604-5605; prereq 1001)  
Devine  
The field of abnormal psychology. Etiologies of behavioral disorders; discussion of available treatments. (GrC)
- 3801f,w,s. INTRODUCTION TO MEASUREMENT AND STATISTICAL METHODS.** (4 cr; prereq 1001 or equiv) Arabie  
The data of psychology and its statistical analysis. Univariate and bivariate descriptive statistics, principles of estimation and hypothesis testing. Examples from differential and experimental psychological research. (GrA)
- 3801H. HONORS COURSE: INTRODUCTION TO MEASUREMENT AND STATISTICAL METHODS.** (4 cr; prereq 1001 or equiv, honors candidate; not offered 1974-75)  
Problem-oriented approach to analysis of the data of psychology. Univariate and bivariate descriptive statistics, principles of estimation and hypothesis testing. Data collection and computer analysis experiences. (GrA)
- 3900f,w. HONORS SEMINAR: PSYCHOLOGY.** (1 cr per qtr; S-N only; for jr honors students majoring in psychology) Fox  
Contemporary issues in psychological research; initiation of the psychology 3990H senior research project; advanced study and career opportunities in psychology; special learning opportunities available to psychology honors majors. (GrC)
- 3950. PSYCHOLOGY: RESEARCH AND APPLICATIONS.** (1-16 cr max; prereq 1001, §) Staff  
Seminars and directed experiences in various subareas of psychology; current course offerings posted in the Psychology Department.
- 3960f,w,s. TOPICS IN PSYCHOLOGY.** (1-5 cr per qtr; prereq 1001, §, Δ) Staff  
Small group seminars. Specific topics listed in the *Class Schedule* or *Daily*. Independent study or small seminars. (GrC)
- 3970f,w,s. DIRECTED STUDIES.** (1-4 cr per qtr; prereq §) Staff
- 3990f,w,s. PROJECT IN PSYCHOLOGY.** (Cr ar [8 cr max]; prereq sr, §)  
Individual library study or empirical investigation. (GrC)
- 3990Hf,w,s. HONORS COURSE: PROJECT IN PSYCHOLOGY.** (Cr ar [8 cr max]; prereq sr, §) (GrC)
- 5011f. THEORIES OF LEARNING AND COGNITION.** (4 cr; prereq 3011 except for students in Honors sequence and grads) LaBerge  
Major theories of learning and contemporary theories of information processing and cognition. (GrC)
- 5012w-5013s†. PSYCHOLOGY OF LEARNING.** (4 cr per qtr; prereq 3011 or EBB 3111, except for students in Honors sequence and grads)  
Experimental literature on classical conditioning and all types of instrumental learning. Critical evaluation of relevant concepts. (GrC)
- 5014w. HUMAN LEARNING A.** (4 cr; prereq 1005, except for students in Honors sequence and grads) Fox  
Major processes and principles in human learning; verbal and perceptual-motor learning, transfer, and memory. Feedback, abilities and performance prediction, facilitation and interference, retention and long-term memory. (GrC)
- 5015s. HUMAN LEARNING B.** (4 cr; prereq 3011, except for students in Honors sequence and grads) LaBerge  
Major processes in human learning; verbal and perceptual learning, paired associate learning, short-term and long-term memory, attention, and organizational factors in memory. (GrC)
- 5017f. ANALYSIS OF BEHAVIOR I.** (4 cr; prereq 3011, except for students in Honors sequence and grads)  
Systematic formulation of topics of psychology based upon a Skinnerian analysis. Scientific method, learning, motivation, and emotion. (GrC)
- 5018w. ANALYSIS OF BEHAVIOR II.** (4 cr; prereq 5017 or §; not offered 1974-75)  
(Continuation of 5017) An individual's verbal behavior in terms of his past history and current circumstances. (GrC)
- 5019s. ANALYSIS OF COMPLEX BEHAVIOR.** (4 cr; prereq 5017 or §) Thompson  
Experimental analysis of complex operant behavior repertoires based upon systematic formulation presented in 5017. Development of an approximate system of analysis of large, continuous samples of behavior. Social and other complex sequences of human and other animal behavior. (GrC)

- 5021s. MATHEMATICAL PSYCHOLOGY.** (4 cr; prereq 5861 or #; not offered 1974-75)  
 Viemeister  
 Mathematical models of signal detection and recognition, decision processes, information processing, learning. (GrC)
- 5031s. PERCEPTION.** (4 cr; prereq 3051 or 3031 or #) Shaw, Pick  
 Methods of investigation and data obtained in study of selected problems of perception; psychophysical methods, form perception, space perception, constancy, spatially coordinated behavior and attention. Emphasis primarily on visual perception. (GrC)
- 5054s. PSYCHOLOGY OF LANGUAGE.** (4 cr; prereq 3011, except for students in Honors sequence and grads) Jenkins  
 The theories and experimental evidence involved in past and present conceptions of psychology of language. (GrC)
- 5061f. FUNDAMENTALS OF PHYSIOLOGICAL PSYCHOLOGY.** (4 cr; prereq 1001, 1005 or Biol 1011 or #) Roberts  
 Physiological and neuroanatomical mechanisms underlying behavior of higher vertebrates. Sleep, wakefulness, and attention processes. Effects of drugs on behavior. (GrB)
- 5062s. NEUROPSYCHOLOGY OF MOTIVATION AND LEARNING.** (4 cr; prereq 5061 or #) Roberts  
 Brain mechanisms of aggression, fear, pain, hunger, thirst, reproductive behavior, learning, and discrimination processes. (GrB)
- 5071s. ANIMAL PSYCHOLOGY.** (4 cr; prereq 1001, 1005, or equiv in another science) Peterson  
 Historical, philosophical, and biological foundations; consciousness; motivation; learning; reasoning; judgment; abnormal behavior; social influences. (GrB)
- 5101w. PERSONALITY.** (4 cr, §3101; prereq 5862 or ¶5862, honors candidate or grad) Tellegen  
 Personality theories as alternative orienting viewpoints. Trait-oriented discussion of findings and conceptual and methodological problems of contemporary personality research. (GrC)
- 5125w-5126s†. DIFFERENTIAL PSYCHOLOGY.** (4 cr per qtr; prereq 5862 or #, honors candidate or grad) Bouchard, Dawis, Dunnette  
 Introduction to methodology. Quantitative studies of nature of psychological traits and influence of age, sex, heredity, and environment in causation of individual and group differences in ability and temperament. (GrC)
- 5134f. INTRODUCTION TO BEHAVIORAL GENETICS.** (4 cr; prereq 5126) Gottesman  
 Methodology appropriate to analyzing contribution of genetic and environmental factors to variance observed in normal and abnormal traits in man and animals. Intelligence, neuroses, and psychoses. For all examples, independent variable will be genotype of an organism. (GrC)
- 5141f. PSYCHOLOGY OF WOMEN.** (4 cr; prereq 1001) Schletzer  
 Psychological and physical sex differences, stressing developmental and environmental influences on dependency, aggression, achievement motivation, and achievement. Sex roles and sexuality during various life phases. (GrC)
- 5201f. SOCIAL PSYCHOLOGY.** (4 cr, §3201; prereq 1001, 1005, and 8 cr in social science, psychology honors majors or grad) Berscheid  
 Classical and contemporary theories and research in social psychology. (GrC)
- 5501s. VOCATIONAL PSYCHOLOGY.** (4 cr; prereq 3801 or equiv) Dawis  
 Individual differences analysis of the work personality and the work environment; vocational development and vocational choice; work adjustment; work motivation and performance; work satisfaction and satisfactoriness; psychological problems connected with work. (GrC)
- 5604w-5605s†. ABNORMAL PSYCHOLOGY.** (4 cr per qtr, §3604; prereq honors majors or grad, or #) Devine  
 Comprehensive review of behavioral disorders. Etiology and treatment considerations are emphasized. (GrC)
- 5701w. PERSONNEL AND INDUSTRIAL PSYCHOLOGY.** (4 cr; prereq 1001, one course in statistics or #) Campbell, Dunnette  
 Application of principles of individual differences and psychological measurement to problems of recruiting, selecting, evaluating, and training members of ongoing organizations. Job behavior description, performance measurement, selection and placement strategies, minority group employment, measurement of job satisfaction, strategies for training and development. (GrC)

## Course Descriptions—Major Sequences

- 5702s. PSYCHOLOGY OF INDIVIDUAL BEHAVIOR IN ORGANIZATIONS.** (4 cr; prereq 5701 or 9 cr in psychology or #) Campbell, Dunnette  
Application of psychological research and methodology to the study of human behavior in ongoing organizations. Motivation, attitude measurement, problem solving and decision making, effects of organizational structure and climate, problems of leadership, supervision, interpersonal relations. (GrC)
- 5703f. SOCIAL PSYCHOLOGY OF ORGANIZATIONS.** (4 cr; prereq 9 cr in psychology or #) Bouchard, Campbell  
Theoretical and methodological issues in the study of small groups in organizational settings. Social processes as constraints on organizational functioning. (GrC)
- 5751f,w. PSYCHOLOGY OF ADVERTISING.** (4 cr, §Jour 5251; prereq 1001) Jones  
Psychological principles, research techniques, and applications in advertising and selling. Relevant consumer attitudes and behavior. Psychological mechanisms upon which effectiveness of advertisements and commercials depends. (GrC)
- 5861w. QUANTITATIVE METHODS IN PSYCHOLOGY.** (4 cr; prereq #) Viemeister  
Elementary set theory, probability theory, matrix algebra, difference equations; applications to construction and evaluation of behavior models. (GrA)
- 5862f. PSYCHOLOGICAL MEASUREMENT: THEORY AND METHODS.** (4 cr; honors candidate or grad; prereq 3801 or equiv) Weiss  
Types of measurement (tests, scales, inventories) and their construction; theory and measurement of reliability and validity. (GrC)
- 5871s. MULTIVARIATE METHODS OF DATA ANALYSIS.** (4 cr; prereq 5862 or #) Weiss  
Multivariate prediction and discrimination (linear and nonlinear models); multivariate covariation analysis, including cluster and factor analysis. (GrC)

## Public Affairs (PA)

### Staff

*Director*, John E. Brandl, 909 Social Sciences Building; *Associate Director*, Nancy N. Anderson

*Professors*: Abrahamson, Bobrow, Brandl, Geesaman, Naftalin, Warp

*Associate Professors*: Adams, N. Anderson, Hoenack, Jernberg

*Assistant Professors*: Dewar, Gleeson, Krieger, Kudrle, Seley

### Adjunct Faculty

*Professors*: J. E. Anderson (Mechanical Engineering), Backstrom (Political Science), Borchert (Geography), Chase (Political Science), Cochrane (Agricultural and Applied Economics), Heller (Economics), Hetland (Law School), Mitau (visitor, Minnesota State College System), Turnbull (Economics), Weckwerth (Public Health)

*Associate Professors*: Bailey (Electrical Engineering), Iskander (Architecture), Muench (Economics)

*Assistant Professors*: Arnold (State Planning Agency), Schoettle (Political Science)

*Instructor*: Einsweiler (lecturer, Planning Consultant)

The School of Public Affairs is primarily devoted to graduate-professional work in social sciences applied to public issues, but some undergraduate courses are offered in analysis, decision making, and administration for the public sector.

**3101, 3102. INTRODUCTION TO PUBLIC AFFAIRS.** (4 cr per qtr) Naftalin, Seley  
Problems and issues confronting government and society; how public policies are developed and implemented; career opportunities in the public service. (GrC).

**3121. SEMINAR: INTRODUCTION TO PUBLIC INTEREST RESEARCH.** (4 cr) Abrahamson  
Public interest activities, particularly as they relate to environmental, consumer, and public health issues. Public interest law. Case studies of major local and national public issues. (GrC)

- 3960. SELECTED TOPICS IN PUBLIC AFFAIRS.** (4 cr per qtr; prereq §) Staff  
Analysis and discussion of major problem areas (race relations, poverty, employment, health). Areas differ from quarter to quarter.
- 3970. DIRECTED STUDIES.** (1-15 cr per qtr; prereq §)
- 5114, 5115. WORKSHOP ON MINNESOTA GOVERNMENT.** (3 cr per qtr; prereq Δ) Warp  
Lectures, panel discussions, and seminar sessions on selected policy issues that currently confront Minnesota's governmental units.
- 5151. ENERGY AND ENERGY POLICY.** (4 cr; prereq §) Abrahamson  
Fuel and energy supply and demand; environmental, social, and economic implications of alternative energy policies; means to effect changes in use patterns; political and institutional factors; relation of energy policy to economic, foreign, and environmental policies. (GrC)
- 5152. TOPICS IN ENERGY POLICY.** (4 cr; prereq 5151 or §) Abrahamson  
A facet of energy policy considered in detail. Topic of current concern selected each year. (GrC)
- 5161, 5162. TECHNOLOGY PLANNING I, II.** (4 cr per qtr; prereq § for 5161...5161 for 5162) Abrahamson, Geesaman  
Relationship of science and technology to the ideological bases of society; technology's significance to the policy process; society's institutions for governing its technologies. (GrC)
- 5401. DEVELOPMENT ADMINISTRATION.** (4 cr) Warp  
Problems and issues in development; the aid relationship; manpower for development; administrative reform; the regional approach; public enterprise; case studies. (GrC)
- 5502. LOCAL ADMINISTRATION.** (4 cr) Gleeson  
Local public agencies in the political system; individuals in the agencies. Tools available to the administrator for control and change; constraints on the administrator.
- 5503. TOPICS IN LOCAL ADMINISTRATION.** (4 cr; prereq 5502 or §) Gleeson  
Advanced analysis of selected topics.
- 5505. HOUSING POLICY.** (4 cr; prereq 12 cr in social sciences or §) Gleeson  
The role of American national, state, and local governments in financing, control, taxation, and construction of housing. (GrC)
- 5516, 5517. SEMINAR: SOCIAL THEORY AND SOCIAL PLANNING I, II.** (4 cr per qtr; prereq 5516 for 5517) Seley  
Major issues in social theory; analysis of urban planners' responses—implicit and explicit—to these issues. Social change, alienation and anomie, power, images of society, values and objectivity; examples from urban planning. What the planner can, cannot, has, and has not done in regard to social problems. (GrC)
- 5550. PLANNING PROSEMINAR.** (2 cr per qtr; prereq §) Staff  
Major subareas of planning (social planning, planning theory). Topics differ from quarter to quarter. (GrC)
- 5601-5602. PLANNING THEORY SEMINAR.** (4 cr per qtr; prereq §)  
Philosophical and theoretical aspects of the relationship of systematic knowledge to public action and planning. Design methodology. (GrC)
- 5771, 5781. ADMINISTRATIVE INTERNSHIP.** (3 cr; prereq Δ)  
Fieldwork in approved administrative agencies under the joint agency and faculty supervision. Rotation through various administrative assignments, solution of special problems, seminar discussion of experiences; preparation of an internship report.

## Public Health (PubH)

### B.A. MAJOR SEQUENCE

See Biometry in this Bulletin.

Courses of study in public health are more fully described in the *School of Public Health Bulletin* and in the *Graduate School Bulletin*.

- 3004. BASIC CONCEPTS IN PERSONAL AND COMMUNITY HEALTH.** (4 cr) Greene and Schwanke  
Scientific, sociocultural, and attitudinal aspects of communicable and degenerative diseases, environmental and occupational health hazards, alcohol and drug problems; role of education in health conservation, disease control, and drug abuse.

## Course Descriptions—Major Sequences

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- 3034. TOPICS IN ALCOHOL AND DRUG ABUSE.** (Cr ar; prereq #) Staff  
Selected readings in alcohol and drug abuse with discussion based on these readings.
- 3151. INTRODUCTION TO ENVIRONMENTAL HEALTH.** (3 cr; prereq 3 cr in public health) Vesley  
Principles of environmental health relating to water, food, wastes, housing, accidents, radiation, air, industrial hygiene.
- 3385. PHYSIOLOGICAL HYGIENE.** (4 cr; to receive cr for this course 3386 must also be completed except by #; prereq 8 cr in chemistry and 4 cr in human anatomy or equiv) Taylor, Alexander  
Basic physiological principles and facts.
- 3386. PHYSIOLOGICAL HYGIENE.** (4 cr; prereq 3385 or equiv) Taylor, Alexander  
Effects of exercise, nutrition, environment, and age on performance and health.
- 3600. HUMAN NUTRITION.** (3 cr; prereq courses in chemistry and biology or #)  
Principles of nutrition, application to individual and family eating patterns, nutritional aspects of selected community problems or programs.
- 5009. HONORS COURSE: ISSUES AND CONTROVERSIES IN CONTEMPORARY COMMUNITY HEALTH.** (3 cr; prereq advanced application and # and 3001, 3004, 5006, or equiv; limited to 30) Greene and others  
Exploration of selected current issues and controversies in health through readings, discussion, and limited field assignment. Special emphasis will be given to the balance between personal and community needs, interests, rights, and responsibilities.
- 5070. COMMUNICATION SKILLS FOR HEALTH PROFESSIONALS.** (3 cr) Veninga  
Designed to upgrade knowledge and skills in interpersonal communication for workers in health-related fields. Development of knowledge in one-to-one communication, small group communication, organizational communication.
- 5080. INTRODUCTION TO COMMUNITY HEALTH EDUCATION.** (2 cr; prereq #) Craig, Mills, Veninga  
Planning educational components of community health programs; methods, materials, and procedures in health education; organization and use of community resources for health education.
- 5152. ENVIRONMENTAL HEALTH.** (2 cr; prereq #) Bond, staff  
Principles of environmental health problems; problems encountered by official health agencies.
- 5342. PUBLIC HEALTH BACTERIOLOGY.** (Cr ar; prereq MicB 5232, 5161, #) Bauer  
Bacteriologic and serologic diagnosis, public health laboratory administration and methods.
- 5380. APPLIED HUMAN NUTRITION.** (3 cr; prereq #) Stief, Grande  
Food composition, nutrient requirements, nutrition surveys, public health programs in nutrition.
- 5385. PHYSIOLOGY OF EXERCISE.** (Cr ar; prereq Phsl 5100 or equiv and #) Taylor  
Muscular efficiency, training, deconditioning, effects of exercise on metabolism and physiological systems.

## Religious Studies (REIS)

### Staff

*Chairman of Religious Studies Committee*, A. Thomas Kraabel, 310A Folwell Hall; *Director of Undergraduate Studies*, James D. Tracy, 584 Social Sciences Building; *Director of Graduate Studies*, Robert B. Tapp, 354 Ford Hall

### Adjunct Faculty

*Professors*: Altholz (History), Bagley (History and Philosophy of Education), Farah (Middle Eastern Languages), Johnson (Sociology), Kwiat (English and Humanities), Mather (East Asian languages), O'Brien (English), Riedel (Music), Sibley (Political Science), Spencer (Anthropology), Tapp (Humanities, Religious Studies, South Asian Studies)

*Associate Professors:* Alexeev (Slavic and East European Languages), DeLattre (American Studies), Hopkins (Philosophy), Kraabel (Classics), Tracy (History)

*Assistant Professors:* Asher (Art History and South Asian Studies), Paradise (Middle Eastern Languages), Ross (Student Affairs)

Religious studies, as a CLA program, is concerned with understanding religions and religious movements of all kinds. Its emphases are comparative and multidisciplinary in nature; both require an understanding of historical phenomena and contemporary social processes. Scholarly resources range from history to empirical social science, from philosophy to philology, from humanities to the physical and biological sciences. Students majoring in religious studies are expected to acquire both common disciplinary perspectives and specializations based on their individual skills and interests.

## B.A. MAJOR SEQUENCE

Before admission to the major, a student should consult the Religious Studies adviser, 114 Johnston Hall, for referral to faculty members whose academic responsibilities and concerns are close to that of the student. The degree program must have the adviser's approval.

### Major Requirements

15 courses from the groups\*\* listed below, representing at least two religious traditions (13 of the 15 at the 3xxx-5xxx level)

- A. Phenomenological and comparative perspectives on religions—1001-5890
- B. Philosophical perspectives on religions—one course
- C. Social sciences perspectives on religions—a minimum of two courses representing at least two social science departments
- D. Literary and artistic perspectives on religions—a minimum of two courses
- E. Area and historical studies—a minimum of two courses

#### 1001w. INTRODUCTION TO RELIGIOUS STUDIES. (4 cr)

The thought and behavior of religious man from historical and analytical perspectives; the ways in which man is religious. (GrC)

#### 1031f, 1032w, 1033s. RELIGIONS OF THE 20TH-CENTURY WORLD. (4 cr per qtr, §Indc 1504 for 1031...§EAS 1032 for 1032...§MidE 1033 for 1033)

1031: Religions in South and Southeast Asia. 1032: Religions in East Asia. 1033: Religions of the Mediterranean area—Judaism, Christianity, Islam. (GrC)

#### 3101f-3102w. RELIGIONS OF THE AMERICAN PEOPLE. (4 cr per qtr)

A religious perspective on American experience, Age of Discovery to the present. Religious traditions, Western and non-Western, examined developmentally, descriptively, and chronologically.

#### 3995f,w,s. MAJOR PAPER. (3-6 cr; prereq Δ) (GrC)

#### 5890w. SEMINAR IN RELIGIOUS STUDIES. (5 undergrad cr per qtr, 3 grad cr per qtr; prereq sr major or §, §3995)

Conceptual and methodological issues in contemporary religious studies. Student hypotheses to be tested across at least two historical periods within two religious traditions. (GrC)

#### 5970f,w,s. DIRECTED STUDIES. (3-5 cr per qtr; prereq Δ)

#### 5980f,w,s. DIRECTED INSTRUCTION. (3-5 cr; prereq Δ)

\*\* Lists of approved courses for areas B, C, D, and E (offered through other CLA departments) are presented in the booklet *Religious Studies at the University of Minnesota*, available in 114 Johnston Hall.

## Reserve Officers' Training Corps (ROTC)

### AEROSPACE STUDIES (Air)

#### Staff

*Chairman*, Col. Lawrence H. Bulawsky, Jr., 108 Armory

*Professor*: Madigan

*Assistant Professors*: McClellan, Rittman, Roberts

The Air Force ROTC program enables qualified young men and women to work toward commissions as officers in the U.S. Air Force while they are completing requirements for university degrees. Students are commissioned as second lieutenants in the Air Force upon graduation. Woman cadets are eligible to participate in all phases of the program except those that lead to the pilot, navigator, or missile officer occupations.

Emphasis in the Air Force ROTC curriculum is on development of leadership and communicative skills, on Air Force functioning in support of national policy, and on management theory and its practical application in directing personnel and programs.

Uniforms and AFROTC texts are provided, and cadets receive \$100 per month in junior and senior years. College scholarships that cover 2, 3, or 4 years and include the monthly stipend are available on a competitive basis.

Information about the program may be found in the *Army, Navy, Air Force ROTC Bulletin* or at the Aerospace Studies office (373-2205).

**1101f. U.S. AIR FORCE.** (1 cr; prereq  $\Delta$ )

The doctrine, mission, and organization of the U.S. Air Force; strategic offensive forces.

**1102w. U.S. DEFENSE FORCES.** (1 cr; prereq  $\Delta$ )

The mission and function of the North American aerospace and missile defense systems; the dangers they are designed to counter.

**1103s. U.S. SUPPORT FORCES.** (1 cr; prereq  $\Delta$ )

The structure of U.S. Air Force support forces; aerospace systems and logistics commands; personnel, research and development, training and auxiliary services.

**1201f. EARLY HISTORY OF AIR POWER.** (1 cr; prereq  $\Delta$ )

The beginnings of manned flight; early military attitudes toward aviation and the development of employment tactics, strategies, and doctrine.

**1202w. AIR POWER IN WORLD WAR II AND KOREA.** (1 cr; prereq  $\Delta$ )

Uses of air power in World War II; development of an independent Air Force; cold war strategy; employment of air power in Korea.

**1203s. MODERN EMPLOYMENT OF AIR POWER.** (1 cr; prereq  $\Delta$ )

Effects of air power on tactics and strategy in the modern world; the role of air power in the Middle East, Cuba, and Southeast Asia.

**3301f. CIVIL-MILITARY INTERACTIONS.** (3 cr; prereq  $\Delta$ )

Traditional and contemporary views of the military profession; civilian political authority; public opinion and the defense budget; trends in military professionalism and civil-military relations.

**3302w. FORMULATION OF DEFENSE STRATEGY.** (3 cr; prereq  $\Delta$ )

Constraints on and foundations of contemporary American defense strategy; realistic deterrence; management of conflict. Individual skills in research and oral reporting.

**3303s. U.S. DEFENSE POLICY.** (3 cr; prereq  $\Delta$ )

Concepts of limited war; formulation of U.S. defense policy; organizational inputs to policy; case studies. Development of oral communications skills.

**3401f. AIR FORCE LEADERSHIP.** (3 cr; prereq  $\Delta$ )

The philosophy and scope of leadership and the interaction of individuals and groups in large scale organizations. Role playing, conference and discussion, and problem-solving methods.

**3402w. PROFESSIONALISM.** (3 cr; prereq  $\Delta$ )

The foundations of military professionalism; its ethical characteristics and responsibilities. The meaning and function of military discipline; principles of military law.

**3403s. MILITARY MANAGEMENT.** (3 cr; prereq  $\Delta$ )

Management and the functions of the military executive: planning, organizing, directing, coordinating, and controlling. Management tools, concepts, practices, controls, and techniques to assure mission achievement.

**3404f,w,s. FLIGHT INSTRUCTION PROGRAM.** (3 cr; open only to AFROTC cadets; prereq  $\Delta$ )

Twenty-five hours of flight instruction and practice. Federal aviation regulations, flight theory, aircraft instruments, meteorology, radio aids, navigation, and aircraft operation.

## MILITARY SCIENCE (Mil)

### Staff

*Chairman*, Col. Lawrence H. Bulawsky, Jr., 108 Armory

*Professor*: Bulawsky

*Assistant Professors*: Collins, Fieldman, Grev, Vaughan

The program in military science, leading to a commission in the United States Army Reserve, is available to men and women students in all colleges of the University. Instruction encompasses military fundamentals common to all branches of the Army. Its purpose is to provide a basic military education and, in conjunction with other curricula, to develop individual characteristics and attributes of leadership.

Information about the program may be found in the *Army, Navy, Air Force ROTC Bulletin* or at the Military Science office, 108 Armory (373-2212).

All cadets participate through fall, winter, and spring quarters in the Leadership Laboratory, a program designed to permit each student to demonstrate progressive ability in individual and group drill. The sessions provide practice in voice and command, unit formation, exercise of command, bearing, and posture; they also permit identification and development of leadership traits and qualities of character.

## PREPROFESSIONAL DIVISION

### Military Science I

**1011f. WORLD MILITARY HISTORY.** (2 cr; prereq  $\Delta$ , Leadership Laboratory) Fieldman  
Basic concepts of military history: principles of war, military definitions, relationship of geography, economics, and technology to military history; warfare through the ages. Rise of Islam and its military institutions.

**1012w. WORLD MILITARY HISTORY.** (2 cr; prereq  $\Delta$ , Leadership Laboratory) Fieldman  
Discovery of gunpowder and beginnings of modern armies; limited war of 18th century; great age of sail; nation in arms and Napoleon; armaments race in 19th century.

**1013s. WORLD MILITARY HISTORY.** (2 cr; prereq  $\Delta$ , Leadership Laboratory) Fieldman  
Advent of total war—World War I and World War II; policy of containment and its military implications; Korean War and rearmament; the modern army.

**1014su. WORLD MILITARY HISTORY.** (5 cr; prereq  $\Delta$ , Leadership Laboratory; offered when demand warrants) Fieldman  
Compresses 1011, 1012, 1013.

### Military Science II

**1021f. FOUNDATIONS OF NATIONAL POWER.** (2 cr; prereq  $\Delta$ , Leadership Laboratory)  
Collins

Factors involved in a nation's capacity for developing force, geographical positions, nature of populations, social organization within a nation, a nation's ideology, economic and technological resources of a nation.

## Course Descriptions—Major Sequences

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- 1022w. FOUNDATIONS OF NATIONAL POWER.** (2 cr; prereq  $\Delta$ , Leadership Laboratory) Collins  
Political systems and their influence on national power; force as related to other types of influence; development of various types of influence; presentation of military force as center of the influence concept.
- 1023s. FOUNDATIONS OF NATIONAL POWER.** (2 cr; prereq  $\Delta$ , Leadership Laboratory) Collins  
Levels and types of military force.
- 1024su. FOUNDATIONS OF NATIONAL POWER.** (5 cr; prereq  $\Delta$ , Leadership Laboratory; offered when demand warrants) Collins  
Compresses 1021, 1022, 1023.

## PROFESSIONAL DIVISION

### Military Science III

- 5131f. METHODS OF INSTRUCTION, MAP READING.** (3 cr; prereq  $\Delta$ , Leadership Laboratory) Grev  
Tactical use of U.S. and foreign military maps. Land navigation, reading and interpreting military maps and aerial photographs; principles, methods, and techniques of preparing, presenting, and evaluating military instruction. Application of teaching principles and techniques.
- 5132w. SMALL UNIT TACTICS, COMMUNICATIONS.** (3 cr; prereq  $\Delta$ , Leadership Laboratory) Grev  
Small unit operations in conventional and unconventional battlefield environments; organization and equipment organic to modern army; employment of small units in tactical situations; employment of communications equipment available to small tactical units.
- 5133s. LEADERSHIP, BRANCHES OF THE ARMY.** (3 cr; prereq  $\Delta$ , Leadership Laboratory) Grev  
Psychology and problem-solving techniques in military environment; individual and small group leadership problems. Mission, functions, and career opportunities in different branches of the army.

### Military Science IV

- 5141f. THEORY AND DYNAMICS OF THE MILITARY TEAM.** (3 cr; prereq  $\Delta$ , Leadership Laboratory) Vaughan  
Explanation of command, staff organization and functions; a commander's estimate of situation, his operations order; importance of military intelligence cycle to military team; principles of training management, its application to successful military operations.
- 5142w. MILITARY ADMINISTRATION AND LOGISTICS MANAGEMENT.** (3 cr; prereq  $\Delta$ , Leadership Laboratory) Vaughan  
Military logistical supply systems, importance in combat operations; military personnel management procedures, records, classification and assignment, unit fund accounting, and mess management.
- 5143s. MILITARY LAW AND SERVICE ORIENTATION.** (3 cr; prereq  $\Delta$ , Leadership Laboratory) Vaughan  
History and basic concepts of military justice; origin, nature, purpose of *Uniform Code of Military Justice and Manual for Courts-Martial*; relationship between military justice and military discipline, scope and nature of appellate review, service orientation for newly commissioned officers.

