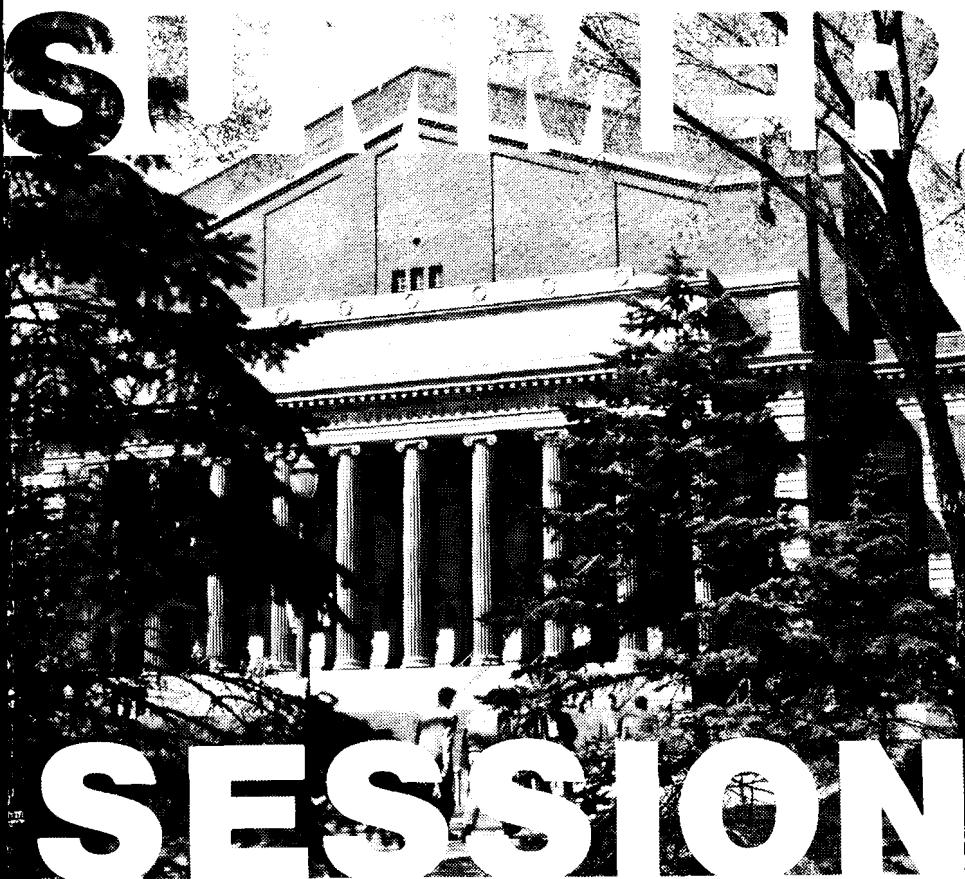


**UNIVERSITY OF MINNESOTA
BULLETIN**



1981



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Volume LXXXIV, Number 5

March 20, 1981

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UNIVERSITY OF MINNESOTA

Summer Session 1981



SUMMER SESSION INFORMATION

**Summer Session
135 Johnston Hall
101 Pleasant Street S.E.
University of Minnesota
Minneapolis, Minnesota 55455
(612) 373-2925.**

Calendar

- May 15 Graduate School application deadline for first term admission.
- May 26-29 Advance registration, limited to day school students formally admitted to and currently registered in or previously enrolled during any academic year in a Twin Cities college of the University.
- June 1-5, 15 Summer-only day school students and new students may register at this time only. (See section on "Admission" for details.) Open registration for other students as well.
- June 8-12 Registration closed.
- June 9 Last day to pay graduation fees for first term.
- June 15 Last day to register for first term and to pay fees without incurring late fee. Late fees are assessed according to the following schedule:
- | | |
|------------|------|
| June 16-19 | \$ 6 |
| June 22-26 | \$10 |
| Thereafter | \$20 |
- Graduate School application deadline for second term admission.
- June 16 **FIRST TERM CLASSES BEGIN.** *Note:* First Term classes begin on a Tuesday.
- June 19 Thesis registration deadline for graduate students.
- July 3 Holiday.
- July 16, 17, 20 Registration period for second term.
- July 17 Last day of class for first term.
Last day to pay graduation fee for second term.
Final Oral Exam Report and all other forms due (graduate students only).
- July 20 **SECOND TERM CLASSES BEGIN.** *Note:* Second term classes begin on a Monday.
Last day to register for second term and to pay fees without incurring late fee. Late fees are assessed according to the following schedule:
- | | |
|------------|------|
| July 21-24 | \$ 6 |
| July 27-31 | \$10 |
| Thereafter | \$20 |
- July 31 Two bound copies of master's or doctoral thesis due.
- August 21 Last day of class for second term.

DATES OF SUMMER SESSION

The summer session consists of two five-week terms—June 15 through July 17 and July 20 through August 21. Students may register for courses of their choice in either or both terms.

Payment of fees for the first term without assessment of late fees must be made by 3:30 p.m. on Monday, June 15. First term classes on the Twin Cities campus begin Tuesday, June 16.

Payment of fees for the second term without assessment of late fees must be made by 3:30 p.m. on Monday, July 20. Second term classes on the Twin Cities campus begin Monday, July 20.

Most individual courses are completed in a single term.

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A Guide to the Summer Session Bulletin

Symbols—The following symbols are used throughout the course descriptions in lieu of page footnotes:

- * Courses in which graduate students may prepare Plan B projects.
- † All courses preceding the dagger must be completed before credit will be granted for any quarter of the sequence.
- § Credit will not be granted if the equivalent course listed after the section mark has been taken for credit.
- ¶ Concurrent registration is allowed (or required) in the course listed after the paragraph mark.
- # Consent of instructor is required prior to registration.
- △ Consent of division, department, or school offering course is required prior to registration.
- ** A special fee is charged. See section on Course Fees.
- Courses that have **limited** enrollment or that must be reserved.

Following each course title is a parenthetical statement specifying credits, class limits, prerequisites, hours and days of the week the class meets, location of the class, and course instructor.

Prerequisites—Entrance into certain courses requires completion of or concurrent enrollment in other specified courses, or possession of particular qualifications or class standing. If no prerequisites are listed, there are none, except insofar as the course number indicates a minimum class standing requirement.

Class standing is determined by the number of credits completed, as follows: freshman, 0-38 credits; sophomore, 39-89 credits; junior, 90-134 credits; senior, 135 or more credits.

Class standing requirements, unless otherwise noted, are indicated by the course number as follows:

- 0000 to 0998 no credit
- 1000 to 1998 for freshmen and sophomores
- 3000 to 3998 for juniors, seniors, and fifth-year students
- 5000 to 5998 for juniors, seniors, fifth-year students, graduate students, and professional students
- 8000 to 8998 for graduate students only

A minimum of prerequisite information is shown. For example, when courses that must be taken in sequence are prerequisites, only the last course of the sequence is listed.

When no abbreviated departmental prefix precedes the course listed as a prerequisite, that prerequisite course is in the same department as the course being described.

Example: "prereq 1011 or 1017 and Psy 1002" indicates that you must have completed either course 1011 or 1017 in the same department and Psychology 1002.

Work equivalent to a prerequisite course (having the same content) is ordinarily accepted in lieu of that prerequisite. Instructors may also, at their discretion, waive prerequisites.

Hours and Days—The starting and ending times for classes listed in the Course Descriptions section of this bulletin are indicated in 24-hour clock time. Refer to the table below for help in interpreting these times.

To convert any time between 1:00 p.m. and 12:00 midnight from standard time to the 24-hour clock, add 1200 (for example, 3:45 p.m. + 1200 = 1545). To convert from the 24-hour clock to standard time, subtract 1200 (for example, 1615-1200 = 4:15 p.m.).

Conversion Table

24-hour clock	0800	0900	1000	1100	1200
Standard Time	8:00 a.m.	9:00 a.m.	10:00 a.m.	11:00 a.m.	12:00 a.m.
24-hour clock	1300	1400	1500	1600	1700
Standard Time	1:00 p.m.	2:00 p.m.	3:00 p.m.	4:00 p.m.	5:00 p.m.

Classes generally last for 50 minutes, beginning and ending at the following times: 0800-0850; 0905-0955; 1010-1100; 1115-1205; 1220-1310; 1325-1415; 1430-1520; 1535-1625. Converting to standard time, a class meeting 1325-1415, for example, begins at 1:25 p.m. and ends at 2:15.

Many classes, especially those in the College of Business Administration, meet for more than 50 minutes; these extended class periods are indicated in the course descriptions. To avoid conflicts, check such listings carefully before registering.

Days of the week are abbreviated M, T, W, Th, F.

Reserved Courses—Courses with limited enrollments must be reserved in the college office listed for each department. These courses are listed in the Course Descriptions section with a bullet (●) before the course number. Registration instructions for reserved courses may be found in the next section of this bulletin.

Missing Information—When hours, days, or places of meeting are not listed, consult the instructor or department offering the course.

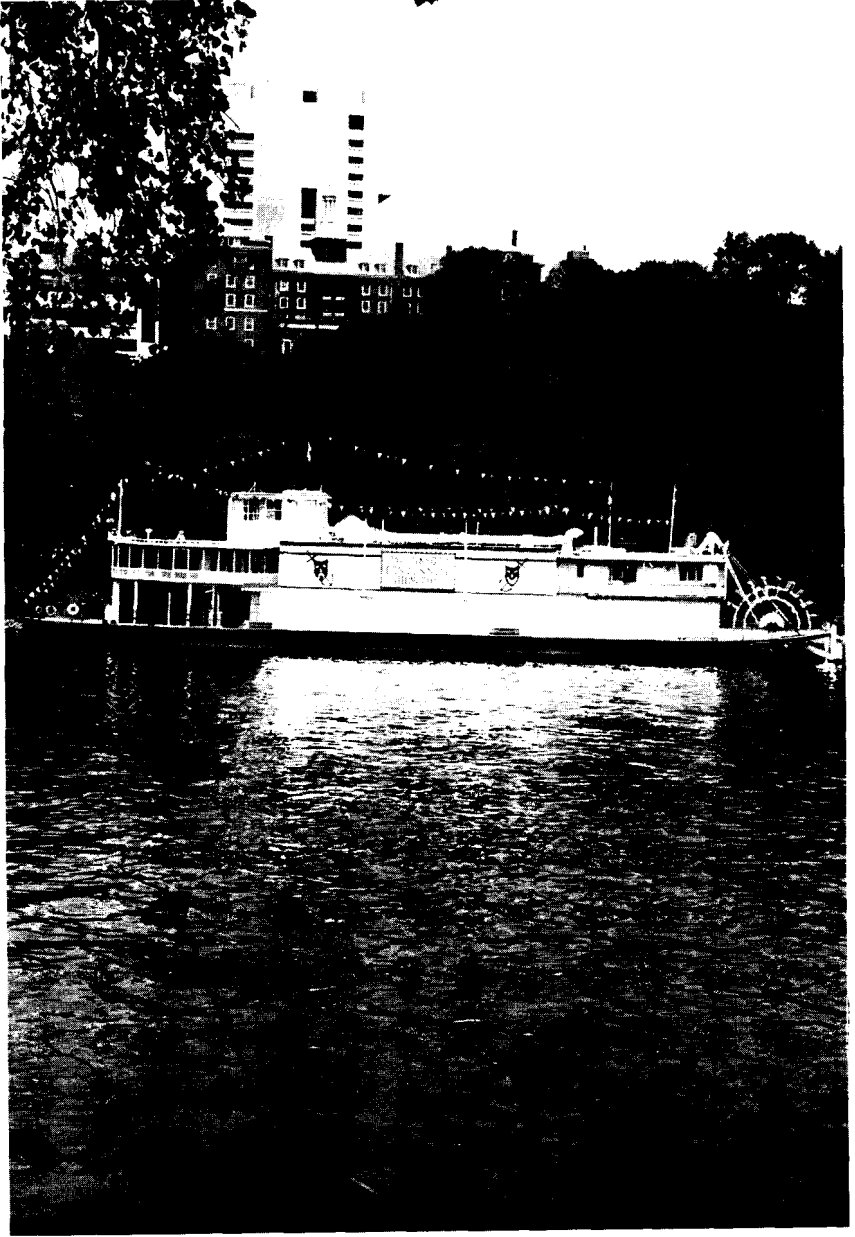
Changes made subsequent to the printing of this bulletin are published in the *Minnesota Daily*.

—IMPORTANT—

All students are expected to comply with the regulations and procedures stated in this bulletin.

Please note that first term classes begin on TUESDAY, JUNE 16 EXCEPT where a Monday starting date is specified, and second term classes on MONDAY, JULY 20.

All students not regularly enrolled spring quarter 1981 may be asked to show their United States Social Security numbers.



Admission and Registration

Admission

Summer session courses are open to high school graduates, students with previous college work, and high school students with special abilities and interests that can be satisfied by attending college before high school graduation. Summer session students fall into two major categories: those who are beginning or continuing in University of Minnesota degree programs, and those, classified as summer-only students, who are not enrolled in University degree programs. Summer-only status does not require advance application and is open to anyone not currently pursuing a degree at the University of Minnesota, including students enrolled at other colleges and universities.

SUMMER-ONLY STUDENTS

As a summer-only student, you may register for university classes without formally applying to a university college or program. Attendance as a summer-only student is open to:

- High school graduates.
- Former University of Minnesota students (including Minnesota graduates) who are not now pursuing a degree from the University.
- Students with college work at a school other than the University of Minnesota (Twin Cities campus) who do not plan to earn a degree from the University or who have not been admitted as degree candidates for summer session 1981.
- Others who have the approval of the Office of Admissions.

Attendance as a summer-only student does not guarantee admission to a regular degree program at the University of Minnesota. If you later apply and are admitted to a degree program, however, you may have appropriate credits earned as a summer-only student transferred to your degree program.

STUDENTS CONTINUING IN DEGREE PROGRAMS

Students who are already enrolled in colleges of the University may generally continue their education through the summer terms. Credits earned during the summer terms will apply to degree programs in the same way as credits earned during the regular academic year.

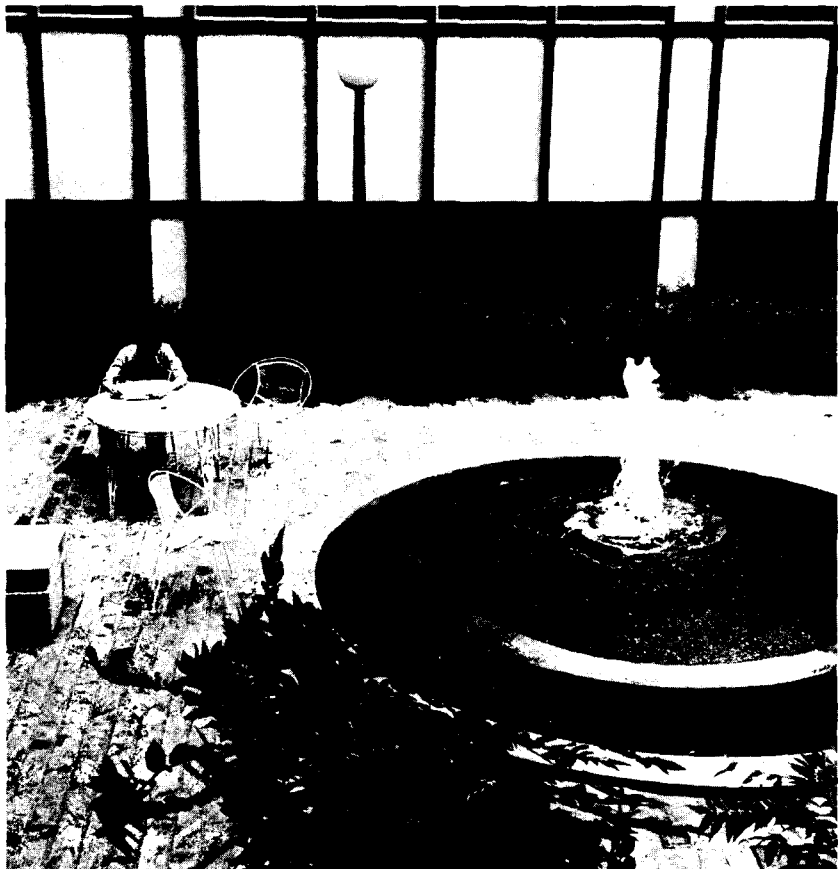
Students in some colleges may find that they can complete their degree programs early by taking classes throughout the year. Students completing the 180-credit minimum required for most baccalaureate degrees at the rate of 15 credits per quarter will graduate at the end of four academic years (12 quarters) of enrollment. Those who enroll in both summer terms and complete just a few additional credits during the regular academic year may be able to graduate in three years or even less.

Admission and Registration

ADMISSION TO DEGREE PROGRAMS FOR THE SUMMER SESSION

Application to a degree program and registration for classes are two separate procedures. If you intend to receive a degree from the University of Minnesota, you must file an application, any necessary credentials, and a credentials examination fee in order to be formally admitted to a college of the University. Summer-only registration does not automatically admit you to a University degree program.

You should consult the *General Information Bulletin* and the appropriate college bulletin or brochure for detailed requirements governing admission and granting of degrees. Most university bulletins may be obtained by writing to the Office of Admissions and Records, 110 Williamson Hall, 231 Pillsbury Drive S.E., University of Minnesota, Minneapolis, Minnesota 55455, or by calling (612) 373-2153. Zip codes MUST accompany requests for bulletins and brochures.



Entering Freshmen

Summer session offers high school graduates an opportunity to begin college work without the usual summer delay. Not all freshman-admitting colleges admit freshmen to their programs in the summer. Those that do, however, will accept high school graduates for admission in either term.

Of the seven freshman-admitting colleges on the Twin Cities campus, three—the General College, Institute of Technology, and College of Liberal Arts—do not admit new freshmen to begin degree programs in the summer. If you plan to enter a degree program in one of these colleges, you should apply for fall quarter admission. However, you may take summer courses under summer-only status and apply them for degree credit upon admission to the college and registration in a regular quarter of the academic year. If admitted, you will attend the orientation-registration program with other students entering the college fall quarter.

To be assured full consideration in time for summer admission to a degree program (for all freshman-admitting colleges except GC, IT, and CLA) and registration for summer session, your freshman application must be received by May 1 in the Office of Admissions, 240 Williamson Hall, 231 Pillsbury Drive S.E., University of Minnesota, Minneapolis, Minnesota 55455. With your completed application form, you must present transcripts from the last high school and all colleges that you have attended, and a \$10 credentials examination fee. Most colleges require ACT or PSAT test scores, and some have other special admission requirements (see the *General Information Bulletin* or the appropriate college bulletin).

Applicants With Previous College Work

Students who have previously completed college work at another institution or as summer-only students may be admitted to degree programs of most colleges and schools of the University of Minnesota during the summer session. In addition, University of Minnesota students wishing to change their college of enrollment (e.g., from CLA to Education) may be admitted to the new college during the Summer Session. The General College, College of Business Administration, Institute of Technology, College of Liberal Arts, and some professional and paraprofessional programs that begin course sequences during a specified term do not, however, admit new students for the Summer Session. If you plan to enter a degree program in one of these units, you should apply for fall quarter admission and register for one or both summer terms under summer-only status. Appropriate courses completed satisfactorily during the summer will be accepted for degree credit when you have been admitted to the unit and have registered for one of the regular quarters of the school year.

May 1 is the last date for application with assurance of full consideration for summer admission to most colleges. Applications, with the \$10 credentials examination fee and the necessary credentials, should be sent to the Office of Admissions, 240 Williamson Hall, 231 Pillsbury Drive S.E., University of Minnesota, Minneapolis, Minnesota 55455.

GRADUATE STUDENTS

The Graduate School offers opportunities for advanced study and research in many fields. It brings together in a single academic unit graduate programs and offerings of all units of the University. Degrees offered include the master of arts, master of science, doctor of philosophy, doctor of education, doctor of musical arts, and the specialist certificate in education and in library science.

Any student with a bachelor's degree or its foreign equivalent from a recognized college or university may apply to the dean of the Graduate School for admission. Applicants with the necessary background for their chosen major field, an excellent scholastic record, and appropriate professional qualifications may be admitted for graduate work on recommendation of the graduate faculty in the proposed major field and approval of the dean of the Graduate School.

Acceptance for a summer institute offering course work at the graduate level does not, in itself, establish permission for registration in the Graduate School. Normal procedures for admission to the Graduate School must be followed.

Admission and Registration

Students planning to apply credits earned in summer session toward graduate degrees or who expect to receive graduate credit for such work should apply for admission directly to the Graduate School. Applications must be submitted *complete in every detail*—one official transcript from each college attended, the credentials examination fee, and test results if required—by May 15, 1981 for first term admission and June 15, 1981 for second term admission.

A student currently enrolled in an advanced degree program of a graduate school at another accredited college or university in the United States may request permission to register in the Graduate School of the University of Minnesota as a transient graduate student by completing Graduate School form 57. No credentials examination fee or supporting materials are required for the transient student forms. Permission to register as a transient student will be granted, to the applicant who qualifies, for one summer session (terms I and/or II) or one academic-year quarter, and will not extend beyond that single session or quarter.

Requests for Graduate School application forms, including transient student forms, and all correspondence related to Graduate School admission should be directed to the Graduate School, 307 Johnston Hall, 101 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

Students with bachelor's degrees who are not interested in earning graduate credit do not register in the Graduate School. Instead they may apply for admission as adult special students or register as special summer-only students. If they plan to subsequently apply for admission to the Graduate School, they should consult the current *Graduate School Bulletin* or contact the Graduate School for transfer regulations. Only graduate-level courses taught by members of the graduate faculty may be transferred.

Any student wishing to register for more than 10 credits per term must obtain the approval of the Graduate School. It should be noted that courses numbered 8000 and above are open only to students registered in the Graduate School.

Candidacy for a Degree

Admission to the Graduate School does not admit a student to candidacy for a degree. Admission to such candidacy is contingent upon the judgment by members of the graduate faculty that the student shows sufficient promise to be permitted to proceed toward a degree.

Following registration for at least one term, the student who expects to obtain a master's degree must present the program and thesis title (for Plan A) or program (for Plan B) for the adviser's recommendation and for referral to the Graduate School for action by the appropriate unit committee. Approval by the Graduate School confirms the student's admission to candidacy for the degree.

Requirements for Advanced Degrees

For information concerning requirements for graduate degrees, refer to the current *Graduate School Bulletin*.

Deadlines for Summer Session Graduation

All graduate degree candidates must adhere to the following deadlines for graduation at the close of the summer session:

Thesis registration—June 19, 1981

Final Oral Examination Report and all other forms due—July 17, 1981

Two bound copies of the master's (Plan A) or doctoral thesis—July 31, 1981

Degree date (no ceremony)—August 21, 1981

HIGH SCHOOL STUDENTS

Outstanding high school students who have special interests that can be satisfied by attending college before high school graduation may apply for summer session admission to take work between their junior and senior years in high school. Registration is usually restricted to courses at the 1000 level. Credits earned will be counted toward graduation if the student later enrolls in the University.

Interested students must apply through the Office of Admissions by June 1. Applications must be accompanied by a copy of the high school transcript and a written recommendation from the high school counselor.

Registration, Tuition, Fees

So that students will receive maximum benefit from the short summer session terms and late entrants will not disrupt courses in progress, students are expected to complete their registration during the specified registration periods.

All students not regularly enrolled during spring quarter 1981 must be prepared to show their United States Social Security number.

Students who plan to attend the first term and the second term should register for both terms at the same time.

Registration will not be open between June 8 and June 12.

STUDENTS CURRENTLY OR PREVIOUSLY IN RESIDENCE AND DEGREE CANDIDATES

- Students in residence spring quarter should register on May 26-29, June 1-5, and June 15; or July 16, 17, 20. They should register through the college in which they were last enrolled. A registration permit is required; students obtain registration permits with their registration materials in their college office.

- Students in residence a previous quarter(s) (exclusive of summer-only or extension-only registration) also may register on these dates through the college in which they were last enrolled. A registration permit from that college is required. Students registering in Minneapolis-based colleges may obtain registration permits in 202 Fraser Hall (150 Williamson Hall if they have mobility impairments); students registering in St. Paul-based colleges obtain permits in 130 Coffey Hall.

- Students admitted to the University as degree candidates effective either summer term should register according to instructions given by the college to which they have been admitted.

- Students transferring from one University of Minnesota college to another should follow the instructions received with the transfer approval.

COLLEGE OF EDUCATION STUDENTS

Mail Registration—Students registering in the College of Education (B.S., M.Ed., adult special, or summer-only) may register by mail. Registration materials can be obtained by completing the request form found at the back of this bulletin and sending it to the Summer Session office. *Note:* This does not apply to students registering in the Graduate School. For more information, see the College of Education section of this bulletin.

SUMMER-ONLY STUDENTS

Persons who should register under summer-only status are listed on page 7. They will register according to the following schedule:

First Term

- Dates: June 1-5 and 15 (registration is closed June 8 through June 12).
Time: 8 a.m. to 4:15 p.m.
Place: Register in the college in which most courses are taken. *Teachers registering for any course and other persons taking professional education courses should register through the College of Education.*

Second Term

- Dates: June 1-5, and 15; July 16, 17, and 20 (registration is closed June 8 through June 12 and June 16 through July 15).
Time: See first term.
Place: See first term.

SENIOR CITIZEN EDUCATION PROGRAM

Minnesota residents age 62 and over, who meet academic prerequisites, may register for University classes tuition free when space is available after tuition-paying students have been accommodated. Under the Senior Citizen Education Program, they may audit courses free of charge or may take courses for credit at \$2 per credit. (Auditors prepare daily assignments and participate in class discussions but do not take examinations or receive grades, and no record is kept of their work.) Senior citizens do not pay the student services fee but must pay laboratory or materials fees when required for particular courses.

Registration for the Senior Citizen Education Program will be held on June 17 for first term courses and on July 21 for second term courses. Persons who wish to register should come to 202 Fraser Hall (150 Williamson Hall for those with mobility impairments, or 130 Coffey Hall for St. Paul-based students) and should bring identification to verify age and Minnesota residency.



COLLEGE REGISTRATION OFFICES

- Agriculture, 277 Coffey Hall (St. Paul)
- Biological Sciences, 223 Snyder Hall (St. Paul)
- Business Administration, 225 Business Administration Building (West Bank)
- Dental Hygiene, Health Sciences Unit A 5-164
- Dentistry, Health Sciences Unit A 15-106
- Education, ECDO, 1425 University Avenue S.E. (EXCEPT on June 15, register 8:00-12:00 in Burton Hall)
- Forestry, 10 Green Hall (St. Paul)
- General College, 10 Nicholson Hall
- Graduate School, 316 Johnston Hall
(Students registered in the Graduate School in spring quarter 1981 may obtain registration materials in the office of their major department. All students planning to register in the Graduate School should see page xx for information.)
- Home Economics, 32 McNeal Hall (St. Paul)
- Liberal Arts
 - Regular students: college offices
 - Summer-only students: 18 Johnston Hall
- Medical Technology, 5307 Powell Hall (or contact 3-170 Jackson Hall)
- Medicine, 139 Owre Hall
- Military Science, 108 Armory Building
- Mortuary Science, 114 Vincent Hall
- Nursing, 5-140 Health Sciences Unit F
- Pharmacy, 5-110 Health Sciences Unit F
- Physical and Occupational Therapy, 271 Children's Rehabilitation Center
- Public Health, 1360 Mayo Memorial Building
- Institute of Technology, 5 Lind Hall
- University College, 105 Walter Library
- Veterinary Medicine, 301 Veterinary Science Building (St. Paul)

REGISTRATION PROCEDURE

1. Obtain registration permit, if required.
 - Students in residence spring quarter: at your regular college office.
 - Students in residence a previous quarter (exclusive of summer-only or extension-only registration): in 202 Fraser Hall for students in Minneapolis-based colleges (150 Williamson Hall for students with mobility impairments), or 130 Coffey Hall for students registered in St. Paul-based colleges, from the registration clerk for the college you last attended.
 - Summer-only students: registration permit not required.
2. Obtain registration material at college registration office, and complete your registration form, using the information in the Course Descriptions section of this bulletin.
3. Obtain approval of study program at college office, if required.
4. Obtain class reservation cards for reserved courses (see Course Descriptions section). *This cannot be done until you have completed the three steps listed above.*

5. Turn in completed registration forms and class reservation cards and obtain fee statements in 202 Fraser Hall (150 Williamson Hall for students with mobility impairments).

Exceptions: Students in the Colleges of Agriculture, Forestry, Home Economics, Biological Sciences, and Veterinary Medicine as well as Graduate School students whose majors are based in St. Paul turn in their registration forms and class reservation cards and obtain their fee statements in 130 Coffey Hall.

6. Pay fees at the Bursar's Office in Williamson Hall, the West Bank Bursar's Office, the Cashier's Office in Coffey Hall, or by mail. The hours are 8:15 a.m. to 3:30 p.m. Monday through Friday. If mailed, fees must be paid or postmarked no later than Monday, June 15, for first term, or Monday, July 20, for second term.

7. Attend the first class meeting and turn in your class reservations card. If you miss the first meeting, you may forfeit your place in class to another student.

HOLDS

If you have a hold on your record, you may not register until that hold is cleared with the office imposing the hold. A hold may be imposed for financial indebtedness to the University (e.g., for unpaid library fines, unpaid tuition or fees, or delinquent health service payments) or for disciplinary or scholastic reasons. Notice of any hold, including the name of the department or office where the hold may be cleared, appears on the registration permit that you receive with your registration materials. For more information, see the current *General Information Bulletin*, check with your college office, or call or visit a Student Relations staff member in the Office of Registration, Student Records, and Scheduling, 150 Williamson Hall (376-1680).

CHANGES IN REGISTRATION: CANCELLATIONS, ADDITIONS

After your registration has been accepted at the Registration Center and you have been issued a fee statement, you must initiate *any* change in your registration at your college office, where cancel-add forms are available. If you decide to stop attending class, you *must officially cancel* by submitting to the Registration Center a properly approved cancel-add form; simple failure to attend class does not, by itself, constitute cancellation. Most colleges require special approval for cancellations after the end of the second week. Graduate students may not change their registration after the last day of classes of either term. For regulations governing cancellations and additions in your college, check with your college office.

RESERVED COURSES

As part of the registration process, students must obtain class reservation cards for certain courses. Cards are available at the offices specified in the departmental course listings. Courses that are reserved, or limited, are identified by a bullet (●) preceding the course number. The reservation cards must be attached to the student's registration form when it is turned in for a statement of fees.

TUITION AND INCIDENTAL FEES¹

The following fees are payable each term by every full-time student (whether resident or nonresident) at the time of registration and must be paid before registration is complete:

TUITION

Per term; per credit \$20.75²

A surcharge of 10% will be assessed on tuition,
subject to regents' approval, to offset in
part a state revenue shortfall.

STUDENT SERVICES FEE³

Per term; not included in tuition fee \$34.20

Exceptions—Tuition for students in medicine, nursing, dentistry, veterinary medicine, physical therapy, occupational therapy, pharmacy, and those taking MBA courses is the same as it is during the regular academic year. Special tuition is collected for the Itasca Biology Session.

Regents' Scholarships—University staff members employed during the summer session are entitled to the same tuition privileges in the summer as during the academic year. Regents' scholarship applicants should check with the Human Resources Development Division for limitations.

For additional fee information, refer to the *General Information Bulletin*.

¹Fees are subject to change.

²Subject to regents' approval.

³All students registering for three credits or more must pay this fee.

Health Coverage

The student services fee includes outpatient care at the Boynton Health Service. (Students with equivalent coverage may apply for an exemption of \$15.00—see below.) The student services fee does *not* include hospitalization benefits. Students who do not have private hospitalization must apply for University-sponsored hospital/surgical coverage at the time of registration, and an additional fee will be charged. The fees for Blue Cross/Blue Shield Hospitalization single coverage are: First Term (5 week coverage)—\$16.20; Second Term (9 week coverage)—\$32.40; Total for both terms (14 week coverage)—\$48.60. Family coverage is not available. Further information concerning hospitalization coverage can be obtained from the insurance office of the Boynton Health Service, W227A Boynton, and by calling 331-5480.

Students With Coverage for Outpatient Health Services

Students who are members of a plan that guarantees comprehensive outpatient direct personal health services on a prepaid basis, such as Group Health Plan, Inc., may apply for an exemption of \$15.00 per summer term from the student services fee. They may also apply for exemption if they are covered by an insurance policy with a deductible clause pertaining to outpatient services and that deductible amount has been satisfied. Students who qualify for and accept this exemption, or who get a refund for this portion of the fee, waive all outpatient benefits offered by the Boynton Health Service. To qualify for exemption, you must present proof of coverage to the cashier in room W220 of the Health Service prior to registration. The Health Service cashier will complete a Partial Fee Exemption form indicating the amount of the exemption. This form, along with your registration form, must be presented at the college window when you register. Students who fail to apply for the exemption prior to registration may apply for a refund during the first week of classes each term.

Medical care insurance limited by coinsurance features does not qualify for this exemption.

Students who receive the above exemption or refund may use the Health Service on a fee-for-service basis.

For further information, visit the Business Office, room W226 of the Boynton Health Service, or call 373-3138.

Minnesota Public Interest Research Group (MPIRG)

MPIRG is a nonprofit, nonpartisan, student-controlled corporation representing student interests in areas such as environmental quality, consumer protection, resource planning, health care delivery, occupational safety, community housing problems, race and sex discrimination, corporate and governmental agency review, and similar matters of urgent and long-range concern.

A fee of 75¢ per term is charged to support MPIRG programs and operations. A student may decline to pay the fee at the time of registration or may obtain a refund at a location and date that will be announced in the college newspaper (Duluth, Morris, and Twin Cities campuses).

Admission and Registration

COURSE FEES

(All fees are per term unless otherwise indicated. Fees are subject to change.)

Students will pay the following course fees in addition to tuition:

HEALTH SERVICE (field trips and foreign study)

Required of students on University field trips such as those in anthropology, civil engineering, geology, mines and other courses—\$17.50 per summer term (Covers outpatient medical care for emergency illness or accident at the nearest medical facility on approval of the person in charge of the group, up to a maximum of \$50 per visit).

Students on University field trips and in University-sponsored foreign travel groups are required to sign up for University-sponsored hospital insurance if they do not have private coverage.

ITASCA BIOLOGICAL STATION

Laboratory Fee—\$8.50

Research Fee—minimum \$2.50 per week¹

MATHEMATICS

Math 0009—\$57.00²

COMPOSITION

Comp 0001—\$57.00²

MODERN LANGUAGES

German—\$375 (surcharge on tuition portion of fee will be assessed, subject to regents' approval)² for program in Munich, Germany

MUSIC³

Courses in applied music carry 2 credits (minimum of 5 hours of private lessons) per summer term. Fees for non-music majors are based on individual lessons: \$96 for 0 to 2 credits. Music and music education majors who have passed the entrance examination take applied courses without fee. M.F.A. and D.M.A. students at the 83xx level also take applied courses without fee. Music and music education majors taking extra credits or taking lessons on a second instrument pay \$32 per 2 credits.

PHARMACY

Phar 0295—\$30²

Phar 0399—\$35²

PHYSICAL EDUCATION

PE 1205—Scuba and Skin Diving—\$20 per term

PUBLIC HEALTH

PubH 5755 (Administrative Residency)—\$150³

SOIL SCIENCE

Soil 5565—\$25

¹In lieu of tuition. Researchers must also pay the \$8.50 laboratory fee.

²In lieu of tuition.

³These fees are course fees, i.e., they are applied *in addition* to tuition.

SPECIAL FEES

MUSIC PRACTICE ROOM

5 hours per week for 5 weeks—\$1.75 per term

10 hours per week for 5 weeks—\$3 per term (50¢ per hour for each additional hour per week)

Organ—25¢ per hour

PHYSICAL EDUCATION¹

Cooke Hall

Locker and Towel Fee—\$.50 per day, \$7 per one or both summer terms

Gym Clothing Rental Fee—\$8

Norris Hall

Locker and Towel Fee—\$7

St. Paul Gymnasium

Locker and towel fee—\$7

SPEECH AND HEARING CLINIC

University of Minnesota Students, staff members, and faculty members are not charged for clinical services provided in the Speech and Hearing Clinic.

Outpatients:

Speech Pathology, Clinical Management—\$2 per session

Audiologic Evaluation—\$25

Audiologic Evaluation for Senior Citizens—\$15

Audiology Screening—\$2

Audiology Screening Follow-up—\$5

MISCELLANEOUS

International Student Aid Fee—\$2 per term (required of all nonresident noncitizens; optional for resident noncitizens)

Credentials Examination Fee—\$10 (\$15 for Graduate School, School of Dentistry, Law School, Medical School, and College of Veterinary Medicine [\$5 if previously granted or currently completing a baccalaureate degree at the University])

Graduation Fee (each degree; includes small diploma)—\$12.50

Large Diploma—\$7.50²

Special Examination—\$20

Record Service Fee—\$6 (required of all new students; provides three certified copies of student records; \$1 charged for each additional copy requested)

Orientation Fee—\$7.50 required of all new students (except graduate students who attended The Twin Cities campus as undergraduates); not required for students in law, medicine, veterinary medicine, dentistry, or public health or in M.Ed. or M.Ag. programs.

¹Fees are the same whether locker and towels or gym clothes are rented for one or both terms.

²In addition to the graduation fee.

Admission and Registration

DEPOSIT CARDS

Deposit cards may be purchased from the bursar (or from the cashier, Coffey Hall, for biochemistry courses in the College of Biological Sciences). Chemistry cards are \$20; pharmacy cards are \$10; biochemistry (College of Biological Sciences and Medical School) and art cards are \$5.

Laboratory materials and breakage will be charged against the student's deposit card. Any unused balance will be refunded at the end of the course.

The student must present a deposit card to be assigned a laboratory desk. Veterans will receive information from their instructor concerning deposit cards and laboratory assignments.

REFUND OF FEES

Students who *officially cancel* their summer session registration without attending class will be granted a 100 percent refund of fees. After classes begin, a student can receive a 100 percent refund *only* with a signed statement from the instructor(s) testifying that the student *never* attended class. Students who officially cancel after having attended class will be granted a refund of fees on the following basis:

Length of Term	80 Percent Refund for Attendance	60 Percent Refund for Attendance	No Refund for Attendance of More Than
5 weeks	during 1st week	during 2nd week	2 weeks
4 weeks	1 to 4 days	5 to 8 days	8 days
3 weeks	1 to 3 days	4 to 6 days	6 days
2 weeks	1 to 2 days	3 to 4 days	4 days
1 week	1 day	2 days	2 days

AUDITORS

Fees for auditors are the same as for students registered for credit. Permission to attend a class as an auditor may be granted by the dean of the college or school offering the course, with the consent of the department concerned. The procedure for registration as an auditor is the same as for registration for credit, except that "auditor" should be indicated on the registration form in the credits column.

AMOUNT OF WORK

A maximum of 10 credits is considered a full program for either term. Registration for more than 10 credits requires special permission from the Committee on Student Scholastic Standing or from the dean of the school or college in which the student is registered.

FINAL EXAMINATIONS

Final examinations are normally held during the last scheduled class hour for each course. A student who misses the final exam in a course will generally receive a grade of I (incomplete), in accordance with the instructor's announced policies for making up work.

GRADING

Academic achievement of Twin Cities campus students is evaluated according to two grading systems: A-B-C-D-N and S-N. The S grade indicates satisfactory work based on standards announced by the instructor; the N grade indicates no credit. There is no F grade; a student who is not doing satisfactory work will generally receive an N. The College of Education, however, offers its courses on the A-N grading system only, unless otherwise specified in the course description. All other students should check with their college office to find out which courses may be taken S-N and should indicate on their registration form which type of evaluation is desired for each course. A good explanation of the system appears in the current *College of Liberal Arts Bulletin*. Graduate students should consult the *Graduate School Bulletin* section on grading.



REGULATIONS GOVERNING GRANTING OF DEGREES

The Board of Regents will confer the degree appropriate to the course of study pursued, subject to the following conditions:

1. Completion of Curriculum Requirements—Certification by the University Records Office of the completion of all requirements of the course of study as outlined in the college bulletin, or their equivalent as determined by the faculty of the college.

2. Recommendation by the faculty.

3. Satisfaction of the Residence Requirement—The student must complete at least one year (45 credits) in residence at this University. If the term of residence is only one year, that year must be the senior year. In any case, the student must spend two quarters of the senior year in residence. This last requirement may be waived by individual colleges. In addition, special residence requirements must be met in several of the schools and colleges. Extension courses (not correspondence courses) may apply toward the residence requirement.

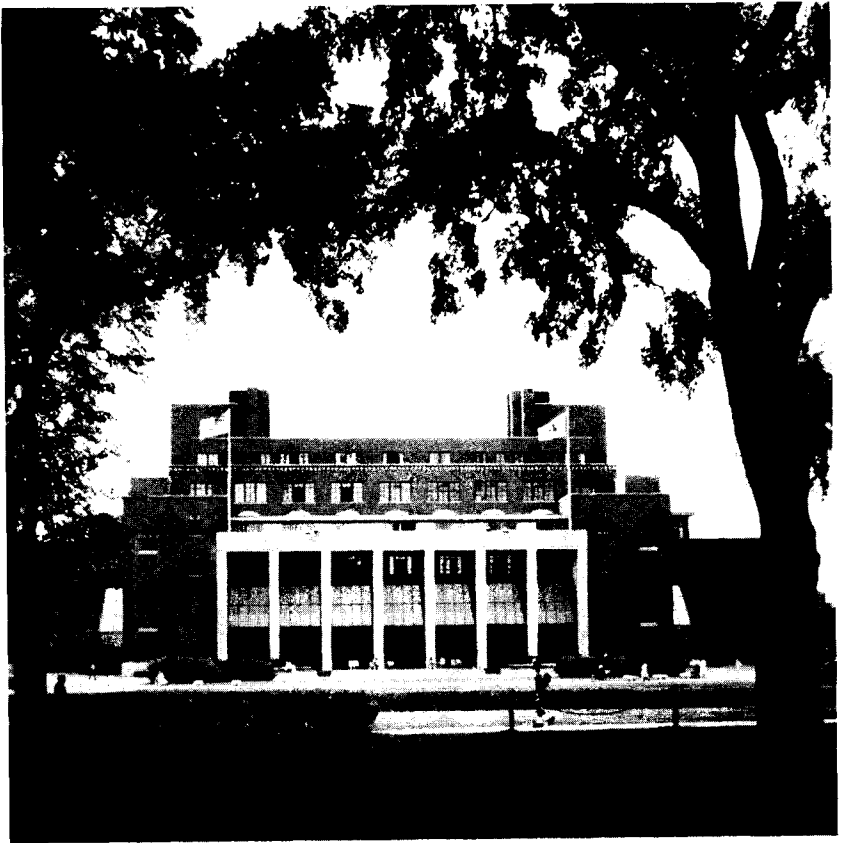
4. Payment or satisfactory arrangement for payment of all financial obligations to the University.

5. Attendance at commencement is optional. There is no commencement during the summer, and students planning to graduate during the summer may attend commencement in June or December.

6. Payment of Graduation Fee—For each degree, \$12.50 (includes small diploma).

7. Payment of Placement Service Fee—Required of candidates earning degrees from:

Duluth	\$15
College of Education (except recreation, park and leisure studies majors)	15
Morris	15
Division of Education	15
All other academic units	10



**University Services, Cultural and
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Services

HOUSING

Minneapolis Residence Halls

Sections of Middlebrook Hall and Pioneer Hall have been reserved for summer session students. Middlebrook is a coeducational air-conditioned residence on the West Bank that offers comfortable living in double rooms with a seven-day (19-meal) food service program under the direction of a professional food manager.

Pioneer is a coeducational non-air-conditioned residence on the East Bank that offers single, double, triple, and quad-type rooms, for both summer terms, with a seven-day (19-meal) food service program under the direction of a professional food manager.

Depending on possible construction activity in the immediate area, Frontier Hall may also be designated as a residence for summer students. Frontier is a coeducational (for the summer), non-air-conditioned hall adjacent to Pioneer that offers a few single, but mostly double rooms. Food service is provided in Pioneer Hall and is accessible via a tunnel.

In both terms and in both halls the meal service begins on the first day of regularly scheduled classes.

Applications for residence will be filled in order of date received. To assure a choice of rooms, applications should be submitted as early as possible. For information and application forms write to: Housing Office, Comstock Hall, 210 Delaware Street S.E., University of Minnesota, Minneapolis, Minnesota 55455. The Housing Office telephone number is (612) 373-7542.