## NAVAL SCIENCE (Nav)

### Staff

*Chairman*, Capt. W. T. Broughton, 203 Armory

*Associate Professor*: Olson

*Assistant Professors*: Ayres, Holman, Svendsen, Wall

Naval Science gives students a background in naval subjects so that upon graduation they may qualify for commissions in the Navy, Naval Reserve, Marine Corps, or Marine Corps Reserve. It offers three programs under the NROTC: The 4-year Navy-Marine scholarship program, the 4-year Navy-Marine college program, and the 2-year advanced training program.

The scholarship program offers tuition, fees, and books plus \$100 a month as subsistence allowance during 4 years of undergraduate study. Students may qualify for this program during their senior year of high school or freshman year in college if they are enrolled in the Navy-Marine college program.

The college program is a 4-year program providing all naval science textbooks and a \$100 a month subsistence allowance during the last 2 years of undergraduate work.

The 2-year advanced training program (nonscholarship) provides naval science textbooks and \$100 subsistence allowance for the last 2 years of undergraduate study. Students in this program go to a Naval Science Institute (NSI) for 6 weeks prior to their junior year. Room, board, and allowance for travel to and from the NSI at the Officers Candidate School, Newport, Rhode Island, plus approximately \$490 pay, are provided.

Information about the program may be obtained from the *Army, Navy, Air Force ROTC Bulletin* or the Naval Science office, 203 Armory (373-2230 or 373-4088).

### All NROTC Students—1st Year

#### 1101f. SHIPS SYSTEMS I. (2 cr; prereq #)

Types, purpose, and structure of naval ships. Ship compartmentation, steam and fossil fuel propulsion systems, ship design, and ship stability characteristics.

#### 1102w. SHIPS SYSTEMS II. (2 cr; prereq #)

Non-steam and nuclear ship propulsion systems, auxiliary ship support systems, ship control, and sensors.

#### 1103s. SHIPS SYSTEMS III. (2 cr; prereq #)

Theory and principles of operation for naval weapons systems. Design, capabilities and limitations, and evaluation of air, sea, and undersea naval weapons systems.

### All NROTC Students—2nd Year

#### 1206f. HISTORY OF SEA POWER I. (2 cr; prereq #)

Sea power's influence on world history from galley warfare to the U.S. Civil War. Maritime events that shaped the evolution of the United States as a sea power.

#### 1207w. HISTORY OF SEA POWER II. (2 cr; prereq #)

Sea power's influence on world history from 1865 to the end of World War I.

#### 1208s. HISTORY OF SEA POWER III. (2 cr; prereq #)

Sea power's influence on world history from 1918 to the present. Disarmament, global war, limited war, and nuclear deterrence and their impact on modern sea powers, chiefly the U.S. Navy.

### Navy Sequence—3rd Year

#### 3303f. NAVAL OPERATIONS: INTRODUCTION TO NAVIGATION. (3 cr; prereq #)

Piloting and dead reckoning. Rules of the nautical road.

#### 3304w. CELESTIAL NAVIGATION. (3 cr; prereq trigonometry, 3303, #)

Theory and practical application of navigating using the stars, moon, and planets. Relative motion and naval maneuvering.

#### 3305s. OPERATIONS ANALYSIS. (3 cr; prereq #)

Electronic navigation and operations analysis. Loran, radio, and modern navigation systems. A scientific approach to decision making.

## Course Descriptions—Major Sequences

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### Navy Sequence—4th Year

- 3404s. PRINCIPLES OF NAVAL MANAGEMENT I.** (2 cr; prereq #)  
Introduction to naval management: management theory and its application to formal military organizations from the national level down to the shipboard level.
- 3405w. PRINCIPLES OF NAVAL MANAGEMENT II.** (2 cr; prereq #)  
Precepts and practices of naval leadership: management relationships, study of inter-personal relations, management psychology, group dynamics, individual differences.
- 3406s. PRINCIPLES OF NAVAL MANAGEMENT III.** (2 cr; prereq #)  
Management at the shipboard level: divisional organization, uniform code of military justice, formal organization at shipboard level.

### Marine Corps Sequence—3rd and 4th Years

- 0352f. CONCEPTS OF LEADERSHIP.** (No cr; S-N only; prereq #; offered fall 1974 and alt yrs)  
Leadership principles applied to military drill and military ceremonies.
- 0452f. CONCEPTS OF LEADERSHIP.** (No cr; S-N only; prereq #; offered fall 1975 and alt yrs)  
Leadership principles applied to military drill and military ceremonies.
- 3350w. EVOLUTION OF ART OF WAR I.** (3 cr; prereq #; offered winter 1975 and alt yrs)  
Evolution of warfare from earliest recorded times through the Mexican War.
- 3351s. EVOLUTION OF ART OF WAR II.** (3 cr; prereq #; offered spring 1975 and alt yrs)  
Civil War campaigns. World Wars I and II, Korea and Vietnam. U.S. military and foreign policy.
- 3450w. AMPHIBIOUS WARFARE I.** (3 cr; prereq #; offered winter 1976 and alt yrs)  
Evolution of amphibious warfare techniques and doctrine from Gallipoli to Korean War.
- 3451s. AMPHIBIOUS WARFARE II.** (3 cr; prereq #; offered winter 1976 and alt yrs)  
Doctrinal techniques and concepts: planning, embarkation, rehearsal, support, and logistics.

## RUSSIAN

See Slavic and East European Languages.

## SANSKRIT

See South Asian Languages.

## Scandinavian

### Staff

*Chairman*, J. Allen Simpson, 210 Folwell Hall; *Director of Undergraduate Studies*, William Mishler, 127 Klaeber Court

*Professors*: Hasselmo, Wood

*Associate Professors*: Simpson, Stockenström

*Assistant Professors*: Askeland, Grimstad, Mishler

*Instructor*: Jönsson

The Department of Scandinavian teaches and conducts research in the language and literatures of the Scandinavian countries and Finland, in the context of relevant cultural-historical background and milieu. Majors with concentration in Danish, Finnish, Norwegian, and Swedish and in Scandinavian languages and literature are offered.

## SCANDINAVIAN (Scan)

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

Dan, Nor, or Swed 1101-1102-1103 or 1106-1107; 1104-1105

#### Major Requirements

Dan, Nor, or Swed 3101, 3102, 3103, 3104

At least 20 cr in 3xxx- or 5xxx-level Scandinavian courses (for substitution of courses from other departments, consult director of undergraduate studies)

**General Education**—Courses appropriate for nonmajors are Scan 1504, 3501, 3601, 3604, 5404, 5421, 5501, 5502, 5503, 5601, 5611, 5613, 5614, 5615, 5616, 5617, 5631, 5632, 5633, 5704, 5711, and 5712.

- 1504. SCANDINAVIAN IMMIGRANT CULTURE AND ITS BACKGROUND.** (4 cr)  
Cultural self-maintenance efforts of Scandinavian immigrants to the U.S.; immigrant literature (readings in translation). (GrC)
- 3501. INTRODUCTION TO SCANDINAVIA.** (4 cr [no cr toward major])  
Cultural, social, and political developments; major cultural figures (readings in translation). (GrC)
- 3601. SCANDINAVIAN LITERATURE IN TRANSLATION.** (4 cr [no cr toward major])  
Mishler  
Major literary works from the Middle Ages to the present. (GrD)
- 3604. FINNISH LITERATURE IN TRANSLATION.** (4 cr; offered 1975-76 and alt yrs)  
Jönsson  
Major literary works from the Middle Ages to the present. (GrD)
- 3670. TOPICS IN SCANDINAVIAN LITERATURE.** (4 cr per qtr)  
Topic announced before the first class meeting. Readings in English for nonmajors. Meets with 5670. (GrD)
- 3980. DIRECTED INSTRUCTION.** (Cr ar; prereq #)
- 5201. SCANDINAVIAN LITERATURE FROM THE LATE MIDDLE AGES TO THE ENLIGHTENMENT.** (4 cr; prereq reading knowledge of a Scandinavian language; offered alt yrs)  
Representative literary works from the 14th century to Bellman and Holberg.
- 5202. FROM ROMANTICISM TO THE MODERN BREAKTHROUGH.** (4 cr; prereq reading knowledge of a Scandinavian language; offered alt yrs) Askeland  
Romantic and early realistic authors.
- 5404. HISTORY AND STRUCTURE OF FINNISH.** (4 cr) Jönsson  
History and structure (phonology and syntax) of modern Finnish (readings in translation for nonmajors). (GrA)
- 5421. FINNISH FOLKLORE: THE KALEVALA.** (4 cr; offered alt yrs) Jönsson  
The Finnish national epos from a folkloristic point of view (readings in translation). (GrD)
- 5501. SCANDINAVIAN MYTHOLOGY.** (4 cr) Grimstad  
Scandinavian myths based on the Poetic Edda and the Prose Edda (readings in translation). (GrD)

## Course Descriptions—Major Sequences

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- 5502. THE ICELANDIC SAGA.** (4 cr) Grimstad  
Literary study of the Saga literature, its origins and development (readings in translation). (GrD)
- 5503. SCANDINAVIAN FOLKLORE.** (4 cr) Grimstad  
Literary and folkloristic investigation of Scandinavian ballad and folktale (readings in translation for nonmajors). (GrD)
- 5511. SKALDIC POETRY: ITS METHOD.** (4 cr; prereq reading knowledge of Old Icelandic; offered alt yrs) Wood  
Analysis of a representative selection of Skaldic poetry and its forms and method.
- 5512. THE POETIC EDDA.** (4 cr; prereq reading knowledge of Old Icelandic) Wood  
Reading and analysis of poems from the Poetic Edda (texts in Old Icelandic). (GrD)
- 5601. INGMAR BERGMAN.** (4 cr) Mishler  
Viewing six of Ingmar Bergman's films; readings of film scripts and discussion. (GrD)
- 5611. SCANDINAVIAN LITERATURE IN ITS EUROPEAN CONTEXT: REALISM.** (4 cr)  
Stockenström  
The breakthrough of realism in Scandinavian literature, seen in its European context. Representative European literary texts from the 19th century—dramas, novels, and criticism (read in translation). (GrD)
- 5613. CONTEMPORARY SCANDINAVIAN LITERATURE.** (4 cr) Mishler  
The works of authors representing major trends after 1945 (readings in translation for nonmajors). (GrD)
- 5614s. THE DRAMA OF IBSEN AND STRINDBERG.** (4 cr; prereq § for majors) Stockenström  
Selected plays of Scandinavia's two major dramatists, in the context of modern theatre (readings in translation for nonmajors). (GrD)
- 5615. IBSEN AND THE BEGINNINGS OF THE MODERN DRAMA.** (4 cr) Askeland  
The plays of Ibsen; his role as "founder" of modern European drama (readings in translation for nonmajors). (GrD)
- 5616. STRINDBERG AND THE DRAMA IN REVOLT AND TRANSITION.** (4 cr) Stockenström  
Strindberg as master of the naturalistic drama and as "the father of modernity" in European and American theatre (readings in translation for nonmajors). (GrD)
- 5617. SCANDINAVIAN LITERATURE IN ITS EUROPEAN CONTEXT: SYMBOLISM.** (4 cr) Stockenström  
Symbolism in Scandinavian literature, seen in its European context. Representative European literary texts from late 19th and early 20th century—dramas, novels, and criticism (read in translation). (GrD)
- 5619. SCANDINAVIAN POETRY SINCE 1890.** (4 cr; prereq reading knowledge of a Scandinavian language; offered alt yrs) Simpson  
Representative poets since 1890.
- 5631. THE SCANDINAVIAN NOVEL, 1800-1890.** (4 cr) Simpson  
The "modern breakthrough" of the 1870's and 1880's; representative works from preceding periods (readings in translation for nonmajors). (GrD)
- 5632. THE SCANDINAVIAN NOVEL, 1890-WORLD WAR I.** (4 cr) Simpson  
Hamsun, Strindberg, Söderberg, Jensen, and others (readings in translation for nonmajors). (GrD)
- 5633. THE SCANDINAVIAN NOVEL FROM WORLD WAR I TO 1950.** (4 cr) Simpson  
Trends in the Scandinavian novel since World War I (readings in translation for nonmajors). (GrD)
- 5670. TOPICS IN SCANDINAVIAN LITERATURE.** (4 cr per qtr)  
For description, see 3670. (GrD)
- 5701-5702. OLD NORSE LANGUAGE AND LITERATURE.** (4 cr per qtr) Hasselmo  
Acquisition of a reading knowledge of Old Icelandic; the linguistic, philological, and literary study of Old Norse language and literature. (GrD)
- 5703. OLD NORSE: SAGA READING AND ANALYSIS.** (4 cr; prereq 5702; offered 1975-76 and alt yrs) Grimstad  
(Continuation of 5702) Emphasis on prose narrative in Old Norse and its literary content. (GrD)

- 5704. HISTORY OF THE SCANDINAVIAN LANGUAGES.** (4 cr) Hasselmo  
The Scandinavian languages from early Middle Ages to the present; cultural history (readings in translation for nonmajors).
- 5711. STRUCTURE OF THE SCANDINAVIAN LANGUAGES.** (4 cr; prereq introductory course in linguistics or §; offered alt yrs) Hasselmo  
Syntax and phonology of standard Danish, Norwegian, and Swedish (readings in translation for nonmajors).
- 5712. SCANDINAVIAN HISTORICAL LINGUISTICS.** (4 cr; prereq introductory course in linguistics or §; offered alt yrs) Hasselmo  
Internal history of Danish, Norwegian, and Swedish (readings in translation for nonmajors).
- 5721-5722. MODERN ICELANDIC.** (1 cr per qtr; prereq knowledge of Old Icelandic or ¶5701-5702)  
Modern Icelandic phonology and grammar; reading of texts. (GrA)
- 5970. DIRECTED STUDIES.** (1-15 cr per qtr)  
Topics not covered by regular courses; readings in Scandinavian literature in the original.

## DANISH (Dan)

- 1101f-1102w-1103s. BEGINNING DANISH.** (5 cr per qtr)
- 1104f-1105w. INTERMEDIATE DANISH.** (5/4 cr; prereq 1103 or equiv)
- 3101s. ADVANCED DANISH.** (4 cr; prereq 1105 or equiv)  
Continued development of reading, writing, and speaking skills. (GrA)
- 3102f-3103w-3104s. READINGS IN DANISH LITERARY TEXTS.** (4 cr per qtr; prereq 3101 or equiv)  
Use of diverse literary texts to develop reading, writing, and speaking skills. (GrA)

## FINNISH (Fin)

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1101-1102-1103, 1104-1105

#### Major Requirements

3101, 3102, 3103, 3104  
Scan 3604, 5404, 5421  
At least 8 cr in Scandinavian history

- 1101f-1102w-1103s. BEGINNING FINNISH.** (5 cr per qtr)
- 1104f-1105w. INTERMEDIATE FINNISH.** (5/4 cr; prereq 1103 or equiv)
- 3101s. INTERMEDIATE FINNISH.** (4 cr; prereq 1105 or equiv)  
Further development of reading, writing, and speaking skills. (GrA)
- 3102f. FINNISH PROSE AND POETRY.** (4 cr; prereq 3101 or equiv)  
Reading 19th- and 20th-century prose and poetry to develop reading skill; analysis of style.
- 3103w-3104s. INTRODUCTION TO FINNISH LITERATURE.** (4 cr per qtr; prereq 3102 or equiv)  
Survey of literary history; reading of significant works. Conducted primarily in Finnish. (GrD)

## NORWEGIAN (Nor)

1101f-1102w-1103s. BEGINNING NORWEGIAN. (5 cr per qtr)

1104f-1105w. INTERMEDIATE NORWEGIAN. (5/4 cr; prereq 1103 or equiv)

1106w-1107s. INTENSIFIED BEGINNING NORWEGIAN. (8/7 cr; prereq a second language or §)

Use of the computer and other teaching aids to develop mastery of Norwegian equal to that achieved in 1101-1102-1103. (GrA)

3101s. ADVANCED NORWEGIAN. (4 cr; prereq 1105 or equiv)

Continued development of reading, writing, and speaking skills. (GrA)

3102f-3103w-3104s. READINGS IN NORWEGIAN LITERARY TEXTS. (4 cr per qtr; prereq 3101 or equiv)

Use of diverse literary texts to develop reading, writing, and speaking skills. (GrA)

## SWEDISH (Swed)

1101f-1102w-1103s. BEGINNING SWEDISH. (5 cr per qtr)

1104f-1105w. INTERMEDIATE SWEDISH. (5/4 cr; prereq 1103 or equiv)

1106w-1107s. INTENSIFIED BEGINNING SWEDISH. (8/7 cr; prereq a second language or §)

Use of the computer and other teaching aids to develop mastery of Swedish equal to that achieved in 1101-1102-1103. (GrA)

3101s. ADVANCED SWEDISH. (4 cr; prereq 1105 or equiv)

Continued development of reading, writing, and speaking skills. (GrA)

3102f-3103w-3104s. READINGS IN SWEDISH LITERARY TEXTS. (4 cr per qtr; prereq 3101 or equiv)

Use of diverse texts to develop reading, writing, and speaking skills. (GrA)

## SERBO-CROATIAN

See Slavic and East European Languages.

## Slavic and East European Languages

### Staff

*Chairman*, Adele K. Donchenko, 251 Elliott Hall

*Associate Professors*: Alexeev, Donchenko

*Assistant Professors*: Armes, Kulesov, Prokopov, Sjoberg (on leave, 1974-75)

*Instructors*: Kondy, Polakiewicz

The Department of Slavic and East European Languages offers study of Polish, Russian, and Serbo-Croatian languages, with a major in Russian, and of the literature, culture, and civilization of the Slavic world, in translation as well as in Russian.

**General Education**—Courses recommended for general education are Russ 3501, 3502, 3503, 3601, 3602, 5201, 5202, 5203, and Slav 3701.

**RUSSIAN (Russ)**

**B.A. MAJOR SEQUENCE**

**Major Requirements**

3011-3012-3013, 3021-3022-3023, 3104-3105-3106  
10 additional 3xxx- or 5xxx-level cr in department courses

- 1101f-1102w-1103s. BEGINNING RUSSIAN.** (5 cr per qtr; five class meetings a wk)  
Speaking, reading, and understanding Russian through acquisition of basic patterns of speech.
- 1104f-1105w-1106s. INTERMEDIATE RUSSIAN.** (5 cr per qtr; prereq 1103)  
Expansion of experience in speaking and understanding Russian; reading of contemporary texts.
- 1107f-1108w-1109s. INTENSIVE RUSSIAN.** (10 cr per qtr)  
Concentrated approach to speaking, reading, and understanding Russian through acquisition of basic speech patterns and coordinated readings. (GrA)
- 1112w-1113s. HONORS COURSE: BEGINNING RUSSIAN.** (5 cr per qtr; for students who have demonstrated high ability and achievement during 1st qtr; prereq Δ)
- 1114f-1115w-1116s. HONORS COURSE: INTERMEDIATE RUSSIAN.** (5 cr per qtr; prereq 1113 or §)
- 3011f-3012w-3013s. COMPOSITION.** (3 cr per qtr; prereq 1106) (GrA)
- 3021f-3022w-3023s. CONVERSATION.** (2 cr per qtr; prereq 1106) (GrA)
- 3104f-3105w-3106s. FOURTH-YEAR RUSSIAN.** (5 cr per qtr; prereq 3013 and 3023 or equiv)  
Advanced course involving all language skills centering around topics in Russian literature, literary analysis, and culture. (GrA)
- 3116. HONORS COURSE: PROSEMINAR IN RUSSIAN LITERATURE.** (4 cr; prereq 3106 and Δ)  
Study of selected significant themes in Russian literature.
- 3501f, 3502w, 3503s. RUSSIAN CIVILIZATION AND CULTURE.** (4 cr per qtr; no prereq for English section...prereq 1106 or § for Russian section)  
Aspects of Russian culture—land, peoples, language institutions, intellectual and artistic trends and achievements. (GrC)
- 3601f, 3602w. 19TH-CENTURY RUSSIAN LITERATURE IN TRANSLATION.** (4 cr per qtr; no knowledge of Russian required)  
3601: Pushkin, Lermontov, Gogol, Turgenyev, and others. 3602: Tolstoy, Dostoevsky, and others. (GrD)
- 5021. SOVIET UNION STUDY TOUR.** (6-18 cr)
- 5201f, 5202w, 5203s. SOVIET RUSSIAN LITERATURE IN TRANSLATION.** (4 cr per qtr)  
Course conducted in English. (GrD)
- 5204. 19TH-CENTURY RUSSIAN CRITICISM.** (4 cr; prereq sr or §)  
Analysis and discussion of works of major Russian literary critics of period, in their literary, political, and social implications.
- 5301. RUSSIAN POETRY: 19TH-CENTURY.** (4 cr; offered when feasible)
- 5401. DOSTOEVSKY.** (4 cr)  
Analytic approach to study of novels of Dostoevsky. (GrD)
- 5403. GOGOL.** (4 cr)  
Earlier and major works of N. V. Gogol. (GrD)
- 5404. TOLSTOY.** (4 cr)  
Tolstoy's novels, stories, and dramas. (GrD)
- 5406. PUSHKIN.** (4 cr)  
Selected works of Pushkin and their place in development of Russian literature. (GrD)
- 5407. PLAYS OF ANTON CHEKHOV.** (4 cr)  
Early short works and major plays of Anton Chekhov. (GrD)

## Course Descriptions—Major Sequences

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- 5409. THE 19TH-CENTURY RUSSIAN NOVEL.** (4 cr)  
The Russian realistic novel from its origin to its decline; social, political, and intellectual circumstances that led to its emergence as the dominant genre of the "Age of Realism" in Russia. (GrD)
- 5501. INTELLECTUAL TRENDS IN 19TH-CENTURY RUSSIA.** (4 cr)  
Intellectual and social movements in the 19th century in their relation to literary developments of that period.
- 5701f, 5702w. STRUCTURE OF MODERN RUSSIAN.** (4 cr per qtr; prereq 1106 or #)
- 5704f, 5705w. HISTORY OF RUSSIAN LANGUAGE.** (4 cr per qtr; prereq 1106 or equiv; offered when feasible)  
Linguistic analysis of historical development of Russian language.
- 5970. DIRECTED STUDIES.** (1-3 cr per qtr; prereq #)

### POLISH (Plsh)

- 1101f-1102w-1103s. BEGINNING POLISH.** (5 cr per qtr)  
Essentials for speaking, understanding, and reading basic Polish.
- 1104f-1105w-1106s. INTERMEDIATE POLISH.** (5 cr per qtr; prereq 1103 or #)  
Grammar review, reading of advanced texts, practice in speaking Polish.
- 3201f, 3202w. READINGS IN POLISH LITERATURE.** (4 cr per qtr; prereq 1106 or #; offered when feasible)  
Selected classic and contemporary texts.
- 3601f, 3602w. SURVEY OF POLISH LITERATURE IN TRANSLATION.** (4 cr per qtr)
- 5301. CONTEMPORARY POLISH DRAMA.** (4 cr)  
Polish playwrights from late 19th century to present; experimental trends in composition and performances; the theatre of the absurd.
- 5970. DIRECTED READINGS.** (1-4 cr per qtr; prereq #)

### SERBO-CROATIAN (Serb)

- 1101f-1102w-1103s. BEGINNING SERBO-CROATIAN.** (5 cr per qtr)
- 1104f-1105w-1106s. INTERMEDIATE SERBO-CROATIAN.** (5 cr per qtr; prereq 1103 or #)
- 5970. DIRECTED READINGS.** (1-4 cr per qtr; prereq #)

### SLAVIC (Slav)

- 1501. THE SLAVIC HERITAGE.** (4 cr)  
Traditions and culture of the Slavic world and of Slavic ethnic groups in America.
- 3201f, 3202w. SOUTH SLAVIC LITERATURE.** (4 cr per qtr; offered when feasible)
- 3501f, 3502w, 3503s. SOUTH SLAVIC CIVILIZATION AND CULTURE.** (4 cr per qtr)  
Cultural achievements of the South Slavs as reflected in arts and social thought. **3501:** From appearance of the Slavs in the Balkans to 1389. **3502:** From fall of Kossovo to World War I. **3503:** From World War I to present. (GrC)
- 3701. INTRODUCTORY SURVEY OF THE SLAVIC LANGUAGES.** (4 cr)  
Salient aspects of the Slavic languages in their evolution from unity to diversity. Aspects of contemporary diversity.
- 5701-5702. OLD CHURCH SLAVIC.** (4 cr per qtr; prereq Ling 3005 or equiv; offered when feasible)  
Introduction to Slavic linguistics.

## Social Science (SSci)

Courses of the Social Sciences Program draw upon research findings and theories in the social sciences, arranged to present coherent interpretation of broad aspects of human behavior. Each course focuses on a significant segment of human behavior; the broad purpose is to seek understanding and explanation of such behavior. The courses, like those described under Literature and Fine Arts and Natural Science and Technology in this bulletin, employ multidisciplinary approaches.

Because some of the courses are experimental in nature, changes in course listings occur with some frequency. Latest information will be found in the current *Class Schedule* or in the Experimental Courses office, 106 Johnston Hall.

1111. **THEMES IN HUMAN IDENTITY; SELF/SOCIETY AND MEANING IN LIFE.** (4 cr)  
Use of two content areas, literature and psychology, to illustrate themes in human identity. Nineteenth- and 20th-century novels, plays, and essays; personality theorists. (GrC)
- 3011, 3012. **SOCIAL SCIENCE COMPUTING.** (4 cr per qtr; prereq 3011 for 3012 or #... college algebra recommended)  
Computer application for the social sciences. 3011: Elementary computing, introduction to FORTRAN and FOCAL, and social science statistical analysis system. 3012: Computer uses in the social sciences; data management and computer application. (GrC)
3111. **THEMES IN HUMAN IDENTITY; SIGNIFICANT OTHERS AND CAREER.** (4 cr)  
See 1111.
3203. **STRUCTURE AND DYNAMICS OF POVERTY.** (4 cr; prereq 9 cr in related social science)  
Structural characteristics of poverty, described by social, legal, and economic criteria. Specific problems of poverty: unemployment, immobility, illiteracy, crime, others. Private and public programs designed to alleviate poverty. (GrC)
3205. **POVERTY, INSECURITY, AND INEQUALITY OF OPPORTUNITY.** (4 cr; prereq Econ 1001 and 1002 or #) Zaidi  
Concepts of income distribution; dimensions of poverty; measures adopted or proposed to ameliorate poverty, assure security, and provide equality of opportunity. (GrC)
3208. **HUMAN GENETICS AND SOCIAL AFFAIRS**  
For description, see GCB 3002.
3304. **THE STUDENT MOVEMENT IN HISTORICAL PERSPECTIVE.** (4 cr; open to jrs and srs only) Ross  
Proseminar. The student movement from medieval to modern times. Comparative aspects of contemporary U.S. culture and society. (GrC)
3401. **COMPARATIVE STUDIES IN FEUDALISM.** (4 cr; prereq #) Bachrach  
Seminar to investigate "feudal" phenomena. Institutions in Western Europe, Eastern Europe, the Near East, Africa, and Asia. (GrC)
3402. **ECOLOGY, TECHNOLOGY, AND SOCIETY.** (4 cr)  
The impact of technology on society as seen by engineers, scientists, and social scientists. Such social problems associated with economic growth as environmental consequences, the arms race, food and fertilizers, and population growth. Alternative strategies. (GrC)
3507. **SLAVERY IN THE AMERICAS.** (4 cr, §Hist 5429) Spear, Isaacman, McCrary, Schwartz  
This course has a substantive and a methodological objective. The origins and development of slavery in the New World; its impact on life and culture in the Americas; introduction to the comparative method of historical inquiry. (GrC)
3511. **HISTORICAL BIOGRAPHY AND PSYCHOHISTORY.** (4 cr; prereq #) Carroll  
Uses of psychology and psychoanalysis in historical analysis; the individual as historical mover; the idea of modal personality. (GrC)
3521. **INTRODUCTION TO PSYCHICAL PHENOMENA.** (4 cr; prereq Δ) Sibley  
The history, methods of investigation, and implications of "paranormal" or "psychical" phenomena. (GrC)
3601. **LAW AND SOCIETY.** (5 cr; prereq soph) Samaha  
The nature and functions of legal institutions. (GrC)

## Course Descriptions—Major Sequences

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- 3970. DIRECTED STUDIES.** (1-5 cr per qtr; prereq # of Office for Special Learning Opportunities staff)
- 3981. SOCIETIES OF THE FUTURE.** (4 cr) Harkins  
Application of disciplinary analysis to the problems of specialization and generalization of human understanding; the future of formal and informal social systems. Aspects of the anticipated impacts of long-range social trends (such as computer-controlled education systems, political, economic, social, and moral structural changes). Interaction of the social sciences, business, and humanities and arts with long-range development. (GrC)
- 5601. SEMINAR IN LAW AND SOCIETY.** (5 cr; prereq #)  
Selected topics. (GrC)
- 5701. SOCIAL CONSEQUENCES OF THE COMPUTER.** (4 cr; prereq #) Franta  
The diverse applications of computers and their impact on society. (GrC)

## Social Work (SW)

### Staff

*Acting Director*, Shirley M. Buttrick, 400 Ford Hall

*Professors*: Buttrick, Cohn, Compton (on leave), Guilford, Hoshino, Kidneigh, Konopka (on leave), Newhouse, Sterne, Yesner

*Associate Professors*: Chommie, Paull, Wattenberg

*Assistant Professors*: Belgum, Stewart, Wiebler

*Instructors*: Frumkin, Guminga, Howe, Morrissette

The baccalaureate degrees are offered through the School of Social Work: the B.A. in social welfare and the B.S. in social work.

The B.A. program is a broadly based liberal arts course of study with a core of social work courses. It prepares students for graduate work in social work and other human and community service disciplines; it seeks to develop citizen awareness of social needs and problems and the political implications of human service issues.

The B.S. program provides students with disciplined competency in beginning social work practice as well as wide educational experience in areas that have a shared concern for the human condition. On the basis of the knowledge, principles, theories, and techniques of social work it offers, it prepares students for entry into professional social work and graduate work, it develops their capacity to evaluate social evidence, and it helps them to self-awareness and to sensitivity to racial, ethnic, cultural, and sex role diversity. A 480-hour field work commitment, under experienced supervision, and a concurrent student-faculty-supervisor seminar are involved.

Full information may be obtained from the undergraduate adviser, 90 Wilson Library. Prospective majors, especially for the B.S., are urged to consult the adviser *early* in sophomore year.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1001

1 course each from 4 of the 5 following categories: (1) Soc 1001; (2) Psy 1001; (3) Anth 1002; (4) Econ 1001, 1014, 3001, 3002; (5) Pol 1001, 1027, 1031, 1041, 1051

**Major Requirements**

1001, 3004, 3005, 3101, 3984

32 cr from the following areas (specific courses listed at undergraduate adviser's office): 1 course in cross-cultural studies, 1 in organization theory; remaining cr from communication; urban and regional settings; social problems; human growth, development, and change; social history; law and social policy

**B.S. MAJOR SEQUENCE****Required Preparatory Courses**

Same as for B.A. degree

**Major Requirements**

1001, 3101, 3102 or 3990, 3004, 3005, 3006, 3984, 3989, 3030

32 cr requirement same as for B.A.

8 cr or equiv in directed studies, Honors colloquia, interdisciplinary studies, special seminars, advanced courses

**1001. INTRODUCTION TO SOCIAL WELFARE AND COMMUNITY SERVICES. (5 cr)**

Fields of community-based social services, representative of societal responses to needs. Characteristics of such services reviewed historically, dynamically, and comparatively. (GrC)

**3004f,w,s. SOME CONCEPTS OF HUMAN DEVELOPMENT AND CHANGE. (4 cr; prereq jr or sr and 1001)**

Concepts of human development and change from various schools of thought: Erikson, Skinner, Maslow, and Jung. Relevance and implications for practice in the human services. (GrC)

**3005f,w,s. SOCIAL WORK PROCESSES: METHODS OF INTERVENTION. (4 cr; prereq 1001)**

The function of values and knowledge in social work practice; the meaning of giving and receiving help; the process in intervention; some social work principles. (GrC)

**3006. SOCIAL WORK PRACTICE IN SELECTED SETTINGS. (4 cr; prereq 1001, 3004, 3005 or #)**

Social work practice theory in adaptations to specific target populations—children and youth, the emotionally ill, offenders, the aged, and the disabled. (GrC)

**3030. FIELD PRACTICE: SUPPORTING SEMINAR. (1-12 cr per qtr; for B.S. majors only; prereq 3005 and consent of field experience coordinator)**

Supervised practice in primary service roles in community service delivery systems; supporting seminar. (GrC)

**3101f,w,s. SOCIAL WELFARE: A FRAMEWORK FOR ANALYSIS. (4 cr; prereq jr or sr)**

Historical development, legislative enactments, administrative policy, and program structure under which federal, state, and local governmental programs of income maintenance, medical care, and public housing operate. (GrC)

**3102f,w,s. ISSUES AND PERSPECTIVES IN SOCIAL SERVICES. (4 cr; prereq 3101 or #)**

Historical development, philosophies, and program characteristics of social practices in work with dependent or neglected children, the mentally retarded, the mentally ill, the physically handicapped, and juvenile and adult offenders. (GrC)

**3984f,w,s. INTRODUCTION TO COMMUNITY DEVELOPMENT. (4 cr; prereq 1001 or #)**

Trends, pace, and dynamics that dominate urban communities; strategies used to achieve neighborhood goals; factors that control and influence change in planning; action on the community level. (GrC)

**3989f,w. RESEARCH METHODS IN SOCIAL WORK. (4 cr; for B.S. majors only or #)**

The logic and methods of inquiry in human service fields and programs. (GrA)

**3990w,s. DIRECTED RESEARCH. (Cr ar; prereq #) (GrA)****5101. INTRODUCTION TO SOCIAL POLICY: SOCIAL WELFARE PERSPECTIVES. (3 cr; prereq # for undergrad)**

Basic concepts and perspectives necessary for understanding and analyzing social welfare programs. (GrC)

## Course Descriptions—Major Sequences

- 5201. THEORIES OF HUMAN GROWTH AND CHANGE: IMPLICATIONS FOR SOCIAL WORK.** (3 cr; prereq # for undergrad)  
Concepts of human growth and change; theories of human behavior and their implications for social work practice. Frame of reference within which the student may view the individual in his life cycle. (GrC)
- 5401. INTERVENTIVE METHODS IN SOCIAL WORK PRACTICE.** (3 cr; prereq 3001, 3004, 3005, and ¶3010 or grad in social work)  
General and functional concepts, strategies, and actions of social work practice; the "problem-solving approach" as a framework for analyzing and dealing with situations of concern to social work. (GrC)

## Sociology (Soc)

### Staff

*Chairman*, John P. Clark, 1114a Social Sciences Building; *Associate Chairman*, Robert E. Kennedy, Jr., 1181 Social Sciences Building; *Director of Undergraduate Studies*, Joel I. Nelson, 1174 Social Sciences Building

*Professors*: T. Anderson, R. Carter, Clark, Cooperman, Donohue, Ellenbogen, Fulton (on leave, 1974-75), Hall (on leave, 1974-75), Hill, Johnson, Martindale, Nelson, Ramsey, Reiss, Rose, Stone, Tallman, Ward

*Associate Professors*: Finestone, Kennedy, McTavish (on leave, 1974-75), Reynolds, Simmons, Spitzer

*Assistant Professors*: Aldrich, R. Anderson, Burt, M. Carter, Grasmick, Lauderdale, Skura, Sykes

Sociology is a research-oriented social science which considers fundamental patterns of social life; its study develops broad understandings of human behavior and of its systematic analysis from a sociological perspective, contributing to careers in the social services, criminal justice, professional (law and health fields) schools, social research, advanced study in the social sciences, and teaching.

### B.A. MAJOR SEQUENCE

#### Major Requirements

3505, 3506

3801, 3802, 3803 (should be taken soph yr)

A theory course from 5305, 5701, 5705, 5711

16 additional 3xxx- or 5xxx-level sociology cr

Information regarding sociology course offerings and major requirements can be obtained from the undergraduate major adviser, Sue Maricle, 80 Wilson Library.

**General Education**—Courses 1001 and 1002 deal with broad sociological analysis of American social life; 1960 offers intensive consideration to more limited aspects of society. Courses at the 3xxx and 5xxx levels focus on social service, criminal justice studies, social research, graduate study in social science, preprofessional (law and health fields), and general social education.

#### Generic Courses

**1001f,w,s. INTRODUCTION TO SOCIOLOGY.** (4 cr)

Survey of the main substantive fields of sociology and current social problems. (GrC)

**1001H. HONORS COURSE: INTRODUCTION TO SOCIOLOGY.** (4 cr)

For description, see 1001. (GrC)

**1002f,w,s. AMERICAN COMMUNITY.** (4 cr) Cooperman, Kennedy, Martindale

Sociological analysis of modern American society. Distribution of population, urban-rural differences, social factors in business systems, occupational groups, determination of social status, minority group adjustment. (GrC)

**3505f,w. PRINCIPLES OF SOCIAL ORGANIZATIONS.** (5 cr; prereq 1001 and 3801 or equiv) Aldrich, Hall

Basic concepts, substantive materials, and general issues in the area of social organization. (GrC)

**3506w,s. PRINCIPLES OF SOCIAL PSYCHOLOGY.** (5 cr; prereq 1001 and 3801 or equiv) R Anderson, Lauderdale, Reynolds

Ideas and findings related to social psychology; experience with activities involved in developing empirically based knowledge in social science. (GrC)

**Criminology and Deviance****3101f,w,s. ELEMENTS OF CRIMINOLOGY.** (4 cr; prereq 1001 or 3505 and 3506 or #) Clark, Finestone, Ward

General survey of field of criminology. (GrC)

**5105. CONTEMPORARY PENOLOGY.** (4 cr; prereq 3101 or #) Murton, Ward

Prisons as social organizations; current treatment programs for adult offenders. (GrC)

**5111. SOCIOLOGY OF DEVIANT BEHAVIOR.** (4 cr; prereq 3101 or #) Burt, Finestone, Lauderdale

Sociological conceptions of the nature of deviant behavior, the social processes associated with the careers of deviants, and the relationship of deviancy to the problems of social control. (GrC)

**5115. ADULT PAROLE AND PROBATION.** (4 cr; prereq 3101 or #) Finestone

Critical examination of problems and practices in supervision of adult criminals. (GrC)

**5121. LAW AND LEGAL SYSTEM FOR CORRECTIONAL AND SOCIAL WORKERS.** (4 cr) Law and judicial process for social workers, particularly in the correctional field. (GrC)**5125. POLICE PROBLEMS AND PRACTICES IN THE UNITED STATES.** (4 cr; prereq 3101 or #) Clark

Personnel, organization, and public relations of police forces; successful techniques of integrating police work with other community agencies. (GrC)

**5131. INSTITUTIONAL TREATMENT OF JUVENILE DELINQUENTS: PROBLEMS AND PRACTICES.** (4 cr) Feld, Murton

Current problems of institutional treatment of juvenile offenders and contributions of different professions to treatment. (GrC)

**5135. WHITE COLLAR CRIME.** (4 cr) Feld

Types of white collar crime, broadly construed; roots in American society, responses offered to them by theoreticians and amateur and professional politicians. (GrC)

**5138. ISSUES IN THE ADMINISTRATION OF CRIMINAL JUSTICE.** (4 cr; prereq 3101) Ward

Issues facing the police, prosecutors, defense attorneys, courts and correctional agencies; the process of the administration of criminal justice. (GrC)

**5141. DELINQUENT BEHAVIOR.** (4 cr; prereq 3101) Burt, Clark

The nature of delinquent behavior and its "causes;" consideration of help that understanding of causes can give to its modification and prevention. (GrC)

**5145. MODERN AGENCIES FOR CONTROL OF JUVENILE DELINQUENCY.** (4 cr; prereq 3101 and 5141) Clark, Murton

Functions of school, welfare, casework, and group work agencies, juvenile bureaus in police departments, juvenile court, detention home, probation services, clinics, and integrated state agencies like the Minnesota Youth Conservation Commission in prevention and modification of delinquent behavior. (GrC)

**Sociology and Religion****5151. RELIGION AS A SOCIAL INSTITUTION.** (4 cr; prereq 1001 or 3505 and 3506 or #) Johnson, Sykes

Structure and function of religious organizations in various types of societies; nature of religious leadership, type of religious participation; relationship of religion to other social institutions. (GrC)

## Course Descriptions—Major Sequences

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### Social Psychology

- 5201f,w,s. INTRODUCTION TO SOCIAL PSYCHOLOGY.** (4 cr; prereq 1001 or 3505 and 3506 or #) Burt, Lauderdale, Spitzer, Sykes  
Research and theory regarding relation of individual social groups. Socialization processes; effects of social interaction and isolation; individual behavior under conditions of social organization and disorganization; cultural influence and its limits. (GrC)
- 5201H. HONORS COURSE: INTRODUCTION TO SOCIAL PSYCHOLOGY.** (4 cr; prereq #)  
For description, see 5201. (GrC)
- 5205. SYMBOLIC INTERACTION.** (4 cr; prereq 5201 or #) Stone  
Methods of acquiring knowledge in social psychology; outstanding examples of research. Social psychology of small groups, mass behavior, and making political and economic choices. Current thinking and research in symbolic interaction in light of concepts and theories presented in introductory courses in social psychology. (GrC)
- 5211. SOCIAL PROCESSES IN SMALL GROUP SETTINGS.** (4 cr; prereq 5201 or #)  
Reynolds  
Small group research and theory focusing on laboratory and nonlaboratory investigation of interpersonal exchange, communication structures, status and power relations, coalition formation, reference groups, role differentiation, group uniformity, social influence, and problem-solving behavior. Laboratory arranged. (GrC)

### Social Change and Social Movements

- 5301. SOCIAL MOVEMENTS IN A CHANGING SOCIETY.** (4 cr; prereq 1001 or 3505 and 3506 or #) Skura  
Factors underlying social change in modern mass society. Recent research on social movements, reform and revolution, culture contact, impact of rapid technological change. Individual and social structures under rapid social change. (GrC)
- 5305w. SOCIAL LIFE AND CULTURAL CHANGE.** (4 cr; prereq 1001 or 3505 and 3506 or #) Martindale  
Theories of social change; methodological problems. Comparative social thought and structure of antiquity used as basic data for analysis. (GrC)
- 5311. SOCIOLOGY OF CONFLICT.** (4 cr; prereq 1001 or 3505 and 3506 or #) Cooperman, Skura  
Theoretical, empirical study of group conflict. Methods and models. Animal conflict. Aggression and conflict. Types of conflict: feuds, community, ecologies of urban conflict, racial, internal war, revolution. Conflict and social organization: relation of stratification and of industrial and social change to conflict. (GrC)
- 5315. LATIN AMERICAN SOCIETIES IN TRANSITION.** (4 cr; prereq 10 cr in sociology, economics, or political science or #) Ellenbogen  
Relationship of population, technology and organization structure to levels of modernization among Latin American nation-states. Differentiation, diffusion, innovation, and social conflict as precipitants of social change. (GrC)

### Popular Culture and Public Opinion

- 5351. SOCIOLOGY OF POPULAR CULTURE.** (4 cr; prereq 15 cr in sociology) Stone  
Social preconditions and social effects of popular culture. Popular vs. nonpopular culture; selected popular arts. (GrC)
- 5355. OPINION AND COMMUNICATION: SOCIAL FACTORS.** (4 cr; prereq sr, 1001 or 3505 and 3506 or 5201 or Psy 5201 or #) R Carter  
Processes of opinion formation and change in relation to personality and social structure; flow of public communications through society; impact of selected types of mass communication on particular audiences. (GrC)

### Social Organization and Social Structure

- 3405. INEQUALITY: INTRODUCTION TO STRATIFICATION.** (4 cr; prereq 1001) Nelson  
Inequality—causes and consequences. Inequality in American society. Related concepts of class, class cultures, status, aggregates; the social forms of inequality, their consequences for life changes and life styles. (GrC)
- 5401f,w,s. SOCIAL ORGANIZATIONS.** (4 cr; prereq 1001 or 3505 and 3506 or #) Grasmick, Hall, Simmons  
Organization and structure of social groups; basic culture patterns of economic, political, and social institutions. Integration and disintegration of social groups and institutions. Essentials of social dynamics. (GrC)

- 540IH. HONORS COURSE: SOCIAL ORGANIZATION.** (4 cr; prereq #) Hall  
For description, see 540I. (GrC)
- 5405f,w,s. SOCIAL STRATIFICATION AND MOBILITY.** (4 cr; prereq 1001 or 3505 and 3506 or #) M Carter, Fulton, Nelson  
Form and content of hierarchical arrangements. Relationship of hierarchical arrangements to problems of social order and individual behavior. (GrC)
- 5405H. HONORS COURSE: SOCIAL STRATIFICATION AND MOBILITY.** (4 cr; prereq #)  
For description, see 5405. (GrC)
- 541I. FORMAL ORGANIZATIONS.** (4 cr; prereq 1001 or 3505 and 3506 and 15 cr in sociology, psychology, political science, or economics) Aldrich, Hall  
Sources, types, and consequences of variations in organizational structures and functions. Varying organizational arrangements as they affect and are affected by changes in input and output. Bureaucracy and its impact, seen in comparative perspective. (GrC)
- 541IH. HONORS COURSE: FORMAL ORGANIZATIONS.** (4 cr; prereq #) Hall  
For description, see 541I. (GrC)
- 5415. COMPARATIVE SOCIAL ORGANIZATIONS.** (4 cr; prereq 20 cr in sociology, economics, or political science or #)  
Consideration of demographic and ecological characteristics, stratification systems, institutional organization, and forms of association in several modern nations other than United States. (GrC)
- 542Is. OCCUPATIONAL SOCIOLOGY.** (4 cr; prereq 6 cr in sociology or #) Hall  
Individual motivations and reactions to work; nature of professions and other occupational types; relations between occupational and organizational norms and values, between occupations and social structure—stratification system, family, political system, technological change; changes in composition of labor force. (GrC)

### Family Sociology

- 3503. SEX, ROMANCE, AND RELATIONSHIPS.** (4 cr; prereq 1001) Burt  
Sociological perspectives on sexual socialization; ideas of masculinity and femininity; history and functions of love and romance; characteristics of romantic relationships, intimacy, emotionality, sexuality, exclusivity; investigation of sexual deviance for light it sheds on sexual norms. (GrC)
- 5501f,w,s. THE FAMILY SYSTEM.** (4 cr; prereq 1001 or 3505 and 3506 or #) Johnson, Reiss  
Evolution of family, development of unity or disunity, roles of the several members of family, methods of investigation of family. (GrC)
- 5501H. HONORS COURSE: THE FAMILY.** (4 cr; prereq #)  
For description, see 5501. (GrC)
- 5505f,w,s. FAMILY DEVELOPMENT.** (4 cr; prereq 1001 or 3505 and 3506, 5201, CPsy 3301 or #) Hill, Tallman  
The natural history of families—how they form, function, and achieve distinctive identities. Developmental growth of children and parents in interaction in seven stages of the family life cycle, from engagement planning to family dissolution. (GrC)
- 5506. NEW FORMS OF THE FAMILY.** (4 cr; prereq 1001 or 3505 and 3506) Reiss  
Evolving courtship, marital, and family forms. New concepts of sexuality, masculinity-femininity, familial roles, legitimacy, communal living, examined to afford perspective on the developing family system. (GrC)
- 5511. COMPARATIVE FAMILY ORGANIZATION.** (4 cr; prereq 1001 or 3505 and 3506, Psy 1001) Hill, Reiss  
Family organization and modes of functioning in selected major world civilizations. Interrelations of family with economic system and urbanization; family influences on personality formation. (GrC)
- 5515. SOCIOLOGY OF FAMILY FORMATION.** (4 cr; prereq 1001 or 3505 and 3506) Reiss  
Courtship structure in American society by class, ethnicity, religion, and history. Courtship and other institutions. (GrC)

### Demography

- 5515f,w. WORLD POPULATION PROBLEMS.** (4 cr; prereq 1001 or 3505 and 3506 or #)  
T Anderson, Kennedy  
Population policy, historical and present, in Europe, Asia, and other areas: emphasis on United States. Population and power politics. (GrC)

## Course Descriptions—Major Sequences

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- 5555s. POPULATION THEORY.** (4 cr; prereq 5551 or §) T Anderson, Kennedy  
Cultural and social phases of population change; birth rates, death rates, and migration. Implications of population change. (GrC)
- 5555H. HONORS COURSE: POPULATION THEORY.** (4 cr; prereq §) Kennedy  
For description, see 5555. (GrC)
- 5561. INTRODUCTION TO MATHEMATICAL DEMOGRAPHY.** (4 cr, §PubH 5411; prereq 5551 or §)  
Basic demographic measures and concepts of fertility, mortality, and migration. Stable population methods; demographic estimates from incomplete data.

### Urban Sociology

- 5601. URBAN SOCIOLOGY.** (4 cr; prereq 1001 or 3505 and 3506 or §) Stone, T Anderson, Skura  
The study of cities, urban ecology; urban institutions and urban way of life. (GrC)
- 5605. URBANIZATION AND SOCIAL POLICY.** (4 cr; prereq 5601 or §) Cooperman  
"Problematic" contemporary changes in urban processes; responses and policies of public groups. Interrelationships of social, cultural, economic, political factors in development of urban problems. Models of urban systems and social policy formation. Social cost analysis and formation of policy alternatives. (GrC)
- 5611. PLANNING.** (4 cr, §Arch 5132; prereq sr) Stone  
Social, economic, political, geographic, and technical phases of modern city planning. (GrC)

### Rural Sociology

- 1651. RURAL SOCIOLOGY.** (4 cr) Donohue  
Factual data necessary to understanding of problems of rural social life. (GrC)
- 5651f,w. RURAL SOCIAL INSTITUTIONS.** (4 cr; prereq 1001 or 3505 and 3506 or §)  
Donohue  
Factors in the rural environment that condition the functioning of rural social institutions—family, school, church, local government, health, and welfare. (GrC)
- 5661s. RURAL COMMUNITY ANALYSIS.** (4 cr; especially for all persons interested in rural community organization, rural teaching, extension work, and related fields; prereq 1001 or 3505 and 3506, sr or §) Donohue  
Tools, techniques, and methods of making community field studies. (GrC)
- 5671. COMPARATIVE RURAL SOCIETIES: LATIN AMERICA.** (4 cr; prereq 10 cr in sociology, economics or political science or §) Ellenbogen  
Social and cultural change in Latin America. Demographic and ecological characteristics, institutional structure and its accompanying associations; linkages with "outside" and "world-view." (GrC)
- 5675s. WORLD FOOD SUPPLY PROBLEMS.** (4 cr, §AgEc 5790, §HE 5381, §PiPa 5220, §VCS 5280; prereq major in agriculture, veterinary medicine, nutritional sciences, social science field, or §...grad students by  $\Delta$  only) Ellenbogen  
Multidisciplinary approach to the social, economic, and technical problems of feeding the world's growing population. Principles from social and economic sciences. The plant, animal, and nutritional sciences and their application to food problems. (GrC)

### Social Theory

- 5701f. ANALYTICAL SOCIAL THEORY.** (4 cr; prereq 1001 or 3505 and 3506 or §)  
Martindale  
Major problems of sociological theory; main types (positivistic, rationalistic, idealistic); major theoretical concepts. (GrC)
- 5705. BACKGROUNDS OF MODERN SOCIAL THOUGHT.** (4 cr; prereq 1001 or 3505 and 3506 or §) Martindale, Cooperman  
Major trends of social thought from Renaissance to 19th century; factors contributing to origin of sociology. (GrC)
- 5711. ELEMENTS OF SOCIOLOGICAL ANALYSIS.** (4 cr; prereq 9 cr in sociology) Reynolds  
Premises upon which social theories are developed. Construction of social theory. (GrC)

**Sociology of Political and Legal Institutions**

- 5755. SOCIAL STRUCTURE AND POLITICAL BEHAVIOR.** (4 cr; prereq 1001 or 3505 and 3506) Tallman  
Structural and ideological conditions influencing the legitimation of political institutions; relationships of the process to political participation, political apathy, and the rise of mass movements. (GrC)

**Methodology**

- 3801f,w,s. SOCIOLOGICAL METHODS I: DESCRIPTIVE STATISTICS.** (4 cr; some beginning algebra recommended; 2 hrs lect, 2 1-hr labs) McTavish, M Carter  
Descriptive statistics in analysis of sociological data, measures of central tendency, deviation, correlation and regression graphs, simple treatment of three and four variables, probability. (GrA)
- 3801Hf,w,s. HONORS COURSE: SOCIOLOGICAL METHODS I: DESCRIPTIVE STATISTICS.** (4 cr; prereq #...some beginning algebra recommended) McTavish, M Carter  
Students attend 3801 lectures plus two 1-hour labs a week. (GrA)
- 3802f,w,s. SOCIOLOGICAL METHODS II: STATISTICAL INFERENCE.** (4 cr; prereq 3801 or equiv; 2 hrs lect, 2 1-hr labs) McTavish M Carter  
Statistical inferences, probability, hypothesis tests, use of statistical reasoning in analysis of sociological data. (GrA)
- 3802Hf,w,s. HONORS COURSE: SOCIOLOGICAL METHODS II: STATISTICAL INFERENCE.** (4 cr; prereq 3801H or equiv) McTavish, M Carter  
Students attend 3802 lectures plus two 1-hour labs a week. (GrA)
- 3803f,w,s. SOCIOLOGICAL METHODS III: RESEARCH METHODS.** (4 cr; prereq 3801 and 3802 or equiv or #) McTavish, M Carter  
Data collection methods; advantages of major methods and limitations when applied to specific types of problems. (GrA)
- 3811. COMPUTER PROGRAMMING FOR SOCIAL STATISTICS.** (1 cr; S-N only; prereq 3801 or ¶3801)  
Elementary computer programming for social statistics applications. Use of a statistical program package for analysis of sociological data.
- 5801. COMPUTER USAGE IN SOCIAL RESEARCH.** (4 cr; prereq 3801, 3802, 3803 or equiv; 3 hrs lect, 2 hrs lab) R Anderson  
Basic concepts of information processing for social science research; elementary computer programming; practice in the use of computers for data analysis in social science; problems of computer usage in sociology. (GrA)

**Sociology of Health and Health Care**

- 5855f,s. SOCIOLOGY OF MEDICINE AND MEDICAL INSTITUTIONS.** (4 cr; prereq 1001 or 3505 and 3506 or #) Litman  
Social factors associated with incidence of physical and mental illness and its treatment. Social organization of medical institutions. Public needs and medical services. Sociology of aging and social problems of the aged. (GrC)

**Other Courses**

- 1960. TOPICS IN SOCIOLOGY.** (4 cr per qtr; prereq 1001)  
Topics and material differ from quarter to quarter and section to section. Specific titles listed in *Class Schedule*.
- 3960. SOCIOLOGY HONORS THESIS.** (1-8 cr per qtr; prereq jr or sr sociology honors student)  
Writing honors thesis to qualify for graduation with honors.
- 3961. JUNIOR HONORS SEMINAR.** (1 cr; S-N only; prereq jr sociology honors student)  
Contemporary issues in sociological research. Initiation of the sociology honors thesis. Advanced study and career opportunities in sociology; special learning opportunities for honors majors.
- 3970f,w,s. DIRECTED STUDIES.** (1-15 cr per qtr; prereq #)

## Course Descriptions—Major Sequences

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- 3980f,w,s. DIRECTED INSTRUCTION.** (1-5 cr; prereq #)  
Students, in consultation with selected faculty members, will gain teaching experience by leading discussion and/or project groups in classes they have taken for credit.
- 5951. MINORITY GROUP RELATIONS.** (4 cr; prereq 1001 or 3505 and 3506 or #) Fine-stone, Rose, Sykes  
Systems of ethnic stratification; race relations in American society. (GrC)
- 5952. YOUTH IN MODERN SOCIETY.** (4 cr; prereq 1001 or 3505 and 3506 or #) Clark  
Youth in advanced societies; youth as a social entity; functions of youth in industrial societies, their roles in family, education, politics and government, economy and work, welfare and religion; youth organizations, social movements and subcultures; empirical research and cross-cultural perspectives. (GrC)
- 5953. SOCIOLOGY OF EDUCATION.** (3 cr, §HED 5190; prereq 1001 or 3505 and 3506 or #) Clark, Weidman  
Advanced studies in social aspects of education: school as socialization process, social structure of education, role of school in social change, and others. Emphasis on theory and empirical research (GrC)
- 5954. WOMEN AND MEN IN THE UNITED STATES TODAY.** (4 cr; prereq 1001 or 3505 and 3506 or equiv) Rose  
Sociological analysis of position of women vis-à-vis men in U.S.; changes that have led to present situation; changes in other portions of society to adjust to sex role changes. (GrC)
- 5956. SOCIOLOGY OF DEATH.** (4 cr; prereq jr or sr and 6 cr in sociology or #) Fulton  
Issues and problems that mortality presents in contemporary society. (GrC)
- 5957. SOCIOLOGY OF AGING.** (4 cr; prereq 1001 or 3505 and 3506 or #) McTavish, Rose  
Situations and problems facing aging people in modern societies; devices societies have developed or might develop to meet such situations and problems. (GrC)
- 5958. SOCIOLOGY OF HIGHER EDUCATION.** (3 cr, §Hed 5192; prereq HED 5190 or Soc 5953) Weidman  
Advanced studies in social aspects of higher education: socialization of students, comparative institutional organization, role structure, and others. Emphasis on theory and empirical research. (GrC)
- 5960. TOPICS IN SOCIOLOGY.** (4 cr per qtr; prereq Δ)  
Various aspects of sociology. Topics listed in the *Class Schedule*.
- 5961-5962. SENIOR HONORS SEMINAR.** (4 cr per qtr; prereq sr honors sociology major)  
Preparation and discussion of honors papers in selected topics.
- 5970. DIRECTED STUDIES.** (1-15 per qtr; prereq #)

## South Asian Studies

### Staff

*Chairman*, M. A. R. Barker, 194 Klaeber Court; *Director of Undergraduate Studies*, Paul Staneslow

*Professors*: Barker, Burke, Kopf, Rowe, Schwartzberg, Tapp

*Associate Professor*: Asher

*Assistant Professors*: Blue, Junghare, Malandra, Miranda, Staneslow

*Instructors*: Bari, Lelyveld, Munda

Programs of the Department of South Asian Studies focus on the languages, literatures, cultural traditions, and contemporary problems of India, Pakistan, and Bangladesh. A detailed brochure describing these programs may be obtained from the Department of South Asian Studies, 192 Klaeber Court.

**B.A. MAJOR SEQUENCE (Language and Literature Option)**

**Major Requirements**

3 years of a South Asian language or demonstration of competence at corresponding level

12 cr in 3xxx-5xxx-level courses in South Asian literature (original language or translation), at least 8 of them in 5xxx-level courses. This may not include the study of literature as part of the third year of a language course

20 or more cr in courses on South Asia, at least 8 cr of them in 5xxx-level courses and at least one course of which is from the social sciences

**B.A. MAJOR SEQUENCE (Civilization Option)**

**Required Preparatory Courses**

Indc 3501-3502 and 1506 or equiv courses

**Major Requirements**

2 years of a South Asian language or demonstration of competence at corresponding level

8 cr in 3xxx-5xxx-level courses in South Asian literature (original language or translation), at least 4 cr of them in 5xxx-level courses

16 cr in 3xxx-5xxx-level humanistic courses on South Asia other than Indc 3501-3502, in at least 2 disciplines, at least 12 cr of them in 5xxx-level courses

4 cr in one 3xxx-5xxx-level social science course on South Asia

**B.A. MAJOR SEQUENCE (Contemporary Problems Option)**

**Required Preparatory Courses**

Indc 3501-3502 and 1506 or equiv courses

**Major Requirements**

2 years of a South Asian language or demonstration of competence at corresponding level

20 cr in 3xxx-5xxx-level social sciences courses on South Asia in at least 2 disciplines, at least 16 cr of them in 5xxx-level courses

8 cr in 3xxx-5xxx-level humanistic courses on South Asia

**General Education**—Courses under the heading "Indic," given in English translation, are suitable for nonmajors.

**BENGALI (Ben)**

Bengali, spoken by more than 100,000,000 South Asians, is the national language of Bangladesh.