St. Paul Residence Hall

Bailey Hall will be open as a conference facility during the summer of 1981. Depending on demand by summer session students for space in Bailey Hall, a few spaces for students may be available. Special arrangements may be required for food service. If Bailey is open for students during either summer term, accommodations will be in non-air-conditioned double rooms.

Off-Campus Housing—Private Residence

Apartments, houses, duplexes, sublets, and rooms in private homes, rooming houses, cooperatives, fraternities, and sororities are listed by the Housing Office. Most units are listed about a month before they become available for rental.

Information about housing facilities and assistance in locating off-campus residence accommodations may be secured from the Housing Office, Comstock Hall, 210 Delaware Street S.E., University of Minnesota, Minneapolis, Minnesota 55455, for Minneapolis; or 190 Coffey Hall, 1420 Eckles Avenue, University of Minnesota, St. Paul, Minnesota 55108, for St. Paul. The telephone number of the Minneapolis Housing Office is (612) 373-7542; the number of the St. Paul office is (612) 373-0822.

UNIVERSITY CHILD CARE CENTER

The University Child Care Center, designed as a model facility with several unique features, provides care for infants and toddlers as well as preschool children. The center is open Monday through Friday throughout the year from 7:30 a.m. to 5:30 p.m. Children are divided by age and individual needs into three groups: infant (3-15 months), toddler (16-30 months), and preschool (30 to 60 months). Fees for care are charged on a sliding scale based on ability to pay. For further information visit the University Child Care Center, 1818 4th Street South, Minneapolis, Minnesota 55454; or call 376-5265. A limited number of summer-only placements are available.

UNIVERSITY POST OFFICE

Many post office services are available at the University contract stations located on the ground floor of Coffman Memorial Union in Minneapolis (telephone 373-2432) and in Coffey Hall in St. Paul (telephone 373-1612). Both locations are open Monday through Friday, 8:00 a.m. to 4:10 p.m. in Minneapolis and 9:00 a.m. to 4:15 p.m. in St. Paul.

All students registered in colleges located in St. Paul are assigned a post office box in which they will receive all mail, announcements, and University communications.

STUDENT COUNSELING BUREAU

The Student Counseling Bureau, 101 Eddy Hall (373-4193), offers counseling on a year-round basis. This service is available to students in all of the University's colleges and schools and at any stage of academic progress, from beginning freshmen to students at graduate and professional levels. The range of concerns brought to the Student Counseling Bureau is wide, including career choice, educational planning, reading and study skills improvement, interpersonal relationships, and personal development. Tests and inventories are often used to assist in the counseling process. Referrals are sometimes made to appropriate University and community resource organizations. There is no fee for students, and counseling and testing information is confidential.

Counselors are available from 8:00 a.m. to 4:30 p.m. Monday through Friday. Walk-in counseling is available for crisis or emergency situations. Students may call or visit the reception desk, 101 Eddy Hall (373-4193) on the Minneapolis campus; the Institute of Technology office, 104 Lind Hall (373-3714); the St. Paul Student Counseling Bureau, 190 Coffey Hall (373-1140); or any of the other services described below.

Campus Assistance Center—This center furnishes information or referral concerning any problem or question about the University, whether academic, administrative, or personal. Both walk-in and telephone service is available (101 and 209 Eddy Hall, Telephone 373-1234).

Digital Information Access Line (DIAL)—This program is a call-in service offering over 300 taped messages on a wide range of topics, including career planning, social and recreational activities, student services, legal problems,

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health care, child care, and academic matters. Interested persons may call 373-1857 between 8 a.m. and 5 p.m. Monday through Friday to request a tape on a particular topic or to request a brochure listing tapes by subject.

Reading and Study Skills Center—Students may visit this center for assistance with reading, note taking, effective study, and other academic skills (104 Eddy Hall, telephone 373-4193).

Occupational Information Library—Educational catalogs and occupational descriptions are available for students who need information to help them in planning their careers (9 Eddy Hall).

Rehabilitation Services—Counseling, information, problem solving, academic assistance, and referral services are provided for students and prospective students with physical or learning disabilities (113 Eddy Hall, telephone 373-2716 Voice or TTY, N105 Elliott for mobility impaired students). Assistance includes sign language interpreters for students with hearing impairments.

STUDENT EMPLOYMENT SERVICE

The Student Employment Service, 6 Morrill Hall, assists students seeking part-time work either on or off campus. Students should apply in person at the office after enrollment is completed and the class schedule is known. Chances of being placed depend on the supply of jobs and the student's qualifications and hours available. Frequently a job will provide valuable experience as well as financial assistance.

CAMPUS BUS SERVICE

Detailed information about bus service between the Minneapolis and St. Paul campuses, between East and West Banks, and to and from the Como Avenue parking complex is available at the main information centers at the following locations: Coffman Union, West Bank Union, Williamson Hall, the St. Paul Student Center, Coffey Hall, the Housing Offices in Comstock and Coffey Halls, and the Transit Services Office at 2818 Como Avenue.

Information about city bus routes serving the University area, including semi-express bus service between the campus and selected Twin Cities residential areas (Route 52), also is available at the above locations, or from the Metropolitan Transit Commission, 827-7733.

Schedules and fares are subject to change; call the Transit Services Office at 373-0374 for current information.

Note: There is **no** campus bus service during the summer months on Saturdays, Sundays, or on official University holidays.

Intercampus Bus—Lines 13-G, 13-J, 13-L, 13-N, and 13-U

Free transportation between the Minneapolis and St. Paul campuses is available Monday through Friday on special buses labeled "Route 13—University of Minnesota."

During both summer terms, intercampus buses leave Blegen Hall on the West Bank and the St. Paul Student Center simultaneously for the opposite campus, at the following times:

7:05 a.m. to 1:25 p.m.—every 10 minutes
1:25 p.m. to 5:25 p.m.—every 15 minutes

Buses that leave at 25 and 55 minutes after each hour between 7:25 a.m. and 4:55 p.m. travel via University Avenue (Route 13-U).

Bus schedules are subject to change. Current schedules and route maps are available at the information centers listed above. Schedules also are posted at each bus stop along the route.

Route Key:

- Route 13-G: Travels from Blegen Hall on the West Bank to the St. Paul Student Center (and vice versa) via Jones Hall and Como and Larpenteur Avenues. ("Grove" bus)
- Route 13-J: Travels *only* from Jones Hall to the St. Paul Student Center (and vice versa) via Como and Larpenteur Avenues.
- Route 13-L: Travels from Blegen Hall on the West Bank to the St. Paul Student Center (and vice versa) via Jones Hall and Como and Larpenteur Avenues.
- Route 13-N: Travels from Blegen Hall on the West Bank to the St. Paul Student Center and Northern portions of the St. Paul Campus via Jones Hall and Como and Larpenteur Avenues.
- Route 13-U: Travels from Blegen Hall on the West Bank to the St. Paul Student Center (and vice versa) via Washington and University Avenues.

There is no charge to ride the intercampus buses, provided you board and exit at on-campus stops. If you board or exit at an off-campus stop, the fare is 50¢ or one punch of a special reduced-fare discount card. These discount cards, which allow 20 rides for \$9, can be purchased at any University bursar or cashier office. (Note: Fares may change July 1, 1981.)

East-West Bank Bus—Route 13-B, 13-G, 13-L, 13-N, and 13-U

Free bus service also is available Monday through Friday between the East and West banks at 10-minute intervals between 7:05 a.m. and 1:25 p.m., and at 15- and 30-minute intervals between 1:25 and 5:25 p.m. Routes 13-B, 13-G, 13-L, 13-N travel between Blegen Hall and Jones Hall. Route 13-U travels between Blegen Hall and Lyon Laboratory/Amundson Hall.

Como Avenue Park-and-Ride Complex

Free parking is available for 700 cars at the Como Avenue park-and-ride complex, located near the intersection of Como and 29th avenues S.E. (just a few

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blocks west of Highway 280). Follow the "U of M Parking" signs in the area. A 25¢ fare (50¢ per round trip) is charged to ride the campus buses between the complex and the St. Paul or Minneapolis campus. Bus service to and from either campus is frequent: every 10 minutes between 7:10 a.m. and 1:30 p.m. and every 30 minutes between 1:30 and 5:30 p.m. The bus trip to either campus takes approximately 5 minutes. For those not wishing to worry about having the correct change, bus fare cards offering 20 rides for \$5 can be purchased at any University bursar or cashier office. (Note: Fares may change July 1, 1981.)

BOYNTON HEALTH SERVICE

The Boynton Health Service provides outpatient services during the summer session on a basis similar to that during the academic year. The same staff of physicians, dentists, and nurses is on duty. General outpatient services are provided without charge to all students who have paid the student services fee. A student who attends and pays the student services fee for both summer terms is eligible for regular outpatient benefits without extra charge until Monday of Welcome Week in the fall. For certain services and products, such as dental work, prescription drugs, eye glasses, and routine physical examinations, special fees are charged.

The Health Service portion of the student services fee does *not* provide any hospitalization or surgical benefits. Instead, the Board of Regents requires that all students who pay the student services fee have hospital insurance protection. Students may purchase University-sponsored hospital-medical-surgical insurance during registration. Those who have adequate private hospital insurance, or who are eligible for Medicaid or public assistance, may apply for exemption from the University-sponsored hospital insurance fee. Students who qualify and wish to apply for this exemption must be prepared at the time of registration to supply the name of the insurance company through which they have coverage or to give their Medicaid or public assistance number.

A student who belongs to a Health Maintenance Organization (HMO), such as Group Health Plan, Inc., or who is covered by insurance which has a deductible clause pertaining to outpatient services and that deductible amount has been satisfied, may apply for a partial exemption from the student services fee, in the amount of \$15.00 per term. Proof of HMO membership or evidence that the specified deductible amount has been met must be presented to the Cashier in W220 of the Health Service prior to registration. The Health Service cashier will complete a "Partial Fee Exemption" form indicating the amount of exemption. This form must be presented along with the student's registration materials at the appropriate college window during registration. Students who fail to apply for the exemption prior to registration may apply for a refund during the first week of each summer term.

Students who receive the above exemption or refund may use the Health Service on a fee-for-service basis.

For further information, visit the Business Office, room W226 of the Boynton Health Service, or call 373-3138.

UNIVERSITY LIBRARIES—TWIN CITIES

The University Libraries—Twin Cities include almost 50 service units, located on the Minneapolis and St. Paul Campuses. They have collections totaling more than three- and one-half million cataloged volumes as well as substantial holdings of government publications, manuscripts, archives, and other materials. The University Libraries—Twin Cities collections rank 13th in size among American university libraries, and include particular areas of strength in Asian studies, children's literature, exploration and travel, history of medicine, immigration, European history, Latin American studies, American and Western European literatures, science journals, and social welfare.

The University Libraries—Twin Cities are organized into the following major units, each housing collections related to a substantial discipline or cluster of disciplines:

Bio-Medical Library in Diehl Hall (373-5585) supports the programs in the health sciences and has extensive holdings in the biological sciences. The Natural History Library, 301 Museum of Natural History (373-5584), is physically separate but affiliated with the Bio-Medical Library.

Institute of Technology Libraries (373-2932) includes the following seven physically-separate libraries, located on the East Bank of the Minneapolis Campus, and supports the programs of the Institute of Technology: Architecture Library, 160 Architecture Building (373-2203); Chemistry Library, 4 Walter Library (373-2375); Engineering Library, 128 Lind Hall (373-2957); Geology Library, 204 Pillsbury Hall (373-4052); Mathematics Library, 310 Vincent Hall (376-7207); Mines, Metallurgy, and Chemical Engineering Library, 132 Amundson Hall (373-2313); Physics Library, 260 Physics (373-3362).

Law Library, 120 Law (373-2737), supports the programs of the Law School.

St. Paul Campus Libraries (373-0903) support programs in agriculture, biological sciences, and veterinary medicine. In addition to a major Central Library, the St. Paul Campus Libraries include the following physically separate service units: Andersen Horticultural Library, 3675 Aboretum Drive, Chaska, MN (443-2460); Biochemistry Library, 406 Biological Sciences Center (373-1582); Entomology Library, 375 Entomology, Fisheries, and Wildlife Building (373-1741); Forestry Library, 203 Green Hall (373-1407); Plant Pathology Library, 202 Plant Pathology (373-1669); The Tennent Memorial Library at the Freshwater Biological Institute, Navarre, MN (471-7755); Veterinary Medical Library, 450 Veterinary Science (373-1455).

Walter Library (376-2931) on the East Bank Mall of the Minneapolis campus, supports programs in education and a number of humanities and social science disciplines, including art history, library science, music, and psychology. Walter Library also includes the following physically separate service units: Immigration History Archives, 826 Perry Street, Minneapolis (373-5581); Journalism Library, 121 Murphy Hall (373-3174); Manuscripts Collection, 826 Perry Street, Minneapolis (376-7172); Social Welfare History Archives, 1925 Sather, Lauderdale (373-4420).

University Services, Cultural and Recreational Opportunities

Wilson Library, on the West Bank of the Minneapolis Campus, (373-5370), supports most of the humanities and social sciences programs as well as those of business administration. The Wilson Library also includes the following specialized service units: Ames Library of South Asia, S10 Wilson (373-2890); Business Reference Service, 2nd Floor Wilson (373-4109); East Asian Library, S30 Wilson (373-3737); Government Publications, 409 Wilson (373-7813); James Ford Bell Library; 462 Wilson (373-2888); Maps, S76 Wilson (373-2825); Middle East Library, S50 Wilson (373-7804); Periodicals/Newspapers, 65 Wilson (373-2897); Public Administration Library, 365 Blegen Hall (373-2892).

Union Catalog. A union catalog, listing the cataloged holdings of the University Libraries—Twin Cities, is located on the main floor of Wilson Library. Assistance in using this catalog, or information about the libraries' holdings, can be obtained from the Catalog Information Desk, located next to the union catalog. Telephone service is also provided by the Catalog Information Desk (373-9985).

Circulation of Materials. Information regarding student, faculty, and staff circulation privileges can be obtained from any library unit. This includes information regarding reserves, placement of holds, recalls, etc.

Library Hours. Information regarding library hours can be obtained from any library service unit.

Specialized Services. The University Libraries provide a number of specialized services, including in-depth reference service, library orientation, bibliographic instruction, access to machine-readable data bases, inter-library borrowing, and photocopy. Information regarding these services, some of which are self-supporting and involve modest charges, can be secured from any library unit.

THE MINNESOTA UNION

All Twin Cities campus students, through payment of the student services fee, become members of the *Minnesota Union*, an association of students, faculty, staff, and alumni. The Minnesota Union Coordinating Board sets goals and allocates resources for the intellectual, cultural, social, and recreational services, programs, and activities offered by the member unions.

Three organizations make up the Minnesota Union: Coffman Memorial Union, the West Bank Union, and the St. Paul Student Center.

Coffman Memorial Union

Coffman Memorial Union (CMU) is a center of campus life for the East Bank. The union offers a wide variety of social, recreational, and cultural facilities, services, and programs designed to serve the many educational and leisure-time needs of students, faculty, and staff.

Throughout the year, CMU presents a variety of films, concerts, dances, trips, lectures, art exhibits, and cultural programs and a series of over seventy mini courses.

CMU houses a campus Information Center, the Student Organization Development Center (SODC), and more than 40 student organizations representing student governance and social, cultural, political, religious, recreational, and special interest areas. In addition, the union provides facilities and services to accommodate the multiple needs of more than 500 campus organizations.

CMU has lounges, study carrels, dining facilities, a recreation/games complex, an art/craft studio, and a music listening center, providing members of the University community with places to meet, study, eat, learn, and relax. Meeting and dining rooms, lecture halls, and theatre facilities are available by reservation for group rental. In addition, Coffman Union also houses art galleries, MSA Student Stores, University YWCA, a post office, newsstands, the campus Lost and Found Office, the Locker Rental Service, WMMR radio station, the International Study and Travel Center, and the Golden Razor Barber and Beauty Salon.

Summer hours for CMU are 7 a.m. to 10 p.m. Monday through Friday. Consult the *CMU Prevue*, the *Minnesota Daily*, or *Socially Speaking* for specific program events, times, and dates. For further information about programs, services, and facilities at Coffman Union, call 373-2403 during building hours.

West Bank Union

The West Bank Union (WBU) plans programs that provide learning opportunities; promote interaction with students, faculty, and staff; and offer entertainment. Activities are organized by those interested, with assistance from an elected student board and staff advisers. Ideas and assistance in planning and presenting programs are welcome; interested students should stop in at 130 WBU Skyway.

West Bank Union facilities include common rooms in Anderson Hall for lounging, listening to music, reading, and playing table games; a common room in Blegen Hall for study, conversation, and playing chess; and the service centers in Anderson Hall, Social Science Building, and the WBU Skyway, offering program information, locker rentals, and general assistance.

The WBU Gallery exhibits artworks by University studio arts students and faculty members on the lower concourse of Willey Hall.

WBU Bijou films are shown weekly, once in the afternoon and once in the evening. The film schedule is available in the WBU office, 130 WBU Skyway.

Recent construction on the West Bank has resulted in expanded facilities and the WBU Skyway, which connects Blegen Hall and Willey Hall, and houses a service center and several offices. The new WBU Program Hall, adjacent to Willey Hall, houses a general purpose lounge and program area, as well as a large theater/lecture hall.

Summer hours for WBU are 7:30 a.m. to 4:30 p.m. Monday through Friday. For information about programs, consult the *Minnesota Daily* or call 373-5058 during business hours.

St. Paul Student Center

The air-conditioned St. Paul Student Center is open throughout the summer session from 7 a.m. to 10 p.m. weekdays. Details about the Student Center and campus activities may be obtained at the information desk of the center or by calling 373-1046.

Facilities include lounges, art galleries, a ballroom, conference rooms, and a games area with bowling lanes, table tennis, and billiard tables. Outings equipment is available for rental and sale. Meeting rooms are available for groups.

The Rouser Room is open for breakfast, light lunches, and snacks.

Cultural and Recreational Opportunities

RECREATION

The University of Minnesota, aware of the need for relaxation during the intensive, accelerated summer academic program, plans a variety of recreational and cultural activities on campus at little or no cost to the student. Campus activities are listed—along with summer schedules for Twin Cities theatres, museums, and other groups—in *Socially Speaking*, a special publication for summer session students.

The location of the University makes accessible to resources of the many cultural and recreational facilities of a large metropolitan area. Lakes and lagoons...swimming beaches...picnic grounds in parks and along roadsides...evening concerts on lakeshores and in parks...art centers, museums, libraries...excellent stores for shopping and browsing...a wide choice of places for dining...as well as the many professional entertainment activities provided by a large city—all are within easy access by public or private transportation. Trips to the popular North Shore of Lake Superior or to one of the many lakeside resorts for fishing or relaxing are possible on weekends.

CAMPUS SPORTS FACILITIES

Summer session students may participate in a variety of recreational activities such as golf, swimming, table tennis, softball, tennis, paddleball, and handball. Most of the activities are free, except for locker and towel charges.

University facilities include:

Gymnasiums and swimming pools for men and women in Cooke Hall, Norris Hall, and the St. Paul Gymnasium. Swimming pools in all three buildings are open for recreational swimming weekdays during scheduled hours. The Bierman Field Athletic Building gymnasium is also available for student use.

Baseball and softball diamonds at Bierman Field, Como Field, West Bank Field, St. Paul Fields.

An 18-hole golf course, a 9-hole (par 3) golf course, and tennis courts that may be used by regularly enrolled summer session students upon presentation of a fee statement and a nominal fee. The golf courses can be reached by intercampus bus.

Complete information on sports programs is available from Cooke Hall Recreational Sports, telephone 373-4200.

CONCERTS AND LECTURES

Through the Department of Concerts and Lectures, the Summer Session provides a variety of free entertainment. The summer program features blues, jazz, folk, opera, symphonic, modern, and chamber music as well as classical, modern, and folk dance. Many of these informal programs are held outdoors. Most programs are free; a small admission is charged for the others. Watch Northrop Auditorium bulletin boards, campus posters, and the *Minnesota Daily* for announcements about scheduled performances.

UNIVERSITY GALLERY

The University Gallery, located on the third and fourth floors of Northrop Memorial Auditorium, presents frequently changing exhibitions of photographs, paintings, sculpture, prints, and decorative arts.

Gallery facilities supplement classroom, studio, and library experience in the arts. Individual works of art and specialized materials from the gallery's collection are available for study by appointment.

Framed original paintings and prints are available for rental to students and staff members and for public display on campus. Call 373-5685 for rental information.

Gallery hours are 11 a.m. to 4 p.m. Monday, Wednesday, Friday; 11 a.m. to 8 p.m. Tuesday, Thursday; and 2 to 5 p.m. Sunday. The gallery is closed on Saturday and University holidays. Admission is free. The main office is located in 110 Northrop Memorial Auditorium (telephone 373-3424).

BELL MUSEUM OF NATURAL HISTORY

The James Ford Bell Museum of Natural History, 17th and University Avenues S.E., Minneapolis campus, features exhibitions of the wildlife of Minnesota, the Touch and See Room, the Jaques Gallery of natural history art, extensive research collections of birds, mammals, reptiles, amphibians, and fish, and the University's natural history library.

The museum's Touch and See Room is a special area that includes pelts, bones, and mounted heads of animals from all over the world. Everything is within easy reach of young children, and handling the items is encouraged. This air-conditioned part of the museum also contains a reading area, where a wide collection of children's books is maintained by the Minneapolis Public Library Children's Department for parents and babysitters with young children.

The museum offers free admission and is open from 9 a.m. to 5 p.m. Monday through Saturday and from 1 to 5 p.m. on Sunday. Guided tours are available to

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groups upon advance request. The museum has a wheelchair ramp and five wheelchairs and welcomes the handicapped and elderly. A bookstore in the lobby sells records for bird and animal calls, prints, and stationery. Call 373-2423 for tour appointments or further information.