1101f-1102w-1103s. BEGINNING BENGALI. (5 cr per qtr, §5101-5102-5103)

3031f-3032w-3033s. INTERMEDIATE BENGALI. (5 cr per qtr, §5131-5132-5133; prereq 1103 or #)

5101f-5102w-5103s. BEGINNING BENGALI. (5 cr per qtr, §1101-1102-1103)

## Course Descriptions—Major Sequences

- 5131f-5132w-5133s. INTERMEDIATE BENGALI.** (5 cr per qtr, §3031-3032-3033; prereq 1103 or 5103 or #)
- 5161f-5162w-5163s. ADVANCED BENGALI.** (4 cr per qtr; prereq 3033 or 5133 or #)
- 5201f-5202w-5203s. READING AND ANALYSIS OF BENGALI LITERARY TEXTS.** (4 cr per qtr; prereq 5163)  
Major Bengali poets and novelists.
- 5970. DIRECTED STUDIES.** (Cr ar; prereq #) Staff
- 5990. DIRECTED RESEARCH.** (Cr ar; prereq #) Staff

## HINDI (Hndi)

Hindi, the language of 180,000,000 people in South Asia, is considered of pan-Indian significance.

- 1101f-1102w-1103s. BEGINNING HINDI.** (5 cr per qtr, §5101-5102-5103) Staneslow
- 3031f-3032w-3033s. INTERMEDIATE HINDI.** (5 cr per qtr, §5131-5132-5133; prereq 1103 or #) Staneslow
- 5101f-5102w-5103s. BEGINNING HINDI.** (5 cr per qtr, §1101-1102-1103) Staneslow
- 5131f-5132w-5133s. INTERMEDIATE HINDI.** (5 cr per qtr, §3031-3032-3033; prereq 1103 or #) Staneslow
- 5161f-5162w-5163s. ADVANCED HINDI.** (4 cr per qtr; prereq 3033 or 5133 or #) Munda
- 5201f-5202w-5203s. READING AND ANALYSIS OF HINDI LITERARY TEXTS.** (4 cr per qtr; prereq 5163) Munda, Junghare  
Major Hindi writers.
- 5710. TOPICS IN HINDI LANGUAGE AND LITERATURE.** (5 cr per qtr; prereq # for non-majors) Staneslow  
In-depth study of specialized topics in the linguistic structure of Hindi or Hindi literature. (GrA or D, depending on topic)
- 5970. DIRECTED STUDIES.** (Cr ar; prereq #) Staff
- 5990. DIRECTED RESEARCH.** (Cr ar; prereq #) Staff

## INDIC (Indc)

These courses deal in English translation with aspects of the Indian civilization.

- 1001. INTRODUCTION TO SOUTH ASIAN LANGUAGES.** (4 cr, §5001) Junghare  
Language families in South Asia; their distribution, literatures, and special features. Historical and structural relationships. (GrA)
- 1201f. ANCIENT INDIAN LITERATURE IN TRANSLATION.** (4 cr, §5201) Munda
- 1202w. MODERN INDIAN LITERATURE IN TRANSLATION.** (4 cr, §5202) Munda
- 1203s. COMPARATIVE INDIAN LITERATURE IN TRANSLATION.** (4 cr, §5203) Munda
- 1504. INTRODUCTION TO THE RELIGIONS OF SOUTH AND SOUTHEAST ASIA.** (4 cr, §RelS 1031) Staff (GrC)
- 1506s. INTRODUCTION TO CONTEMPORARY SOUTH ASIA.** (5 cr, §3506) Schwartzberg  
Land, people, modern historical development, contemporary problems, global setting, and future outlook of South Asia. (GrC)
- 3501, 3502. SURVEY OF INDIAN CIVILIZATION.** (5 cr per qtr) Lelyveld  
Contemporary civilization in light of its development. Social, cultural, economic, and political life. Hindu, Muslim, and Buddhist contributions. (GrC)
- 3506s. INTRODUCTION TO CONTEMPORARY SOUTH ASIA.** (5 cr, §1506; 3502 recommended) Schwartzberg (GrC)
- 3507s. SOUTH ASIA IN WORLD AFFAIRS.** (4 cr) Burke  
The role and experiences in the world arena of India, Pakistan, and Bangladesh. (GrC)

- 3533. HISTORY OF HINDUSTANI CULTURE.** (4 cr, §5533) Lelyveld  
The cultural system of urban north India since the 16th century. Styles, symbols, and ideologies of Hindustan (India's Hindi-Urdu region). Social structure, religion, languages and literature, music and art. (GrC)
- 5001. INTRODUCTION TO SOUTH ASIAN LANGUAGES.** (4 cr, §1001) Junghare (GrA)
- 5011. INDO-ARYAN LINGUISTICS.** (4 cr; prereq 5001 or §) Junghare, Miranda  
Phonological, morphological, and syntactic developments: Indo-European, Old Indo-Aryan, Middle Indo-Aryan, Hindi, and other major modern Indo-Aryan. (GrA)
- 5090. INSTRUCTION IN A SOUTH ASIAN LANGUAGE.** (5 cr per qtr; prereq §) Staff  
Instruction in a South Asian language not regularly offered.
- 5201f. ANCIENT INDIAN LITERATURE IN TRANSLATION.** (4 cr, §1201) Munda
- 5202w. MODERN INDIAN LITERATURE IN TRANSLATION.** (4 cr, §1202) Munda
- 5203s. COMPARATIVE INDIAN LITERATURE IN TRANSLATION.** (4 cr, §1203) Munda
- 5491. HISTORY OF BANGLADESH.** (4 cr, §Hist 5491; prereq some course work in history of South Asia)  
Descriptive and analytical history of the linguistic and cultural unit Bengal from the 4th century B.C. to the creation of Bangladesh in 1972. (GrC)
- 5501. PROBLEMS OF INDIAN PHILOSOPHY.** (4 cr, §Phil 5801; prereq 5 cr of philosophy and one India course or §)
- 5502. INDIAN LOGIC.** (4 cr, §Phil 5802; prereq Phil 1001 and one India course or §)
- 5503. VEDANTA PHILOSOPHY.** (4 cr, §Phil 5803; prereq Phil 5501 or §)
- 5504. INDIAN BUDDHIST THOUGHT.** (4 cr, §Phil 5804; prereq 5501 or §)
- 5505. INDIAN PHILOSOPHY OF MEDIEVAL PERIOD.** (4 cr, §Phil 5805; prereq 5501 or §)
- 5506. CONTEMPORARY INDIAN THOUGHT.** (4 cr, §Phil 5806; prereq 5501 or §)
- 5510. PROBLEMS IN INDIAN CIVILIZATION.** (4 cr per qtr; prereq Indian Civilization or §)  
Major topics or problems in Indian civilization, arranged to suit interested students. (GrC)
- 5511w-5512s. THE RELIGIONS OF INDIA.** (4 cr per qtr)  
Major religious traditions of India. Historical development of schools and sects. Contemporary situations. (GrC)
- 5520. STUDIES IN THE RELIGIONS OF INDIA.** (Cr ar; prereq 5512 or §)  
Topics in India's religious history. (GrC)
- 5531f-5532w. CULTURAL HISTORY OF NORTH INDIA, 1000-1707.** (4 cr per qtr; prereq Indian Civilization, Medieval Indian History, or §)  
India in the Muslim period. Developments in Indian Islam. Analysis of such syncretic movements as Sikhism. (GrC)
- 5533. HISTORY OF HINDUSTANI CULTURE.** (4 cr, §3533) Lelyveld (GrC)
- 5710. SEMINAR IN SOUTH ASIAN LANGUAGES AND LITERATURES.** (Cr ar; prereq §)  
Staff
- 5970. DIRECTED STUDIES.** (Cr ar; prereq §) Staff
- 5990. DIRECTED RESEARCH.** (Cr ar; prereq §) Staff

## MARATHI (Mar)

Marathi is spoken by 50,000,000 people in India.

- 1101f-1102w-1103s. BEGINNING MARATHI.** (5 cr per qtr, §5101-5102-5103) Junghare
- 3031f-3032w-3033s. INTERMEDIATE MARATHI.** (5 cr per qtr, §5131-5132-5133; prereq 1103 or §) Junghare
- 5101f-5102w-5103s. BEGINNING MARATHI.** (5 cr per qtr, §1101-1102-1103) Junghare
- 5131f-5132w-5133s. INTERMEDIATE MARATHI.** (5 cr per qtr, §3031-3032-3033; prereq 1103 or 5103 or §) Junghare

## Course Descriptions—Major Sequences

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- 5161f-5162w-5163s. **ADVANCED MARATHI.** (4 cr per qtr; prereq 3033 or 5133 or #) Junghare
- 5201f-5202w-5203s. **READING AND ANALYSIS OF MARATHI LITERARY TEXTS.** (4 cr per qtr; prereq 5163) Junghare  
Major Marathi writers.
5970. **DIRECTED STUDIES.** (Cr ar; prereq #) Staff
5990. **DIRECTED RESEARCH.** (Cr ar; prereq #) Staff

## SANSKRIT (Skt)

Sanskrit, a major classical language, is the linguistic source of modern North Indian languages and one of the great influences over the South Indian languages.

- 1201f-1202w-1203s. **BEGINNING SANSKRIT.** (5 cr per qtr, §5201-5202-5203) Malandra
- 5131f-5132w-5133s. **INTERMEDIATE SANSKRIT.** (5 cr per qtr; prereq 1203 or 5203) Malandra (GrA)
- 5161f-5162w-5163s. **ADVANCED SANSKRIT.** (4 cr per qtr; prereq 5133) Malandra, Junghare, Munda
- 5201f-5202w-5203s. **BEGINNING SANSKRIT.** (5 cr per qtr, §1201-1202-1203) Malandra
5320. **READINGS IN PHILOSOPHICAL TEXTS.** (4 cr per qtr; prereq 5133) Staff  
Readings in representative text material. (GrD)
5701. **VEDIC LITERATURE.** (4 cr; prereq 5133 or #)  
Readings in Vedic literature include the Samhitas, Brahmanas, and Upanishads. Primary attention is paid to the Rigveda. Selections of readings vary. (GrA)
5710. **TOPICS IN SANSKRIT LANGUAGE AND LITERATURE.** (5 cr per qtr) Malandra, Junghare, Munda  
Topics in the linguistic structure of Sanskrit or Sanskrit literature. Topics differ from quarter to quarter. (GrA or D, depending on topic)
5970. **DIRECTED STUDIES.** (Cr ar; prereq #) Staff
5990. **DIRECTED RESEARCH.** (Cr ar; prereq #) Staff

## URDU

The Urdu language, spoken by some 60,000,000, is the form of Hindi that emerged primarily among the Muslims in India.

- 3031f-3032w-3033s. **INTERMEDIATE URDU.** (5 cr per qtr, §5131-5132-5133; prereq Hindi 1103 or #) Barker
- 5131f-5132w-5133s. **INTERMEDIATE URDU.** (5 cr per qtr, §3031-3032-3033; prereq Hindi 1103, 5103, or #) Barker (GrA)
- 5161f-5162w-5163s. **ADVANCED URDU.** (4 cr per qtr; prereq 3033 or 5133 or #) Barker (GrA)
- 5201f-5202w-5203s. **READINGS: URDU TEXTS.** (4 cr per qtr; prereq 5163 or #) Barker (GrA)
5970. **DIRECTED STUDIES.** (Cr ar; prereq #) Staff
5990. **DIRECTED RESEARCH.** (Cr ar; prereq #) Staff

## Spanish and Portuguese

### Staff

*Chairman*, Anthony N. Zahareas, 4 Folwell Hall; *Director of Undergraduate Studies*, Nicholas Spadaccini, 5c Folwell Hall; *Director of Graduate Studies*, Russell G. Hamilton, 2 Folwell Hall; *Coordinator of Language Classes*, Larry Grimes, 5d Folwell Hall

*Professors:* Floripe, Hamilton, Narvaez, Zahareas

*Associate Professors:* Jones, Madrid, Mantini, Vidal

*Assistant Professors:* Estelle, Grimes, Ramos, Sousa, Spadaccini, Sullivan

*Instructor:* Woodhouse

The Department of Spanish and Portuguese offers sequences of courses in developing language skills; in linguistic studies relating to Spanish and Portuguese; in the literatures of Spain, Portugal, Brazil, and Spanish America; and in the cultural development of the Hispanic and Portuguese civilizations in Europe and America. Since major requirements for B.A. degrees in Spanish and Portuguese have been revised, prospective majors should consult the director of undergraduate studies.

Major programs in Spanish or Spanish-Portuguese offer training in analytical and communication skills, critical examination of Hispanic and Luso-Brazilian literary texts, understanding of cultural differences and similarities, and practical preparation for use of the languages in graduate work and in professional and vocational fields.

Students who plan second majors in Spanish or Spanish-Portuguese should consult the director of undergraduate studies. All students may register in any language, civilization and culture, or literature class for which they have prerequisites.

## SPANISH (Span)

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1101-1102-1103, 1104-1105, or equiv

#### Major Requirements

3021, 3104, 3501 or 3502 or 3512, 3910 or 3930 or 3940  
26 additional 3xxx- or 5xxx-level Spanish cr

**General Education**—Courses in culture and civilization taught in English which are of general interest to all students include Span 1501-1502-1503, 3601, 3602, 3604, 3605, 3614, Port 3603.

**1101-1102-1103. BEGINNING SPOKEN SPANISH: ORAL APPROACH.** (5 cr per qtr; students submitting 1 yr high school Spanish may take 1102...those with 2 yrs may take 1103)

Pronunciation, aural comprehension, basic grammar, practical reading knowledge.

**1104-1105. INTERMEDIATE SPANISH, ORAL APPROACH: INTERPRETATION OF MODERN PROBLEMS.** (4 cr per qtr; prereq 1103 or equiv)

Intensive review of grammar; continued development of reading, comprehension, speaking, and writing skills; readings to build vocabulary and model compositions.

**1501. CULTURE, CIVILIZATION OF SPAIN, PORTUGAL: THE ROOTS OF MODERN SPAIN, PORTUGAL.** (4 cr; not to be used for Spanish or Portuguese major cr)

Culture and civilization of Spain and Portugal; art, architecture, and music. Taught in English.

**1502. CULTURE, CIVILIZATION OF LATIN AMERICA: INDIAN, EUROPEAN-COLONIAL, AFRICAN ROOTS.** (4 cr; not to be used for Spanish or Portuguese major cr)

Culture and civilization of Mexico, Central America, and the Spanish Islands of the Caribbean; the influences and fusing of the Spanish with the Indian or the African cultures. Taught in English.

## Course Descriptions—Major Sequences

- 1503. CULTURE, CIVILIZATION OF MODERN LATIN AMERICA: SOCIETIES IN CHANGE.** (4 cr; not to be used for Spanish or Portuguese major cr)  
Culture and civilization of the South American nations; the influences and fusing of the Spanish and Portuguese with the Indian or the African cultures. Taught in English.
- 3001. SPANISH PRONUNCIATION: STANDARD, COLLOQUIAL, DIALECTAL.** (2 cr; prereq 1105 or §)
- 3014. SPANISH COMPOSITION AND COMMUNICATION SKILLS: EVERYDAY SPEECH, ARGOT, DIALOGUE.** (5 cr; prereq 1105 or §)  
Course designed to improve ability to write, speak, and comprehend. Two weekly class periods devoted to writing, three to conversation. Taught in Spanish.
- 3021. ADVANCED COMPOSITION AND COMMUNICATION SKILLS: POLISHING SPEECH, WRITING SKILLS.** (5 cr; prereq 3014 or §)  
(Continuation of 3014) Writing and conversation. Taught in Spanish.
- 3104. THE ART OF READING LITERARY TEXTS.** (4 cr; prereq 1105 or §)  
Stylistic analysis and literary explication of literary works representing the principal genres. Critical terminology, literary problems and techniques.
- 3211. SPANISH LITERATURE: NARRATIVE.** (4 cr; prereq 3104)
- 3212. SPANISH LITERATURE: POETRY.** (4 cr; prereq 3104)
- 3213. SPANISH LITERATURE: DRAMA.** (4 cr; prereq 3104)
- 3251. SPANISH-AMERICAN LITERATURE: NARRATIVE.** (4 cr; prereq 3104)
- 3252. SPANISH-AMERICAN LITERATURE: POETRY.** (4 cr; prereq 3104)
- 3253. SPANISH-AMERICAN LITERATURE: DRAMA.** (4 cr; prereq 3104)
- 3501. SPANISH CIVILIZATION: AN OVERVIEW OF CULTURE, THOUGHT, ART.** (5 cr; prereq 3014)  
Spanish and Latin America up to 1808. (GrD)
- 3502. THE CULTURE AND LANGUAGE OF MODERN SPAIN, SPANISH AMERICA.** (5 cr; prereq 3014)  
Spain and Spanish America from 1808 to the present. (GrD)
- 3512. LATIN AMERICAN CIVILIZATION: THE DIVERSE AMERICAS.** (5 cr; prereq 3014)  
Latin America from 1808 to the present. (GrD)
- 3601. SPANISH AMERICA: REVOLUTION AND THE NEW LITERARY CONSCIOUSNESS.** (4 cr; not to be used for Spanish or Portuguese major cr)  
Avant-garde movements in fiction; their relation to Latin American revolutionary trends in different areas of Spanish-speaking countries. Famous novels translated into English. (GrD)
- 3602. THE PICARESQUE WAY OF LIFE IN SPAIN AND EUROPE: LITERATURE AND THE DELINQUENT.** (4 cr; not to be used for Spanish or Portuguese major cr)  
Major picaresque novels of Europe and Latin America and the Spanish origins of the genre; 16th century, its zenith; 17th century, evolution to the present day. Literary and sociological examination of picaresque novels; new directions in modern times. Famous Spanish and Latin American novels translated into English. (GrD)
- 3604. MODERN LATIN AMERICAN THEATRE: ART AND SOCIAL DOCUMENT.** (4 cr; not to be used for Spanish or Portuguese major cr)  
Major playwrights of Latin America. Plays written since 1950 to express social concerns examined from literary and sociological points of view. Taught in English. (GrD)
- 3605. POLITICS IN SPANISH AND LATIN AMERICAN LITERATURE.** (4 cr; not to be used for Spanish or Portuguese major cr)  
For students who do not speak Spanish or Portuguese. Novels, plays, and essays as integral parts of historical and political life in Spain, Portugal, Spanish-American countries, and Brazil. The civil wars in Spain, the national liberation movements and political upheavals in Latin America. Famous authors from the late 19th century (Galdos) to the present. Taught in English. (GrD)
- 3614. DON QUIJOTE: A STUDY OF LOST ILLUSIONS.** (4 cr)  
The Spanish classic *Don Quijote de la Mancha* by Miguel de Cervantes in English. The humor, pathos, and philosophy of Don Quijote, as well as Cervantes' style. (GrD)
- 3721. ORIGINS AND HISTORY OF SPANISH AND PORTUGUESE.** (4 cr; prereq 3014 or Port 3014)  
Factors that influenced the growth and structure of the Spanish and Portuguese languages.

- 3910. TOPICS IN SPANISH AND SPANISH-AMERICAN LITERATURE.** (4 cr per qtr; prereq 3104 or  $\Delta$ )  
Topics annually specified in the *Class Schedule*. (GrD)
- 3930. TOPICS IN HISPANIC LANGUAGES.** (4 cr per qtr; prereq 3104 or  $\Delta$ )  
Topics annually specified in the *Class Schedule*. (GrD)
- 3940. FIGURES IN SPANISH AND SPANISH-AMERICAN LITERATURE.** (4 cr per qtr; prereq 3104 or  $\Delta$ )  
Figures annually specified in the *Class Schedule*. (GrD)
- 5011. SPANISH STYLISTICS.** (4 cr; prereq 3021 or equiv)
- 5012. ADVANCED PROBLEMS IN THE SPANISH LANGUAGE.** (4 cr; prereq 3021 or #)  
Problematic aspects of Spanish pronunciation, grammar, and idiomatic expressions for advanced speakers of Spanish as a second language. Supervised contact with beginning and intermediate students of the Spanish language. (GrA)
- 5015. METHODS OF TRANSLATION.** (4 cr; prereq 3021 or #)  
Meaning, use, and theories of translation. Techniques and problems of translation from Spanish and Portuguese to English, and from English to Spanish and Portuguese. (GrA)
- 5211. SPANISH LITERATURE OF 16TH AND 17TH CENTURIES: NOVELISTIC FORMS (CHIVALRIC, MOORISH, PASTORAL, NOVELLA).** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5212. SPANISH LITERATURE OF THE 16TH CENTURY: DRAMA UP TO LOPE DE VEGA.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5213. SPANISH POETRY OF THE RENAISSANCE AND BAROQUE.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5221. SPANISH LITERATURE OF THE 17TH CENTURY: THE DRAMA.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5222. SPANISH LITERATURE OF THE 17TH CENTURY: THE NOVEL.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5223. SPANISH GOLDEN AGE POETRY: CONCEPTISMO AND CULTERANISMO.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5241. THE 18TH CENTURY: STUDIES IN THE PRINCIPAL WRITERS.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5271. SPANISH THEATRE IN THE 20TH CENTURY.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ )  
Benavente, Martinez Sierra, Linares-Rivas, Alvarez Quintero, Valle-Inclan, Marquina, Garcia Lorca, and Casona. (GrD)
- 5272. THE GENERATION OF 1898.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ )  
Unamuno, Azorin, Baroja, Valle-Inclan, Ortega y Gasset, Perez de Ayala, Gomez de la Serna. (GrD)
- 5273. 20TH-CENTURY SPANISH LITERATURE.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ )  
Juan Ramon Jimenez, Unamuno, Antonio and Manuel Machado, Valle-Inclan, Garcia Lorca, Alberti, Moreno Villa, Aleixandre, Leon Felipe, Guillen, and Salmas. (GrD)
- 5312. THE LIBRO DE BUEN AMOR AND LA CELESTINA.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5316. THE PICARESQUE NOVEL.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5351. THE SPANISH NOVEL OF THE 19TH CENTURY.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5371. THE MODERN SPANISH NOVEL (1900-1936).** (4 cr; prereq one 3xxx-5xxx-level Spanish or Portuguese literature course and  $\Delta$ ) (GrD)
- 5373. THE CONTEMPORARY SPANISH NOVEL SINCE THE CIVIL WAR.** (4 cr; prereq one 3xxx-5xxx-level Spanish or Portuguese literature course and  $\Delta$ ) (GrD)
- 5381. THE CONTEMPORARY SPANISH THEATRE (1939-1968).** (4 cr; prereq one 3xxx-5xxx-level Spanish or Portuguese literature course and  $\Delta$ ) (GrD)

## Course Descriptions—Major Sequences

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- 5392. CONTEMPORARY SPANISH POETRY FROM 1936.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5411. CERVANTES: DON QUIJOTE.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5412. CERVANTES: VARIOUS GENRES: THEATRE, NOVELAS EJEMPLARES, ENTREMESES.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- Arab 5501-5502-5503. HISPANO-ARABIC LITERATURE AND CULTURE.** (4 cr per qtr; prereq #)
- 5521. SPANISH-AMERICAN COLONIAL LITERATURE.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5522. SPANISH-AMERICAN ROMANTICISM.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5523. SPANISH-AMERICAN POSITIVISTIC NARRATIVE.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5533. THE BAROQUE IN EUROPEAN LITERATURE: SPAIN.** (4 cr, §Fren 5533; prereq at least one 3xxx-5xxx-level course in the literature of France, Germany, Italy, Portugal, or Spain)  
(See also Fren 5531, The Baroque in European Literature: France and Italy) Literature in translation that follows the baroque movement through Spain and Germany. (GrD)
- 5551. MODERNISMO: THE PRECURSORS.** (4 cr; prereq one 3xxx-5xxx-level Spanish or Portuguese literature course and  $\Delta$ )  
Spanish-American poetry leading up to the Modernista trends; the precursors of Modernismo. Bello, Heredia, Martí, Gutiérrez Najera, Asunción Silva, Julian del Casal, and others. (GrD)
- 5552. MODERNISMO: THE MAIN AUTHORS.** (4 cr; prereq one 3xxx-5xxx-level Spanish or Portuguese literature course and  $\Delta$ )  
The Modernista movement in its most representative authors: Dario, Freyre, Lugones, Nervo, Herrera, Gozalez Martinez, and others. (GrD)
- 5553. CONTEMPORARY SPANISH-AMERICAN POETRY.** (4 cr; prereq one 3xxx-5xxx-level Spanish or Portuguese literature course and  $\Delta$ )  
Spanish-American poetry after Modernismo: Borges, Carrera Andrade, Gorostiza, Guillen, Lopez Velarde, Mistral, Neruda, Parra, Paz, Vallejo, and others. (GrD)
- 5581. THE MODERNIST NARRATIVE.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5582. SPANISH-AMERICAN DRAMA.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ )  
Development of the Spanish-American drama from its origin to the present. (GrD)
- 5583. SPANISH-AMERICAN SHORT STORY.** (4 cr; prereq three 3xxx-5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5584. CONTEMPORARY SPANISH-AMERICAN NOVEL.** (4 cr; prereq one 3xxx-5xxx-level Spanish or Portuguese literature course and  $\Delta$ ) (GrD)
- 5709. INTRODUCTION TO THE DESCRIPTION AND ANALYSIS OF MODERN SPANISH.** (4 cr; prereq 3021 or ¶3021 or #)  
History of linguistic studies in the Hispanic world from structure of the Spanish language to dialectology and historical studies. Structural approach to description and analysis of the modern language. The relationship of linguistic and literary theory in the Hispanic intellectual community. Bibliography. (CrA)
- 5711, 5712, 5713. THE STRUCTURE OF MODERN SPANISH: PHONOLOGY, MORPHOLOGY, SYNTAX.** (4 cr per qtr; prereq 3021 or ¶3021 or #)  
Scientific approach to the structure of present-day Spanish: syntax, phonology, word formation, and dialectal differences.
- 5714. THE STRUCTURE OF MODERN SPANISH: SEMANTICS.** (4 cr; prereq 5713)  
Relationship between syntax and semantics in the Spanish language. The application of structural semantics to the Spanish language; concepts of semantic and lexical fields. (CrA)

- 5721. INTRODUCTION TO ROMANCE PHILOLOGY.** (4 cr; prereq 3721 or Port 3721 or ‡)
- 5729. SPANISH DIALECTOLOGY: INTRODUCTION.** (4 cr; prereq 5711, 5712, 5713)  
History, principles, and theories of dialectology as they relate to descriptive study of Spanish. Linguistic geography and the delineation of national and social dialects. (GrA)
- 5731. SPANISH DIALECTOLOGY: REGIONAL AND SOCIAL DIALECTS OF MODERN SPAIN.** (4 cr; prereq 5729 or ‡)  
Major dialect areas of Spain, with distinguishing phonological, morphological, lexical, and syntactic variations. Impact of recent cultural, political, and socioeconomic transformations. (GrA)
- 5732. SPANISH DIALECTOLOGY: REGIONAL AND SOCIAL DIALECTS OF MODERN SPANISH AMERICA.** (4 cr; prereq 5729 or ‡)  
Major dialect areas in modern Hispanic America. Norm, speech, and language as they relate to old political and religious divisions of Hispanic America and the new national boundaries. (GrA)
- 5733. SPANISH DIALECTOLOGY: DESCRIPTIVE STUDY OF SPANISH SPOKEN IN THE UNITED STATES.** (4 cr; prereq 5729 or ‡)  
Spanish-speaking communities in the United States (Puerto Rican, Dominican, Mexican-American and Cuban). Phonological, lexical, and morphosyntactical characteristics. Problems of interference and transference. Bilingualism (English, Spanish). The Spanish language in an English-dominant society. (GrA)
- 5910. TOPICS IN SPANISH AND SPANISH-AMERICAN LITERATURE.** (4 cr per qtr; prereq 3104 or Δ)  
Topics annually specified in the *Class Schedule*. (GrD)
- 5930. TOPICS IN HISPANIC LINGUISTICS.** (4 cr per qtr; prereq 3021 or Δ)  
Topics annually specified in the *Class Schedule*. (GrD)
- 5940. FIGURES IN SPANISH AND SPANISH-AMERICAN LITERATURE.** (4 cr per qtr; prereq 3104 or Δ)  
Topics annually specified in the *Class Schedule*. (GrD)
- 5950. SELECTED TOPICS ON HISPANIC-LUSO-BRAZILIAN LITERARY INTERRELATIONSHIP.** (4 cr per qtr; prereq reading knowledge of Spanish and Portuguese)  
Exploration of common conceptions, background, and influences among Peninsular Spanish, Spanish-American, Portuguese, and Brazilian literatures in the essay, drama, poetry, and fiction. (GrD)
- 5960. SELECTED COMPARATIVE PROBLEMS IN THE WORKS OF HISPANIC AND LUSO-BRAZILIAN AUTHORS.** (4 cr per qtr; prereq reading knowledge of Spanish and Portuguese)  
Designed to explore common conceptions, background, and influences among major Peninsular Spanish, Spanish-American, Portuguese, and Brazilian authors. (GrD)
- 5970. DIRECTED READINGS.** (1-5 cr per qtr; prereq ‡ and Δ) (GrD)

## SPANISH-PORTUGUESE

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1101-1102, 1103-1104, 1105, or equiv

#### Major Requirements

Port 3014 or Span 3014; Port 3501 or 3502 or Span 3501 or 3502 or 3512; Port 3211 or 3212 or 3213 or Span 3910; Port 3721 or Span 3021 or 3930; Port 5110 or 5120 or 5130 or 5210 or 5220 or 5230 or Span 3940

Approximately 30 cr in 3xxx- or 5xxx-level Portuguese or Spanish courses, selected in consultation with adviser

Two-thirds of each group of courses (required or elective) must be in Portuguese courses and the remainder in Spanish courses, or the reverse.

## PORTUGUESE (Port)

- 1001-1002-1003. BEGINNING PORTUGUESE.** (5 cr per qtr)  
Aural comprehension, pronunciation, basic grammar; practical reading knowledge. Brazilian speech stressed; Lusitanian forms also studied.
- 1004. INTERMEDIATE PORTUGUESE GRAMMAR AND COMPOSITION.** (5 cr; prereq 1003, 1103 or #)  
Intensive grammar review; reading of selected texts.
- 1101-1102. INTENSIVE PORTUGUESE.** (5 cr per qtr; some previous training in a Romance language recommended or #) (GrA)
- 1103-1104. INTENSIVE PORTUGUESE.** (5 cr per qtr; some previous training in a Romance language recommended or #) (GrA)
- 1105. INTERMEDIATE PORTUGUESE.** (4 cr; prereq 1104)  
Intensive review of grammar, continued development of reading, comprehension, speaking, and writing skills; use of readings to build vocabulary and to model compositions. (GrA)
- 3014. CONVERSATION AND COMPOSITION.** (5 cr; prereq 1105 or equiv)  
Brazilian speech; continental Portuguese forms are also stressed. (GrA)
- 3211. READINGS IN RENAISSANCE QUINHENTISMO AND MODERN PORTUGUESE LITERATURE.** (4 cr; prereq 1105 or Span 3104 or #) (GrD)
- 3212. READINGS IN BRAZILIAN LITERATURE OF THE 19TH AND 20TH CENTURIES.** (4 cr; prereq 1105 or Span 3104 or #) (GrD)
- 3213. READINGS IN MODERN AND CONTEMPORARY BRAZILIAN LITERATURE.** (4 cr; prereq 1105 or Span 3104 or #) (GrD)
- 3501. LUSO-BRAZILIAN CIVILIZATION I.** (5 cr; prereq 1105)  
Portugal and Brazil to 1808. (GrD)
- 3502. LUSO-BRAZILIAN CIVILIZATION II.** (5 cr; prereq 1105)  
Portugal and Brazil from 1808 to the present. (GrD)
- 3603. MODERN AND CONTEMPORARY BRAZILIAN PROSE FICTION: ITS POLITICAL AND SOCIAL CONTENT.** (4 cr; may not be used for Spanish or Portuguese major cr)  
For students who do not speak Portuguese. The novel and the short story of Brazil as a reflection of contemporary Brazilian society and as an innovative art form within the broad confines of world literary expression. Modern Brazilian fiction translated into English. (GrD)
- 3721. ORIGINS AND HISTORY OF SPANISH AND PORTUGUESE.** (4 cr; prereq 3014 or Span 3014)  
Factors that influenced the growth and structure of the Spanish and Portuguese languages. (GrA)
- 5110, 5120, 5130. TOPICS IN PORTUGUESE LITERATURE.** (4 cr per qtr; prereq 3211 or 3212 or 3213 or equiv) (GrD)
- 5210, 5220, 5230. TOPICS IN BRAZILIAN LITERATURE.** (4 cr per qtr; prereq 3211 or 3212 or 3213 or equiv) (GrD)
- 5222. SPANISH LITERATURE OF THE 17TH CENTURY: THE NOVEL.** (4 cr; prereq three 3xxx- or 5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5225. PROSEMINAR: CONTEMPORARY BRAZILIAN LITERATURE.** (4 cr; prereq 3211 or 3212 or 3213 or ¶3211 or ¶3212 or ¶3213) (GrD)
- 5251. SPANISH LITERATURE OF THE 18TH CENTURY.** (4 cr; prereq three 3xxx- or 5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5252. SPANISH LITERATURE OF THE 19TH CENTURY.** (4 cr; prereq three 3xxx- or 5xxx-level Spanish or Portuguese literature courses or  $\Delta$ ) (GrD)
- 5721. INTRODUCTION TO ROMANCE PHILOLOGY.** (4 cr; prereq 3721 or #) (GrA)
- 5950. SELECTED TOPICS ON HISPANIC-LUSO-BRAZILIAN LITERARY INTERRELATIONSHIP.** (4 cr per qtr; prereq reading knowledge of Spanish and Portuguese)  
Exploration of common conceptions, background, and influences among Peninsular Spanish, Spanish-American, Portuguese, and Brazilian literatures in the essay, drama, poetry, and fiction. (GrD)

5960. **SELECTED COMPARATIVE PROBLEMS IN THE WORKS OF HISPANIC AND LUSO-BRAZILIAN AUTHORS.** (4 cr per qtr; prereq reading knowledge of Spanish and Portuguese)

Designed to explore common conceptions, background, and influences among major Peninsular Spanish, Spanish-American, Portuguese, and Brazilian authors. (GrD)

5970. **INDEPENDENT READINGS.** (1-5 cr per qtr; prereq # and Δ)

## Speech-Communication (Spch)

### Staff

*Chairman*, Robert L. Scott, 317 Folwell Hall; *Director of Undergraduate Studies*, George L. Shapiro, 401A Folwell Hall; *Sophomore Advising Office*, 401B Folwell Hall

*Professors*: Bormann, Browne, Goldstein, Howell, Jensen, Scott, Shapiro, Ziebarth

*Associate Professors*: Bart, Miller

*Assistant Professors*: Garvin, Geizer, Rarick

*Instructor*: Bond

Speech-communication is concerned with the study of the communicative dimensions of human experience, focusing particularly on the interpersonal, rhetorical, and broadcast perspectives.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1101, 1102, 1104

#### Major Requirements

Minimum of 36 3xxx-5xxx-level cr, to include: 3211, 3401, and 3601

The speech-communication major may select a program within these requirements to fit individual needs and interests. The program must be selected in conference with and approved by a departmental major adviser.

**Cocurricular Activities**—Any University student may participate in the forensic program offered by the department and in the operation of student radio station WMMR. Forensic activities include debate, the Freshman-Sophomore Oratorical Contest, and the Pillsbury Oratorical Contest.

**General Education**—The department recommends as courses for nonmajors 1101, 1102, 1104, 3211, 3401, 3601, 3605, 3641, 5402, 5431, 5615, 5617.

**1101f,w,s. FUNDAMENTALS OF SPEECH COMMUNICATION: ORAL COMMUNICATION.** (4 cr)

Basic understanding of oral communication processes. Essential elements in oral communication. Criticism of and response to oral discourse. Individual speaking. (GrA)

**1101H. HONORS COURSE: FUNDAMENTALS OF SPEECH COMMUNICATION: ORAL COMMUNICATION.** (4 cr)

For description, see 1101. (GrA)

**1102f,w,s. FUNDAMENTALS OF SPEECH COMMUNICATION: COMMUNICATION PROCESS.** (4 cr) Garvin, Shapiro

Variables in intrapersonal, interpersonal, and group communication. (GrA)

**1102H. HONORS COURSE: FUNDAMENTALS OF SPEECH COMMUNICATION: COMMUNICATION PROCESS.** (4 cr)

For description, see 1102. (GrA)

## Course Descriptions—Major Sequences

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- 1103. COMMUNICATION IN THE MODERN WORLD—MASS MEDIA.** (4 cr, §Jour 1003)  
Mass media and their social and cultural effects. Interaction between audience and the media. The popular arts. Related areas of communication; advertising, public relations, propaganda. The future of mass media and "mass culture." (GrC)
- 1104s. FUNDAMENTALS OF SPEECH COMMUNICATION: THE CREATIVE PROCESS AND THE MASS MEDIA.** (4 cr) Bart, Browne  
Mass media structure and its effects on the creative process. (GrD)
- 1110f,w. FRESHMAN DISCUSSION AND DEBATE.** (2 cr per qtr; open to freshmen who qualify for freshman debate squad; prereq fr with C avg) (GrA)
- 3111. LEADERSHIP COMMUNICATION.** (3 cr [4 cr with ROTC lab]; does not count toward speech-communication major)  
Interdisciplinary study of leadership including both theory and practice. Overview of theoretical approaches to management. Application of interpersonal communication skills to leadership practice. The function of persuasion and cross-value communication in effective leadership. Experience in task-oriented small-group communication.
- 3191f, 3192w, 3193s. HONORS COURSE: TUTORIAL SEMINAR IN SPEECH.** (4 cr per qtr; prereq honors candidate in speech-communication,  $\Delta$ ,  $\#$ )
- 3201f,w,s. INTRODUCTION TO BROADCASTING PRODUCTION.** (4 cr; prereq 1104) Bart  
Fundamentals of practice and theory. Projects in performance and scripting; studio equipment and procedures. (GrD)
- 3202. LABORATORY SECTION: BROADCASTING PRODUCTION.** (1-4 cr; prereq 3201 or §3201)  
Arts and techniques of television. Cameras, lighting, floor direction; planning and construction of television visuals and setting in professional production environment. (GrD)
- 3203f,w,s. RADIO PRODUCTION.** (4 cr; prereq 3201)  
Equipment and staff organization, program design and presentation. Directed experience in organization, writing, production, direction, and performance of radio news, music, dramatic, and documentary programs. (GrD)
- 3204f,w,s. TELEVISION PRODUCTION.** (4 cr; prereq 3201) Bart  
Equipment and staff organization; interrelationships with program design. Exercises. (GrD)
- 3211f,w. DETERMINANTS OF BROADCAST PROGRAMMING.** (4 cr) Browne, Rarick  
Historical development and contemporary aspects of broadcast programming. Roles of governmental, industrial, and public organizations in influencing program decisions. "Problem" areas in programming. (GrC)
- 3401f,s. THEORIES OF INTERPERSONAL COMMUNICATION.** (4 cr; prereq 1102, Psy 1001 or  $\#$ ) Geizer  
Theories of interpersonal communication and their usefulness for particular purposes. (GrC)
- 3401H. HONORS COURSE: THEORIES OF INTERPERSONAL COMMUNICATION.** (4 cr; prereq 1102, Psy 1001, or  $\#$ )  
For description, see 3401. (GrC)
- 3402f,s. LANGUAGE, COMMUNICATION, AND RHETORIC IN CONTEMPORARY BLACK AMERICA.** (4 cr; prereq 1101 or 1102 or Afro 1101 or 1102) Bond  
Communicative experiences of Black Americans: language, acquisition, modes of persuasion, stylistic elaboration. Formal and informal contexts. (GrC)
- 3601f,s. APPROACHES TO PUBLIC DISCOURSE.** (4 cr; prereq 1101) Garvin, Jensen, Scott  
Survey of theoretical systems intended to explain or direct the creation of public discourse. Traditional rhetorics to contemporary perspectives. Using theory to explain the practice of public discourse. (GrA)
- 3605f,w,s. PUBLIC SPEAKING.** (4 cr; prereq 1101)  
Preparing and presenting public speeches; directed practice; function of public speaking in contemporary life. (GrA)
- 3615w. ARGUMENTATION.** (4 cr; prereq 1101 or 1101H or  $\#$ )  
Role of reasoned discourse in social and governmental affairs. Logical methods of persuasion. (GrA)
- 3620f,w. INTERCOLLEGIATE DEBATE AND ORATORY.** (2 cr per qtr)  
Open to students interested in intercollegiate speech competition. Performance in speech activities. (GrA)

- 3641f,w,s. DISCUSSION AND CONFERENCE METHODS.** (4 cr; prereq 1101 or 1101H or #)  
Cooperative thinking in task-oriented groups. Planning, preparing for, participating in, and leading private and public meetings. (GrA)
- 3970f,w,s. DIRECTED STUDIES.** (Cr ar; prereq at least one speech-communication course, #, Δ)  
Individual supervised study projects.
- 3980f,w,s. DIRECTED INSTRUCTION.** (1-4 cr [8 cr max]; prereq #, Δ)  
Students work with instructors in planning and teaching undergraduate courses.
- 5201. TELEVISION PRODUCTION: DRAMA.** (4 cr; prereq 3204)  
Instruction and practice in television production of drama. Aesthetics and techniques of television as a dramatic medium. (GrD)
- 5202. ADVANCED TELEVISION PRODUCTION.** (4 cr; limited to 14 students; prereq 3204, #) Bart  
Creative problems in television production and direction. Advanced program design, lighting, audio, and camera and electronic equipment.
- 5204. WRITING RADIO AND TELEVISION DRAMA.** (4 cr; prereq 3201, #) Browne  
Physical, psychological, and sociological aspects of radio and television and their influence on the writer. Scriptwriting of dramatic commercials, dramas, and documentaries. (GrD)
- 5211f,s. CONTEMPORARY PROBLEMS IN AMERICAN BROADCASTING.** (4 cr; prereq 3211 or equiv, #) Browne, Rarick  
Problems affecting American commercial and educational broadcasting. Cable television, public access to broadcasting, violence on television, financing of public television. (GrC)
- 5221f. EDUCATIONAL TELEVISION PRODUCTION.** (4 cr; prereq 3204 or #) Goldstein  
Television for instructional purposes; research literature as applied to production of televised educational materials; experimentation in preparation of material. (GrD)
- 5222w. EDUCATIONAL TELEVISION PROGRAMMING AND ADMINISTRATION.** (4 cr; prereq 3211 or #) Goldstein  
Television applied to educational needs; current practices; significant research findings; relative effectiveness of differing types of television utilization; impact of various modes of transmission on programming and administrative concepts. (GrC)
- 5231f. COMPARATIVE BROADCAST SYSTEMS.** (4 cr; prereq 3211 or #) Browne  
Historical, sociological, and political aspects of systems of broadcasting throughout the world—American, Canadian, British, French, German, Soviet, and other; regulation, impact on political, social, and economic development. (GrC)
- 5232w. INTERNATIONAL BROADCASTING.** (4 cr; prereq 12 cr in political science or #) Browne  
Broadcasting as an international medium of communication in the U.S., Great Britain, U.S.S.R., Japan, and other countries. Theories of informing and persuading through direct broadcast and regional and international exchange of programs; international and regional regulatory agreements; current problems in spectrum control; social and legal implications of broadcasting via satellite. (GrC)
- 5233s. BROADCASTING AND NATIONAL DEVELOPMENT.** (4 cr; prereq 5231 or #) Browne  
Use of radio and television to effect changes in social, political, economic, and cultural life of peoples and nations. Use by developing nations to improve agricultural practices, hygienic standards, literacy, and awareness of civic responsibility. (GrC)
- 5402f,w,s. PROBLEMS IN INTERPERSONAL COMMUNICATION.** (4 cr; prereq 3401 or #) Shapiro  
Factors contributing to misunderstanding, not understanding, disagreement, and cessation of contact in dyads. (GrC)
- 5403f,s. THEORY CONSTRUCTION AND ANALYSIS IN COMMUNICATION.** (4 cr; prereq 3401 or #) Geizer, Rarick  
Development of communication theory. Analysis of existing theory. Relationship of theory to research. (GrC)
- 5404f,w. SPEECH AND LANGUAGE IN HUMAN BEHAVIOR.** (4 cr, §SeEd 5404; prereq 1102, 3401 or grad) Piché  
Place of speech and language in human behavior. Individual projects, collateral reading. (GrA)

## Course Descriptions—Major Sequences

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- 5405w,s. NONVERBAL COMMUNICATION.** (4 cr) Geizer  
Nonverbal (extralinguistic) elements and dimensions of interpersonal communication. Nonverbal categories: gesture, facial expression, posture, clothing, environment. (GrC)
- 5411f,w,s. SMALL GROUP COMMUNICATION.** (5 cr; S-N only; prereq 3641 or #) Bormann, Garvin, Howell  
Communication and dynamics within the small, task-oriented group. Group cohesiveness, leadership, role structure, information processing, decision making.
- 5421w. QUANTITATIVE RESEARCH IN COMMUNICATION.** (4 cr; prereq 3401 or 5403 or #) Geizer  
Experimental and descriptive research; research design and procedures; individual research projects. (GrC)
- 5422w. INTERVIEWING AND COMMUNICATION.** (4 cr; prereq 1101, 6 cr in social science or #) Rarick  
Theory and practice of communication in the information interview. Role of interpersonal perception, empathy, and cognitive structure in dyadic communication. Experience in interviewing and communication analysis. Research in interpersonal and mass communication. (GrC)
- 5431f. THE PROCESS OF PERSUASION.** (4 cr; prereq 1102, Psy 1001) Howell  
Theories of modern motivational communication. Social control through persuasive speech. (GrC)
- 5441w,s. COMMUNICATION IN HUMAN ORGANIZATIONS.** (4 cr; prereq 1102 or 3401, 3641 or 5411, or grad) Shapiro  
Function of communication in organizational settings. Organizational structure and dynamics and their effect upon the communication process. Individual projects. (GrC)
- 5451w. INTERCULTURAL SPEECH-COMMUNICATION.** (4 cr; prereq 3401, Anth 1002 or another course in cultural anthropology or #) Howell  
Factors in successful interpersonal communication across cultures. Linguistic and nonverbal variables. Emphasis on North Americans abroad, communication with host nationals. (GrA,C)
- 5452. WORKSHOP IN INTERCULTURAL COMMUNICATION.** (3 cr; prereq #) Howell  
Small group training for foreign and United States students in communicating across cultures; group discussions, role playing, simulations, lectures as methods.
- 5602w. CONTEMPORARY POLITICAL PERSUASION.** (4 cr; prereq 1101 or 1101H, 5431 or #) Scott  
Contemporary political speaking. Ideologies in political persuasion. (GrC)
- 5611f. CLASSICAL RHETORIC.** (4 cr; prereq 1101 or 1101H) Scott  
Greek and Roman theories of speechmaking; historical and philosophical context and influence on education. (GrA)
- 5615f,s. INTRODUCTION TO RHETORICAL CRITICISM.** (4 cr; prereq 1101 or 1101H... 3601 recommended) Scott  
Traditional and contemporary rhetorical theory; its application to contemporary public address. (GrA)
- 5616w. PUBLIC ADDRESS IN BRITAIN AND THE COMMONWEALTH.** (4 cr; prereq 1101 or 1101H or #) Jensen  
British orators, their works, the historical setting. British rhetorical theory. (GrA)
- 5617f. HISTORY AND CRITICISM OF AMERICAN PUBLIC ADDRESS.** (4 cr; prereq 1101 or 1101H, Psy 1001) Bormann  
History and criticism of religious and reform speaking in the United States, 1620 to 1920. (GrA)
- 5618w. HISTORY AND CRITICISM OF AMERICAN PUBLIC ADDRESS.** (4 cr; prereq 1101 or 1101H, Psy 1001) Bormann  
History and criticism of political speaking in the United States from the time of the Revolution to the present. (GrA)
- 5621s. FEMINIST RHETORIC.** (4 cr; prereq 5615 or #) Garvin  
History and criticism of feminist rhetorical activity in the United States, focusing on major issues of women's liberation. (GrA)
- 5970f,w,s. DIRECTED READINGS.** (Cr ar; prereq nine 3xxx-5xxx-level speech-communications cr, #, Δ)  
Directed reading and preparation of reports.

## Statistics (Stat)

### Staff

*Director, School of Statistics*, Seymour Geisser, 270 Vincent Hall; *Chairman, Department of Applied Statistics*, Stephen Fienberg, 352A Classroom Office Building; *Chairman, Department of Theoretical Statistics, and Director of Undergraduate Studies*, Robert J. Buehler, 270 Vincent Hall

*Professors*: Buehler, Collier, Das Gupta, Eaton, Geisser, Hildreth, Lindgren, Neter, Sobel

*Associate Professors*: Bingham, Fienberg, Hinkley, Martin, Sudderth

*Assistant Professors*: Berry, Cook, Larntz, Weisberg

Statistics, dealing with the collection, analysis, and interpretation of data, provides a logical framework for using data to draw inferences in scientific studies and for making decisions in industrial, business, and governmental enterprises.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

Calculus through Math 1231 or 1331 or 1621 (Stat 3091 or 1051 recommended)

#### Major Requirements

Math 3211 or 3611

Math 3142 or 3511 or Stat 5071

Stat 5131-5132-5133 or 5121-5122, 5101

At least 16 cr chosen from Stat 5021, 5022, 5201, 5211, 5301, 5302, 5401, 5601; IE 5030, 5040, 5550-5551, 5531; QA 5171, 5181; PubH 5450, 5455; CICS 3101, 5101-5102; Math 5681-5682-5683

**1051f,w,s. INTRODUCTION TO IDEAS OF STATISTICS.** (4 cr; prereq high school higher algebra)

Presentation and analysis of data. Probabilistic models for inference. Types of inference and decision procedures. Emphasis on concepts rather than computation. (GrA)

**3091f,w,s. INTRODUCTION TO PROBABILITY AND STATISTICS.** (4 cr, §5121, §5131; prereq differential and integral calculus; one section designated primarily for IT majors)

Elementary probability and probability distributions, sampling and elements of statistical inference. Treatment more mathematical than that in 1051. (GrA)

**5021f,w. STATISTICAL ANALYSIS I.** (4 cr; prereq college algebra or #)

Frequency distributions; descriptive statistics; elementary probability; binomial, Poisson, and normal distribution; estimation and testing; analysis of variance; multiple comparisons; linear regression. (GrA)

**5022w,s. STATISTICAL ANALYSIS II.** (4 cr; prereq 5021 or #)

(Continuation of 5021) Multiple regression and correlation; multiway analysis of variance, variance components, covariance; basic nonparametric methods. (GrA)

**5071. STATISTICAL APPLICATION OF MATRIX ALGEBRA.** (3 cr; prereq 5021 or #, †Math 3142 or #)

Specific matrix operations with vector realizations, presuming no prior knowledge. Uses in analysis of variance and multivariate methods. Correlation structures, characteristic vectors, quadratic forms.

**5101s. INTRODUCTION TO DECISION THEORY.** (4 cr, §5132; prereq Econ 5111 or Math 1142 or 1211 or #)

Elements of probability; basic concepts in statistical decision theory; relationship to game theory and other types of decision problems; prediction and inference. (GrA)

## Course Descriptions—Major Sequences

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- 5121f-5122w. THEORY OF STATISTICS.** (4 cr per qtr, §5131-5132-5133; prereq Math 1231 or 1331 or 1621)  
Univariate and multivariate distributions, law of large numbers, sampling, likelihood methods, estimation and hypothesis testing, regression and analysis of variance and covariance, confidence intervals, distribution-free methods. (GrA)
- 5131f-5132w-5133s. THEORY OF STATISTICS.** (4 cr per qtr, §5121-5122; prereq ¶Math 3411 or 3211)  
5131: Probability models, univariate and bivariate distributions, independence, basic limit theorems. 5132-5133: Statistical decision theory, sampling, estimation, testing hypotheses, parametric and nonparametric procedures for one-sample and two-sample problems, regression, analysis of variance. Treatment more mathematical than that of 5121-5122. (GrA)
- 5201w. SAMPLING METHODOLOGY IN FINITE POPULATIONS.** (4 cr; prereq 5021 or 5121 or 3091)  
Simple random, systematic, stratified, and unequal probability sampling. Ratio and regression estimation. Multistage and cluster sampling. (GrA)
- 5211. THEORY OF SAMPLE SURVEYS.** (4 cr; prereq 5122 or 5133)  
Mathematical treatment of survey sampling, including stratified and multistage sampling, models for nonsampling errors. (GrA)
- 5301s. DESIGNING EXPERIMENTS.** (4 cr; prereq 5022 or 5122 or 5133)  
Control of variation, construction and analysis of complete and incomplete block, split plot, factorial, and groups of similar experiments. Confounding, crossover, and optimum seeking designs.
- 5302f,s. APPLIED REGRESSION ANALYSIS.** (4 cr; prereq 5022 or 5071 or 5122 or #)  
Simple, multiple, and polynomial regression. Estimation, testing, and prediction. Stepwise and other numerical methods; examination of residuals; weighted least squares; nonlinear models; response surface. Experimental research and economic applications. (GrA)
- 5401s. INTRODUCTION TO MULTIVARIATE METHODS.** (4 cr; prereq 5071, 5022 or 5122)  
Bivariate and multivariate distributions. Inference on multivariate normal distributions. Discrimination and classification. Multivariate analysis of variance. Partial, canonical correlation and independence. Principal component analysis, factor analysis, analysis of repeated measurements, cluster analysis, profile analysis. (GrA)
- 5421. ANALYSIS OF CATEGORICAL DATA.** (4 cr; prereq 5022, 5122, or 5133)  
Varieties of categorical data, cross-classifications and contingency tables, tests for independence. Multidimensional tables and log-linear models, maximum-likelihood estimation and tests of goodness-of-fit. Analysis of incomplete tables. Marginal homogeneity and symmetry in square tables. Analysis of Markov chain data. Smoothing counts. (GrA)
- 5601w. NONPARAMETRIC METHODS.** (4 cr; prereq 5022 or 5122 or #)  
Survey of necessary discrete and continuous probability distributions. Goodness of fit, sign tests, order statistics, rank tests for location and for scale, two-sample and k-sample comparisons, association. Emphasis on methods and applications.
- 5900. TUTORIAL COURSE.** (Cr ar; prereq #)  
Students whose needs are not met by current offerings may obtain content of regular courses or special areas through directed study. (GrA)
- 5911-5912-5913. TOPICS IN STATISTICS.** (3 cr per qtr; prereq 5122 or 5133 and #)  
Topics vary according to student needs and available staff; may be repeated for credit with department approval. (GrA)

## STUDIO ARTS

See Arts, Studio.

## Institute of Technology

Seven Institute of Technology departments offer courses that carry CLA credit: Architecture-Landscape Architecture; Chemistry; Civil Engineering; Computer, Information, and Control Sciences; Geology and Geophysics; Mathematics; and Physics and Astronomy. B.A. degrees may be earned in all of these areas except civil engineering (see listings in this bulletin).

## Textiles and Clothing (TexC)

*College of Home Economics*

### Staff

*Chairman*, Margaret Grindereng, 323B McNeal Hall

*Professor*: R. Johnson

*Associate Professors*: Franzen, Mullikin

*Assistant Professor*: Nemecek

*Instructors*: W. Johnson, Sieben, Williams

Courses offered in this department cover the design, production, distribution, and consumption of textile and clothing products and include the physical, aesthetic, social, psychological, and economic aspects of the field.

**1661. AESTHETIC PRINCIPLES IN CLOTHING SELECTION.** (2 cr; not open to srs)  
Perception of design elements and artistic principles in clothing related to individual differences. Experience in creating illusions related to clothing and appearance.

**3621. TEXTILES.** (5 cr; prereq soph, Chem 1005 or NSci 1005 or #)  
Basic physical, chemical, and biological characteristics of fiber, yarn, and fabric structures; interrelationships with choice, maintenance, and performance of consumer textiles.

## Theatre Arts (Th)

### Staff

*Chairman*, Kenneth L. Graham, 208 Middlebrook Hall; *Director of Undergraduate Studies*, Jean Congdon, 235 Middlebrook Hall

*Professors*: Adey, Ballet, Fredricks, Graham, Hurrell, Josal, Moulton, Smith, Thompson

*Associate Professors*: Balk, Nolte

*Assistant Professors*: Brockman, Congdon, Dezseran, Frost, Gadberry, Huffington, Montgomery

*Instructors*: Bond, Phillips

*Lecturer*: Loppnow

Theatre arts, the study of the theory and practice of producing plays, incorporates the history, theory, and skills of playwriting, acting, directing, and designing. Any of these can be emphasized in a major program in consultation with a student's adviser.

### B.A. MAJOR SEQUENCE

#### Required Preparatory Courses

1101, 1321, 1504

#### Major Requirements

3513, 3515, 3801, 3708, 3711 or 5711

12 cr in other 3xxx-5xxx-level theatre courses (chosen in consultation with adviser)

#### Recommended Outside the Major

Courses in psychology, music, art history, studio arts and dramatic literature in various languages and cultures, chosen in consultation with adviser.

## Course Descriptions—Major Sequences

### B.F.A. MAJOR SEQUENCE

Information on this special theatre arts degree is available from the Department of Theatre Arts office.

**Cocurricular Activities**—All University students are invited to participate in the activities of the University Theatre.

Since many elementary and secondary school teachers are expected to direct theatre activities, students preparing to enter teaching are urged to participate in such activities sponsored by the department.