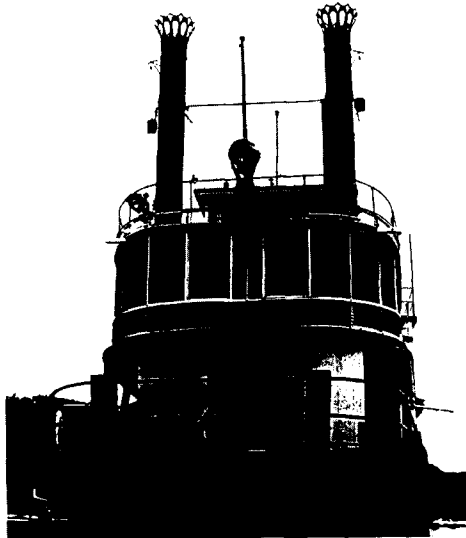
UNIVERSITY THEATRE

The University Theatre is celebrating its 50th season this year, recognizing a heritage of fine plays, unique productions, and accomplished alumni. The celebration continues this summer with the return of Frank "Doc" Whiting as the director of the Showboat play productions.

It was 1958 when "Doc" Whiting presented the first show aboard the converted sternwheel river boat. He continued as director through 1974. In 1981 he rejoins the Theatre to produce Steele MacKaye's 19th century classic *Hazel Kirke*.

Hazel Kirke was one of the most popular New York productions just before the turn of the century. This year, Showboat audiences can see the American classic come to life in traditional Showboat style. Robert Moulton, who staged olios for Whiting's earlier shows, and Wendell Josal, the original Showboat scene designer, will be part of the production team. Performances are offered June through mid-August, and ticket information is available by calling 373-2337.

The Peppermint Tent Theatre for children will also be part of University Theatre's summer playbill. Thousands of Twin Cities young people have attended the Peppermint Tent since it began in 1966. Now in its fifteenth year, two plays will be given for children ages 4-10 in the air-conditioned comfort of Rarig Center's Stoll Thrust Theatre. Ticket and performance information is available at the Rarig Center Ticket Office or by calling 373-2337.





Special Programs and Workshops

College of Business Administration

MASTER OF BUSINESS ADMINISTRATION (MBA) PROGRAM

Students may start the full-time accelerated MBA program in the Summer Session. The accelerated program is designed for students with an undergraduate degree in business, and can be completed in four quarters (summer through the following spring). As part of the admissions process, prospective students need to take the Graduate Management Admission Test, which is typically offered in January, March, July and October each year. The regular MBA program, for students with little or no undergraduate background in business, is six quarters in length, and starts in fall quarter each year.

For further details about the MBA program, contact the Graduate School of Business Administration, 334 Business Administration, 271-19th Avenue South, University of Minnesota, Minneapolis, Minnesota 55455; telephone (612)373-5505.

College of Education

MAIL REGISTRATION FOR STUDENTS IN THE COLLEGE OF EDUCATION

Students registering in the College of Education as B.S., M.Ed., adult special, and summer-only students may register by mail. Teachers registering for courses in any department of the University, as well as other students taking professional education courses, should register through the College of Education and thus are entitled to register by mail. Mail registration is *not* permitted in the Graduate School, for 8000-level courses, or for courses and workshops listed in this bulletin that have special registration instructions.

Qualified students may obtain registration materials from the Summer Session Office, either by telephoning 373-2925 or by sending in the request card found at the back of this bulletin. All mail registrations *must be received by May 28* in order to be processed in time for the start of the summer session. Any student who registers and then decides not to attend classes should notify the Education Career Development Office as early as possible so that an official cancellation can be processed.

MEDIA GENERALIST LICENSURE PROGRAM

The media generalist licensure program is offered cooperatively by the College of Education and the Library School. Licensed school teachers interested in media applications in schools who wish to apply for licensure as media generalists should write for program and application information to Robert D. Tennyson, Director, Media Generalist Program, College of Education, 250 Burton Hall, 178 Pillsbury Drive S.E., University of Minnesota, Minneapolis, Minnesota 55455.

INSTITUTE OF CHILD DEVELOPMENT

The Institute of Child Development is one of the country's oldest and best known centers for research and training in child psychology. The institute offers graduate and undergraduate courses and conducts a nursery school for demonstration, student teacher training, and research during the summer terms.

Nursery School—The Nursery School will be in session from 8:45 a.m. to 12 noon Monday through Friday, from Wednesday, June 17, to Friday, July 17. Applications for the enrollment of children will be accepted at the office of the Nursery School, 184 Child Development Building, 51 East River Road, University of Minnesota, Minneapolis, Minnesota 55455; telephone 373-9853. Tuition is \$87 for the summer term. Parents are responsible for transporting their children to and from the school.

DEPARTMENT OF CURRICULUM AND INSTRUCTION

The third annual Chase Lecture, with an emphasis on Creative Writing For and By Children, will be presented Tuesday, June 23, at 3:30 in the Theatre Lecture Hall of Coffman Memorial Union. The lecture, open to the public, is supported by the University of Minnesota Foundation with funds from an endowment given for the purpose of "encouraging the improvement of children's writing." This year's guest lecturer is Arnold Lobel, a talented writer, artist, and humorist whose work appeals to readers of any age. Other distinguished guests who will lecture for the Creative Writing course (Elem 5318) are Florence Parry Heide and Leonard Everett Fisher. Questions about the course or the Chase Lecture may be directed to Elementary Education, 214 Burton Hall, 178 Pillsbury Drive S.E., College of Education, University of Minnesota, Minneapolis, Minnesota 55455.

Art Education

Art Media Techniques—ArEd 5001 is offered in a series of six workshops designed in the reduced-term intensive-study format and focused on a selection of topics especially for persons who work with children grades K through 12. The workshops focus on ceramics, watercolor, creative problem solving, puppetry, printmaking, and art projects for elementary schools. They will meet in two-week blocks of time during first and second summer terms, coordinated for maximum convenience of students.

A one-week workshop, ArEd 5386—Improving Art Programs in the Schools, meeting August 17-21, will continue this series with emphasis on a regular program of art instruction across the elementary and secondary school curriculum. Nationally known art curriculum developer Dr. W. Dwaine Greer of the Southwest Regional Educational Laboratory in California is scheduled as guest lecturer.

For more information about these offerings, contact Michael Day, 135 Wullung Hall, 86 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

Special Programs and Workshops

For Elementary School Educators

Workshop: Curriculum Implementation in Elementary School Social Studies—In the first term, three sections of Elem 5363 are scheduled, each for three credits. Section 1, held June 16-July 1 at the Minnesota Science Museum, 10th and Wabasha Streets, St. Paul, focuses on the use of museums in elementary social studies. Section 2 is scheduled on campus, and section 3 will be offered at the Rochester Extension Center, Rochester, Minnesota. See course description of Elem 5363 for further information.

For Mathematics and Science Educators

Credit earned in workshops and special courses scheduled both terms for elementary, middle, or secondary school teachers may be applied to M.A. or M.Ed. degree programs with approval of students' advisers. For information on any of these listings, you may call Robert Jackson (373-2275) or the Curriculum and Instruction Department office (373-3300), 125 Peik Hall, 159 Pillsbury Drive S.E., University of Minnesota, Minneapolis, Minnesota 55455. Workshop: Mathematics Education (MthE 5102) in first term is directed specifically to junior high school teachers and examines principles and teaching methods fundamental to the junior high school curriculum.

Elementary and Middle School Teachers—Strategically scheduled in the second term between July 20 and August 7, 7 of the 10 modules of the mathematics workshop (MthE 5102) are first-time offerings for one or two credits each. These modules explore the use of a home microcomputer in the elementary school curriculum; acquaint teachers with activities to use in developing problem solving skills; develop interdisciplinary units to integrate and correlate mathematics, science, and social studies; identify geometry activities to generate enthusiasm for a neglected area of elementary education; assist teachers to develop skills in teaching fractions; explore the use of children's literature in teaching mathematics and science at this level; and examine use and evaluation of commercial games to teach mathematical ideas. Three modules are repeated from summer 1980: these explore use of the hand-held calculator to develop skills, concepts, and problem solving abilities; use of the out-of-doors as an environment for teaching measurement skills and concepts; and techniques to improve student performance in basic skills areas in mathematics.

Middle and Secondary School Teachers—The science education workshop (SeEd 5394), meeting first term, will focus on science teaching and the development of reasoning in a workshop. The mathematics workshop (MthE 5322), also meeting first term, will give teachers an opportunity to examine and evaluate instructional hardware currently available to schools.

Two sections of the science education workshop, scheduled between July 20 and August 7, will focus on day- and night-time astronomy activities to enhance the child's understanding of the cosmos; and involve design, construction, and use of simple meteorological instruments within the capabilities of children of middle school age.

Innovative Course for Earth Science Teachers—Section 2 of SeEd 5394, June 29-July 10, will investigate Twin Cities geology. Field trips to a planetarium, a beach, the airport, and local television weather stations, fossil hunting and cave exploration, and laboratory work will be combined to examine ways to use such activities in teaching earth science.

Mathematics, Science, and Special Education Teachers—Two first-term courses will be especially useful for teachers at all levels. Section 1 of the Practicum in Mathematics Education (MthE 5680) is directed toward diagnosis and remediation of arithmetic learning difficulties. Completion of, or concurrent registration in, the course on mathematics for slow-learning children (MthE 5355) is strongly advised.

For Secondary School Educators

New Perspectives in the Social Studies—SeEd 5153 will be offered in two sections in the first term and one in second. Section 1 focuses on the use of the newspaper as an instructional tool, and section 2 addresses the use of economic content to improve the teaching of civics and government in secondary schools. In the second term, from July 27 to August 7, the course will focus on simulations and games to be analyzed and evaluated. Students will also use computer simulations.

DEPARTMENT OF EDUCATIONAL ADMINISTRATION

Educational Administration Two-Year and Doctoral Programs

The department offers programs leading to the specialist certificate, Ed.D. and Ph.D. degrees for administrators in elementary and secondary schools and educational agencies. These programs emphasize a breadth of preparation in education and related fields and include concentrations in the history and philosophy of education, social psychology, and curriculum and instruction.

Brochures describing the programs are available from the Department of Educational Administration, 225 Health Service, 1518 North Cleveland Avenue, University of Minnesota, St. Paul, Minnesota 55108.

Special Workshops

Administrator Development Seminar—Applicants for admission to degree programs in educational administration are encouraged to participate in a seminar combining registration in EdAd 5130 and EdAd 5139. Assessment and counseling, skill development, and contemporary issues in the field are topics of the second term seminar. See the Course Descriptions section for registration requirements. Registration in both courses for a total of six credits is mandatory, and preapplication is required. Inquiries should be addressed to the Department of Education Administration, 225 Health Services, 1518 North Cleveland Avenue, University of Minnesota, St. Paul, Minnesota 55108.

Policy Development for School Managers—EdAd 5128, which meets June 29-July 17, is a workshop designed to help personnel use new minicompu-

Special Programs and Workshops

ter technology in instructional management, personnel administration, fiscal control, and policy evaluation.

School Personnel Management—EdAd 5128, which meets August 10-21, will focus on the processes of bargaining, mediation, and arbitration, through a series of simulated activities. EdAd 8227, which meets June 16-26, gives an overview of the personnel management function and the critical personnel management needs of school systems of the 1980's, through a review of research, examination of existing policies and procedures, and issues involved.

The Middle School Experience—Two first-term courses on the middle school, EdAd 5167 and Educ 5190, will probe the character of middle school organization and curriculum. These courses are offered through the joint initiative of the departments of Educational Administration and Curriculum and Instruction. The focus is on the institutional mission, the special case of middle school pupils, and the principles of curriculum construction. The courses include lectures, workshop sessions, group discussion, and will use resource specialists in the field. This will be an ideal experience for teachers and administrators who need academic development, middle school licensure, or renewal credit in a concentrated period.

Community School Institute—Each year since its inception in 1969, the institute has examined a different facet of the larger community school organization concept. The theme for EdAd 5128 (July 13-17) in 1981 is "Cultural Pluralism and Aging in Community Education Services." A faculty of specialists develops the theme in a framework of concepts and clinical experiences drawn from education, leisure and recreation, community development, and other relevant fields. The program format will feature general and clinic sessions, idea exchange periods, and film. Because enrollment is limited to 90 participants, preapplication is encouraged. Those interested should write to Professor Samuel Popper, 217 Health Services Building, 1518 North Cleveland Avenue, University of Minnesota, St. Paul, Minnesota 55108.

Post-Secondary Administration—For interested students, three experiences are offered. A joint offering of EdAd 5274 and VoEd 5274 (June 16-26) extends to students an opportunity to become familiar with organization, programming, and developmental trends in institutions such as area vocational-technical schools and community or junior colleges. EdAd 8275 (June 29-July 17) deals with the role of administrator and administration of these institutions. For those focusing on administration of higher education, EdAd 8253, offered first term, provides a comprehensive introduction to management at this level.

Special Education Administration—Supervision and Administration of Special Education, offered under EdAd 5103 or PsyS 5160 (July 20-August 7), provides an opportunity for teachers and administrators to study contemporary management issues in special education, including implementation of such new mandates as Public Law 94-142.

SCHOOL OF PHYSICAL EDUCATION, RECREATION, AND SCHOOL HEALTH EDUCATION

Physical Education

Dance—Billy Siegenfeld, a visiting professional dancer, will offer individual courses in advanced modern dance technique and improvisation, and dance repertory theater. For further information, see the Course Descriptions section of this bulletin or contact Professor Nadine Jette, 159 Norris Hall, 172 Pillsbury Drive S.E., University of Minnesota, Minneapolis, Minnesota 55455; telephone (612) 376-3211.

Practicum: Prevention and Care of Athletic Injuries—PE 5620 will be offered first term as a concentrated two-week practicum (June 22 through July 2). Instructors for the course will be Jeffrey Monroe, assistant athletic trainer, and James Marshall, athletic trainer, University of Minnesota.

Coaching Individual, Dual, or Team Sports: Swimming and Diving—PE 5740 is a 6-day first-term (June 15-20) concentrated workshop on coaching swimming and diving. Instructors for the workshop will be Paul Stearns, head coach of the University of Minnesota men's swimming team, former state high school "Coach of the Year," and nominee for "National Coach of the year"; Jean Freeman, head coach of the University of Minnesota women's swimming team and coach for the Olympic Swimming Development Program, Colorado Springs, in 1980; and Frank Oman, head diving coach for both the men's and women's diving teams, University of Minnesota, and director of the U.S. Diving Team in the 1979 Canada Cup Competition. Both practical and theoretical instruction in the techniques of coaching swimming and diving will be offered. A written assignment and a final examination will be required.

Workshop: Physical Education for the Elementary School Child—PE 5710, offered July 20-August 5 for three credits, will focus on devising instructional strategies, modifying activities, and organizing for individualized instruction. The instructor will be Carol A. French, Division of Physical Education, University of Minnesota.

Recreation, Park, and Leisure Studies

Contemporary Issues in Leisure Services—Rec 5900 offers an interdisciplinary approach to use of leisure and educational resources of a wild river, with emphasis on preparation for leadership in outdoor recreation and education. The workshop, scheduled June 15 through 19, will be held in a variety of settings. Some formal classes will be conducted at Cooke Hall on campus June 15, followed by a five-day canoe trip down the Namekagon and St. Croix Rivers, part of the federal wild and scenic rivers systems. The workshop will stress the practical application of outdoor education methods, group leadership practices in outdoor settings, management of state and federal wild rivers systems, and the availability of and the impact of humankind upon the recreational, educational, historical, and cultural resources of the wild river environment. The workshop is

Special Programs and Workshops

open to college juniors, seniors, and graduate students with basic canoeing experience. An information sheet is available from Leo McAvoy, 209 Cooke Hall, 1900 University Avenue S.E., University of Minnesota, Minneapolis, Minnesota 55455. In addition to tuition, there will be a charge of \$38 for canoe and equipment rental and transportation plus \$18 for food. The deadline for preregistration and payment of all fees is June 10.

School Health Education

Death Education in Contemporary Society—This course, scheduled June 16 through July 2, is a joint offering of the School of Public Health, the Department of Mortuary Science, and the School Health Education Division of the School of Physical Education, Recreation, and School Health Education. It is designed to prepare education seniors, teachers, school nurses, and mortuary science majors to manage the problem of death education in their specific areas. The course aims to (a) provide basic background information on concepts and attitudes toward death, grief, and bereavement including instructional aspects for elementary and secondary schools; (b) analyze motivations toward suicide and suicide attempts; and (c) examine the schools' role in suicide prevention. (See Hlth 5402 and PubH 5040 for course description)

Teacher Stress: Sources, Consequences, Solutions—Hlth 5301 will examine the phenomenon of teacher stress. The content of the course derives from the theoretical and empirical literature in the area of occupational health; recent research on satisfaction/dissatisfaction and stress carried out on a statewide sample of Minnesota teachers; and inservice workshops carried out to resolve teacher stress.

DEPARTMENT OF PSYCHOEDUCATIONAL STUDIES

Career Development of Women and Men—In the first term, PsyS 5300 is designed as a two-week, six-credit workshop (June 22-July 2) for counselors, teachers, and business and personnel workers, interested in updating skills for career development programs and counseling. Topics will include individual and group techniques, employment outlook and labor market trends, change process and organizational intervention, and reduction of career-related stereotyping. Videotapes, training manuals, and materials created in Project BORN FREE will be used. Information and applications may be obtained from Professor L. Sunny Hansen, 139 Burton Hall, 178 Pillsbury Drive S.E., University of Minnesota, Minneapolis, Minnesota 55455; telephone (612) 373-0202.

Developing Work Values, and Industry and Community Resources—PsyS 5300, offered second term (July 20-31), offers two kinds of educational experience. Section 1 is devoted to development of work values. Topics include alternative conceptions of the good worker, competencies, and approaches to understanding work value development. Section 2 explores industry and community resources for guidance and career education purposes. Students may negotiate an individualized set of experiences to accommodate their needs. The sections may be taken independently of each other, but preapplication is required. Information and applications are available from Professor W.

Wesley Tennyson, 137 Burton Hall, 178 Pillsbury Drive S.E., University of Minnesota, Minneapolis, Minnesota 55455; telephone (612) 373-2239.

Workshop: Special Education—In second term, nonvocal communication concepts and techniques will be examined in PsyS 5302. Focus will be on designing programs for non-vocal individuals based upon current research and school-based practices using manual communication, Bliss-symbols, communication boards, and relevant experimental communication systems. Advance application is required. Requests for information should be directed to Professor David Mercaldo, 15 Pattee Hall, 150 Pillsbury Drive S.E., University of Minnesota, Minneapolis, Minnesota 55455.

Teaching Exceptional Children (SLBP Resource or Clinical Teacher Sequence)—The six credits earned in a combined first-term offering of PsyS 5610 and 5611 may be applied to SLBP: LD teacher licensure or to a graduate degree by those students admitted to the Graduate School. Institute participants will work with learning-disabled children, concentrating on the remediation of academic problems and the quality of interaction between teacher and learner. Enrollment is limited to those who have completed PsyS 5113 and 5114 during the academic year 1980-81. Advance application is required. Requests should be directed to Professor Virginia Bruininks, 13 Pattee Hall, 150 Pillsbury Drive S.E., University of Minnesota, Minneapolis, Minnesota 55455.

Teaching Children With Emotional Disturbances—The eight credits earned in PsyS 5601, section 1, a workshop scheduled during a six-week period from June 15 through July 24, may be applied to SLBP:ED licensure or to a graduate degree with consent of the adviser. Priority will be given to those seeking licensure, but teachers, administrators, and other professionals in the field are encouraged to apply for admission. Advance application is required. Requests should be directed to Professor Frank H. Wood, 106 Pattee Hall, 150 Pillsbury Drive S.E., University of Minnesota, Minneapolis, Minnesota 55455.

DEPARTMENT OF SOCIAL, PSYCHOLOGICAL, AND PHILOSOPHICAL FOUNDATIONS OF EDUCATION

This department offers graduate study and professional preparation in several areas leading to the M.A. and Ph.D. degrees in educational psychology: psychology, methodology, and social and philosophical foundations of education. Students planning to major or minor in one of these areas should apply for admission to the Graduate School and to the Department of Social, Psychological and Philosophical Foundations of Education. Program information is available from the departmental office, 204 Burton Hall, 178 Pillsbury Drive, S.E., University of Minnesota, Minneapolis, Minnesota 55455.

Of Special Interest in Social and Philosophical Foundations

Critical Issues In Contemporary Education—SPFE 5141 is a special offering in the first term. It will be taught by Dr. Michael J. Parsons who is a visiting lecturer from the University of Utah, where he has served as a professor in

Special Programs and Workshops

cultural foundations of education, Department of Educational Administration since 1967. His area of professional inquiry is in the history and philosophy of education, and his current interests are directed toward aesthetics and moral development.

DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

Vocational Education

Philosophy and Practice of Vocational Education—VoEd 5300, required for vocational licensure in Minnesota, is scheduled twice during the summer (June 15-26 and August 3-7). The first-term offering is coordinated with Ind 5310, *Coordination*, so that students may register for both courses.

Special Topics—A two-course package is offered for students planning a career in training in business and industry. VoEd 5100, *Training in Industry and Business* (June 15-19), will analyze the training function and the design and development of trainer competencies in the areas of needs and work analysis. Ind 5309 (June 22-26) will deal with the purposes, advantages, and limitations of the conference method; examine techniques of procedure; and provide experiences in planning, leading, and evaluating conferences.

Vocational administrators, as well as teachers, will be interested in three courses: VoEd 5200, *Evaluation of Local Vocational Education Programs*, meeting June 29-July 10 mornings; VoEd 5500, *Introduction to Vocational Education Administration*, meeting June 29-July 10 afternoons; and VoEd 5102, *Legal Aspects of Managing Vocational Education*, meeting July 27-31. The evaluation course will include use of instruments and techniques for conducting program evaluations. The administration course deals with the basic concepts of structure, finance, program planning, and management of vocational education programs. The course in legal aspects will help managers of vocational education to understand the laws affecting their job responsibilities.

Business and Distributive Education

Directed Occupational Experience and Seminar—In BDE 5361, offered July 13-17 for three credits, business and distributive education teachers and teacher/coordinators will participate in planned on-site experiences at selected business firms and in related seminars. Participants will investigate job opportunities and requirements, job performance standards with implications for curriculum revision, and current training practices. Enrollment is limited, and preapplication by June 8 is required.

Program Developments—Two short-term sections of BDE 5360 are scheduled in second term, August 3-7. Section 1 provides an introduction to the Apple II microcomputer and the software packages available in Minnesota. Section 2 focuses on materials and methods appropriate for developing business ethics concepts in the classroom and on the job.