**General Education**—Courses of interest and value to nonmajors: 1101, 1405, 1504, 1804, 3171, 3801, 5181, 5182.

- 1101. INTRODUCTION TO THE THEATRE ARTS.** (4 cr) Ballet  
History and theory of plays and playwrights. (GrD)
- 1321. BEGINNING ACTING: CREATIVE APPROACH.** (4 cr; prereq 1504 or ¶1504 and soph or 3rd-4th fr) Dezseran, staff  
Creation and presentation of original scenes and skits. Response to imaginative situations. (GrD)
- 1326. BEGINNING ACTING: TECHNIQUE.** (4 cr; prereq 1321) Moulton, staff  
Fundamentals of body movement, rhythms, and acting technique. Individual and group performances. (GrD)
- 1328. MIME.** (2 cr; prereq 1321) Dezseran  
The domain and techniques of mime explored through class participation. (GrD)
- 1405. HONORS COURSE: INTRODUCTION TO THE THEATRE.** (2 cr; prereq 1101 and §)  
Enrichment course for students who have completed 1101 with outstanding class work. (GrD)
- 1502. MAKEUP FOR THE ACTOR.** (2 cr; prereq 1504 or ¶1504)  
The art of stage makeup. (GrD)
- 1504. ELEMENTS OF TECHNICAL THEATRE.** (4 cr; prereq 1101 or ¶1101)  
The arts and crafts of the theatre: scenery construction and painting, stage operation, theatre lighting, costuming, makeup. (GrD)
- 1804. ORAL TRADITIONS, MYTH TO MODERN.** (4 cr)  
Traditions of oral performance of mythic, folk, and modern literature. Oral interpretation of the epic, lyric, dramatic voices of literature. (GrD)

### General

- 3401. INTERDISCIPLINARY HONORS SEMINAR: MUSIC, STUDIO ARTS, THEATRE.** (2-4 cr, §ArtS 3401, §Mus 3401; prereq jr, sr honors candidate and §; offered when feasible)  
To acquaint students in these fine arts areas with activities and techniques of the other two; to develop understanding and aesthetic judgment in all areas. (GrD)
- 3402. INTERDISCIPLINARY HONORS SEMINAR: MUSIC, STUDIO ARTS, THEATRE.** (2-4 cr, §ArtS 3402, §Mus 3402; prereq jr, sr honors candidate and §; offered when feasible)  
For description, see 3401. (GrD)
- 3412. HONORS COURSE: TUTORIAL SEMINAR IN THEATRE ARTS.** (0-3 cr [limited to 3 cr for cum laude and magna cum laude...3412X up to 3 cr for summa cum laude; prereq theatre arts honors candidate and Δ)  
Independent reading and research in selected fields in preparing honors thesis or creative project. (GrD)
- 3980. DIRECTED INSTRUCTION.** (1-3 cr per qtr [5 cr max]; prereq completion of course in which teaching will be done and Δ) (GrD)
- 5100. THEATRE PRACTICUM.** (2-6 cr per qtr; prereq §, Δ) Josal, staff  
Individual creative projects in production of approved plays with emphasis in one or more of these areas: playwriting, directing, acting, design. (GrD)
- 5110. THEATRE PERFORMANCE.** (1 cr per qtr [9 cr max]; prereq §) Adey, others  
Participation in a production of University Theatre. Credit given for the quarter the performance takes place. (GrD)

- 5950. TOPICS IN THEATRE.** (1-5 cr per qtr [12 cr max])  
Credits and prerequisites designated according to the nature of each offering. For quarterly topics, see current *Class Schedule*. (GrD)
- 5970. DIRECTED READINGS.** (2-6 cr per qtr; prereq 9 cr in theatre, #, Δ)  
Directed reading and preparation of reports on selected subjects. (GrD)

*The following seven subfields relate to major requirements for undergraduate and graduate degrees.*

### History and Dramatic Literature

- 3171. CULTURAL FOUNDATIONS OF THEATRE.** (4 cr; prereq 1101; offered when feasible)  
The theatre in major periods of Western cultural development. Visual, aural, and tactile representations of the cultures and societies. Films, tapes, and commentary. (GrD)
- 5171, 5172, 5173. HISTORY OF THEATRE.** (4 cr per qtr; prereq sr or grad theatre major or #) Nolte  
Plays, arts, and crafts of the theatre from beginnings to present. Reports and projects. 5171: Ancient and medieval. 5172: Renaissance through mid-19th century. 5173: Late 19th and 20th centuries. (GrD)
- 5177, 5178. THEATRE BACKGROUNDS.** (4 cr per qtr; prereq sr with # or grad, 1101 or equiv, nine 3xxx-5xxx-level cr in English, speech, classics, or modern language)  
Chronological and comparative study of development of theatrical elements in the drama from its origins through the present. 5177: Origins through 18th century. 5178: 19th, 20th centuries. (GrD)
- 5180. THEATRE SYMPOSIUM.** (6 cr per qtr; offered when feasible)  
The art of the theatre, with emphasis on productions and methods of the Tyrone Guthrie Theater. Conducted by professional critics, actors, directors, and designers as well as University faculty. (GrD)
- 5181. CONTEMPORARY BLACK THEATRE.** (4 cr; prereq 1101 or Afro 1045 or 3055 or AmSt 1101 or Engl 5175 or #) Bond  
The revolution of Black consciousness as manifested on the American stage. Black plays, playwrights, and the forces that brought them into being. (GrD)
- 5182. THE BLACK MAN IN THE AMERICAN THEATRE, 1820 TO 1959.** (4 cr; prereq 1101 or Afro 1045 or 3055 or AmSt 1101 or Engl 5175 or #) Bond  
Significant theatrical events in the Afro-American's evolution from white stereotypes to Black self-definition; the theatres, plays, and players in the social, economic, and political fabric of the ages in which they appear. (GrD)
- 5186. AMERICAN THEATRE.** (4 cr; prereq sr or grad theatre major or #) Nolte  
The theatre as an aspect of American culture, 1752 to present. (GrD)

### Oral Interpretation

- 3801. ORAL INTERPRETATION OF FICTION.** (4 cr; prereq 1101 or 1804 or Spch 1101 or #, jr)  
Selected short stories. Solo and group readings. (GrD)
- 5802. ORAL INTERPRETATION OF POETRY.** (4 cr; prereq 3801 or grad)  
Selected lyric poems. Solo and group readings. (GrD)
- 5803. ORAL INTERPRETATION OF DRAMA.** (4 cr; prereq 3801 or grad)  
Selected plays. Solo and group readings. (GrD)
- 5811. HISTORY OF ORAL INTERPRETATION.** (4 cr; prereq 3801 or #)  
Selected oral and literary traditions from ancient times to the present. (GrD)
- 5813. THEORY OF READING AND ACTING.** (4 cr; prereq 5802, 5803, or grad)  
Aesthetic and literary theories as they relate to oral interpretation and acting. (GrD)
- 5821. GROUP READING.** (4 cr; prereq 5802, 5803, or grad)  
Advanced course in oral interpretation of imaginative literature. Problems in aesthetic analysis and ensemble performance. Readers theatre presentations. (GrD)
- 5823. ORAL INTERPRETATION OF SHAKESPEARE.** (4 cr; prereq 3801 or grad)  
Trends in the oral performance of Shakespeare's plays on the stage and the reader's platform. Recordings and criticism of Shakespearean theatre. Performance of selected scenes. (GrD)

## Course Descriptions—Major Sequences

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### Playwriting

- 5115-5116-5117. PLAYWRITING.** (4 cr per qtr; prereq 1321 or §) Nolte, staff  
Groundwork in established techniques of the well-made play, followed by use of more experimental forms. 5115: One-act plays. 5116-5117: Full-length play. (GrD)

### Acting

- 3311-3312-3313. VOICE PRODUCTION FOR THE THEATRE.** (2 cr per qtr; prereq 1321 or ¶1321)  
Physical exercises to free the human voice from inhibitions and tensions. Work on prose, poetry, and drama. Vocal exercises with piano. (GrD)
- 3314-3315. STAGE FENCING AND COMBAT: HISTORY AND EXECUTION.** (2 cr per qtr; prereq 1504 or ¶1504)  
History of weapons through the ages; fighting and fencing; use of weapons in stage combat. (GrD)
- 3321, 3322. ADVANCED ACTING.** (4 cr; prereq 1321 or 1326) Dezseran  
Scenes from great plays, with emphasis on characterization. (GrD)
- 3323. ACTING FOR THE CAMERA.** (4 cr; prereq 3321 or §) Frost  
Historical development of radio and television drama, including production, direction, and acting techniques. (GrD)
- 3326. THEATRE DANCE.** (2 cr; prereq 1326 or §) Moulton  
Specific dance techniques and the practice and performance of dances in the theatre. (GrD)
- 3328. ADVANCED MIME.** (2 cr; prereq 1326 and 1328)  
The techniques of mime in scene study and in original mimetic pieces for performance. (GrD)
- 5321. PROBLEMS IN PROFESSIONAL ACTING.** (3 cr; prereq 3321 and § for srs...§ for grads)  
Exploration by students and a professional actor of acting techniques for professional careers. (GrD)
- 5330. DIRECTED PROJECTS IN ACTING.** (1-3 cr per qtr; prereq jr, sr, 3321 or grad theatre major; ¶8711, ¶8712, ¶8713 not permitted)  
Students prepare roles in scenes directed by students in Direction Seminar as laboratory demonstration of direction techniques. (GrD)
- 5334-5335-5336. ACTING FOR MUSIC-THEATRE.** (4 cr per qtr; prereq Mus 5470 and §)  
Balk  
Acting and staging problems in music-theatre. (GrD)
- 5501. SHOWBOAT LABORATORY.** (2-6 cr; prereq Δ, §) Whiting  
Arranged voice and movement sessions open to members of current Showboat company. (GrD)

### Creative Drama and Children's Theatre

- 5131. CREATIVE DRAMA.** (4 cr; prereq 1101 or ¶1101 or elementary education major or §... 1321 recommended) Graham  
Developing original dramatizations with children. Observation of children's classes in creative dramatics. Readings, projects, term paper. (GrD)
- 5132. THEATRE FOR CHILDREN.** (4 cr; prereq 3708, 3711 or 5711 or §) Graham  
Selection, direction, and production of plays for children's audiences, coordinated with current productions of the Young People's University Theatre. (GrD)
- 5133. PRODUCING THEATRE FOR CHILDREN.** (2-4 cr; prereq 1101 or ¶1101, §) Graham, staff  
The techniques and practice of performing for audiences of children. (GrD)
- 5134. ADVANCED CREATIVE DRAMA.** (4 cr; prereq 5131, teaching experience, and §; limited to 15 students) Graham  
Philosophy, techniques, and materials; experience in creating, leading, and criticizing beginning and advanced sessions with classmates and children. (GrD)

## Design and Technical

- 3513. TECHNICAL THEATRE PRODUCTION I.** (4 cr; prereq 1504, Josal, Brockman)  
Design and execution of stage scenery and properties. (GrD)
- 3515. TECHNICAL THEATRE PRODUCTION II.** (4 cr; prereq 1504) Montgomery, Phillips  
Design and execution of stage costuming and lighting. (GrD)
- 5510. DRAWING AND RENDERING FOR THEATRE DESIGNERS.** (2-4 cr per qtr; prereq 3513, 3515, or grad, #)  
Development of drawing and rendering skills for the presentation of scene and costume designs. (GrD)
- 5512. ADVANCED PROBLEMS IN COSTUMING.** (4 cr; prereq 3515, 3711, or #) Phillips  
Theory and design of costumes; special projects. (GrD)
- 5514. ADVANCED PROBLEMS IN SCENE DESIGN.** (4 cr; prereq 3513, 3711, or #) Josal, Brockman  
Theory and design of stage scenery; reports and projects. (GrD)
- 5516. ADVANCED PROBLEMS IN STAGE LIGHTING.** (4 cr; prereq 3515, 3711, or #) Montgomery  
Theory of stage lighting; projects and reports. (GrD)
- 5518. ADVANCED PROBLEMS IN STAGE PROPERTIES.** (4 cr; prereq 3513, 3711, or #) Josal  
Theory and design of stage properties; projects and reports. (GrD)
- 5519. SOUND FOR THE THEATRE.** (2 cr; prereq #) Brockman  
Theory and technique of producing and amplifying sound for the theatre. Laboratory. (GrD)
- 5520. COSTUMING CRAFTS AND TECHNIQUES.** (4 cr per qtr [8 cr max]; prereq 3515, 5512, or #)  
Taught at Guthrie Theater Costume Shop. Costuming in professional and repertory theatres. (GrD)
- 5580. PROPERTIES CRAFTS AND TECHNIQUES.** (4 cr per qtr; prereq 3513, 5518, or #)  
Taught at Guthrie Theater Prop Shop. Creating stage properties in professional and repertory theatres. (GrD)

## Directing

- 3708. PLAY PRODUCTION IN THE SECONDARY SCHOOL.** (4 cr, §3711, §5711; prereq 1504) Adey  
Fundamentals; production of selected scenes. (GrD)
- 3709. PLAY PRODUCTION IN THE SECONDARY SCHOOL.** (4 cr, §5712; prereq 3708 or 3711 or 5711 and #) Adey  
Administration of dramatics program in high school. Direction of one-act plays. (GrD)
- 3711. STAGE DIRECTION.** (4 cr, §3708, §5711; prereq 1321) Huffington  
Theory of direction: concept and analysis. Blocking and production of short scenes. (GrD)
- 5711. STAGE DIRECTION.** (4 cr, §3708, §3711; for sr and grad students only; prereq 1321)  
For description, see 3711. (GrD)
- 5712. STAGE DIRECTION.** (4 cr, §3709; prereq 3708 or 3711 or 5711)  
Rehearsal and production problems; direction of two one-act plays. (GrD)
- 5714. PRODUCING EXPERIMENTAL THEATRE IN SECONDARY SCHOOLS.** (4 cr; prereq teaching experience or secondary education major and #)  
College and high school students participate in theatrical improvisation; beginning theatre games, styles of improvisation, sound and motion, characterization and plot structure all organically unified. (GrD)
- 5716. STAGE MANAGEMENT FOR THE THEATRE.** (4 cr; prereq #) Montgomery  
Stage management as a specialized area of theatre. Theory and technique of rehearsal and performance; organization and management in educational, repertory, and regional theatre. (GrD)

## Course Descriptions—Major Sequences

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5718. **THEATRE MANAGEMENT AND PROMOTION.** (4 cr; prereq 1504 or ¶1504 or §) Loppnow  
Ticket office procedures, house management, publicity, and promotion; problems in college, community, children's, and professional theatre. (GrD)
- 5721, 5722. **PRODUCTION OF TELEVISION DRAMA.** (4 cr per qtr; prereq 3711 or equiv for 5721...5712 or equiv and § for 5722) Frost  
Televised drama—adaptation of techniques and theory from stage production. Primarily for theatre majors. (GrD)

## Theological Study Preparation

### Staff

*Chairman*, Richard B. Mather, 322b Folwell Hall

### Adjunct Faculty

*Professors*: Altholz (History), Mather (East Asian Languages)

*Associate Professors*: Hopkins (Philosophy), Kraabel (Classics)

*Assistant Professor*: Paradise (Middle Eastern Languages)

The interdepartmental major to prepare for the study of theology is administered by the Religious Studies Committee. Approval of one of the staff listed above is needed to major in the program.

The pretheology major is one of a number of approaches to study at a seminary; departmental majors, such as history, sociology, classics, Hebrew, or philosophy, are acceptable to most seminaries. Students interested in religious studies but not in entering a seminary should not select this program (see Religious Studies, page 218). Those preparing for seminary training, whether they elect this program or not, are urged to consult the special adviser, 114 Johnston Hall.

Students preparing to enter particular seminaries or graduate theology departments should procure statements of specific requirements or recommendations from the seminary or department. The program adviser can help with arrangements for interviews or visits to nearby seminaries.

## B.A. MAJOR SEQUENCE

### Required Preparatory Courses

Phil 1001 or 1002; Psy 1001; Greek and/or Hebrew strongly recommended (depending on seminary selected)

### Major Requirements

Phil 3002-3003-3004

3xxx-5xxx-level courses (no more than 25 percent on S-N grading) as follows: two studio arts, art history, music, or theatre courses; five history courses (two ancient history, one medieval-Renaissance history, two modern history); two English courses; two humanities, classics, foreign literature in translation, modern foreign language, Greek, Hebrew, or Latin courses; three anthropology, economics, geography, political science, sociology, speech-communication, or psychology courses

## TURKISH

See Middle Eastern Languages.

## Urban Studies (UrBS)

### Staff

*Chairman*, John S. Adams, 909 Social Sciences Building

### Adjunct Faculty

*Professors*: Berman (History), Borchert (Geography), Clemence (Architecture), Coen (Economics), Donohue (Sociology), Gerlough (Civil Engineering, urban transportation), Harris (Social Studies), Lukermann (Geography), Maki (Agricultural Economics), Naftalin (Public Affairs), Raup (Agricultural Economics), Rowe (Anthropology), Zaidi (Industrial Relations Center)

*Associate Professors*: Adams (Geography), Modell (History), Scott (Political Science), Wattenberg (Social Work)

*Assistant Professors*: Aldrich (Sociology), Rew (Anthropology), Seeley (Public Affairs)

*Instructors*: Gleeson (Public Affairs), Ismach (Journalism), Nimtzt (Political Science)

The cross-disciplinary major in urban studies provides integrative urban studies courses, accredited fieldwork experiences, and introductory work in a number of urban-oriented disciplines. The three "degree tracks" provide foundations for students to enter the urban professions to develop the needed specialized skills as well as to undertake graduate study in urban planning, law, social welfare, or the social and environmental sciences. The Urban Studies advising office, 472 Ford Hall (373-2612), offers current information on fieldwork, courses, research, and community service opportunities. Advisers from the contributing disciplines are available. Seniors and some juniors in the program assist in advising and in evaluation of the program.

**Degree Tracks**—The three roads to degrees are: 1) a general B.A. program that prepares qualified students for urban studies graduate work; 2) a job-oriented B.S. program; and 3) a B.A. program preparatory to graduate work in one of the disciplines serving urban studies. The third program may be extended by adding a second major.

All programs require two urban studies colloquia, two workshops or approved advanced seminars, at least 8 credits in quantitative skills courses and at least 8 credits in electives. Fieldwork and a disciplinary concentration are also required. Full listings of required and recommended components may be obtained at 472 Ford Hall.

**3101f, 3102w, 3103s. URBAN STUDIES COLLOQUIA.** (2 cr per qtr; S-N only; prereq #; limited to 20 students per group) Staff  
Introduction to urban problems and problem-solving techniques. Typically two or more colloquia each quarter. (GrC)

**3500f, w, s. WORKSHOPS.** (4 cr per qtr; prereq jr or sr, #) Staff  
Project-focused workshops, typically with substantial field-experience components. Students normally work in teams. Typically two or more workshops each quarter. (GrC)

**3900f, s. INTERNSHIP.** (1 to 15 cr; prereq jr, sr, and Δ) Staff  
Internships may be arranged for any quarter or summer term. A weekly seminar to integrate the internship experience with the academic program, offered in fall and spring, should be taken during or immediately after the internship. (GrC)

**3950. HONORS SEMINAR.** (Cr ar; prereq approval of Urban Studies honors representative)

**3970. DIRECTED STUDIES.** (Cr ar; prereq #) (GrC)

## URDU

See South Asian Languages.

## Women's Studies (WoSt)

### Staff

Chairman, \_\_\_\_\_; Coordinator, Toni A. H. McNaron, 492 Ford Hall

### Adjunct Faculty

Professor: Roshwald (Humanities)

Associate Professors: Faunce (Psychology), McNaron (English)

Assistant Professors: Arnaud (Political Science), Spector (Anthropology)

Instructors: Jones (Anthropology), Kingston (Psychology), Truax (Minnesota Women's Center)

Lecturer: Short (Law)

The Women's Studies program provides opportunity for the entire scholarly community to examine the myths and unquestioned assumptions that have characterized generalizations about women. This examination may ultimately allow scholars and students to review the viability of the dichotomous vision of reality that has dominated Western thought—the tendency to perceive intellect and emotion, learning and experience, male and female gender as discontinuous.

Students may design interdepartmental majors in women's studies. Courses offered in many departments are related to women (a list of such courses is available in the Women's Studies program office, 492 Ford Hall. Among CLA courses acceptable to the program are Afro 5101, AmSt 5202, Anth 5158, 5387, Chic 3319, CJS 5114, Fren 5312, Jpn 5262, Hist 3347, Hum 3006, Scan 5601, 5616, SSci 5205, SW 3004, Soc 3503, 5954, Spch 5411, 5621, Th 5181. Individual studies may also be arranged through directed studies courses.

Courses supplementing and expanding the curriculum described below are continually being added to the program. Students should consult the *Class Schedule* or the Women's Studies office for current information.

- 1005, 1006. INTRODUCTION TO WOMEN'S STUDIES.** (4 cr per qtr)  
History of feminism, nationally and locally; women's issues; biological and/or learned behaviors. (GrC)
- 1977. THE PSYCHOLOGICAL ENVIRONMENT OF WOMEN.** (4 cr)  
Principles and theories from the behavioral and social sciences that have unique applications to the development, growth, and behavior of women. (GrC)
- 3001-3002. WOMEN: BIOLOGY AND BEHAVIOR.** (4 cr per qtr; prereq Biol 1011 or Phsl 1001 or #)  
A course for women and men about biological aspects of being a woman. Material from many disciplines.
- 3103. THE MODERN FEMINIST NOVEL.** (4 cr; prereq English composition or equiv)  
Selected 20th-century novels by such British and American women as Kate Chopin, Willa Cather, Ellen Glasgow, Doris Lessing, Edith Wharton, and Virginia Woolf. (GrD)
- 3301. WOMEN: A SENSE OF IDENTITY.** (3-5 cr, §5301; prereq #)  
Examination of sex roles (social expectations, personal values, and personal behaviors). Applications of success analysis, strength identification, communication training, goal setting, and behavior rehearsal to affirm and develop the potential of women.

- 3302, 3303. COMPARATIVE STUDY OF WOMEN: SOCIAL SCIENCE PERSPECTIVE.** (4 cr per qtr; prereq introductory courses in one or two social sciences)  
Comparative treatment and theories of women from the points of view of two social science disciplines. Theoretical views, research methods for asking questions about women, basic readings. (GrC)
- 3501. WOMEN IN THE LITERARY ARTS.** (4 cr; prereq introductory work in literature)  
The position of women, white and nonwhite, as writers and critics and as subjects for writers. Usually limited to Western literature. (GrD)
- 3502. WOMAN IN MUSIC AND THE VISUAL ARTS.** (4 cr; prereq introductory work in music or art) (GrD)
- 3631. WOMEN IN THE OLD TESTAMENT.** (4 cr)  
The Hebraic concept of womanhood, feminine virtue and vice, woman's various roles and functions, her status, the ideals and symbols she represents. (GrD)
- 3701. WOMAN'S LITERARY QUEST FOR SELF-REALIZATION.** (4 cr; prereq 5 cr in literature)  
Women's quest for self-fulfillment, explored through classics in modern fiction. Works of English, French, Russian, and Hebrew writers, to provide a wide comparative perspective. (GrD)
- 3900. SENIOR SEMINAR.** (4 cr per qtr; prereq sr)  
To allow students to direct knowledge and methodology gained from courses and experience toward topics of an interdisciplinary nature with focus on women.
- 3910. TOPICS IN WOMEN'S STUDIES.** (4 cr per qtr [12 cr max])  
Topics supplementing regular courses that form the center of students' second and third years in the program. Topics specified in the *Class Schedule*.
- 3970. DIRECTED STUDIES.** (1-15 cr per qtr; prereq # and Δ)  
Independent study to permit students to pursue individual interests.
- 3980. DIRECTED INSTRUCTIONS.** (1-5 cr; prereq # and Δ)  
Undergraduates serve as teaching assistants for courses in which they are qualified.
- 3990. DIRECTED RESEARCH.** (1-5 cr per qtr; prereq # and Δ)
- 5011. IMAGES OF WOMEN WITHIN THE COURTLY LOVE TRADITION.** (4 cr)  
Literature, art, and music of the 12th to 17th centuries in France, Italy, and England, studied to examine conventional postures and images for women within courtship patterns. (GrD)
- 5301. WOMEN: A SENSE OF IDENTITY.** (3-5 cr, §3301; prereq #)  
For description, see 3301. (GrC)
- 5311. WOMEN AND THE LAW.** (4 cr)  
The legal system as it relates to women. Areas of criminal law, welfare law, employment law, corporate law, alternative delivery systems for legal service, and legal education. (GrC)
- 5910. TOPICS IN WOMEN'S STUDIES.** (4 cr per qtr [12 cr max])  
Selected topics supplementing regular courses.
- 5970. DIRECTED STUDIES.** (1-5 cr per qtr [15 cr max]; prereq #)

## Youth Studies (YoSt)

*College of Home Economics*

### Staff

*Director, Gisela Konopka, 325 Haecker Hall*

The Center for Youth Development and Research, an administrative unit within the College of Home Economics, coordinates an interdisciplinary sequence of courses and experiences for juniors and seniors preparing for work with youth. The youth studies program is designed to augment established degree programs

## Course Descriptions—Major Sequences

through the College of Education, College of Home Economics, College of Liberal Arts, University College, and other colleges of the University.

For further information, consult the center (325 Haecker Hall, 376-7624).

- 5104-5105-5106. SEMINAR: WORK WITH YOUTH.** (2 cr per qtr; prereq admission to Youth Studies program, ¶ongoing work with youth)  
Seminar for reflection on and integration of field experience with knowledge about youth, including concern for specific skills and insight into self.

## Zoology (Zool)

*College of Biological Sciences*

### Staff

*Head*, Magnus Olson, 108 Zoology; *Director of Undergraduate Studies*, Olson  
*Professors*: Kerr, McKinnell, Merrell, Olson, Schmid, Underhill, Wallace, Warner  
*Associate Professors*: Barnwell, Gilbertson, Herman, Huver, Johnson, Sheridan  
*Assistant Professors*: Birney, Blumenfeld, Goldstein, Regal, Rottmann

Zoologists study animals: their form, function, development, systematics, and evolution.

**General Education**—A course especially appropriate for nonmajors is Biol 1106.

- Biol 1106f,w,s,ss. GENERAL ZOOLOGY.** (5 cr; prereq 1011) Olson, Schmid, Underhill  
Survey of animal phyla; considerations of structure function, behavior, adaptation, and evolutionary relationships. (GrB)
- 3097w. POPULATION BIOLOGY.** (4 cr; prereq Biol 3032 or GCB 3022) Merrell  
Principles of population biology. Adaptation of natural populations to their physical and biological environments and of genetic mechanisms by which they respond to environmental change.
- 3980f,w,s. UNDERGRADUATE SEMINAR.** (1 cr per qtr; prereq sr, major in biological sciences, §) Staff  
Biological topics of current interest.
- 3990f,w,s. INDIVIDUAL WORK IN SOME SPECIAL DISCIPLINE.** (Cr ar; prereq Biol 1106 or 3011 and §) Staff
- 5052f. GENERAL AND COMPARATIVE EMBRYOLOGY.** (5 cr; prereq Biol 1106 or 3011) McKinnell  
Embryological development of vertebrate and invertebrate forms.
- 5066f,s. HISTOLOGY.** (5 cr; not open to regular 3-yr premedical or predentistry students; prereq Biol 1106 or 3011) Olson  
Microscopic structure of tissues and organs.
- 5071s. INVERTEBRATE BIOLOGY.** (5 cr; prereq Biol 1106 or 3011 or §) Barnwell  
Morphology, physiology, behavior, ecology, and evolution of the invertebrate groups. In the laboratory: study of living marine, freshwater, and terrestrial representatives.
- 5077s. INTRODUCTORY ORNITHOLOGY.** (5 cr; prereq Biol 1106 or 3011) Warner  
Laboratory and field course in structure, classification, distribution, migration, habits, habitats, and identification of birds.
- 5093f. INTRODUCTION TO ANIMAL PARASITOLOGY.** (5 cr; prereq Biol 1106 or 3011) Wallace  
Parasitic protozoa, worms, and arthropods, and their relation to diseases of man and animals.
- 5096. ORGANIC EVOLUTION.** (4 cr; prereq Biol 1106 or 3011) Merrell  
Evidence for and causes of evolution. (GrB)

- 5104s. COMPARATIVE ANIMAL PHYSIOLOGY.** (5 cr; prereq Biol 1106 or 3011, Chem 3302 or #) Schmid  
Animal physiology; functional aspects of organ systems from a comparative viewpoint.
- 5107f. PROTOZOOLOGY.** (4 cr; prereq #; offered 1975-76 and alt yrs) Kerr  
Taxonomy, morphology, physiology, development, and genetics of free-living protozoa.
- 5113f. PHYSIOLOGY OF EXCITABLE CELLS.** (4 cr; prereq 5014 or 5114 and #) Sheridan  
Basic electrical and chemical properties of nerve, muscle, and sensory receptor cells.
- 5114f,w. GENERAL PHYSIOLOGY.** (3 cr; prereq Biol 3011, 3021, Phys 1106 or 1295) Goldstein, Sheridan  
Quantitative approach to the study of cell function, with application of physical and chemical principles. Transport, electrical activity of cell membranes, cell contractility.
- 5115f,w. LABORATORY IN GENERAL PHYSIOLOGY.** (2 cr; prereq 5114 or ¶5114 or #) Goldstein, Sheridan  
Electrophysiological phenomena. Recitation and practical laboratory.
- 5121s. ICHTHYOLOGY.** (4 cr; prereq 15 cr incl Biol 1106 or 3011) Huver  
Biology of fishes—development, systematics, anatomy, physiology, and ecology.
- 5124f. VERTEBRATE BIOLOGY.** (4 cr; prereq Biol 1106 or 3011 and #) Underhill  
Vertebrates: their biology, taxonomy, and distribution.
- 5125f. VERTEBRATE FAUNA LABORATORY.** (2 cr; prereq 5124 or ¶5124 and #) Underhill  
Vertebrate groups native to Minnesota and neighboring states.
- 5127s. COMPARATIVE MAMMALIAN REPRODUCTION.** (5 cr; prereq 5052, 5104 or 6 cr equiv, #; offered 1975 and alt yrs) Sinha  
Interdisciplinary approaches in evaluating biological phenomena of reproduction; basic problems, current concepts and ideas. Four lectures and discussions, and an hour of independent studies/research or laboratory work per week.
- 5128s. HERPETOLOGY.** (5 cr; prereq 5124 or #) Regal  
Distribution, classification, and evolution of amphibians and reptiles of the world. Physiological, morphological, and behavioral aspects of adaptive trends. Laboratory and lectures.
- 5129f. MAMMALOLOGY.** (5 cr, §Ent 5129; prereq 5124 or #) Birney  
Recent families and orders of mammals of the world and of genera and species of mammals of North America; morphology, evolution, and zoogeographic history.
- 5134w. GENERAL AND COMPARATIVE ENDOCRINOLOGY.** (3 cr; prereq Biol 3011, 3021, Chem 3302, or #; offered 1975-76 and alt yrs) Herman  
Structure and function of invertebrate and vertebrate endocrine systems.
- 5135s. GENERAL AND COMPARATIVE ENDOCRINOLOGY LABORATORY.** (2 cr; prereq 5134, #; offered 1975-76 and alt yrs) Herman  
Basic endocrine techniques. Research projects arranged in consultation with instructor.
- 5136w. ADVANCED GENERAL AND COMPARATIVE ENDOCRINOLOGY.** (2 cr; prereq 5135 or #; offered 1974-75 and alt yrs) Herman  
Specific areas of current endocrinologic interest.
- 5144w. PARASITIC PROTOZOA.** (4 cr; prereq 15 cr incl Biol 1106 or 3011, #) Wallace  
Structure, life histories, and economic relations of protozoal parasites of man and animals; laboratory diagnosis.
- 5146s. EXPERIMENTAL PARASITOLOGY.** (4 cr; prereq 5093 or #) Gilbertson  
Discussion and laboratory to illustrate relationships between metazoan parasites and their hosts.
- 5154w. ECOLOGICAL BEHAVIOR AND PHYSIOLOGY.** (3 cr; prereq advanced course work in either physiology, behavior, or ecology) Regal  
Ecological approach to behavioral and physiological control systems; mechanisms by which animals regulate their positions in time and space and regulate their internal milieu. Orientation, learning and adaptation of behavior, heat and water regulation, bioenergetics, biological rhythms.
- 5155w. LABORATORY IN ECOLOGICAL BEHAVIOR AND PHYSIOLOGY.** (3 cr; prereq 5154, #) Regal  
Individual directed projects.
- 5164s. FINE STRUCTURE OF ANIMAL CELLS.** (4 cr; prereq Biol 5601 or GCB 5051, #) Johnson  
Cell structure and function approached on an organelle basis; ultrastructural research. Cell membranes, macromolecular synthesis, bioenergetics, and cell movement.