Licensure—Most of the special courses required for licensure as a distributive education teacher/coordinator, office education teacher/coordinator, or model office teacher/manager are scheduled during the summer, coordinated so that students may register for more than one course needed to meet requirements.

Home Economics Education

Workshop: Contemporary Problems in Home Economics Education

—Section 4 of HEEd 5430 (August 3-7) will emphasize evaluation of student learning and focus on ways to evaluate students' progress in solving problems encountered in everyday family living: problems related to food and nutrition, housing, child development, resource management and consumer economics, clothing and textiles, and family life. Participants will develop means to identify problems, consider alternative solutions, obtain needed information, make decisions, and plan action to be taken. The course is open to anyone interested in problem solving and decision-making skills. Teachers involved with the Home Economics SELO and Strengthening Project in Minnesota will find the course particularly relevant to the focus of that project.

Trends in Home Economics Education—HEEd 5325 (July 6-17) will emphasize the teaching of energy concepts in home economics, including interdisciplinary approaches.

Workshop: Foods and Nutrition—HEEd 5410 (June 22-July 2) will present nutrition education as a multidisciplinary focus in secondary school curricula. Approaches will help students develop the knowledge, skills, and attitudes necessary to choose foods wisely across the life cycle; to understand the health effects, energy costs, ecological consequences, and moral implications of food choices; to analyze the impact of the food system on society; and to act self-reliantly in providing nourishing meals for themselves and others.

Consumer Education: Curriculum, Methods, Materials—HEEd 5153/BDE 5153 (July 20-31) is designed to help educators develop expertise in approaches to consumer education at secondary and adult levels. Thirty pre-selected students will receive a stipend of \$20.00 under a special grant. Advance application by May 1, 1981 is required. For information see course schedule section.

College of Liberal Arts

FOREIGN TRAVEL AND STUDY

SPAN Study Abroad

SPAN, the Student Project for Amity Among Nations, sponsors independent study with the goal of enhancing international friendship and understanding. The program is a cooperative effort of the University of Minnesota and 13 other Minnesota colleges. Its 1981 student groups will study in Austria, Egypt, and West Germany.

The SPAN program involves extensive preparation, 8 to 10 weeks abroad, and production of a research paper. Preparation, during the year preceding the summer abroad, includes study of the language, history, social and political ambiance, and culture of the area to be visited. Each "country group" of about a dozen students meets regularly with a faculty adviser. During their period of study abroad, students conduct interviews, visit appropriate institutions, use libraries

Special Programs and Workshops

and other research facilities, and often live with local families. Upon return, they complete their SPAN paper, a major academic report growing from their study at home and abroad. Upon satisfactory completion of the preparation year and of the paper the student earns 12 quarter credits in the Foreign Studies Seminar, FS 5960.

Students must apply for SPAN appointments by the fall quarter preceding the summer abroad. Information about 1982 applications may be obtained from the SPAN Office, 103 Nolte Center, 315 Pillsbury Drive S.E., University of Minnesota, Minneapolis, Minnesota 55455; telephone (612) 376-5219.

Summer Term in Germany

College students or high school graduates who have completed a basic course in German are invited to take part in a summer program using the facilities of Ludwig-Maximilians-Universität in Munich, Germany, during second term. CLA credit courses to be offered (in German) include conversation and composition, on various levels, contemporary Germany, and modern German literature. Secondary education credit is available under SeEd 5192; contact Professor Dale Lange (373-5198) prior to departure. Permission of the German department is required. Consult the Summer Session office or Professor Wolfgang Taraba, Department of German, 219 Folwell Hall, 9 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455, for further information.

Music Workshop: Austrian Study/Travel/Performance Program

This program is designed for a select group of 16 to 20 solo vocal (and two to three instrumental) performers. This vocal chamber music ensemble, known as the *U of M Minnesingers*, will perform a program of American and Austrian music in three or four Austrian cities, July 20-August 12. Participants must audition and be accepted into the program by March 14 in order to begin rehearsals during spring quarter. Inquiries should be directed to Professor Clifton Ware, School of Music, 106 Scott Hall, 72 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

Nankai Institute

The second Minnesota-Nankai Summer Intensive Chinese Language Institute will be held at Nankai University, Tianjin, People's Republic of China, June 21 to August 28, with an associated tour from August 28 to September 6. Applications for the institute were accepted until January 31, 1981. For further information, write to Professor Mei-Ling Hsu, Department of Geography, 481 Social Sciences Building, 267 19th Avenue South, University of Minnesota, Minneapolis, Minnesota 55455.

FIELDWORK OPPORTUNITIES

Field Experience Learning

Students who have arranged a volunteer or salaried summer project in an appropriate setting may often register under a directed studies course number to receive credit in conjunction with their work. Those who have planned a project or would like to do so may consult an adviser in the appropriate department or in the Office for Special Learning Opportunities (B18 Johnston Hall, 373-7550) about earning credit for such a project.

Registration for these projects, when approved, is usually under departmental course numbers 3970 or 5970, or appropriate interdepartmental directed studies number 3970 (see page 224).

Anthropology-Archaeology Field Research

The Department of Anthropology will offer two opportunities to participate in archaeological field research in the summer of 1981. In the first term, field research will be held at the Williams Narrows site on Lake Winnibigoshish in northern Minnesota. Williams Narrows has a long history of occupation, from the fur trade, to about 8000 years ago. In the second term, excavations will be conducted at the Little Rapids site in Scott County, Minnesota. This will be the second field season at this important historic place, which is the location of Dakota Indian habitation and fur trading activities. These two courses are offered as Anth 3376 for 10 credits each term. Students can obtain further information by contacting the instructor, Professor Guy C. Gibbon, 274 Ford Hall, 376-3256.

Minnesota Archaeology (Anth 3501), an innovative course—offered June 22 through July 2, will include field trips, lectures, and laboratory work. See page 200 for the course description.

INTENSIVE LANGUAGE STUDY

Beginning Arabic, French, German, Hebrew, Italian, Japanese, Russian, and Spanish will be taught in intensive 10-week courses, each offered for 15 credits for the equivalent of three quarters of study.

For information about the language study and individual departmental requirements, see the Course Descriptions section of this bulletin or consult the appropriate department.

Classics: Latin

Intensive beginning Latin (Lat 3001) is offered during the first term in a 10-credit course equivalent to the full regular elementary sequence (Lat 1101-03). Students will rapidly master the fundamentals of Latin grammar and will begin reading Latin authors at the intermediate level. Further reading is offered in Lat 3104 (5 cr) during the second term. Also in second term, a new course, *Survey of Roman Literature in Translation* (Clas 3/5088), will familiarize students with principle authors and major genres as they begin their study of Latin literature in the original in Latin 3104. Classics 3/5088 is also open to students not in the summer Latin courses; it may be used toward the Route II language requirement in Latin.

Special Programs and Workshops

Ulpan Hebrew Language Course

The "Ulpan" is a unique approach to teaching Hebrew. Developed in Israel at a time when a large adult immigrant population needed to acquire a working knowledge of Hebrew rapidly, the Ulpan was designed to create teaching techniques and instructional materials. The practical goal was to enable adults of widely differing educational experiences and abilities, as well as diverse linguistic backgrounds, to quickly make a linguistic and cultural adjustment to a new environment.

The Ulpan Hebrew language course offered this summer will extend over the two terms, June 15 through August 21. It will provide intensive study of the language as well as study of Israeli culture. The program is designed for individuals who have not previously studied Hebrew. Students will spend 15 hours per week in class during the 10 weeks. In addition to formal class sessions, special learning activities that involve natural and spontaneous use of Hebrew will include games and sports activities, Israeli folk dancing and singing, meeting with delegates of Israeli students from Rishon le'Tzion, and sessions with Israeli artists, musicians, and other professionals.

For further information, write Program in Ancient Near Eastern and Jewish Studies, 178 Klaeber Court, 320 16th Avenue S.E., University of Minnesota, Minneapolis, Minnesota 55455.

OTHER SPECIAL OPPORTUNITIES

Interplay '81: The World Between the Wars

INTERPLAY is a pioneering adult education program, now going into its third year, whose purpose is to examine the tangled threads of human activity since the Civil War that led to today's culture. The course, ID 3100, draws on all the University's resources, seeking to interrelate the streams of thought and events that have combined to shape late 20th-century life. It is open to persons of all ages and backgrounds.

INTERPLAY is condensed learning. Each year it concentrates on a defined period of history: Civil War to 1890 (1979), 1890 to World War I (1980), and 1919 to 1939, "The World Between the Wars," in 1981. INTERPLAY does not seek to be exhaustive; rather its purpose is to interrelate significant movements and ideas and to stimulate students to further investigation on their own.

The range of subject matter in the 1919-1939 period is extraordinarily broad. It runs from Hitler to Freud, depression to drought, Dreiser to Al Capone, jazz to prohibition, the coming of the atom bomb, NRA, WPA, TVA, FDR.

Students meet Monday through Friday, June 15 to July 2. Four of each week's meetings are in "mini-courses," one in a "core panel," whose purpose is to integrate the movements and areas under study. Students may earn 4 quarter credits or attend as non-credit visitors.

INTERPLAY draws its faculty from distinguished members of the University teaching staff. Clarke Chambers (History) will moderate the weekly integration panels, whose members will be the instructors of the mini-courses. These instructors will be Terence Ball (Political Science), Reginald Buckner (Music), Jean Congdon (Theatre Arts), Marcia Eaton (Philosophy), Lary May (American

Studies), David Noble (History), Mischa Penn (Anthropology), Roger Stuewer (History of Science and Technology), and Auke Tellegen (Psychology).

Information about registration and other aspects of INTERPLAY '81 is available at the Summer Session office, 135 Johnston Hall, 101 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455, telephone (612) 373-2925).

A listing of the mini-courses can be found on page 223 in the section on Course Descriptions.

Historical Archaeology

Historical Archaeology (ArH 5960) will include theoretical information and practical experience involving registration of monuments, excavation, conservation, and restoration. The course will make use of outstanding local resources that can be best utilized during the summer months. A research paper may also be written (ArH 5970) for two to four credits.

Journalism and Mass Communication

The School of Journalism and Mass Communication (SJMC) offers courses in each term for undergraduate and graduate students interested in professional training. A number of the courses are open to majors in other fields who wish to study mass communication.

Workshops for high school newspaper, yearbook, and magazine staff members are offered by the SJMC July 20 through July 31. Details may be obtained from the MHSPA, 720 Washington Avenue S.E., University of Minnesota, Minneapolis, Minnesota 55414. These workshops do not offer college credit.

Linguistics: English as a Second Language

An intensive English language and orientation program will be offered July 24 through September 11. The program will focus on English language instruction and orientation to U.S. life and education. It will include 25 hours per week of classroom instruction in listening, speaking, grammar, reading, and writing. In addition, there will be language laboratory practice, field trips, out-state visits, and an American in-home experience.

Applications for the program can be obtained by contacting the Coordinator of Admissions, Intensive English Language and Orientation Program, 717 East River Road, University of Minnesota, Minneapolis, Minnesota 55455.

Small Group Communication Workshops

Direct experience as a teaching-learning device in leadership situations will be provided in Spch 5414. Experiences will deal with the nature of authority, power, and interpersonal and intergroup problems. The workshop will meet in small groups June 16-28 (see the listing in the Course Descriptions section for a schedule).

Special Programs and Workshops

Minnesota History Workshop

Designed for upper elementary and secondary school teachers, the Minnesota History Workshop (July 20-31) is an intensive, two-week, all-day introduction to state and local history. The workshop is held at the Minnesota Historical Society in St. Paul to familiarize teachers with the society's collections. This year's workshop examines two topics. *The Frontier Myth in Minnesota* explores both the historical impact of the idea of the frontier in Minnesota history, and our modern-day preconceptions of the past. *Urban History: The City as Artifact* examines cultural values and ideas that form and change the built environment. The workshop includes lectures by university and historical society faculty, field trips, and small group sessions. These sessions introduce methods for using primary resources and material culture in the classroom. Those not enrolled in previous workshops may register for 5 credits in History 5381; first time "repeaters" may also take the workshop for 5 credits, but should register for History 5970, section 2. Students are encouraged to register S-N when possible. Further information is available from the Summer Session office, 135 Johnston Hall. (612) 373-2925.

FOR HIGH SCHOOL STUDENTS

High School Musicians Honors Program

The School of Music will invite 160 qualified high school musicians to spend two weeks on the University campus to participate in its annual music honors program. The program, June 21 through July 3, will include intensive band, orchestra, chorus, and jazz ensemble rehearsals and concert performances; music theory and music styles analysis; vocal repertoire classes; instrument master classes; solo recitals; and social and recreational activities.

Auditions for admission to the program are open to high school students in the Midwest. Information and application forms should be requested from Professor Richard Massmann, 106 Scott Hall, 72 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

Department of Military Science

UNIVERSITY ARMY ROTC SUMMER PROGRAM

University of Minnesota students have the opportunity to qualify for commissions as lieutenants in the U.S. Army by enrolling in the Army ROTC program. The Department of Military Science will offer its World Military History (Mil 1014) and Foundations of National Power (Mil 1024) courses to interested students during the summer terms. No military obligation is incurred by students taking these courses. These preprofessional courses are offered for credit and are open to men and women.

For details, contact the Department of Military Science, 108 Armory, 15 Church Street S.E., University of Minnesota, Minneapolis, Minnesota 55455; telephone 373-2212 or 373-2213.

School of Public Health

Educational Aspects of Drug Use and Abuse, offered in cooperation with the College of Education, is listed under School Health Education in this section of the bulletin and in the Public Health and School Health Education listings in the Course Descriptions section of this bulletin.

EPIDEMIOLOGY

An intensive program in epidemiology will be offered by the School of Public Health and the Department of Conferences June 21 through July 10. This program, which carries graduate credit, is designed for, but not limited to, teachers of preventive medicine in medical schools. *Registration is limited and cannot be made through regular Summer Session channels.* Inquiries should be addressed to the Program in Epidemiology, School of Public Health, 1-117 Health Sciences Unit A, 515 Delaware Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

INTERDISCIPLINARY TEAM BUILDING: INSTRUCTIONAL LABORATORY AND TEAM FIELD PROJECT

A 10-credit course, PubH 5004, will be offered for students and community workers in the health sciences (social workers, nurses, therapists, health educators, pharmacists, administrators, planners, environmentalists, physicians, and dentists) who are interested in applying the interdisciplinary team approach to community health problems. Prerequisite is satisfactory completion in spring quarter 1981 of PubH 5003, Interdisciplinary Team Building in Community Health Practice, which will focus on the development of team skills such as resource sharing and utilization, verbal and nonverbal communications, giving and receiving feedback, leadership roles and styles, negotiations, decision making and problem solving, conflict utilization, power, and process intervention. Interdisciplinary student teams will form and select their own summer projects during the spring workshop.

The 10-week summer program will begin with an intensive two- to three-day laboratory session focusing on the application of team skills to the selected summer field projects. The summer program will include a two- to three-day laboratory session at the midway point of the course and will conclude with an intensive two- to three-day residential debriefing-reporting session involving students, faculty members, and agency personnel. For further information about the course and the prerequisite spring quarter workshop, contact Robert W. Schwanke, associate professor and director of interdisciplinary studies in the School of Public Health, 1305 Mayo Memorial Building, 420 Delaware Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

Institute of Technology

AEROSPACE ENGINEERING WORKSHOP FOR ELEMENTARY AND SECONDARY SCHOOL TEACHERS

This workshop for elementary and secondary school teachers, AEM 5001, will be held in Minneapolis from July 6 to 17. Offered through the cooperation of the National Aeronautics and Space Administration (Lewis Center), Civil Air Patrol Liaison Personnel (U.S. Air Force), Minnesota Department of Aeronautics, and Department of Aerospace Engineering and Mechanics of the University of Minnesota, the workshop is designed to provide teachers with a background in recent discoveries in the space sciences that can be used as the basis for new or existing classroom programs. Enrollment will be limited to 30 participants. Further information may be obtained from the Aerospace Workshop Coordinator, 107 Aeronautical Engineering, 110 Union Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

See the listing under Aerospace Engineering and Mechanics for a description of the course content.

GEOLOGY FIELD STUDY

Fieldwork in geologic mapping (Geo 5110) will be conducted each term in the Sawatch Mountains near Gunnison, Colorado. The course is restricted to geology and geophysics majors who have satisfactorily completed the core sequence of Geo 1111 (or 1001), 3101, 3102, 3103, 3112, and 3401. Geo 5100, offered in the spring quarter, is strongly recommended as preparation. A major paper is required.

Geophysics majors have the option of attending the Colorado School of Mines.

Committee on Institutional Cooperation

The University of Minnesota cooperates with the universities of Iowa and Wisconsin to sponsor a summer geology field camp. The camp provides 53 students with an opportunity to pursue field research. Students pay regular summer session tuition fees at their home campuses, and special expenses of the camp are met by per capita payments from the participating universities. Further information is available from Professor Charles L. Matsch, Department of Geology, University of Minnesota, Duluth, Minnesota 55812.

Doctoral candidates interested in educational opportunities at other institutions may participate in the CIC Traveling Scholar Program by applying through the Graduate School Fellowship Office.

Summer Arts Study Center

ONE- AND TWO-WEEK WORKSHOPS OFFERED AT QUADNA MOUNTAIN LODGE, HILL CITY, MINNESOTA June 15-August 14

The Summer Arts Study Center provides an attractive environment for intensive study and creative activity in the arts and humanities. The two-month session is sponsored by the University of Minnesota in cooperation with the Grand Rapids Performing Arts Council. Some workshops are planned for people with a general background in the arts and some are designed for those seeking advanced work with an expert. Courses are designed to stimulate students to discover and learn about the arts creatively through participation in them. Graduate credit will be available for most courses. Interested students should inquire at the time of registration.

Registration for these courses is conducted through Continuing Education and Extension. Call 373-4947 for information, or register by mail (see registration form following workshop listings).

ART COURSES

DRAWING (ArtS 5420, section 89) August 3-7

The course emphasizes shape (the most descriptive element in visual communications) in relationship to form in space, rhythm and direction, assimilations and divisions, and personal symbolism. Instructor: David Feinberg.
\$105 3 credits

LIFE DRAWING (ArtS 5420, section 92) August 10-14

This class will emphasize gesture and structure of the figure and pictorial organization involving the figure. Various media will be used. Individual instruction, informal lectures, slide, critiques. Instructor: Judith Roode.
\$105, plus a course fee of \$25 3 credits

FIGURE PAINTING (ArtS 5420, section 84) July 13-17

Instructor: Russell Thomas.
\$105 3 credits

LANDSCAPE PAINTING (ArtS 5420, section 85) July 20-24

Students will be involved in landscape studies using impressionist, expressionist, and Oriental approaches. Students may work in oils, acrylics, watercolors, or pastels. Daily critiques, discussions, and slide lectures will help to fuse theory with individual experience which will lead toward development of a personal visual statement. Instructor: Herman Rowan.
\$105 3 credits

PAINTING (ArtS 5420, section 91) June 22-26

For beginning students, an introduction to painting fundamentals in acrylic. Advanced students will receive specific attention in the development of their own work. Work in studio and outdoors. Discussion, daily critiques, and slides. Instructor: Stuart Nielsen.
\$105 3 credits

Special Programs and Workshops

PAINTING IN OIL OR ACRYLICS (ArtS 5420, section 87) July 27-31

Beginners will receive fundamental instruction in the techniques of use of oil or acrylics while advanced students will work toward development of a personal style. Students may work in abstract, realistic, or nature forms. Emphasis is on self-expression. Discussion, lectures, slides, and critiques. Instructor: Herman Somberg.

\$105

3 credits

WATERCOLOR (ArtS 5420, section 80) June 29-July 3

For students with little or no experience in the medium. Introduction to transparent watercolor through study of still life, landscape, and abstract design. Instructor: Ralph Brown.

\$105

3 credits

ADVANCED WATERCOLOR (ArtS 5420, section 82) July 6-10

Development of aesthetic sensibilities, individual concepts and personal expression through study of landscape and still life. Students will work in the watercolor media: transparent watercolor, gouache, casein, and tempera. For those with experience in watercolor. Instructor: Mary Abbott.

\$105

3 credits

PHOTOGRAPHY (ArtS 5420, section 90) August 3-7

For those familiar with the photographic process. Students will work in black and white photography. Field trips, lectures, slide presentations, and discussions focusing on choices available to the photographer. Critiques, individual work, open lab. Instructor: Gary Hallman.

\$105, plus a course fee of \$25

3 credits

PHOTOGRAPHY, BEGINNING (ArtS 1420, section 80) July 27-31

Introduction to methods, materials, and equipment. Use of camera, demonstrations, and darkroom work. Instructor: David Goldes.

\$105, plus a course fee of \$25

3 credits (undergraduate)

CERAMICS (ArtS 5420, section 81) June 29-July 3

A practical, comprehensive, two-week pottery course emphasizing salt glazing, raku and primitive firing, throwing and hand-building, kiln construction, burners and fuels. This hands-on approach features heavy student involvement in all aspects of making pottery, from mixing clay, to building kilns, to firing and glazing pots. Upon completion of the course, the potter will know how to set up and maintain a complete studio for production or teaching. Instructor: Douglas Johnson.

\$140, plus a course fee of \$40

4 credits

CHILDREN'S BOOK ILLUSTRATION (Dsgn 5585, section 89)

August 10-14

A beginning workshop focusing on the process of creating books for children from idea to finished product. Individualized projects will offer students practical experience in expanding an idea into a book format through making a sequence story, a story board, a cover design, and a final book illustration. Class discussions will include developing a philosophy toward children's books, understand-

ing the elements of a picture book, how to present your work to a publisher, and group critiques. Instructor: Nancy Hands.

\$105, plus a course fee of \$5

3 credits

COLOR, FORM, AND LIGHT (Dsgn 5585, section 81) July 6-10

Students will explore a range of possibilities in the use of color. Aspects of color to be considered include: color organization and relationships: color mixing in light and pigment. How our reading of color pigment is affected by varying light sources: natural light, geographic location, seasonal changes and time of day. Man-made light sources: experimentation with tungsten, fluorescent, and colored gels on pigment surfaces. Spatial organization of color: how color influences our reading of depth on a two-dimensional field. Color relativity: the influence of after-image in making different colors look alike or the same color to appear as several different colors. Observations from nature of color and form changes caused by relected light, shadows and time of day will provide the basis for compositions in paper, pressed leaves, and printer's ink. Instructor: Lynn Klein.

\$105, plus a course fee of \$20

3 credits

CREATING THREE-DIMENSIONAL ART WORK FOR ILLUSTRATION (Dsgn 5585, section 82) July 27-31

Students will work with a variety of materials (wood, paper, wire, cloth) by construction, assemblage and sculpting, to create three-dimensional forms. Applications of those forms include pop-ups, fold-outs, and sculptural forms suitable for use in illustration. Course work will begin with formation of a design concept and will follow through to explore relationships between message and imagery, with the end result being a completed piece. Emphasis on choosing personal artistic direction. Instructor: Richard Abell.

\$105, plus a course fee of \$10

3 credits

DIRECT METAL SCULPTURE (ArtS 5420, section 91) July 27-August 7

This two-week course is a direct constructive approach to sculpture making, incorporating scrap steel, iron and other metals and using gas and electric arc welding and brazing techniques. Construction of outdoor and larger scale welded sculpture will be encouraged with sympathetic reference to the natural surroundings. Wind-sensitive kinetic sculpture will be explored. Slide lectures, critique discussions and thorough technical demonstrations and instruction will be conducted. No previous direct metal sculpture experience required. Instructor: Guy Baldwin.

\$140, plus a course fee of \$40

4 credits

FIBER DESIGN, DYEING ON CLOTH (Dsgn 5531, section 80) August 3-7

In this comprehensive workshop, students will work with the following inventive dyeing techniques: batik, direct application, tie dye, fold-and-dye, clamp, and discharge. Emphasis will be on the development of personal artistic direction. Slides, lectures, demonstrations, critiques. Instructor: Richard Abell.

\$105, plus a course fee of \$25

3 credits

FIBER DESIGN, OFF LOOM (Dsgn 5588, section 80) June 29-July 3

This workshop will explore the sculptural possibilities of fiber structures using off-loom techniques. Techniques to be explored will be basketry (both coiling and

Special Programs and Workshops

twining) and crochet. Students will be encouraged to do exploration at their level of personal experience. Instructor: Charlene Burningham.

\$105, plus a course fee of \$25

3 credits

FIBER DESIGN, QUILTING (Dsgn 5588, section 81) June 22-26

Students will be involved with principles of design, color, and materials which will result in an original quilt design. Both hand and machine methods will be used in construction. The techniques to be covered are: patchwork, applique, quilting, log cabin, and Seminole patchwork. Instructor: Charlene Burningham.

\$105

3 credits

INTRODUCTION TO ARTS THERAPY

(Expressive Therapy Techniques)

June 22-26

Practical application to the arts for therapeutic intervention with mentally and/or physically disabled children and adults. Emphasis on visual art and movement. This is a laboratory class where the theory of the expressive therapies is supported by experiential workshops. Instructor: Robert Rice.

\$105, plus a course fee of \$10

3 credits

NEEDLELACE (Dsgn 5585, section 81) August 10-14

This workshop will introduce students to contemporary applications of a traditional technique. Working with a needle and linen thread, as well as with such items as wire, string, yarn, rattail, shells, and beads, students will design and complete several pieces, including abstract expressionist compositions and sculptural forms. One class session will be devoted to mounting a display of the student's work. Emphasis on personal design development as well as technical mastery and craftsmanship. Slide lectures and critiques. Instructor: Otto Thieme.

\$105, plus a course fee of \$15

3 credits

PHOTO SILKSCREEN (Arts 5420, section 86) July 20-24

An examination of the technique of reproducing photographic images through screen printing. Previous experience with silkscreen is necessary. Lectures, demonstrations, critiques. Instructor: Karl Bethke.

\$105, plus a course fee of \$35

3 credits

PROBLEMS: JEWELRY MAKING (Dsgn 5587, section 80) July 13-17

Emphasis on techniques of hollow form fabrication. Students will design and create several pieces, using copper, brass, and silver. Instructor: David Welty.

\$105, plus a course fee of \$35

3 credits

STAINED GLASS I (Dsgn 5585, section 85) June 22-26

An introduction to stained glass and window joining processes, Designing the window, cutting glass, copper foil, lead came, soldering techniques, glazing. Lectures, demonstrations, slides. Students are encouraged to build upon the techniques learned in this workshop by enrolling in the companion course, STAINED GLASS II (June 29-July 3), which will feature alternative methods of working with glass. Instructor: Gary Loch.

\$105, plus a course fee of \$35

3 credits

STAINED GLASS II (Dsgn 5585, section 80) June 29-July 3

Emphasis is on alternative methods of working with glass, including slumping and laminating with lead, casting crushed glass in relief molds, enamelling and lustering, sandblasting, and more. This workshop will give window makers an

opportunity to work with specialty glass items not readily available. Students will work with two- and three-dimensional forms. Experience with glass working is not necessary. This course is intended as a companion to STAINED GLASS I (June 22-26), although each class may be taken independently. Instructor: Gary Loch.
\$105, plus a course fee of \$35 3 credits

LITERATURE, WRITING, AND HUMANITIES COURSES

THE MEMOIR (Comp 5101, section 82) June 15-19

A reading, writing, and discussion course. The reading list will include various memoirist books such as works by Virginia Woolf, Frank Conroy, Simone de-Bauvoir, and others. There will be some discussion of the differences (and similarities) between autobiography and journal writing, and of the memoir as a genre. The week's project will be the writing of a personal memoir by each student using exercises and techniques suggested in class. In addition, the class will consider the relationship between memory and imagination. Instructor: Patricia Hampl.

\$105, plus a course fee of \$5 3 credits

WRITING DOWN THE BONES (Comp 5101, section 80) July 6-10

This workshop is designed to give you confidence in your own individual voice, that you can trust it and can write from it. This is the foundation of writing, whether you move into prose or poetry. This class will participate in time writing exercises, in-class writing, group writing, and out-of-class assignments. Students will finish with an essential understanding of the writing process and an ability to go on and write. The class is open to the beginner and to those experiencing doubt and writer's block in the middle of their career. Instructor: Natalie Goldberg.

\$105 3 credits

FICTION WRITER'S WORKSHOP (Comp 5101, section 81) July 20-24

Students will read and critique each other's work. Assignments and exercises will help develop individual and imaginative writing. Content: how to keep and use a writer's notebook; character: how to develop in-depth characters and how to show change; tension: how to catch and hold interest, develop the narrative line, use the fragmented narrative. Instructor: Alan Burns.

\$105, plus a course fee of \$15 3 credits

ADVANCED FICTION WRITING (Comp 5102, section 80) July 27-31

For those with experience in writing fiction. Writing assignments, guest artist, lectures, discussions, critiques. Admission to this workshop is by consent by the instructor. Applicants should submit a page or two (an excerpt will do) of fiction with their course application, to this office. Instructor: Alan Burns.

\$105, plus a course fee of \$15 3 credits

ADVANCED POETRY WRITING WORKSHOP (Comp 5104, section 80) August 3-7

Discussion of student work with frequent reference to modern and contemporary practices. There will be small-group work as well as personal conferences and lectures. Visiting poet, films, readings. Students are asked to submit ten poems for admission to this workshop, single-spaced, typed, your name on each sheet. Instructor: Dennis Browne.

\$105, plus a course fee of \$15 3 credits

Special Programs and Workshops

THEATRE AND MUSIC COURSES

As of the date this bulletin went to print, course offerings in the music and theatre arts areas had not yet received approval from the relevant academic departments. However, it is expected that the following courses will be offered:

Music

FOLK/POP GUITAR. Instructor: Jack McNally.

VOCAL TECHNIQUES FOR CHORAL SINGERS. Instructor: Geraldine Braden.

JAZZ IMPROVISATION. Instructor: Reginald Buckner.

MUSICAL THEATRE PRODUCTION: PUTTING ON YOUR OWN SHOW. Instructor: Ellen Rosewall. (To be offered for either Music or Theatre Arts credit)

Theatre

CHILDREN'S THEATRE/CREATIVE DRAMATICS. Instructor: Brian Way.

SCENE DESIGN. Instructor: Lance Brockman.

Interested students may contact the Summer Arts Study Center for more information on these classes.

Tuition figures listed for all Summer Arts Study Center courses include a 10% tuition surcharge, which is subject to regents' approval, to offset in part a state revenue shortfall.

A Summer Arts Study Center brochure is available at 320 Wesbrook Hall.

COURSE APPLICATION FORM

Mail to: **Summer Arts Study Center, 320 Wesbrook Hall, 77 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455 • Telephone: (612) 373-4947**

Please enroll me in the following class(es)

_____ (course title as listed) _____ (course number) _____ (dates)

_____ (course title as listed) _____ (course number) _____ (dates)

_____ (additional information as requested in course descriptions)

Name _____

Address _____

City _____ State _____ Zip _____

Position _____ Firm or Institution _____

Tuition and Fees Enclosed \$ _____

(Full tuition and fees must be included to hold a place)

Checks for tuition are payable to the University of Minnesota and must accompany this application form. Further information on courses will be mailed after receipt of this application form and the full tuition.

Make reservations for room and board directly with:

Quadna Mountain Lodge, Hill City, Minnesota 55748 • Telephone (218) 697-2324

COURSE CODES (Minneapolis-St. Paul)

Acct	Accounting	DA	Dental Assisting
AdPy	Adult Psychiatry	Dan	Danish
AEM	Aerospace Engineering and Mechanics	Dent	Dentistry
Afro	Afro-American Studies	Derm	Dermatology
AgEc	Agricultural Economics	DH	Dental Hygiene
AgEd	Agricultural Education	Drce	Dance
AgEn	Agricultural Engineering	Dsgn	Design
AgET	Agricultural Engineering Technology	Dtch	Dutch
AgJo	Agricultural Journalism	EAS	East Asian Studies
Agri	Agriculture	EBB	Ecology and Behavioral Biology
Agro	Agronomy, Plant Genetics	Econ	Economics
Air	Aerospace Studies	EdAd	Educational Administration
Akka	Akkadian	Educ	Adult, Higher, Teacher Education
Amin	American Indian Studies	EE	Electrical Engineering
AmSt	American Studies	Elem	Elementary Education
Anat	Anatomy	Endo	Endodontics
ANEJ	Ancient Near Eastern and Jewish Studies	Engl	English
Anes	Anesthesiology	Ent	Entomology
AnSc	Animal Science	ESL	English As A Second Language
AnSt	Ancient Studies, Center for	Fin	Finnish
Anth	Anthropology	ForP	Forest Products
Arab	Arabic	FoSt	Foreign Study
Arch	Architecture	FPAAd	Family Planning Administration
ArEd	Art Education	FPCH	Family Practice and Community Health
Arm	Aramaic	FR	Forest Resources
ArtH	Art History	Fren	French
Arts	Art Studio	Frit	French and Italian
Ast	Astronomy	FScN	Food Science and Nutrition
BA	Business Administration	FSoS	Family Social Science
BDE	Business and Distributive Education	FW	Fisheries and Wildlife
Ben	Bengali	GC	General College
BFin	Finance	GCB	Genetics and Cell Biology
BGS	Business, Government and Society	Geo	Geology and Geophysics
BioC	Biochemistry (Biol Sci)	GeoE	Geo-Engineering
Biol	Biology	Geog	Geography
BLaw	Business Law	Ger	German
Bot	Botany	Grk	Greek
BPhy	Biophysics	HCol	Honors Colloquium
CAPy	Child and Adolescent Psychiatry	HE	Home Economics
CDis	Communication Disorders	Hebr	Hebrew
CE	Civil Engineering	HEEd	Home Economics Education
Chem	Chemistry	Hist	History
ChEn	Chemical Engineering	Hlth	School Health Education
Chic	Chicano Studies	HMed	History of Medicine
Chn	Chinese	Hndi	Hindi
CHS	College Honors Seminar	Hort	Horticultural Science
CISy	Curriculum and Instruction Systems	HSci	History of Science, Technology
CJS	Criminal Justice Studies	HSU	Health Science Units
Clas	Classics	Hum	Humanities
CLit	Comparative Literature	ID	Interdepartmental Studies
Comm	Communications	IEOR	Industrial Engineering/ Operations Research
Comp	English Composition	InAg	International Agriculture
CPsy	Child Psychology	Ind	Industrial Education
CSci	Computer Science	InMd	Interdisciplinary Medicine
CVM	College of Veterinary Medicine		

Ins	Insurance	PA	Public Affairs
IntR	International Relations	Path	Pathology
IofT	Institute of Technology	PE	Physical Education
IR	Industrial Relations	Ped	Pediatrics
Ital	Italian	Pedo	Pediatric Dentistry
		Per	Persian
Jour	Journalism and Mass Communication	Pero	Periodontology
Jpn	Japanese	Phar	Pharmacy
JwSt	Jewish Studies	Phcg	Pharmacognosy
		Phcl	Pharmacology
LA	Landscape Architecture	Phil	Philosophy
LACS	Large Animal Clinical Sciences	Phm	Pharmaceutics
LaMP	Laboratory Medicine and Pathology	Phsl	Physiology
LAS	Latin American Studies	Phys	Physics
Lat	Latin	PIPa	Plant Pathology
Law	Law	PIPh	Plant Physiology
LFA	Literature and Fine Arts	Plsh	Polish
Lib	Library School	PMed	Physical Medicine and Rehabilitation
Ling	Linguistics	PO	Personal Orientation
LMed	Laboratory Medicine	Pol	Political Science
Luch	Luchuan	Port	Portuguese
		Pros	Prosthodontics
Mar	Marathi	Psy	Psychology
Math	Mathematics	PsyF	Psychological Foundations
MatS	Metallurgy-Materials Science	PsyS	Psychoeducational Studies
MBA	Master of Business Administration	PubH	Public Health
MdBc	Biochemistry (Medical)		
MdGk	Modern Greek	QA	Quantitative Analysis
ME	Mechanical Engineering		
Med	Medicine	Rad	Radiology
MedC	Medicinal Chemistry	RCD	Resources and Community Development
MedT	Medical Technology	Rec	Recreation, Park, and Leisure Studies
Mgmt	Management	RelS	Religious Studies
MicB	Microbiology	Rhet	Rhetoric
MidE	Middle Eastern Studies	Russ	Russian
Mil	Military Science		
MinE	Mineral Engineering	SACS	Small Animal Clinical Sciences
MIS	Management Information Systems	SAPh	Social and Administrative Pharmacy
Mktg	Marketing	Scan	Scandinavian
Mort	Mortuary Science	SeEd	Secondary Education
MthE	Mathematics Education	Serb	Serbo-Croatian
MuEd	Music Education	Skt	Sanskrit
Mus	Music	Slav	Slavic
MusA	Music Applied	SoAS	South Asian Studies
		Soc	Sociology
Nav	Naval Science	Soil	Soil Science
Neur	Neurology	Span	Spanish
Nor	Norwegian	Spch	Speech-Communication
NSci	Natural Science	SPFE	Social and Philosophic Foundations of Education
NSu	Neurosurgery	SpPt	Spanish Portuguese
Nurs	Nursing	SSci	Social Science
Nutr	Nutrition	Stat	Statistics
		Sum	Sumarian
OBio	Oral Biology	Surg	Surgery
Obst	Obstetrics and Gynecology	SW	Social Work
OM	Operations Management	Swed	Swedish
OPat	Oral Pathology		
Oph	Ophthalmology	TexC	Textiles and Clothing
ORad	Oral Radiology	Th	Theatre Arts
OrSu	Orthopedic Surgery		
Otho	Orthodontics		
OSur	Oral Surgery		
Otol	Otolaryngology		

Thai	Thai	VB	Veterinary Biology
Tib	Tibetan	VoEd	Vocational Education
TRad	Therapeutic Radiology	VPB	Veterinary Pathobiology
Tran	Transportation		
Turk	Turkish	WoSt	Women's Studies
UC	University College	Ydsh	Yiddish
UrbS	Urban Studies	YoSt	Youth Development and Research, Center for
Urdu	Urdu		
Urol	Urologic Surgery	Zool	Zoology

DIRECTORY FOR DEPARTMENTAL OFFICES

Admissions and Records, Office of:	East Asian Languages	FoIH 321
Minneapolis Campus	Ecology and Behavioral	
Admissions	Biology	Z 108
Records	Economics	BA 1035
St. Paul Campus	Educational Administration	HS 225
CofH 130	Electrical Engineering	ElectE 139
Adult, Higher and Teacher	Elementary Education	BuH 214
Education	Engineering Graphics	MechE 142
PeikH 175	English	LindH 207
Aerospace Engineering and	Entomology, Fisheries and	
Mechanics	Wildlife	HodsonH 219
AkerH 107	Family Practice,	
Aerospace Studies	Community Health	Mayo A290
Armory 3	Family Social Science	McNH 290
Afro-American Studies	Food Sciences, Nutrition	FScN 225
SocSci 214	Forest Products	KaufL 203
Agricultural and	Forest Resources	GmH 110
Applied Economics	French and Italian	FoIH 200
ClaOff 231	General College	NichH 106
Agricultural Education	Genetics and Cell Biology	BioSci 250
ClaOff 130	Geography	SocSci 414
Agricultural Engineering (IT)	Geology and Geophysics	PillsH 106
AgEng 213	German	FoIH 219
Agricultural Engineering (Agri)	History	SocSci 614
AgEng 213	History of Science, Technology	Ph 428
Agricultural Journalism	Home Economics	McNH 32
CofH 433	Home Economics Education	McNH 386
Agronomy and Plant Genetics	Horticultural Science	AlderH 305
Agr 303	Humanities	ForH 314
American Indian Studies	Industrial Education	PeikH 125
SocSci 812	Interdepartmental Study	JohH B-18
American Studies	Journalism, Mass	
LindH 225	Communication	MurH 111
Anatomy	Laboratory Medicine	Mayo C205
JacH 262	Large Animal Clinical Science	VetH C339
Anesthesiology	Law School	Law 285
Mayo C596	Library School	WaLib 419
Animal Science	Linguistics	KlaCt 142
PetH 120	Mathematics	VinH 127
Anthropology	Mathematics Education	PeikH 148
ForH 215	Mechanical Engineering	MechE 125
Architecture	Medicine	Mayo C309
Arch 110	Microbiology	Mayo 1060
Art Education	Middle Eastern Languages	KlaCt 164
WuH 135	Hebraic	KlaCt 178
Art History	Islamic	KlaCt 164
Jones 108	Military Science	Armory 108
Art, Studio	Mineral Engineering	MinMet 112
ArtB 208	Mortuary Science	VinH 114
Astronomy	Music	SchH 106
Ph 358	Music Education	SchH 104
Biochemistry (BioC)	Naval Science	Armory 203
GorLab 140	Neurology	PWB 12-100
Biochemistry (Med)	Nursing	HSUnitF 5-140
MlrDH 227		
Biological Sciences		
SnH 123		
Biology		
SnH 223		
Biophysics		
TNCE 200		
Botany		
BioSci 220		
Business Administration		
BA 225		
Business and Distributive		
Education		
PeikH 275		
Chemical Engineering and		
Materials Science		
AmundH 151		
Chemistry		
SmithH 139		
Chicano Studies		
ForH 489		
Child Psychology		
ChDev 158		
Civil and Mineral Engineering		
MinMet 112		
Classics		
FoIH 310		
Communications		
KlaCt 116		
Communication Disorders		
ShH 135		
Computer Science		
LindH 116		
Counseling, Student		
Personnel Psychology		
BuH 139A		
Criminal Justice Studies		
SocSci 314		
Cross-Disciplinary Sequences		
JohH B-18		
Curriculum and Instructional		
Systems		
BuH 250		
Dance		
NorrisH 159		
Dental Assisting		
HSUnitA 9-372		
Dental Hygiene		
HSUnitA 5-164		
Dentistry		
HSUnitA 15-106		
Dermatology		
Mayo C394		
Design		
McNH 240		

Obstetrics and Gynecology	HSUnitA 12-211	Scandinavian Languages	FolH 210
Ophthalmology	PWB 9th floor	School Health Education	NorrisH 101
Otolaryngology	Mayo A605	School Psychology	EltH N548
Pathology	JacH 184	Secondary Education	PeikH 148
Pediatrics	Mayo 1460	Slavic Languages	EltH 253
Pharmacology	MlrDH 105	Small Animal Clinical Science	VetHC 306
Pharmacy	HSUnitF 5-110	Social, Psychological and Philosophic Foundations of Educ	BuH 203
Philosophy	ForH 355	Social Science	JohH B-18
Physical Education	CookeH 224	Social Work	ForH 400
Physical Medicine and Rehabilitation	Mayo 860	Sociology	SocSci 1114
Physics	Ph 148	Soil Science	So 125
Physiology	MlrDH 424	South Asian Languages	KlaCt 192
Plant Pathology	StakH 304	Spanish and Portuguese	FolH 4
Plant Physiology	BioSci 666	Special Education	PtH 101
Political Science	SocSci 1414	Speech	FolH 317
Psychiatry	Mayo B694	Statistics	VinH 270
Psychoeducational Studies	BuH 249	Surgery	PWB 11-100
Psychological Foundations	BuH 330	Textiles and Clothing	McNH 364
Psychology	EltH N218	Theatre Arts	MdbH 208
Public Affairs	SocSci 909	Veterinary Biology	AnScVm 295K
Public Health	Mayo 1360	Veterinary Pathobiology	VetS 239C
Radiology	Mayo B238	Vocational Education	PeikH 145
Recreation, Park, and Leisure Studies	CookeH 203	Women's Studies	ForH 492
Rhetoric	HckrH 202	Youth Development and Research	McNH 42
		Zoology	Z 108





Course Descriptions

College of Agriculture

The College of Agriculture offers many courses during the summer, primarily for graduate students. Most departments correlate thesis and problem work with work at the Agricultural Experiment Station. In addition to regularly scheduled classes, the summer program includes readings, seminars, special problems, and concentrated courses.

High school teachers of agriculture may take advanced courses in those agricultural areas required for degrees in the Department of Agricultural Education (see College of Education section).

Information concerning admission to the Graduate School should be obtained from the Dean of the Graduate School, 322 Johnston Hall, 101 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455. Students wishing information regarding courses at the graduate level should confer with the graduate staff of the department in which they will be working.

Agricultural and Applied Economics (AgEc)

FIRST TERM

3990. PROBLEMS OR INDEPENDENT STUDY. (Cr ar; prereq #) Staff

Independent study, supervised reading, or research on agricultural economics problems not covered in regularly offered courses.