## Course Descriptions—Major Sequences

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- 5165s. ADVANCED CYTOLOGY LABORATORY.** (2 cr; prereq 5164 or ¶5164, §) Johnson  
Individual projects. Autoradiography, cell culture, cell fractionation, or electron microscopy.
- 5171f. GENETICS AND SPECIATION.** (4 cr; prereq 15 cr biology incl genetics, §) Merrell  
Application of genetic principles to problems of speciation and evolution.
- 5281w. NUCLEOCYTOPLASMIC INTERACTIONS.** (4 cr; prereq Biol 5061 or §) McKinnell  
Developmental control with regard to chromosome interplay with cytoplasm. Effects on development of heteroploidy; how cytoplasmic factors affect genome expression; nuclear transplantation.
- 5807su. PROTOZOOLOGY.** (5 cr; prereq Biol 1106 or equiv; offered at Itasca)  
Morphology, classification, growth, development, physiology, genetics, ecology, and distribution of protozoa. Laboratory emphasizes local protozoa and their habitats.
- 5814su. NATURAL HISTORY OF INVERTEBRATES.** (5 cr; prereq Biol 1106 or equiv; offered at Itasca)  
Advanced taxonomic and ecological survey of local fauna; independent ecological studies of several taxonomic groups.
- 5819su. NATURAL HISTORY OF THE VERTEBRATES.** (5 cr; prereq Biol 1106 or equiv; offered at Itasca)  
Taxonomic survey of the local vertebrates, exclusive of birds, and study of morphological, physiological, and behavioral adaptations to different habitats.
- 5834su. FIELD ORNITHOLOGY.** (5 cr; prereq Biol 1106 or equiv; offered at Itasca)  
Field and laboratory studies, including bird identification, ecology and behavior, taxonomy.
- 5843su. ANIMAL PARASITES.** (5 cr; prereq Biol 1106 or equiv; offered at Itasca)  
Parasites of local fauna, with special reference to helminths.
- 5869su. PHYSIOLOGICAL ECOLOGY.** (5 cr; prereq course in physiology and ecology; offered at Itasca) Schmid  
Functional adaptations of organisms to physical and biotic factors of the natural environment.

### III. CLA PREPARATION FOR DEGREE WORK IN PROFESSIONAL COLLEGES

**University Requirements**—Every student who receives a Bachelor's degree from the University of Minnesota must have met the University Senate's requirements for minimum study in four fields of general knowledge (see pages 11, 278). Students who complete 90 CLA credits usually meet most of these requirements. For specific information about requirements in the fields of your particular interests, consult the appropriate unit offices or bulletins (obtainable at the Morrill Hall information window).

**Other Requirements**—English composition ("freshman English") or exemption is commonly part of preprofessional preparation. A grade point average of C (2.00) is the usual minimum requirement. Consultation with appropriate offices and bulletins on these matters and others, such as acceptability of S-N grades, is always advisable.

Admission and achievement policies of University units that require CLA work as preparation for professional programs are outlined in this section of the bulletin. (CLA professional baccalaureate or graduate programs are available through the Schools of Journalism and Mass Communication, Library Science, Public Affairs, and Social Work.)

#### School of Architecture and Landscape Architecture

The School of Architecture and Landscape Architecture offers two professional degrees: master of architecture (M.Arch.) and bachelor of landscape architecture (B.L.A.). The M.Arch. degree requires 4 years of undergraduate and 2 years of graduate study. (For a limited period, the school will continue to offer the 5-year B.Arch., an undergraduate professional program.)

Attainment of the B.L.A. requires 5 to 6 years of undergraduate study. Preparation for both the B.L.A. and the M.Arch. may be accomplished through the bachelor of environmental design program in the Institute of Technology, the 4-year B.A. with major in architecture or landscape architecture in CLA, or similar programs offered in other institutions.

Applicants for admission should consult an adviser in architecture or landscape architecture, 110 Architecture (373-2198). See also the Architecture-Landscape Architecture section of this bulletin and sections of the 1973-75 *Institute of Technology Bulletin* beginning on pages 73 and 105.

#### College of Biological Sciences

The College of Biological Sciences offers the bachelor of science degree with majors in biology, biochemistry, botany, microbiology, or zoology. (For the major in CLA in biology or microbiology, see Section II.) Whatever the major, a student must complete a core sequence of courses in biology, the physical sciences, and mathematics.

**Admission Requirements**—Students normally enter the College of Biological Sciences at the beginning of their junior year. Specific requirements include completion of 84 credits with grades of A, B, C, or S before initial registration in the

college, Biol 1011 or exemption, Chem 1004-1005, and Math 1211-1221-1231.

Students who wish to major in CBS areas should seek assistance in program planning, as soon as they are fairly certain of such intent, in P190 Kolthoff Hall.

### College of Business Administration

The prebusiness curriculum combines liberal education with preliminary basic courses in business administration and economics. In recognition of the widening social responsibilities of business management, students are urged to elect courses in several fields outside business administration and economics in addition to fulfilling the requirements stated below.

To be eligible for admission to the college, a student must present approximately 90 credits, earned in a recognized college or university, with a C average or better.

The college offers courses leading to the B.S. degree in business (regular or accounting program). Students interested in preparation for business careers should obtain a Prebusiness Program Planning Folder from the College Counseling office, 206 Business Administration.

CLA students preparing to enter the college must meet these prebusiness requirements:

English composition requirement.

Mathematics, 10 or more cr (Math 1141 or 1131 or 1201, 1142 or 1211 and 1221); Psy 1001; Soc 1001. Students with inadequate preparation may be required to take Math 0009 before taking 1141 or 1131; high school trigonometry or Math 1008 is prerequisite for 1201. Students who plan to go beyond elementary calculus should take 1211 and 1221 rather than 1142.

Group B (9-10 cr)—Courses including laboratory chosen from biological or physical science. Among courses that may be used to meet this requirement are Biol 1011, 1103, 1106; Chem 1006, 1031-1032, 1034, 1301, 3100 with 3101; Geo 1001, 3101, 3401, 5004; NSci 1004, 1006; Phys 1014 with 1015, 1031-1032, 1104, 1121, 1271 with 1275, 3801. The *Prebusiness Program Planning Folder*, available in CLA advising offices or the College of Business Administration office, lists others.

Group C (8 cr)—Econ 1001, 1002.

Group D (8 cr)—Afro (all courses); AmIn (all courses); AmSt 1101 through 3970; Arch 1021, 5051, 5052, 5053, 5054, 5055, 5056; ArtH (all courses); ArtS (all courses); Clas 1001 through 1046; English literature (all courses); foreign literature (all courses); Hum (all courses); Mus (all courses); Spch 1104, 3201, 3202, 3203, 3204, 5201; Th (all courses).

Business Courses (12-13 cr)—Acct 1024-1025-1026 or 1050-1051; QA 1050.

Students planning to enter the accounting program—Comp 1027.

Electives to complete approximately 90 credits.

### School of Dentistry

The program in dentistry for the D.D.S. degree, open to men and women, admits a beginning class once a year, in the fall. A B.S. degree is granted to students who have satisfactorily completed 2 years of pre dental liberal arts study and 2 years of dentistry.

**Admission**—A minimum of 90 credits from an accredited liberal arts college is acceptable, but 3 or more years of liberal arts study are preferred. The scholastic average necessary for consideration is C. Admission is on a competitive basis, however, and an average well above C is usually necessary.

**Required Courses and Credits** (the science courses must include laboratory instruction):

*English*—12 cr in basic English courses plus work in composition, literature, etymology, speech, or humanities.

*Mathematics*—Background at least through college algebra as demonstrated by college validation or credit: 1111, 1131, or 1201. For graduate work beyond the D.D.S., additional credits in higher mathematics and the sciences are recommended.

*General Chemistry*—12 cr—1004-1005-1006 or 1004-1005 and 3100-3101.

*Organic Chemistry*—8 cr—3301-3302.

*Biology*—10 cr—2 quarters of biology or 1 quarter each of biology and zoology: Biol 1011, Biol 1106 or Biol 3011.

*Physics*—10 cr. Calculus-based physics should be taken by students who plan advanced work in dentistry: 1031-1032 or 1104-1105-1106.

*Psychology*—5 cr—1001.

Required courses must be completed by the end of the academic year prior to the fall of enrollment. Taking such courses in the summer preceding fall admission is **not** acceptable.

Only under unusual circumstances will S credits be accepted for required courses. It is expected that S credits in elective courses will not exceed 5 percent for 2-year applicants (90 credits), 10 percent for 3-year applicants (135 credits), and 15 percent for 4-year applicants (180 credits).

Elective courses should be selected to give the student a broad liberal education. Preferred elective areas are speech, art courses such as basic drawing and sculpture, cell biology, genetics, and child and adolescent psychology.

Credits in physical education, human anatomy, physiology, histology, and microbiology are not acceptable among the 90 credits required for admission. Courses in the human biological sciences are not recommended since they will be taken in the School of Dentistry. However, credits in these courses will be accepted beyond the minimum of 90 quarter credits as defined above.

**Admission Test**—The required Dental Admission Test is given three times a year, usually in October, January, and April. It is wise to take the test soon after required science courses are completed; it must be taken no later than January in the academic year prior to the fall of requested enrollment. Although the test generally measures aptitudes rather than special knowledge, a review of biology, general chemistry, and organic chemistry is advisable.

Application forms for the DAT may be obtained from the Office of Admissions and Records, 6 Morrill Hall.

**Residence Requirements**—First choice is given to Minnesota residents, second to residents of neighboring states that do not have dental schools, and third to other nonresidents who have acceptable reasons for attending the University School of Dentistry. Nonresidents are accepted only if their scholarship and other qualifications indicate unusual promise.

Further information about application procedures, admission, qualifications, use of ROTC credits, and related matters may be obtained from the CLA Health Sciences advising office, 30 Johnston Hall; the School of Dentistry office, 130 Owre; or the *School of Dentistry Bulletin*.

## College of Education

Students seeking state of Minnesota teacher's certificates upon graduation from the University of Minnesota (Minneapolis and St. Paul Campuses) must complete the B.S. program in the College of Education. Students usually begin as CLA

## CLA Preparation for Degree Work in Professional Colleges

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freshmen and transfer to the College of Education after 1 or 2 years of general education.

**Admission**—Under the University “controlled growth” policy, the number of applicants who can be accepted in some College of Education programs on the Twin Cities Campus is limited. Students who have completed preparatory curricula and meet minimum requirements will be considered on a competitive basis, with overall and major grade averages among the factors taken into account. Information about the controlled education programs is available at the Educational Career Development office, 1425 University Avenue S.E., Minneapolis, Minnesota 55455.

**Requirements in Drug Education and Physical Education**—Minnesota law requires that candidates for teaching certificates, before graduation, complete a course in drug education (PubH 3004) and 3 credits in appropriate physical education activity courses (they may complete this work before applying for transfer to the college).

**One-Year Preeducation Programs in CLA**—Students planning to enter College of Education programs in art education, business education, distributive education, music education, physical education, and recreation and park administration normally spend 1 year in CLA. To transfer, they must complete 45 credits with 2.00 overall and 2.50 major-course averages. Those seeking art, industrial, music, and physical education majors must meet special requirements; information about them is available in the *College of Education Bulletin*.

**Two-Year Preeducation Programs in CLA**—Most other College of Education programs require 2 years of CLA work—about 90 credits. Applicants must substantially meet the English composition and distribution requirements necessary for CLA B.A. degrees, must present 15 credits in their proposed major field with a 2.50 average, and sometimes 10 credits with a 2.00 average in a minor field (all graded on A-B-C-D-N basis). School health major requirements differ from others. Complete details may be obtained from the college bulletin or from the Career Development office.

**Requirements for Transfer to Elementary Education**—Course requirements for the 2 preparatory years before entering the elementary education curriculum are specifically outlined; prospective applicants should get full information from the Career Development office or from the college bulletin. An overall grade average of 2.00 is required; preference will be given to those with averages of 2.50 or higher. Only A-B-C-D-N credits are accepted, except in elective and minor courses. Students are admitted to this program only in fall and winter quarters.

**Admission Procedures**—Applications should be made at 6 Morrill Hall not later than the first week of spring quarter for admission the following fall, or the first week of fall quarter for winter admission. Prospective students may, at any time, consult staff members in the Career Development office about entrance requirements, arrangements for transfer, educational and vocational questions, or choices of teaching careers.

## Law School

**Requirements for Admission and for Degrees in Law**—The Law School offers the professional degree juris doctor (J.D.), which qualifies those who earn it for the bar examination and for admission to practice. The course of study requires 3 academic years in the Law School.

Admission to the Law School requires the B.A. or its equivalent. Applications for admission to the Law School must be submitted by March 1 for the class entering Law School the following September.

Details of admission requirements and the Law School program may be found in the *Law School Bulletin*. Prelaw scholastic records and the results of the Law School Admission Test given by the Educational Testing Service are considered in determining admissibility. This test is given five times each year at the University and at many other test centers throughout the world. Students must take the test by February of the year in which they make application to the Law School; however, an earlier test is recommended. Information pamphlets and application blanks for the test are obtainable at the office of the Law School, 125 Fraser Hall; the Student Counseling Bureau, 101 Eddy Hall; or the Educational Testing Service, Princeton, New Jersey.

## Library School

Minimum preparation for a professional career in librarianship is provided by an M.A. degree. The prerequisite for admission to the M.A. program is a Bachelor's degree with a broad liberal arts background and a concentration in at least one subject field. Inquire at the Library School office, 419 Walter Library, about preprofessional planning during the junior and senior years.

## Medical School

Most students admitted to Medical School complete 4-year degrees before they begin medical study. Prospective students are strongly urged to plan such programs.

**Premedical Advising**—Premedical advisers are available in the CLA Pre-Health Science Advising office, 30 Johnston Hall, for aid in premedical planning and guidance in application to medical schools. The Pre-Health Science Library, 30 Johnston Hall, provides career information about medical and paramedical fields; bulletins with admission information for all U.S. and Canadian medical schools and information about tests required of applicants to the Minnesota schools are also available.

**Premedical Requirements**—There is no prescribed premedical major—any recognized collegiate-level major is acceptable. Natural science majors, contrary to common belief, have no advantage over liberal arts majors for admission; indeed, the Medical School believes that liberal arts studies contribute greatly to rounded professional accomplishment.

The Admissions Committee has approved the following courses as fulfilling the premedical requirements for the Minneapolis Campus Medical School: 12 cr English (Engl 1001-1002, Comm 1001-1002, literature, or humanities); mathematics through calculus (Math 1142 or 1211, 1221); Chem 1004-1005, 3100, 3101, 3301, 3302 (25 cr); Biol 1011 plus 5 cr of biology, zoology, or genetics (10 cr); Phys 1104-1105-1106 or 1271-1275-1281-1285-1291-1295 (15 cr); at least 27 cr graded A-N in humanities, social science, foreign language, or other liberal arts courses (humanities and literature recommended).

A premedical student with an outstanding academic record in science and mathematics, especially if he or she contemplates a career in research or academic medicine, will be strongly advised to elect work in these fields beyond the basic

## **CLA Preparation for Degree Work in Professional Colleges**

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requirements. Though a reading knowledge of a foreign language is not a requirement for admission, it is recommended for students interested in medical research or graduate medical training.

**Application Procedures**—Application forms for the American Medical College Application Service (AMCAS) may be obtained in 6 Morrill Hall or in the Pre-Health Science Advising office. They *must* be filed before the November 15 that precedes the fall quarter in which entry is desired; it is highly advisable to submit them as soon after July 1 as spring quarter grades are available. Each applicant must take the Medical College Admission Test (spring MCAT preferred), the Strong Vocational Interest Blank, and the Minnesota Multiphasic Personality Inventory (MMPI). Information on registering for these tests is available in the Pre-Health Science Advising office.

The Medical School will request further information from the applicant after receiving the AMCAS application. Letters of evaluation will be requested, and students should plan for them early in their college program by selecting special programs, small classes, or other opportunities leading to direct and meaningful faculty contact.

**Medical Schools in Minnesota**—Students who complete the 2-year medical program at the University of Minnesota, Duluth, complete their medical education at the Minneapolis Campus Medical School. Mayo Medical School in Rochester is a 4-year school. The three Minnesota medical schools give strong preference to residents of Minnesota for admission.

## **Medical Technology**

The 4-year program in medical technology leads to the degree bachelor of science.

After completing 90 CLA credits, including required courses, with a C average, a student is eligible to apply for admission to the program.

The following courses or their equivalents are prerequisites for admission to the junior year: Comp 1001-1002 or Comm 1001-1002 or exemption; Chem 1004, 1005, 1006, 3100, 3101, 3301, 3302; Biol 1001, 1006; Anat 1004; Math 1111; Phys 1031, 1032; MedT 1010, 1030, 1031, 1032; electives limited to subjects that satisfy group requirements.

The *Medical Technology Bulletin*, which may be obtained at the Office of Admissions and Records, contains a suggested program for the first 2 years of study. Students may also consult special advisers in the Medical Technology office, 5307 Powell Hall (373-9670). Registration each quarter must be reviewed by an adviser.

## **Department of Mortuary Science**

The 4-year curriculum of the Department of Mortuary Science leads to a bachelor of science degree with a major in mortuary science. Students preparing to apply for licenses in states requiring less than a 4-year degree may receive verification of their attendance and indication of satisfactory completion of certain courses, supported by official transcripts, if they are in good standing and have completed minimum requirements set forth by the American Board of Funeral Service Education and the requirements of the state in which they wish to practice.

To be considered for entrance to the department, a student must have completed 90 quarter credits with grades of A, B, C, or S, in the College of Liberal Arts of the University or in any other accredited university, college, or junior college. Students should plan to enter in the summer session or fall quarter.

Freshman and sophomore students in CLA will be assigned department advisers to assist in course selection, registration, and academic decisions. Registration must be approved by the adviser each quarter.

Each student should determine a core area of interest and select prerequisite courses in preparation for advanced courses. The department requires 15 3xxx- or 5xxx-level credits outside the major area.

**Admission Requirements**—The 90 credits required for admission must include work in the following courses or areas: Engl 1001-1002 or Comm 1001-1002; 15 cr in speech, accounting (3 or more cr), foreign language, philosophy, mathematics, statistics, journalism; 23 cr in biology, chemistry, human anatomy, microbiology, public health; 16 cr in psychology, sociology, social science, anthropology; 9 cr in art, music, literature, theatre arts, humanities; 4 cr in history, political science, economics, geography, management; electives in physics, physiology, astronomy, geology.

Students who plan to seek licenses in states other than Minnesota should request information about specific state preprofessional requirements. Further information is available at the department office, 114 Vincent Hall (373-3870) and in the *Department of Mortuary Science Bulletin*.

## School of Nursing

A 4-year curriculum leads to the B.S. degree; 1 year may be taken in CLA or any other accredited liberal arts college. The program, open to men and women, prepares for entry-level positions in all fields of professional nursing.

For admission, students must complete specified general education requirements and give evidence of competence to undertake advanced study. Current information may be obtained from the School of Nursing office, 3313 Powell Hall (373-3462) or by consultation with school faculty members. A CLA adviser in 30 Johnston Hall is assigned to assist prenursing students with course selection, registration, and academic planning.

The 45-credit requirement for the first prenursing year must include English composition (8 cr) or exemption, general chemistry (8 cr), general biology (4 cr), cultural anthropology (5 cr), introductory sociology (4 cr). Remaining credits must be chosen from the distribution groups (since School of Nursing programs are heavy in Groups B and C, special attention to Groups A and D is recommended).

After admission as sophomores, students continue general education courses and start courses in the nursing major. An approximate balance between the two areas is maintained. Further information about School of Nursing programs, including graduate work, may be found in the *School of Nursing Bulletin*.

## Occupational Therapy

The course in occupational therapy, requiring 4¼ years of study, leads to the bachelor of science degree.

A student prepares for professional education in occupational therapy by taking 90 credits in a college of liberal arts in courses selected to meet the group distri-

bution requirements outlined in the *Occupational and Physical Therapy Bulletin*. Students who complete these courses with a high C average in the sciences are eligible to apply for admission to the course.

During the junior and senior years hospital practice is coordinated with theoretical courses. In the senior year, 6 months of full-time individual clinical education is scheduled in hospitals, institutions, and community centers.

Freshman students should see advisers in the CLA Health Sciences advising office, 30 Johnston Hall. Sophomores should follow the registration procedure outlined in the *Occupational and Physical Therapy Bulletin*.

For detailed information, see the bulletin or call the program's office, 271 Children's Rehabilitation Center (373-9024), for an appointment with a faculty member.

## College of Pharmacy

The College of Pharmacy offers the professional degree bachelor of science in pharmacy, one of the qualifications for license as a registered pharmacist. The doctor of pharmacy degree (Pharm.D.) prepares those who earn it to serve as therapeutic consultants in patient or clinical settings in which extra expertise in drug use is necessary.

A 2-year prepharmacy program comprising 90 credits is offered to students in the College of Liberal Arts as a prerequisite for admission to the 3-year professional program. This program is expected to include Chem 1004-1005-1006, 3301-3302-3303; Biol 1011, 1106; Math 1141 (higher level courses recommended for qualified students); Phys 1031-1032 (higher level courses recommended for qualified students); Econ 1001, 1002; Comm 1001-1002 or Comp 1001-1002; and electives in the distribution areas (not fewer than 15 cr).

Selection of candidates for the doctor of pharmacy program is made from students who have completed the fourth year of the 5-year curriculum and individuals who have been awarded the B.S. degree in pharmacy.

Application for admission to the College of Pharmacy is made through the Office of Admissions and Records, 6 Morrill Hall. Applications, accompanied by two official transcripts, should be filed after October 15 of the academic year preceding the fall in which applicants desire to enroll. In making judgments on the admissibility of students, the Admissions Committee considers such criteria as honesty, industry, leadership ability, maturity, motivation, and moral character among other personal attributes, in addition to scholastic records in the preprofessional programs (see *College of Pharmacy Bulletin*).

## Physical Therapy

The 4-year course in physical therapy leads to a bachelor of science degree in physical therapy. The first 2 years are spent in the College of Liberal Arts. To be considered for entrance to the professional program, a student must have completed 90 credits, including specified required courses or their equivalents, with a high C average in basic sciences. The last 2 years plus a summer session are spent in the Department of Physical Medicine and Rehabilitation. The student must complete a minimum of 600 hours of supervised clinical practice in physical therapy departments of affiliated hospitals.

For information about admission, students should consult advisers in the Physical Therapy office, 271 Children's Rehabilitation Center, or in the CLA

Health Sciences advising office, 30 Johnston Hall. Detailed information is available in the *Occupational and Physical Therapy Bulletin*.

## School of Public Affairs

Professional study in the School of Public Affairs, which is part of the College of Liberal Arts, is at the graduate level. It is designed to prepare public policy analysts, decision makers, and administrators for positions in public service or for involvement with public policy issues in positions outside of government. The program of study consists of required courses in the policy process, program analysis, and quantitative methods, two substantive concentrations, and an arranged internship in the student's area of interest. The program normally covers 2 academic years and 1 summer. Further information is available in the *Graduate School Bulletin*.

## School of Social Work

Professional study in the School of Social Work, which is a part of the College of Liberal Arts, is at the graduate level. The recommended preprofessional program is described on page 232 of this bulletin. Admission is not limited, however, to those who complete the B.S. in social work; a B.A. major in any social science field will be considered. Entrance requirements are described in the *Graduate School Bulletin* and in the *School of Social Work Bulletin*.

## University College

For 40 years University College has been the University's mechanism to provide University-wide flexibility in degree planning to undergraduates whose needs are not met by standard curricula. UC houses three degree programs on the Minneapolis Campus.

The Inter-College Program (ICP) allows students to design individual curricula leading to Bachelor's degrees. The degree is based on a student-designed, faculty-approved program of 190 or more credits with concentrations in two or more colleges. Additional information is available in 105 Walter Library.

Experimental College (EC) is based on the community of learners principle. Students take wide responsibility not only for creating their own degree programs but also for assisting other students and maintaining the college as a self-governing unit. Additional information is available in Room 306, 1507 University Avenue S.E., Minneapolis, Minnesota 55414.

University Without Walls (UWW) allows students who find it impossible to use the University's resources in the usual manner to pursue degree programs. Students who are unable to attend classes on campus but who have clear learning objectives may gain additional information from 331 Nolte Center, University of Minnesota, Minneapolis, Minnesota 55455.

## IV. GROUP DISTRIBUTION AND ROUTE II COURSE LISTS

### Courses Commonly Used to Meet Group Requirements

Below are listed courses generally offered to meet CLA liberal education requirements outlined on page 11. Some advanced Group B courses that may be so used are not listed because their prerequisites satisfy a requirement (group designators follow descriptions of most courses in Section II of this bulletin). Lists of all acceptable courses, updated quarterly, can be consulted in college advising offices.

Please note these guidelines for planning your group distribution program:

1. No more than 12 credits from any one department may be used to meet these requirements; but courses from one department may be used in different groups if so classified.
2. Courses used to meet the English composition requirement and the B.A. foreign language requirement (including those used in Route II, part B) may not be used to meet distribution requirements.
3. Distribution requirements may be met by examination (consult your college office). CLEP examinations may be used for partial fulfillment.
4. Honors courses or sections may be substituted for regular courses or sections unless otherwise specified.
5. Distribution requirements in the B.F.A. programs may differ from those for the B.A. and B.S. See the B.F.A. booklet, available in the Humanities and Fine Arts Divisional office, 206 Folwell Hall.
6. The B.E.S. degree has no specific distribution requirements, though B.E.S. students are urged to meet the University's recommendations for programs of a broadly liberal nature.
7. Only students transferring from General College to CLA may use the GC courses in the group distribution course list to meet requirements.
8. At least one Group B course must include a laboratory. Courses accepted to meet this requirement are marked with a double asterisk (\*\*).

### Group A—COMMUNICATION, LANGUAGE, SYMBOLIC SYSTEMS

The processes and methods of communication; spoken and written language; "silent language;" the rhetoric of mathematics, logic, and fallacy; linguistic structures. (Requirement: 8-10 credits—normally two courses)

Acct 1024-1025-1026; 1050; 1051  
Anth 5161 (old 5421)  
CDis 3101; 3108  
CICS—All courses  
Clas 1015; 1046; 1048; 3048; 5046;  
5101; 5107; 5120; 5124  
CLPh—All courses  
Comp—All courses. Credits in English composition in excess of 8 are assigned to Group A.  
Engl 3851; 5211; 5815; 5821; 5831;  
5843; 5851; 5860; 5871; 5873; 5876.  
Students who earn 6 credits through exemption-placement procedures may

apply them toward Group A requirements.

ESL 5702; 5723

Foreign Languages

Any foreign language skill course may be used in this area provided it is not used to meet the foreign language requirement and provided it is not included in Group C or D.

GC—Students transferring from GC to CLA may use the following GC courses toward satisfaction of the distribution requirements:

## Courses Commonly Used to Meet Group Requirements

1402; 1405; 1411; 1442; 1443; 1451; 1452; 1454; 1461; 1462; 1463; 1464; 1465; 1471; 1472; 1533; 1824; 1884; 1886	Psy 3801; 5861; 5863 PsyF 5121 PubH 5400; 5430-5431-5432; 5450; 5451; 5452; 5453; 5454
Geog 3311; 3511; 3531; 3551; 5011- 5012; 5385; 5511; 5512; 5521; 5522; 5531; 5532	QA 1050 Rhet 3280 Soc 3801; 3802; 3803; 5801
Jour 1001; 1011; 1101 LFA 5701; 5703; 5704 Ling—All courses Math—All courses except 0009; 1005; 1006	Spch 1101; 1102; 1102H; 1105H; 1106; 1108; 1110; 3108; 3601; 3605; 3615; 3620; 3621; 3641; 5404; 5451; 5603; 5611; 5615; 5616; 5617; 5618; 5619; 5621
Phil 1001; 1011; 3201; 3202; 3231; 3601; 3631; 5037; 5068; 5101; 5105; 5201; 5202; 5203; 5211; 5221; 5231; 5232; 5414; 5601; 5631; 5802	Stat—All courses except 5061; 5071; 5301; 5601 SW 3989; 3990

### Group B—THE PHYSICAL AND BIOLOGICAL SCIENCES

The observation, identification, description, experimental investigation, and theoretical explanation of natural phenomena; the explorations and methods of scientists of earth, space, matter, and life. (Requirement: 12-15 credits—normally three 4-5 credit courses, one to include a laboratory)

Ast 1008 with 1009; 1011; 1021; 1201 BioC 1301-1302 Biol 1001-1002†; 1011;** 1101; 1102; 1103;** 1104; 1105; 1106;** 1107 Bot 1009; 1012; 3003; 3071; 3109; 3201; 3950; 5103; 5105; 5111; 5231 Chem 1004-1005†;** 1006;** 1031- 1032; 1034;** 1301;** 3100 with 3101;** 3301** EBB 3001; 3004; 5602 FScN 1010; 1012; 1212; 1213 GCB 1101; 3022 Geo 1001;** 1002;** 1007; 1008; 1011; 1012; 1013; 1111; 1601; 1602;** 3014; 3101;** 3112 (old 1112) Geog 1425; 3431-3432; 5445 GC—Students transferring from GC to CLA may use the following GC courses toward satisfaction of the distribution requirements:	1111; 1112; 1113; 3114; 3115; 1131;** 1132; 1133;** 3134; 1161; 1162; 1163; 1166; 1171; 1172; 1181; 1132 with 1137;** 1171 with 1177;** 1172 with 1177;** 1111 with 1177;** 1163 with Phys 1015 or 1025** IT 3101; 3201; 3301; 3401; 5311 NSci 1004;** 1005; 1006;** 3011;** 3101; 3201; 3301; 3401 Phsl 1001; 1002 Phys 1014-1024 with labs 1015-1025;** 1031-1032;** 1041-1042; 1051- 1052;** 1061;** 1104-1105-1106;** 1121-1122;** 1261-1262-1263;** 1271-1281-1291 with labs 1275-1285- 1295;** 3801;** 5091 Psy 3031; 3061; 5061; 5062; 5071 Zool 3097; 5052; 5066; 5071; 5077; 5093; 5096; 5124
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### Group C—MAN AND SOCIETY

Man's experiences and behaviors in social environments seen through modes of governance, societal structures and customs, patterns of interaction and communication, religious forces, philosophical and psychological concepts, and the perspectives of history. (Requirement: 16-20 credits—normally four courses)

Afro 1015; 1025; 1036-1037; 1441; 1442; 3001; 3002; 3003; 3011-3012; 3021-3022; 3061; 3062; 3072; 3075- 3076; 3081-3082; 3091-3092; 3098;	3340; 3401; 3455; 3551; 5001; 5002; 5101; 5102; 5103; 5401; 5402; 5551- 5552; 5553; 5900 AgEc 1010; 1020
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\*\* May be used to meet Group B laboratory requirement.