5130. LAND RESOURCE USE—July 6-17. (3 cr; not open to AgEc majors; prereq 1020-1030; 1300-1600 MTWThF; ClaOff 143) Waelti

5140. AGRICULTURAL PRODUCTION—June 22-July 3. (3 cr; not open to AgEc majors; prereq 1020-1030; 1300-1600 MTWThF; ClaOff 143) Fuller and others

8200. GENERAL SEMINAR: AGRICULTURAL ECONOMICS. (3 cr; prereq #; hrs ar) Staff
Special problems for individual work by qualified students.

SECOND TERM

3990. PROBLEMS OR INDEPENDENT STUDY. (Cr ar; prereq #) Staff

See First Term.

8201. GENERAL SEMINAR: AGRICULTURAL ECONOMICS. (3 cr; prereq #; hrs ar) Staff
See 8200 First Term.

Agricultural Engineering

Agricultural Engineering Technology (AgET)

FIRST TERM

1020. AGRICULTURAL SHOP—METALWORK. (4 cr; prereq Chem 1004 or #; 2 lect and 6 lab hrs per wk; lect 0800-0850 MTWTh, AgEng 42; lab 0905-1100 MTWTh, 0800-1205 F, AgEng 20) Schipull Arc and oxyacetylene welding, soldering, use and conditioning of metalworking tools, and the identification and characteristics of metals used in farm machinery.

5000. PROFESSIONAL EXPERIENCE PROGRAM. (4 cr [not for grad cr]; prereq 12 cr in agricultural engineering technology and #) Flikke

Up to 12 weeks of planned experience in a selected position in an industry or public agency; evaluative reports and consultations with faculty advisers and employers.

Courses preceded by • have limited enrollment and must be reserved.

5035. PROBLEMS AND FIELD STUDIES IN ADVANCED AGRICULTURE—METAL FABRICATION MATERIALS AND TECHNIQUES. (1-3 cr; prereq 5020 or #; special problems ar; AgEng 218) Bear Principles and practices in the implementation of instructional programs in agricultural mechanics. Selection, application, operation, service, and maintenance of equipment for the instructional program.

SECOND TERM

5000. PROFESSIONAL EXPERIENCE PROGRAM. (4 cr [not for grad cr]; prereq 12 cr in agricultural engineering technology and #) Flikke
See First Term.

5020. PROGRAM PLANNING AND INSTRUCTIONAL METHODS IN AGRICULTURAL MECHANICS—July 20-24. (4 cr; prereq 10 cr in agricultural engineering technology, AgEd 3031 or #AgEd 3031; 0800-1205 and 1325-1730 MTWThF; AgEng 218) Bear
Planning and designing high school vocational agriculture facilities, organizing equipment, tools, supplies, and storage as demanded by the instructional program. Administering the agricultural mechanics program. Developing techniques and programs for student supervised study programs.

5030. PROBLEMS AND FIELD STUDIES IN ADVANCED AGRICULTURE—AGRICULTURAL TRACTOR AND ENGINE POWER. (1-3 cr; prereq 5020 or #; special problems ar; AgEng 218) Bear Principles and practices in the implementation of instructional programs in agricultural mechanics. Selection, application, operation, service, and maintenance of equipment for the instructional program.

5040. ADVANCED METHODS FOR TEACHING AGRICULTURAL MECHANICS—July 20-24. (3 cr; prereq #: 0800-1205 and 1325-1730 MTWThF; AgEn 218) Bear
Trends and role of agricultural mechanics in the mechanization of agriculture. Organization of instructional areas, selection of tools, supplies, reference materials, and facilities. Preparation of instructional materials and methods of effective teaching. Development of teaching demonstrations and procedures.

Agriculture (Agri)

FIRST TERM

1000. ACADEMIC ENRICHMENT AND HONORS PROGRAM: SPECIAL PROJECTS. (1-15 cr; S-N only; prereq acceptance for Special Opportunity Grant, agriculture major only, #) Wharton
An alternative to regular classroom activities. Students submit a project proposal to pursue a special interest in depth. This includes a description of the project, an estimation of its duration, and a tentative expense budget. For further information check with the college office.

5555. INTEGRATING PAPER FOR MASTER OF AGRICULTURE STUDENTS. (1 cr; prereq #) Stucker
Preparation of a paper of the quality of a professional trade journal article integrating the student's studies with application to an agricultural problem or the student's major area of concentration. The paper will be reviewed and graded by the student's advisory committee.

SECOND TERM

1000. ACADEMIC ENRICHMENT AND HONORS PROGRAM: SPECIAL PROJECTS. (1-15 cr; S-N only; prereq acceptance for Special Opportunity Grant, agriculture major only, #) Wharton
See First Term.

5555. INTEGRATING PAPER FOR MASTER OF AGRICULTURE STUDENTS. (1 cr; prereq #) Stucker
See First Term.

Courses preceded by ● have limited enrollment and must be reserved.

Agronomy and Plant Genetics (Agro)

Agronomy

FIRST TERM

1020. SPECIAL PROBLEMS. (1-3 cr; prereq #) Smith, Cardwell
In-depth research or studies in agronomy. Intended for students who wish to pursue aspects of agronomy in greater depth than that offered in formal courses or who wish to investigate areas not presently offered in courses. Tutorial instruction under staff guidance.

5000. PROFESSIONAL EXPERIENCE PROGRAM. (1-6 cr [not for grad cr]; prereq #) Smith, Cardwell
Supervised practical experience in agronomic industries and farm enterprise systems; studies of various aspects of the industry and related fields.

5001. PROBLEMS IN AGRONOMY FOR ADVANCED STUDENTS. (1-5 cr; prereq #) Smith, Cardwell
In-depth research or studies in agronomy. Intended for advanced students who wish to pursue aspects of agronomy in greater depth than that offered in formal courses or who wish to investigate areas not presently offered in courses. Independent study and research under staff guidance.

8010.* RESEARCH IN AGRONOMY. (Cr ar; prereq #) Staff
Problems in physiology and production of crop plants.

FIRST AND SECOND TERMS: TEN-WEEK COURSE

8320.* ORIENTATION TO AGRONOMY AND SOILS FIELD RESEARCH TECHNIQUES. (1 cr, §Soil 8320; S-N; prereq Agro 5040 or #) Cardwell
Field survey and discussion of research techniques in crop physiology, crop and soil management and weed science programs in agronomy and soils.

SECOND TERM

1020. SPECIAL PROBLEMS. (1-3 cr; prereq #) Smith, Cardwell
See First Term.

5000. PROFESSIONAL EXPERIENCE PROGRAM. (1-6 cr [not for grad cr]; prereq #) Smith, Cardwell
See First Term.

5001. PROBLEMS IN AGRONOMY FOR ADVANCED STUDENTS. (1-5 cr; prereq #) Smith, Cardwell
See First Term.

8010.* RESEARCH IN AGRONOMY. (Cr ar; prereq #) Staff
See First Term.

Plant Breeding

FIRST TERM

8330.* RESEARCH IN PLANT GENETICS. (Cr ar) Staff

FIRST AND SECOND TERMS: TEN-WEEK COURSE

8310.* ORIENTATION TO FIELD CROP BREEDING. (1 cr; prereq 5020 or #) Lambert
Field study of plant breeding programs and techniques.

SECOND TERM

8330.* RESEARCH IN PLANT GENETICS. (Cr ar) Staff

Courses preceded by • have limited enrollment and must be reserved.

Animal Science (AnSc)

FIRST TERM

5501. HORSE PRODUCTION. June 15-26. (3 cr, §1600; 0900-1145 MTWThF; PetH 108) Jordan Breeds, selection, diseases, feeding, reproduction, management, and color inheritance of light horses. Demonstration of equitation, tack, and farriery.

5710. SPECIAL PROBLEMS. (Cr ar; open to students who have completed appropriate prereqs with #; PetH 108) Staff

Research in an area of animal science under the supervision of a staff member. A written report on the research is required.

8750. CONCEPTS AND DEVELOPMENTS IN MEAT SCIENCE AND TECHNOLOGY. (1 cr [may be repeated once for cr]; prereq #) C Allen
Review and evaluation of pertinent scientific literature.

8810.* RESEARCH IN ANIMAL SCIENCE. (Cr and hrs ar; prereq #; PetH 108) Staff
Research including experimental studies in the disciplines associated with animal production and research, with emphasis on interdisciplinary studies embracing environmental and managerial considerations.

8820.* RESEARCH IN ANIMAL GENETICS. (Cr and hrs ar; prereq #; PetH 108) Staff
Research in quantitative genetics, cytogenetics, and other areas related to animal breeding.

8830.* RESEARCH IN ANIMAL PHYSIOLOGY. (Cr and hrs ar; prereq #; PetH 108) Staff
Individual research under faculty direction. Topics to be determined by consultation; may be a specialized aspect of a thesis problem or an individual problem of mutual interest to graduate student and adviser.

8840.* RESEARCH IN ANIMAL NUTRITION. (Cr and hrs ar; prereq #; PetH 108) Staff
Research in selected areas of animal nutrition. Topics and species studied determined by consultation with adviser.

8850.* RESEARCH IN MUSCLE CHEMISTRY AND PHYSIOLOGY. (Cr and hrs ar; prereq #; PetH 108) Staff

Individual, original research, under staff direction, on selected problems involving the chemical, biochemical, and physiological aspects of muscle and meat technology. The topic may be a specialized aspect of a thesis problem or an individual problem of mutual interest to graduate student and adviser.

SECOND TERM

5405. POULTRY NUTRITION. July 20-31. (3 cr; prereq 1401; 0900-1145 MTWThF; PetH 108) Waibel
Nutrient requirements of chickens and turkeys, feed supplies and their composition and utilization in formulation of adequate diets. Role of feed additives, their use and limitations. Least cost formulations, nutritional interrelationships and feeding systems.

5710. SPECIAL PROBLEMS. (Cr ar; open to students who have completed appropriate prereqs with #; PetH 108) Staff
See First Term.

8750. CONCEPTS AND DEVELOPMENTS IN MEAT SCIENCE AND TECHNOLOGY. (1 cr [may be repeated once for cr]; prereq #) C Allen
See First Term.

8810.* RESEARCH IN ANIMAL SCIENCE. (Cr and hrs ar; prereq #; PetH 108) Staff
See First Term.

8820.* RESEARCH IN ANIMAL GENETICS. (Cr and hrs ar; prereq #; PetH 108) Staff
See First Term.

8830.* RESEARCH IN ANIMAL PHYSIOLOGY. (Cr and hrs ar; prereq #; PetH 108) Staff
See First Term.

8840.* RESEARCH IN ANIMAL NUTRITION. (Cr and hrs ar; prereq #; PetH 108) Staff
See First Term.

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

8850.* RESEARCH IN MUSCLE CHEMISTRY AND PHYSIOLOGY. (Cr and hrs ar; prereq #: PetH 108) Staff
See First Term.

Entomology, Fisheries, and Wildlife¹

Ample opportunity for research work in various phases of entomology, fishery biology, and wildlife biology is available to properly qualified students on an individual basis.

Entomology (Ent)

FIRST TERM

3100. ENTOMOLOGICAL TECHNIQUES. (Cr ar; prereq 3175 or equiv, #) Staff
Practical laboratory instruction in dealing with entomological materials.

5901. SPECIAL PROBLEMS IN ENTOMOLOGY. (Cr ar; prereq #) Staff
Individual field, laboratory or library studies in various areas of entomology.

8500.* RESEARCH IN ENTOMOLOGY. (Cr ar; prereq #) Staff

SECOND TERM

3100. ENTOMOLOGICAL TECHNIQUES. (Cr ar; prereq 3175 or equiv, #) Staff
See First Term.

5901. SPECIAL PROBLEMS IN ENTOMOLOGY. (Cr ar; prereq #) Staff
See First Term.

8500.* RESEARCH IN ENTOMOLOGY. (Cr ar; prereq #) Staff

Fisheries and Wildlife (FW)

FIRST TERM

5393. SPECIAL PROBLEMS IN FISHERY BIOLOGY. (Cr ar; prereq #) Staff
Individual field, library and laboratory research in various areas of fishery biology.

5398. SPECIAL PROBLEMS IN WILDLIFE BIOLOGY. (Cr ar; prereq #) Staff
Individual field, library and laboratory research in various areas of wildlife biology.

8364.* RESEARCH IN FISHERY BIOLOGY. (Cr ar; prereq #) Staff

8377.* RESEARCH IN WILDLIFE BIOLOGY. (Cr ar; prereq #) Staff

SECOND TERM

5393. SPECIAL PROBLEMS IN FISHERY BIOLOGY. (Cr ar; prereq #) Staff
See First Term.

5398. SPECIAL PROBLEMS IN WILDLIFE BIOLOGY. (Cr ar; prereq #) Staff
See First Term.

8364.* RESEARCH IN FISHERY BIOLOGY. (Cr ar; prereq #) Staff

8377.* RESEARCH IN WILDLIFE BIOLOGY. (Cr ar; prereq #) Staff

¹For additional courses, see Biology Session.

Courses preceded by • have limited enrollment and must be reserved.

Food Science and Nutrition (FScN)

Courses with limited enrollment must be reserved in 130 Coffey Hall (see instructions under "Reserved Courses").

FIRST TERM

● **3600. PRINCIPLES OF NUTRITION.** (4 cr; limited to 25 students; prereq Biol 1011 and Chem 1004 or equiv; 0800-0955 MWF, 0905-0955 TTh; FScN 15)

Fundamental principles of nutrition, including the essentiality and metabolism of nutrients and results of nutritional deficiencies or excesses. Presented in the context of personal, national, and global aspects of human nutrition.

3720. ADMINISTRATIVE EXPERIENCE: HOSPITALITY OR FOOD SERVICE ENTERPRISE. (5 cr; prereq 3760, sr in hospitality and food service management or #; hrs ar) Staff

Planned management experience in a selected food service or hospitality business, including understanding of the operation, planning, purchasing, personnel management, financial management, supervision, and related functions.

5111. INDEPENDENT STUDY IN FOOD SCIENCE AND NUTRITION. (1-5 cr [may be repeated for cr]; prereq Δ ; hrs ar) Staff

Individual laboratory or library research in some area related to food chemistry, food processing, nutrition, food service, or hospitality management.

5321. INDEPENDENT STUDY IN FOOD MICROBIOLOGY. (1-5 cr; prereq sr, Δ ; hrs ar) Staff

Laboratory or library research on problems related to the microbiology of dairy and food products.

● **5404. CURRENT ISSUES IN FOOD AND NUTRITION—June 29-July 10.** (3 cr; limited to 25 students; prereq 15 cr in food science and nutrition or #; 0905-1205 MTWThF; ABLMS 125) Levine

Evaluation of popular and scientific literature that deals with nutrition, food additives, food safety, food fads, health foods, environmental contamination, the consumer movement, naturally occurring food toxicants, processed foods, synthetic foods, organically grown foods.

8401. INDEPENDENT STUDY: FOOD SCIENCE. (1-5 cr; prereq #; hrs ar) Staff

Independent study and written reports.

8621. INDEPENDENT STUDY: NUTRITION. (1-9 cr; prereq Δ ; hrs ar) Staff

Independent study and written reports.

SECOND TERM

1102. TECHNOLOGY OF FOOD PROCESSING. (4 cr; prereq high school chemistry and biology; 0800-0955 MWF, 0905-0955 TTh; ABLMS 125) Schellhaass

Introduction to the technology of processing and distributing foods with reference to the prevention of biological, physical, and chemical deterioration. Changes in food composition, microbiological safety, food laws and regulations, technologies of the major food processes such as canning, freezing, drying, and cereal and oilseed processing.

3720. ADMINISTRATIVE EXPERIENCE: HOSPITALITY OR FOOD SERVICE ENTERPRISE. (5 cr; prereq 3750, sr in hospitality and food service management or #; hrs ar) Staff

See First Term.

5111. INDEPENDENT STUDY IN FOOD SCIENCE AND NUTRITION. (1-5 cr [may be repeated for cr]; prereq Δ ; hrs ar) Staff

See First Term.

5321. INDEPENDENT STUDY IN FOOD MICROBIOLOGY. (1-5 cr; prereq sr, Δ ; hrs ar) Staff

See First Term.

8401. INDEPENDENT STUDY: FOOD SCIENCE. (1-5 cr; prereq Δ ; hrs ar) Staff

See First Term.

8621. INDEPENDENT STUDY: NUTRITION. (1-9 cr; prereq #; hrs ar) Staff

See First Term.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

Plant Pathology (PIPa)¹

Courses with limited enrollment must be reserved in 130 Coffey Hall (see instructions under "Reserved Courses").

FIRST AND SECOND TERMS: TEN-WEEK COURSES

Register for both first term and second term, one-half the total credits each term.

5013. DISEASES OF ECONOMIC PLANTS. (2 cr; prereq 1001 or equiv...5000 recommended; 0905-0955 T; StakH 103) Pfeger

Diseases of ornamental plants, trees, and field fruit and vegetable crops. Lab and field work continues throughout the summer.

5650. CLINICAL PLANT PATHOLOGY. (6 cr; prereq 1001, 8 cr plant pathology; StakH 105) Groth
Laboratory and clinical experience in Plant Disease Clinic in diagnosis, treatment, and control of plant diseases of field crops, vegetable crops, turf, ornamentals, and trees.

8090.* RESEARCH IN PLANT PATHOLOGY. (Cr ar) Staff

Special assignment in laboratory and field problems in pathological research.

8110.* PROBLEMS IN MYCOLOGY. (Cr ar; prereq 5106, 5107) Stewart, Anderson
Individual research in taxonomy, ecology, and genetics of special groups of fungi.

8301.* RESEARCH IN PLANT VIROLOGY. (Cr ar; prereq 5300 or #) Banttari
Identification, transmission, purification, serological or histological studies involving viruses, their host plants, and vectors.

8401.* RESEARCH IN PLANT BACTERIOLOGY. (Cr ar; prereq 5400 or #) Kennedy

Special assignments on problems of current interest; investigations related to ecology and interaction among bacterial plant pathogens and their hosts.

Rhetoric (Rhet)

Courses with limited enrollment must be reserved in 130 Coffey Hall unless otherwise indicated (see instructions under "Reserved Courses").

FIRST TERM

● **1147. EFFICIENT READING.** (4 cr; each section limited to 30 students, reserved in JohH 12)
The adult reading process is explored with emphasis on comprehension, speed, and vocabulary development. For persons of average or above-average reading ability who wish to develop and refine college-level reading skills. Not a basic course. Meets with 5147.

Sec 1, 0905-1100 TTh, ForH 115, Bennett

Sec 2, 1220-1415 TTh, ForH 115, Bennett

● **1222. PUBLIC SPEAKING.** (4 cr; limited to 18 students; prereq soph, completion of fr communication requirements; 1115-1205 MTWThF; HckrH 222) McBride
A practical course in the fundamentals of speechmaking. Emphasis upon organizing and delivering the speech.

● **3281. AMERICAN WOMEN WRITERS OF SCIENCE FICTION.** (4 cr; limited to 25 students; 1220-1310 MTWThF; HckrH 224) McBride
Examination of science fiction written by American women shows a different approach from the science fiction previously written. Various texts are studied as examples of the changes women have wrought in the subject matter, theme, characters, and philosophical viewpoint of science fiction.

¹For additional course, see Biology Session.

Courses preceded by ● have limited enrollment and must be reserved.

●**3551. PROFESSIONAL WRITING.** (4 cr; each section limited to 23 students; prereq jr, completion of fr communication requirements)

Projects and reports in professional communication; the resume, application letter, interview; study of professional journals; the review of literature; specialized bibliographic tools; the feature article.

Sec 1, 0905-0955 MTWThF, HckrH 111, Walzer

Sec 2, 1010-1100 MTWThF, HckrH 111, Wright

●**3562. SCIENTIFIC AND TECHNICAL WRITING.** (4 cr; limited to 23 students; prereq jr, completion of fr communication requirements; 0800-0850 MTWThF; HckrH 111) Ferguson

Methods of exposition in scientific and technical writing; types of reports; audience analysis; practice in report writing.

●**5100. TECHNICAL COMMUNICATION: SPECIAL PROBLEMS.** (4 cr; limited to 15 students; prereq #; 0800-1205 M; HckrH 204) Pearsall

Designed for supervised reading, research, and work on advanced technical communication projects not covered in regularly scheduled courses. Special seminar. The development of a technical writing course. Special attention will be paid to the development of course objectives, a syllabus, and a bibliography of readings on the teaching of technical writing. Textbook selection will be discussed.

●**5147. EFFICIENT READING.** (4 cr; each section limited to 20 students, reserved in JohH 12)

The adult reading process is explored with emphasis on comprehension, speed, and vocabulary development. For persons of average or above-average reading ability who wish to develop and refine college-level reading skills. An evaluative paper is required. Meets concurrently with 1147.

Sec 1, 0905-1100 TTh, ForH 115, Bennett

Sec 2, 1220-1415 TTh, ForH 115, Bennett

SECOND TERM

●**1147. EFFICIENT READING.** (4 cr; limited to 30 students, reserved in JohH 12; 1220-1415 TTh; ForH 115) Bennett

See First Term.

●**1222. PUBLIC SPEAKING.** (4 cr; limited to 18 students; prereq soph, completion of fr communication requirements; 1115-1205 MTWThF; HckrH 222) McBride

See First Term.

●**3551. PROFESSIONAL WRITING.** (4 cr; each section limited to 23 students; prereq jr, completion of fr communication requirements)

See First Term.

Sec 1, 0905-0955 MTWThF, HckrH 111

Sec 2, 1010-1100 MTWThF, HckrH 111, Horberg

●**5147. EFFICIENT READING.** (4 cr; limited to 20 students, reserved in JohH 12; 1220-1415 TTh; ForH 115) Bennett

See First Term.

Soil Science (Soil)¹

Courses with limited enrollment must be reserved in 130 Coffey Hall (see instructions under "Reserved Courses").

FIRST TERM

5114.* SPECIAL PROBLEMS IN SOILS. (1-5 cr per qtr [max 10 cr]; prereq 1122 or #) Martin, Adams, Baker, Blake, Farnham, Rust, Schmidt, Grava, Grigal, Swan
Research, readings, instruction.

¹For additional course, see Biology Session.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

●5565. **FIELD COURSE—SOIL SURVEY.** (10 cr; limited to 20 students; prereq 5512 and #; \$25 course fee; 0800-1830 MTWThF; 215 So) Anderson, Rust, Cooper
Principles of soil survey including description of soils in acceptable terms, mapping soils on airphoto base, interpretative groupings of soils, descriptive legend development, classification of soils according to soil taxonomy.