## Liberal Education Group Distribution Plan

- AmIn 1101-1102; 3041 (formerly 1041);  
3061; 5112; 5121; 5131; 5141; 5142;  
5570; 5800; 5990
- AmSt—All courses
- Anth—All courses except 5421 (now  
5161)
- Arab 3511-3512-3513; 3531; 3551-3552-  
3553
- Arch 1001; 1002; 1003
- Chic 1105; 1106; 1107; 1112; 3110;  
3112; 3113; 3114; 3319; 3324; 3330;  
3951
- CJS—All courses
- Clas 1001, 1002, 1003; 1004, 1005,  
1006; 1007; 1008; 1011, 1022, 1033,  
1044, 1055, 1066; 1042; 1045; 1061;  
1083; 1084; 1142; 3070; 3071; 3072;  
3073; 3084; 5004; 5005; 5006; 5007;  
5008; 5013; 5017, 5018; 5020; 5061;  
5070; 5071; 5072; 5073; 5084; 5085;  
5086; 5089; 5110; 5145; 5717
- CPsy—All courses except 3980
- EAS 1001, 1002
- Econ—All courses
- Fren 3501; 3502; 3503; 3599; 3604
- FScN 1600
- FSoS—All courses
- Geog—All courses except those assigned  
to Group A and Group B
- GC—Students transferring from GC to  
CLA may use the following GC courses  
toward satisfaction of the distribution  
requirements:  
1182; 1211; 1212; 1213; 1221; 1226;  
1227; 1231; 1232; 1233; 1234; 1235;  
1236; 1241; 1242; 1243; 1251; 1252;  
1261; 1271; 1281; 1282; 1283; 1285;  
1291; 1295; 1296; 1297; 1351; 1355;  
1357; 1381; 1385; 1386; 1501; 1511;  
1701; 1721; 1722; 1811; 1813; 1815;  
1817; 1825; 1861; 1922
- Ger 3501; 3511, 3512, 3513; 5331;  
5502
- Grk 5794
- Heb 3126; 3131-3132; 3501-3502
- Hist—All courses
- HMed 5024; 5025; 5026; 5102
- HSci 1811-1812-1813 (old IT 1811-  
1812-1813); 5111; 5825
- Hum—All courses except 1101; 3014;  
3044; 3055; 3071; 3910; 3980; 5063
- Indc 1501-1502-1503; 1504; 1505;  
1506; 3501, 3502; 3504; 3505; 3506;  
3507; 3533; 5491; 5510; 5511-5512;  
5520; 5531-5532; 5533
- IntR 5801; 5802; 5803; 5804; 5811;  
5812
- Islm 3201; 3202; 5545; 5546
- Ital 3501; 3502; 3503; 3555
- JwSt 1034; 3142; 3143; 3521; 5621
- Jour 1003; 1701; 3021; 3776; 5252;  
5501; 5514; 5601; 5603; 5611; 5615;  
5721; 5801; 5825
- LAS 5101; 5120; 5710
- Lat 5794
- Lib 5001; 5221
- MidE 3125; 3126; 3501, 3502; 3503;  
3512; 3555; 3990; 5121; 5501-5502;  
5546; 5970
- Mil 21, 22, 23 if taken 1968-69 or 1969-  
70
- NSci 5171-5172-5173
- Obst 1109; 1119
- Ortl 3501; 3502
- PA 3101, 3102; 3121; 5151; 5152;  
5161, 5162; 5401; 5505; 5515; 5516,  
5517; 5550; 5601-5602
- Pers 3501; 3502
- Phil 1002; 1003; 1004; 1410; 3001,  
3002, 3003, 3004; 3302; 3415; 3521;  
5003; 5004; 5005; 5008; 5012; 5020;  
5021; 5033; 5034; 5035; 5036; 5041;  
5042; 5043; 5044; 5046; 5052; 5054;  
5068; 5301; 5302; 5311; 5321; 5324;  
5401; 5414; 5415; 5521; 5611; 5612;  
5615; 5621; 5701; 5781; 5801
- Phys 5901; 5902; 5903
- Pol—All courses except 3085; 3110; 3970
- Psy—All courses except 3801 and 5861  
assigned to Group A; 3031, 5061,  
5062, 5071 assigned to Group B; and  
3960
- RelS 1004; 1031, 1032, 1033; 3001;  
3101-3102; 3890; 3970; 3995; 3999;  
5001; 5890 (old 3890)
- Russ 3501, 3502, 3503
- Scan 1504; 3501
- Slav 3501, 3502, 3503
- Soc—All courses (except listings under  
Group A; and 1960, 3811, 3960, 3961,  
3970, 3980, 5208, 5561, 5960, 5961-  
5962, 5970 which may not be used in  
distribution requirements)
- SPAN (FoSt) 3001-3002-3003
- Spch 1103; 1104; 3211; 3401; 3401H;  
3402; 5211; 5222; 5231; 5232; 5233;  
5401; 5402; 5403; 5405; 5421; 5422;  
5431; 5432; 5441; 5451; 5602
- SSci—All courses except 3970
- SW—All courses except 3989; 3990
- UrbS 3101, 3102, 3103; 3500; 3900;  
3970
- WoSt 1001-1002-1003; 1005, 1006; 1977;  
3302, 3303; 5301; 5311

## Group D—ARTISTIC EXPRESSION

Man's accomplishment in music, literature, painting, sculpture, the stage, the film; appreciation of the life of the imagination; interpretation of life through visual, oral, and literary expression. (Requirement: 12-15 credits—normally three courses)

Afro 1301; 3055; 3101, 3102; 3105; 3108; 3301; 5201; 5301; 5595; 5597	ward satisfaction of the distribution requirements:
AmIn 5211; 5212	1311; 1312; 1313; 1331; 1333; 1335;
AmSt All courses	1361; 1362; 1365; 1367; 1371; 1372;
Arch 1021; 1022; 1023; 5051; 5052; 5053; 5054; 5055; 5056	1373; 1374; 1384; 1391; 1481; 1483; 1485; 1486; 1536; 1812; 1816; 1822; 1831; 1832; 1841; 1842; 1862
ArtH—All courses	Hum—All courses except 3009; 3061; 3099; 3204; 3501-3502-3503; 3980
AmSt—All courses	Jour 5171; 5221 (old 3221); 5606
Clas 1009; 3009; 3081; 3082; 3083; 3091; 3092; 3093; 3152; 3162; 3181; 3282; 3383; 5001; 5002; 5003; 5081; 5082; 5083; 5091-5092-5093; 5102; 5103; 5104; 5105; 5106; 5107; 5108; 5109; 5115; 5308; 5400; 5803	LA 1021; 3062-3063 LFA 5702 MuEd 3557
CLit 5311; 5321; 5331, 5332; 5518; 5588; 5591	Mus—All courses except 5950
Comp 1111-1112; 1113-1114; 3101; 3104; 5101; 5102; 5103; 5104; 5105; 5106	PE 1024; 1124; 1224; 1324; 1325; 1425; 1426; 1515; 1517; 1518; 1615; 1618; 1715; 1718; 3180; 3390; 3391; 3392; 3395; 3396; 3397
Dsgn (old HE) 1501; 1521; 1541	Phil 3502; 3911; 5501; 5512; 5911
Engl—All literature courses	Spch 1104; 3001; 3201; 3202; 3203; 3204; 5201; 5221; 5204 (old 81-82)
Foreign Languages—Any foreign literature course may be used in this area provided it is not used to meet the foreign language requirement.	Th—All courses except 3102; 3103; 3104; 3105; 3106; 3107; 3413H; 3414H; 5101; 5501 which may not be used in any area
GC—Students transferring from GC to CLA may use the following courses to-	WoSt 3103; 3501; 3502; 3631; 3701; 5011

## B.A. Foreign Language Requirements

The CLA foreign language requirement for the B.A. degree may be met by either of two "routes."

**Route I:** Complete at least 23 credits in one foreign language, or pass a validation examination at that level.

High school language study usually relates to the requirement as follows:

### High School Study

4 years  
3 years  
2 years  
1 year

### Additional College Study

at least 3 cr in same language at higher level  
at least 8 cr in same language at higher level  
at least 13 cr in same language at higher level  
at least 18 cr in same language at higher level

Students with 2 or more years of high school Latin may satisfy the requirement by continuing in Latin on the schedule above or by taking 15 credits in another language (high school study in a second language counts toward the 15 credits in accordance with Schedule II A below).

**Route II:** Complete at least 27 credits, as follows:

A. At least 15 credits in one foreign language or validation at that level.

High school study usually relates to the requirement as follows:

## Liberal Education Group Distribution Plan

### High School Study

- 3 years or more
- 2 years
- 1 year

### Additional College Study

- None in college (validation not required)
- 5 cr in same language at higher level
- 10 cr in same language at higher level

- B. 12 credits (7 for those with 4 years of high school study in one language) in courses concerned with a country or countries that use the language chosen. A list of courses that may be so used appears below; it is also available, frequently updated, in college offices. Courses elected for this purpose may not be used to satisfy group distribution requirements. (Study in the language beyond the 15-credit level may be used as part of this 12-credit requirement.)

## ROUTE II COURSE LIST

Courses that may be used to meet the "cultures and societies" portion of Route II (II, B), approved as of summer 1974, are listed below. Students following Route II should check with appropriate departments or the Humanities and Fine Arts office, 205½ Folwell Hall, to learn of changes or additions.

### ARABIC

- MidE 3201-3202; 3521; 3525; 3531; 3541-3542-3543; 3544; 3545
- Anth 5251
- Arth 3909
- Hist 5434-5435

- 5001; 5002; 5003; 5004; 5005; 5006; 5007; 5017; 5020; 5061; 5070; 5071; 5081; 5082; 5083; 5085; 5086; 5101; 5102; 5103; 5106; 5108; 5110; 5115; 5145; 5308; 5400

### CHINESE

- Anth 5281
- Arth 5711; 5765; 5766
- EAS 1001-1002; 1032; 3161-3162
- Geog 3211; 5211
- Hist 1461, 1462, 1463; 3461, 3462, 3463; 3464, 3465; 3467, 3468; 5461, 5462; 5464, 5465; 5467, 5468; 5477
- Pol 5454

- Arth 3152; 5102; 5103; 5106; 5108
- GC 1384\*\*
- Hist 1052; 3052; 5061, 5062, 5063; 5276 (can also be used for Modern Greek)
- Hum 1011; 3011
- Math 3071
- Phil 3001, 3002; 5005; 5008; 5012
- Pol 5664
- Spch 5611

### FRENCH

- Fren 3599; 3601-3602-3603; 3604; 3605
- Arth 3303; 5357
- GC 1385; \*\* 1386
- Hist 5211, 5212; 5231; 5430
- Phil 5034

### HEBREW

- Heb 1501, 1502, 1503; 3501, 3502, 3503 (all Extension only)
- MidE 3101; 3107-3108; 3115; 3117; 3125; 3126; 3315; 3142; 3143; 3501-3502
- Hum 3403-3404

### GERMAN

- Ger 3601, 3602, 3603; 3604; 3610; 3531 (Extension only); 3541 (Extension only); 5601, 5602, 5603
- Hist 5241, 5242, 5243; 5247
- Hum 1003; 3003; 3014
- Mus 5661; 5662
- Phil 5036; 5046; 5052

### HINDI

- Hist 3481-3482; 5459

### INDIC

- Indc 1001; 1201; 1202; 1203; 1504; 1506; 3501; 3502; 3506; 3507; 3533; 5001; 5011; 5090; 5201; 5202; 5203; 5301; 5302; 5401; 5491; 5501; 5502; 5503; 5504; 5506; 5510; 5511-5512; 5520; 5531-5532; 5533; 5710; 5801; 5802

### GREEK

- Clas 1001, 1002, 1003; 1007; 1015; 1042; 1045; 1046; 1061; 1083; 1142; 1222 (Extension only); 3070; 3071; 3081; 3082; 3083; 3152;

- Arth 5261; 5263
- Arth 1014; 5709; 5775; 5776; 5924

## B.A. Foreign Language Requirements

Geog 5212  
Hist 5458; 5459; 5489  
Mus 5665; 5811  
Phil 5801; 5802; 5803; 5804; 5805  
Pol 5446-5447

### ITALIAN

Ital 3304, 3555; 5601, 5602, 5603;  
5609  
Arth 5306; 5307; 5313; 5314  
Hist 5254, 5255  
Mus 5663

### JAPANESE

Anth 5281  
Arth 5712; 5767  
EAS 1001-1002; 1032; 3163-3164  
Hist 1462, 1463; 3462; 3463; 3471;  
3472; 3491; 3492  
Pol 5453  
Geog 5211; 3211

### LATIN

Clas 1004, 1005, 1006; 1008; 1015;  
1042; 1045; 1046; 1083; 1142;  
3070; 3073; 3081; 3083; 3162;  
5001; 5002; 5003; 5004; 5006;  
5008; 5013; 5018; 5020; 5070;  
5073; 5081; 5083; 5101; 5104;  
5105; 5107; 5109; 5110; 5115;  
5145; 5308; 5400  
Arth 3152; 5104; 5105; 5107; 5170  
GC 1384\*\*  
Hist 1053; 1063; 3053; 3112; 5071,  
5072, 5073  
Hum 1012; 3012  
Phil 3001, 3002  
Pol 5664  
Spch 5611

### OJIBWE AND DAKOTA

Amln 3061; 5121; 5131; 5211  
Anth 3211; 5212  
GC 1811; 1812; 1813

### PERSIAN

MidE 3511, 3512; 3555; 3591; 5601  
Anth 5251  
Arth 3142; 3909

### POLISH

Plsh 3601, 3602, 3603  
Hist 5244, 5245, 5246; 5294, 5295  
Slav 1501

### PORTUGUESE

Port 3603; 3605  
Anth 5221  
Econ 5311; 5341  
GC 1841; \*\* 1842\*\*  
Geog 3121; 5132  
Hist 1401, 1402; 3401, 3402; 5401,  
5402, 5403; 5420; 5421, 5422

Mus 5704, 5705, 5706  
Pol 5455; 5456  
Soc 5315; 5671  
Span 1501; 1502; 1503; 3601; 3604;  
3614

### RUSSIAN

Russ 3501, 3502, 3503; 3601, 3602,  
3603; 5201, 5202, 5203; 5204;  
5301-5302-5303; 5401, 5402; 5403;  
5404, 5405; 5406; 5407-5408,  
5409, 5501 (for Russian literature  
in translation, see department)  
Econ 5313  
Geog 3181  
Hist 5134, 5135, 5136; 5244, 5245;  
5264, 5265, 5266; 5294, 5295  
Slav 1501

### SCANDINAVIAN (Danish, Finnish, Norwegian, Swedish)

Scan 1504; 3501; 3601; 5501; 5502;  
5503; 5601; 5613; 5631; 5632;  
5633  
Arth 3654; 3655; 5105; 5641; 5642;  
5644; 5645  
GC 1831; \*\* 1832\*\*  
Geog 5173  
Hist 5271, 5272, 5273  
Phil 5054  
Pol 5444; 5445  
Finnish only; Scan 3604; 5421

### SPANISH

Span 1501; 1502; 1503; 3601; 3602;  
3604; 3605; 3614  
Anth 5221; 5222  
Arab 5501-5502-5503  
Arth 5911  
Econ 5311; 5341  
GC 1841; \*\* 1842\*\*  
Geog 3121; 3131 (old 5131); 5132  
Hist 1401, 1402; 3401, 3402; 5215;  
5419; 5420; 5424, 5425; 5426  
Mus 5704, 5705  
Pol 5455; 5456  
Port 3603  
Soc 5315; 5671

### SWAHILI

Afro 3001; 3002; 3003; 3301  
Anth 5241, 5242, 5243; 5251; 5252  
Geog 3141; 5141  
Hist 1431, 1432, 1433; 3430; 3431;  
3432; 3433; 5441, 5442, 5443;  
5444, 5445, 5446; 5447  
Pol 5448

### TURKISH

MidE 3561-3562-3563; 3591; 5561  
Anth 5251  
Hist 5274, 5275; 5774

\*\* Credit only for GC students transferring to CLA.

# 1974-1976

## TENTATIVE REGISTRATION SCHEDULE-CLA RESERVATIONS OFFICE

A system of registration that gives each CLA student one early registration period a year is shown below (there will be further breakdown by hour in winter and spring quarter registrations). The system helps students to plan schedules on a long-term basis. The schedule does not apply to new students (freshman or advanced standing) who take part in orientation programs.

<u>Day</u>	<u>Fall, 1974</u>	<u>Winter, 1975</u>	<u>Spring, 1975</u>	<u>Fall, 1975</u>	<u>Winter, 1976</u>	<u>Spring, 1976</u>
1st	Oa-Rat	Bj-Coo	La-McD	Tii-Wz	Ham-Jog	Rau-She
2nd	Rau-Shaq	Cop-Fei	McE-Nor	Xa-Berg	Joh-Kur	Shf-Thom
3rd	Shar-Tan	Fej-Grn	Nos-Pri	Berh-Che	Kus-Marr	Thon-Wim
4th	Tao-Wic	Gro-Hok	Prj-Schp	Chf-Ei	Mars-Mui	Win-Baz
5th	Wid-Av	Hol-Kap	Schq-Stri	Eh-Gie	Muj-Pal	Bb-Cam
6th	Aw-Brb	Kaq-Las	Strj-Web	Gif-Held	Pam-Ret	Can-Do
7th	Brc-Cr	Lat-Maz	Wec-Anderson, R.	Hele-Johnson, R.	Reu-Sel	Dp-Gard
8th	Cs-Fak	Mb-Mz	Anderson, S.-Bou	Johnson, S.-Lal	Sem-Stor	Gare-Hat
9th	Fal-Go	Na-Pal	Bov-Cor	Lam-Marq	Stos-Vi	Hau-Johnson, D.
10th	Gp-Hep	Pam-Res	Cos-Ers	Marr-Mors	Vj-Yz	Johnson, E.-Kro
11th	Heq-Johnson, L.	Ret-Schw	Ert-Gov	Mort-On	Za-Bea	Krp-Mam
12th	Johnson, M.-Krb	Schx-Ste	Gow-Hoe	Oo-Rac	Beb-Bt	Man-Mui
13th	Krc-Luh	Stf-Um	Hof-Jz	Rad-Scha	Bu-Crm	Muh-Pal
14th	Lui-Mik	Un-Wim	Ka-Kz	Schb-Spa	Crn-Emd	Pam-Rat
15th	Mil-Nz	Win-Arm		Spb-Tih	Eme-Gat	
16th		Arn-Bi			Gau-Hal	

# Index

## A

- Abbreviations and Symbols, 29
  - Accounting, 30
  - Administration, CLA, inside front cover
  - Admission Procedures, 6
    - Adult Special, 8
    - Advanced Standing, Transfer, 7
    - Early Admission, 7
    - Freshman, 6
    - Readmission, 20
  - Adult Special Study, 8, 15
  - Advertising, 158
  - Advisers, 5, 14
  - Advising System, 5
  - Aerospace Studies—see Reserve Officers' Training Corps, 220
  - Afro-American Studies, 30
  - Akkadian, 177
  - American Indian Studies, 33
  - American Studies, 34
  - Anatomy, 36
  - Anthropology, 36
  - Appeals—see Grievance Procedures
  - Arabic, 177
  - Aramaic, 178
  - Archaeology, 81
  - Architecture, 41
    - Combined Degree Program, 269
    - Landscape Architecture, 44
  - Art History, 46
  - Arts, Studio, 52
  - Asian Studies
    - East Asian, 93
    - Middle Eastern, 174
    - South Asian, 240
  - Associate in Liberal Arts Degree, 9
  - Astronomy, 203
  - Attendance at Classes, 20
  - Auditing Classes, 16
- ## B
- Bachelor of Arts Degree, 9, 10
  - Bachelor of Elected Studies Degree, 9, 10
  - Bachelor of Fine Arts Degree, 9, 10
  - Bachelor of Science Degree, 9, 10
  - Bacteriology—see Microbiology
  - Behavioral Biology—see Ecology and Behavioral Biology
  - Bengali, 241
  - Biochemistry, 57
  - Biological Sciences, College of, 58
  - Biology, 58
    - Behavioral, 96
    - Cell, 123
  - Biometry, 60
  - Board of Regents, inside front cover
  - Botany, 62
  - Broadcasting
    - Journalism, 159
    - Speech, 252, 253
  - Business Administration, 64
    - Bachelor of Science Degree Requirements, 10

## C

- Cancel-add Procedures, 16
- Cancellations
  - From College, 17
  - From Courses, 17
  - Late, 17
- Cell Biology, 123
- Changes of Registration, 16
- Chemistry, 66
- Chicano Studies, 70
- Child Psychology, 71
- Chinese, 94
- Civil Engineering, 73
- Class Attendance, 20
- Class Reservations, 14
- Class Schedule, 2
- Classical Civilization, 73
- Classical Philology, 77
- Classics, 74, 78
- Closed-Section Entry Permits, 14
- College Honors Seminars, 21
- College-Level Examination Program (CLEP), 24
- College of Liberal Arts (CLA)
  - Administration, inside front cover
  - Educational Policy and Purpose, 3
  - Offices, 4
  - Organization, 4
  - Procedures and Regulations, Section I
  - Services, 25
- Communication
  - Communication Program, 82
  - Journalism, 155
  - Speech, 251
- Communication Disorders, 83
- Comparative Literature, 86
- Composition, 110
- Computer, Information, and Control Sciences, 86
- Conduct Committee, 25
- Confidentiality, 26
- Continuing Education and Extension, 16
- Counselors for Students, 5
- Courses
  - Additions, 16
  - Admissions, 14
  - Audited, 16
  - Cancellations, 17
  - Closed Sections, 14
  - Symbols and Abbreviations, 29
  - Descriptions, Section II
  - Independent Study, 22
  - Interdepartmental Studies, 23
  - Levels, 14, 29
  - No-Credit, 16
  - Numbering, 29
  - Registration, 13
  - Repetition, 15
  - Reservations, 14
  - Without Credit, 16
- Credits
  - Credit Loads, 15
  - Graduate School, 16
  - Value, 17
- Criminal Justice Studies, 91
- Cross-Disciplinary Studies, 92

**D**

- Danish, 227
- Debate—see Speech
- Degree Requirements
  - Associate in Liberal Arts, 9, 13
  - Bachelor of Arts, 9, 10
  - Bachelor of Electd Studies, 9, 10
  - Bachelor of Fine Arts, 9, 10
  - Bachelor of Science, 9, 10
  - Chart, 10
  - Old, 13, 19
- Design, 92
- Divisional Councils, 4
- Double Majors, 12
- Dropping from College, 17
- Dutch, 134

**E**

- Earth Sciences, 130
- East Asian Languages, 93
- East Asian Studies, 95
- East European Languages, 228
- Ecology and Behavioral Biology, 96
- Economics, 98
- Education, College of, 105
  - Preprofessional Requirements, 271
- Educational Psychology, 212
- English, 105
- English Composition, 110
  - Degree Requirement, 9
  - Exemption from Requirement, 110
  - Placement, 110
  - Preparatory, 111
- Equal Opportunity, 6
- Evening Classes, 16
- Examinations, 24
  - College-Level Examination Program (CLEP), 24
  - Credit, 24
  - Demonstration of Proficiency in Prerequisite Courses, 24
  - Entrance, 7, 24
  - Final, 20
- Exemption from CLA Regulations, 20
- Experimental Courses, 23
- Extension Division—see Continuing Education and Extension
- Extra Credit Registration, 15

**F**

- Faculty Advisers, 5, 14
- Family Social Science, 112
- Fees and Expenses—see *General Information Bulletin*
- Fee Statement, 15
- Final Examinations, 20
- Financial Aids, 26
- Fine Arts, 9, 10
- Finnish, 227
- Food Science and Nutrition, 113
- Foreign Language Degree Requirement, 11
  - Route II Course List, 281
- Foreign Student Adviser, 27
- Foreign Study, 24, 114
- French, 114
- Freshman English—see English Composition

**G**

- General Extension Division—see Continuing Education and Extension
- General Information, Section I
- Genetics and Cell Biology, 123
- Geography, 125
- Geology and Geophysics, 130
- German, 133
- Goals of Arts College, 3
- Grades, 17
  - A-B-C-D-N System, 17
  - S-N System, 18
  - Symbols, 18
- Graduate School Credit, 16
- Graduation Requirements, 8
  - Current, 10
  - Old, 13
- Greek, 74
- Greek-Latin, 77
- Grievance Procedures, 25
- Group Distribution Requirements, 11

**H**

- Handicapped Students, Aids for, 26
- Hearing Difficulties, 27
  - Hebrew, 178
- High School Courses, Repetition, 16
- Hindi, 242
- History, 137
- History of Medicine, 147
- History of Science and Technology, 147
- Home Economics, College of, 148
- Honors Opportunities, 21
  - Courses, Programs, Seminars, 21
  - Departmental, 22
  - Graduation with Honors, 22
  - Honors Contract Registration, 21
- How to Register, 14
- How to Study Course, 190
- Humanities, 148
- Human Rights Policy, 6

**I**

- Incompletes, 18
- Independent Study, 22
- Indian, American, 33
- Indic, 242
- Initiation of Courses, Student, 23
- Interdepartmental Majors, 13, 151
- Interdepartmental Study, 152
- Interdisciplinary Programs—see individual programs
  - Cross-Disciplinary Studies, 23
  - Experimental Courses, 23
- Intermediary Board, 5
- International Communication
  - Journalism, 161
  - Speech, 253, 254
- International Relations, 152
- Islamic, 175
- Italian, 121

## J

- Japanese, 95
- Jewish Studies, 154
- Journalism and Mass Communication, 155

## L

- Landscape Architecture, 44
- Latin, 76
- Latin American Studies, 161
- Law, School of, 272
  - Admission, 272
- Liberal Education, 3
- Library School, 162
- Linguistics, 163
- Literature and Fine Arts, 165
- Loans, 26

## M

- Major Advisers, 5
- Major Sequences, 12
- Marathi, 243
- Martin Luther King Program, 26
- Mathematics, 166
- Maximum Credit Load, 15
- Medical School, 172, 173
  - Premedical Requirements, 273
- Medical Technology, 274
- Microbiology, 172
- Middle Eastern Studies and Languages, 174
  - Middle Eastern Studies—Hebrew, 174
  - Middle Eastern Studies—Islamic, 175
- Military Science, 221
- Modern Greek, 76
- Mortuary Science, 274
- Music, 180
  - Applied, 181

## N

- Natural Science and Technology, 188
- Naval Science, 222
- News-Editorial Journalism, 157
- Northwest European Language and Area Studies, 189
- Norwegian, 228
- Nursing, School of, 275

## O

- Occupational Therapy, 275
- Official Daily Bulletin, 2
- Old Graduation Requirements, 13
- Ombudsman Service, 5
- Organization of College, 4
- Orientation, 8
- Other Colleges, Section III

## P

- Persian, 179
- Personal Orientation, 190
- Personnel Services
  - Faculty Advisers, 5, 14
  - Financial Aids, Scholarships, 26
  - Martin Luther King Program, 26
  - Placement, 26
  - Scholastic Committee, 25
- Pharmacy, College of, 276
- Philology, 77
- Philosophy, 190
- Photography, Art—see Studio Arts
- Photojournalism, 159
- Physical Education, 194
- Physical Therapy, 276
- Physics, 199
- Physiology, 204
- Placement Services, 26
- Polish, 230
- Political Science, 206
- Portuguese, 250
- Preparatory English Composition, 111
- Preprofessional Curricula, Section III
- Prerequisites for Credit, 24
- Probation, 19
- Procedures for Admission, 6
- Proficiency by Examination, 24
- Psychological Foundations, 212
- Psychology, 212
- Public Affairs, 216, 277
- Public Health, 217
- Purpose of College, 3

## Q

- Quality of Work, 18
  - Advanced Standing Students, 7

## R

- Radio-Television
  - Journalism, 159
  - Speech, 252, 253
- Readmission to College, 20
- Records, Student, 19
- Regents, Board of, inside front cover
- Registration Procedures, 14
  - Adult Special, 15
  - Changes, 16
  - Dates, 14
  - Fee Payment, 15
  - Permits, 14
  - Limits, 15
- Regulations, Section I
- Religious Activities, 27
- Religious Studies, 218
- Repeating Courses
  - College, 15
  - High School, 16
- Required Preparatory Courses, 12
- Reserve Officers' Training Corps, 220
- Restrictions on S-N Credits, 18
- Russian, 229

S

Sanskrit, 244  
"Satisfactory Progress," 18  
Scandinavian, 225  
Scholarships, 26  
Scholastic Averages, 17  
Scholastic Committee, 25  
Scholastic Conduct Committee, 25  
Scholastic Probation, 19  
Serbo-Croatian, 230  
Services  
    College, 25  
    University, 27  
SIB, 5  
Slavic, 230  
Slavic and East European Languages, 228  
S-N Grading System, 18  
Social Science, 231  
Social Work, 232  
Social Work, Graduate Study, 277  
Sociology, 234  
SOS, 5  
South Asian Studies, 240  
SPAN, 114  
Spanish, 245  
Spanish/Portuguese, 249  
Special Learning Opportunities, 22  
Speech-Communication, 251  
Statistics, 255  
Student Activities Bureau, 27  
Student Conduct Committee, 25  
Student Intermediary Board, 5  
    Departmental Student Organizations, 5  
Student Misconduct, 25  
Student Ombudsman Service, 5  
Student Participation in College Affairs, 5  
Student Records, Transcripts, 19

Student Scholastic Committee, 25  
Studio Arts, 52  
Study Skills Clinic, 27  
Suspension from College, 19  
Swedish, 228  
Symbols, 29

TUV

Technology, Institute of, 256  
Television—see Radio-Television  
Textiles and Clothing, 257  
Theatre Arts, 257  
Theological Study Preparation, 262  
Transfer Students, 7  
    Transfer of U of M Credits, 8, 19  
Tuition—see *General Information Bulletin*  
Turkish, 180  
University College, 277  
University of Minnesota  
    Administrative Officers, inside front cover  
    Equal Opportunity Policy, 6  
    Services to Students, 27  
Urban Studies, 263  
Urdu, 244  
Veterans' Benefits—see *General Information Bulletin*  
Vocational Choice, 5

WYZ

Womens' Studies, 264  
Yiddish, 136  
Youth Studies, 265  
Zoology, 266