8124.* RESEARCH PROBLEMS IN SOILS. (2-5 cr; hrs ar) Martin, Adams, Baker, Blake, Farnham, Rust, Schmidt, Grava, Grigal
Individual laboratory or fieldwork on special problems in a phase of soils other than the student's major thesis. Arrangements must be made in advance.

SECOND TERM

5114.* SPECIAL PROBLEMS IN SOILS. (1-5 cr per qtr [max 10 cr]; prereq 1122 or #) Martin, Adams, Baker, Blake, Farnham, Rust, Schmidt, Grava, Grigal
See First Term.

8124.* RESEARCH PROBLEMS IN SOILS. (2-5 cr; hrs ar) Martin, Adams, Baker, Blake, Farnham, Rust, Schmidt, Grava, Grigal
See First Term.

College of Biological Sciences

The College of Biological Sciences coordinates basic instruction in the biological sciences throughout the University. Information concerning its undergraduate programs is presented in the *College of Biological Sciences Bulletin* or may be obtained from the college office in 223 Snyder Hall.

The college is composed of the Departments of Biochemistry, Biology, Botany, Ecology and Behavioral Biology, and Genetics and Cell Biology, as well as the Dight Institute for Human Genetics, James Ford Bell Museum of Natural History, and Gray Freshwater Biological Institute. The course offerings listed are available on the Twin Cities campus to eligible students in all colleges of the University.

Many summer courses in the biological sciences are offered through the Biology Session held at the Lake Itasca Forestry and Biological Station. Students interested in studying at the field station should refer to the section in this bulletin on the Biology Session and to the *Lake Itasca Biology Session Bulletin*, available upon request from: Summer Session, 135 Johnston Hall, 101 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

Biochemistry (BioC)

FIRST TERM

3990. UNDERGRADUATE RESEARCH. (1-3 cr; prereq sr biochemistry major, B avg or #, and Δ) Staff Research problems for the B.S. thesis (optional).

8290. CURRENT RESEARCH TECHNIQUES. (1-3 cr; prereq grad major in biochemistry, #) Graduate faculty

Research projects in biochemistry carried out in the research laboratory of an individual staff member. Will satisfy all or part of the laboratory requirements for the Ph.D. degree.

8990. GRADUATE RESEARCH. (2-5 cr; prereq #) Graduate faculty
Research problems in various fields in biochemistry represented by staff interest.

SECOND TERM

3990. UNDERGRADUATE RESEARCH. (1-3 cr; prereq sr biochemistry major, B avg or #, and Δ) Staff
See First Term.

8290. CURRENT RESEARCH TECHNIQUES. (1-3 cr; prereq grad major in biochemistry, #) Graduate faculty
See First Term.

8990. GRADUATE RESEARCH. (2-5 cr; prereq #) Graduate faculty
See First Term.

Biology (Biol)¹

Courses with limited enrollment must be reserved in 130 Coffey Hall unless otherwise indicated (see instructions under "Reserved Courses").

¹For additional courses, see Biology Session.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

FIRST TERM

● **1011. GENERAL BIOLOGY.** (5 cr; limited enrollment, reserved in JohH 12 or CofH 130; lect 1010-1120 MTWThF, AndH 210; lab 1150-1340 MTWTh, KoltH S160 and ar) Kerr
An introduction to the principles of biology. The cell, metabolism, heredity, reproduction, ecology, and evolution. Closed-circuit TV and multimedia presentation of lectures.

● **3011. ANIMAL BIOLOGY.** (5 cr; limited to 48 students, reserved in CofH 130; prereq 1011, Chem 1005; lect 1215-1330 MTWTh; McNH 33)

Comparison of ways different phyla have solved similar physiological problems. Laboratory includes survey of major animal groups and physiological experiments.

Lab 1, 0905-1205 TTh, BioSci 245

Lab 2, 1340-1630 TTh, BioSci 245

3112. BIOLOGICAL RHYTHMS—June 16-July 10. (4 cr, §5112; prereq 1011 or #; 1105-1210 MTWThF; ClaOff B45) Koukkari

Timing mechanisms and rhythms of organisms in physiological processes; ecological adaptation, and health; current hypothesis concerning their cellular nature.

5001. BIOCHEMISTRY. (4 cr, §3021, §BioC 5001; prereq 1011, 12 cr organic chemistry or #; 0825-0945 MTWThF; ClaOff B35) Jenness

Biochemistry and biophysics of cells; emphasis on enzyme catalysis, cellular energetics, biosynthesis of cellular constituents, and cellular regulatory mechanisms.

5112. RHYTHMS AND CIRCADIAN REGULATION—June 16-July 10. (4 cr, §3112; primarily for grad students; prereq 15 cr biology, 10 cr chemistry or #; 1105-1210 MTWThF; ClaOff B45) Koukkari
See 3112. Laboratory experience arranged.

● **5950. SPECIAL TOPICS: BIOLOGY OF LOCAL INVERTEBRATES—June 29-July 17.** (5 cr; prereq 1011 or equiv; limited to 20 students, reserved in JohH 12; transportation costs for field trips will be assessed)

Taxonomic and ecological survey of local invertebrates. Emphasis will be on fieldwork.

Sec 3, 0800-1700 TWThF, Z 101, Gilbertson

SECOND TERM

● **1011. GENERAL BIOLOGY.** (5 cr; limited enrollment, reserved in JohH 12 or CofH 130; lect 1010-1120 MTWThF, AndH 210; lab 1150-1340 MTWTh, KoltH S160 and ar) Kerr
See First Term.

● **1103. GENERAL BOTANY.** (5 cr, §3012; limited to 50 students, reserved in CofH 130; prereq 1011; students who plan to major in biology in CLA or any bioscience major in CBS should take Biol 3012; lect 1215-1315 MTWThF; BioSci 12) Charvat

Levels of organization of plants, plant functions, plant growth and development, plant reproduction.

Lab 1, 0905-1205 TTh, BioSci 182

Lab 2, 1325-1625 TTh, BioSci 182

● **1106. GENERAL ZOOLOGY.** (5 cr; limited to 72 students, reserved in JohH 12; prereq 1011; 1215-1315 MTWThF; Bo B6) Underhill

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

Lab 1, 1325-1625 MW, KoltH P168

Lab 2, 1325-1625 TTh, KoltH P168

● **3051. BIOLOGY AND THE FUTURE OF MAN.** (4 cr; S-N only; limited to 100 students, reserved in JohH 12; 1220-1310 MTWThF; AndH 330)

Nontechnical discussion of biological factors affecting the quality of life—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 organizations.

● **5003. GENETICS.** (4 cr, §GCB 3022, §GCB 5022; reserved in CofH 130; prereq 5001; 1105-1205 MTWThF and 1 hr ar; BioSci 18)

Introduction to the nature of genetic information, its transmission from parents to offspring, its expression in cells and organisms, and its course in populations.

Courses preceded by ● have limited enrollment and must be reserved.

● **5004. CELL BIOLOGY.** (3 cr; reserved in CofH 130; prereq 5001; 0955-1055 MTWThF; BioSci 18) Structures and functions of membranes, organelles and other macromolecular aggregates found in plant, animal and bacterial cells. Cell form and movement, intercellular communication, transport, and secretion.

Botany (Bot)¹

FIRST TERM

3131. SURVEY OF PLANT PHYSIOLOGY. (4 cr, §5131, §PIPh 3131, §PIPh 5131; prereq Biol 1103 or 3012, BioC 1302 or ¶BioC 1302 or Biol 5001; 1105-1210 MTWThF; BioSci 6) Soulen
Physiological principles underlying processes that occur in living plants with emphasis on higher plants. Growth and development, mineral nutrition, transport, water relations and metabolism, especially emphasizing photosynthesis and nitrogen assimilation.

3990. RESEARCH PROBLEMS. (1-5 cr; prereq #) Staff
Individual research for undergraduates.

5131. SURVEY OF PLANT PHYSIOLOGY. (4 cr, §3131, §PIPh 3131, §PIPh 5131; prereq Biol 1103 or 3012, BioC 1302 or ¶BioC 1302 or Biol 5001; 1105-1210 MTWThF, 1240-1400 W; BioSci 6) Soulen
See 3131. Includes a weekly discussion section.

8990. RESEARCH PROBLEMS. (Cr ar; prereq #) Staff

SECOND TERM

3990. RESEARCH PROBLEMS. (1-5 cr; prereq #) Staff
See First Term.

8990. RESEARCH PROBLEMS. (Cr ar; prereq #) Staff

Ecology and Behavioral Biology (EBB)¹

FIRST TERM

5970. DIRECTED STUDIES. (Cr ar; prereq Δ) Staff

8391. ADVANCED WORK IN ECOLOGY AND BEHAVIORAL BIOLOGY. (Cr ar; prereq #) Staff

SECOND TERM

● **3001. INTRODUCTION TO ECOLOGY.** (4 cr; open to jrs and above but not biology majors; 0850-0950 MWF; Bo B6)
Basic concepts in ecology dealing with organization, development, and functioning of ecosystems; population growth and regulation. Human impact on such systems.

Rec 1, 0750-0850 TTh, Z 10

Rec 2, 0750-0850 TTh, Z 102

Rec 3, 0850-0950 TTh, Z 10

Rec 4, 0850-0950 TTh, Z 102

5970. DIRECTED STUDIES. (Cr ar; prereq Δ) Staff

8391. ADVANCED WORK IN ECOLOGY AND BEHAVIORAL BIOLOGY. (Cr ar; prereq #) Staff

¹For additional courses, see Biology Session.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

Genetics and Cell Biology (GCB)

FIRST TERM

3022. GENETICS. (4 cr, §Biol 5003; not intended for biology majors; prereq Biol 1011; 1000-1100 MTWThF plus 1 hr ar; ClaOff B35)

Mechanisms of heredity; their implications for biological populations, and applications to practical problems.

3970. INDEPENDENT STUDY. (Cr ar; prereq #, Δ) Staff

Individual study on selected topics or problems with emphasis on selected readings and use of scientific literature.

3990. LABORATORY RESEARCH. (Cr ar; prereq #, Δ) Staff

Individual projects on selected topics and problems.

5022. GENETICS. (3 cr, §3022, §Biol 5003; not open to grad students in genetics; 1000-1100 MTWThF plus 1 hr ar; ClaOff B35)

See 3022.

5610. LABORATORY IN ELECTRON MICROSCOPY. (2-5 cr; S-N only; prereq 5606 or ¶5606, #: 35 SnH) Cunningham

Practical application of laboratory techniques in biological electron microscopy through an independent research project. Intended primarily for graduate students who will use electron microscopy in their thesis research. Approximately 20 hours of microscopy time must be paid for through hourly charges.

8970. DIRECTED STUDIES. (Cr ar; prereq #) Staff

8990. RESEARCH. (Cr ar; prereq #) Staff

SECOND TERM

3970. INDEPENDENT STUDY. (Cr ar; prereq #, Δ) Staff

See First Term.

3990. LABORATORY RESEARCH. (Cr ar; prereq #, Δ) Staff

See First Term.

5610. LABORATORY IN ELECTRON MICROSCOPY. (2-5 cr; S-N only; prereq 5606 or ¶5606, #: 35 SnH) Cunningham

See First Term.

8970. DIRECTED STUDIES. (Cr ar; prereq #) Staff

8990. RESEARCH. (Cr ar; prereq #) Staff

Biology Session

Held at the Lake Itasca Forestry and Biological Station

During two five-week terms of the summer session (June 14 through July 18 and July 19 through August 22), opportunities for fieldwork in terrestrial and freshwater biology in its most fundamental aspects are available at Itasca State Park, approximately 220 miles northwest of the Twin Cities.

Classes are conducted cooperatively by various departments in the College of Agriculture and the College of Biological Sciences. The following opportunities will be offered:

1. Instruction in field biology for college undergraduates, graduate students, high school and nature study teachers, and others interested.
2. Biological investigation in the lakes, prairies, or forests of the area for graduate students.
3. Facilities for guest investigators working on independent research in terrestrial and freshwater biology.

For the *Lake Itasca Biology Session Bulletin*, which describes in detail the opportunities and facilities available at the station, write to: Director of Summer Session, 135 Johnston Hall, 101 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

ADMISSION AND REGISTRATION

The courses are open to all qualified graduate and undergraduate students who have had the usual preliminary course work in biological sciences.

Course work taken at the Itasca Biology Session may be considered for resident requirements at the University of Wisconsin upon recommendation of the department concerned.

Reservations for housing and course work should be made as early as possible. A special Request for Reservation form for this purpose is included in the *Lake Itasca Biology Session Bulletin*. This form should be mailed to: Chairman of Field Biology Program, 349 Bell Museum of Natural History, 10 Church Street S.E., University of Minnesota, Minneapolis, Minnesota 55455. Assignments to classes will be verified by April 10 for early applicants. Late applications will be accepted for classes that are not closed, up to the time of registration. The necessary class reservation cards will be held with the reservation request and are to be turned in by the student when he or she registers at the station on June 14 or July 19.

FEES AND EXPENSES

The following fees are payable by each registrant on or before June 14 or July 19, and must be paid before registration is complete:

Tuition ¹	\$20.75 ² per credit
A surcharge of 10% will be assessed on tuition. ²	
Student Services Fee ¹	19.50 per term
Laboratory Fee	8.50 per term

¹Subject to change.

²Subject to regents' approval.

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

Graduate students may register for thesis-only upon payment of \$65 tuition per term and required student services and laboratory fees.

Independent investigators will pay a research fee based on facilities, equipment, and services required; the minimum fee is \$2.50 per week.

On the basis of the experience of other groups of students, it is estimated that board—which is determined on an actual cost basis—will be approximately \$185 for the five-week period. A charge of \$25 per term is made for room in the cabins of the station and is to be paid to the chairman during the first week of each term.

The laboratory fee covers the use of microscopes, nets, boats, and various kinds of equipment and supplies.

The estimated cost of \$350 (5 credits) or \$465 (10 credits) for each five-week term does not include books, class supplies, traveling expenses including class field trips, clothing, laundry, and incidental personal expenses.

Tuition and fees are payable on or before June 14 and July 19. After these dates, a late fee will be charged according to the following schedule:

June 15-19 or July 20-24	\$ 6
June 22-26 or July 27-31	10
Thereafter	20

Registrations will not be accepted after June 14 or July 19 without the approval of the chairman. Fee statements *dated* June 14 may be paid on June 19 without penalty. However, fee statements *dated* June 15 will carry the late fee.

Biology (Biol)

Courses with limited enrollment must be reserved in 130 Coffey Hall (see instructions under "Reserved Courses").

FIRST TERM

5870. ITASCA SEMINAR. (Cr ar; prereq #) Staff

5890. RESEARCH PROBLEMS AT ITASCA IN ECOLOGY AND BEHAVIORAL BIOLOGY; OR ENTOMOLOGY, FISHERIES, AND WILDLIFE; OR PLANT PATHOLOGY. (Cr ar; prereq #) Staff

● **5950. SPECIAL TOPICS IN BIOLOGY.** (5 cr; section 1 limited to 15 students, prereq course in ornithology; section 2 limited to 20 students, prereq course in beginning biology; WS)

sec 1, Advanced Ornithology, James

sec 2, Field Biology Photography, Rubbelke

SECOND TERM

5870. ITASCA SEMINAR. (Cr ar; prereq #) Staff

5890. RESEARCH PROBLEMS AT ITASCA IN ECOLOGY AND BEHAVIORAL BIOLOGY; OR ENTOMOLOGY, FISHERIES, AND WILDLIFE; OR PLANT PATHOLOGY. (Cr ar; prereq #) Staff

Courses preceded by ● have limited enrollment and must be reserved.

Botany (Bot)

Courses with limited enrollment must be reserved in 130 Coffey Hall (see instructions under "Reserved Courses").

FIRST TERM

- **5801. PLAINS AND BOREAL FLORA.** (5 cr; limited to 20 students; prereq course in taxonomy; MTh) Thomson
- **5811. FRESHWATER ALGAE.** (5 cr; limited to 20 students; prereq 10 cr in botany, biology or zoology; TF) Pfiester
- 5890. RESEARCH PROBLEMS.** (1-5 cr; prereq #, Δ) Staff

SECOND TERM

- **5805. AQUATIC FLOWERING PLANTS.** (5 cr; limited to 20 students; prereq course in taxonomy; TF) Wujek
- **5815. BRYOPHYTES.** (5 cr; limited to 20 students; prereq 10 cr in biology or #; MTh) Vitt
- 5890. RESEARCH PROBLEMS.** (1-5 cr; prereq #, Δ) Staff

Ecology and Behavioral Biology (EBB)

Courses with limited enrollment must be reserved in 130 Coffey Hall (see instructions under "Reserved Courses").

FIRST TERM

- **3800. FIELD PROBLEMS IN ECOLOGY AND BEHAVIOR.** (10 cr; limited to 20 students; prereq 2 courses in biology; hrs ar) Barnwell, Morrow
- **5815. FIELD ETHOLOGY.** (10 cr; limited to 20 students; prereq course in behavior; hrs ar) Alcock and visiting faculty
- **5834. FIELD ORNITHOLOGY.** (5 cr; limited to 15 students; prereq Biol 1106 or equiv; TF) Owre

SECOND TERM

- **5812. AQUATIC ECOLOGY.** (5 cr; limited to 20 students; prereq 15 cr biology, 5 cr chemistry; WS) Megard
- **5814. COMMUNITY STRUCTURE AND FUNCTIONING.** (5 cr; limited to 20 students; prereq course in ecology; TF) Rogers
- **8800. ADVANCED FIELD ECOLOGY.** (10 cr; limited to 24 students; prereq admission to a grad program and #; hrs ar) Strong (Coordinator), Allan, Gill, Inouye and guest lecturers

Entomology (Ent)

Courses with limited enrollment must be reserved in 130 Coffey Hall (see instructions under "Reserved Courses").

FIRST TERM

- **5020. FIELD ENTOMOLOGY.** (5 cr; limited to 15 students; prereq introductory biology; MTh) Elzinga

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

Fisheries and Wildlife (FW)

Courses with limited enrollment must be reserved in 130 Coffey Hall (see instructions under "Reserved Courses").

SECOND TERM

- 5456. **FIELD ECOLOGY OF FISHES.** (5 cr; limited to 15 students; prereq EBB 3004; MTh) Ross

Plant Pathology (PIPa)

Courses with limited enrollment must be reserved in 130 Coffey Hall (see instructions under "Reserved Courses").

SECOND TERM

- 5102. **FIELD MYCOLOGY.** (5 cr; limited to 15 students; prereq 6 cr in botany; MTh) Stewart

Soil Science (Soil)

Courses with limited enrollment must be reserved in 130 Coffey Hall (see instructions under "Reserved Courses").

SECOND TERM

- 5532. **SOILS AND THE ECOSYSTEM.** (5 cr; limited to 20 students; prereq course in ecology; WS) Nimlos

College of Business Administration

ADMISSION AND REGISTRATION

Students are admitted to College of Business Administration degree programs only in the fall and spring quarters; they may enroll in the summer as summer-only students. Admission to a degree program requires completion of 74 quarter credits, including specific prebusiness courses, and a minimum overall grade point average of 2.70. Information about prebusiness course requirements and graduation requirements is available in the college office, 225 Business Administration Building.

Accounting (Acct)

Courses with limited enrollment must be reserved in 225 Business Administration Building unless otherwise indicated (see instructions under "Reserved Courses").

SPECIAL TERM: SEVEN-WEEK COURSES

JUNE 15-JULY 31 (Except for Acct 3101 and 3102 classes start on Tuesday June 16)

● **1024. PRINCIPLES OF ACCOUNTING.** (3 cr; each section limited to 40 students in JohH 12; prereq 3rd-qr fr; A-N only)

Introduction to basic financial accounting concepts and their application to the recording and reporting of business events.

Sec 1, 0800-0850 MTWThF, BlegH 230

Sec 2, 0800-0850 MTWThF, BlegH 240

Sec 3, 0905-0955 MTWThF, BlegH 230

Sec 4, 0905-0955 MTWThF, BlegH 240

Sec 5, 1010-1100 MTWThF, BlegH 230

Sec 6, 1010-1100 MTWThF, BlegH 240

Sec 7, 1115-1205 MTWThF, BlegH 230

Sec 8, 1115-1205 MTWThF, BlegH 240

● **1025. PRINCIPLES OF ACCOUNTING.** (3 cr; each section limited to 40 students, reserved in JohH 12; prereq 1024; A-N only)

Introduction to the effects of generally accepted valuations and measurements upon financial statements.

Sec 1, 0800-0850 MTWThF, BlegH 105

Sec 2, 0800-0850 MTWThF, BlegH 110

Sec 3, 0905-0955 MTWThF, BlegH 110

Sec 4, 1010-1100 MTWThF, BlegH 110

Sec 5, 1115-1205 MTWThF, BlegH 105

Sec 6, 1220-1310 MTWThF, BlegH 105

● **3101. ACCOUNTING THEORY AND PRACTICE I—June 29-August 14.** (4 cr; limited to 40 students; prereq 1051; 0800-0955 MWTh; BlegH 120)

The search for principles and postulates for income determination and for valuation. Includes measurement problems and funds concepts.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

- **3102. ACCOUNTING THEORY AND PRACTICE II—June 29-August 14.** (4 cr; limited to 40 students; prereq 3101; 1010-1205 MWTh; BlegH 120)
Concepts and problems in accounting for specific assets and equities.
- **3201. COST ACCOUNTING.** (4 cr; limited to 40 students; prereq 1051, MIS 3099, QA 3055; 0800-0955 MWTh; BlegH 125)
Process and standard costs, behavior of costs under varying conditions, cost allocations, variance analysis, capital budgeting.
- **5125. AUDITING PRINCIPLES AND PROCEDURES.** (4 cr; limited to 40 students; prereq 3102 and 3201; 0800-0955 MWTh; BlegH 145)
The auditor's role and function. Includes audit standards, ethics, procedures, legal responsibilities.
- **5135. INCOME TAX ACCOUNTING.** (4 cr; each section limited to 40 students; prereq 1051; 1010-1205 MWTh; BlegH 220)
Individual, partnership, and corporation taxation; emphasizes income tax planning.
- **5180. ADVANCED ACCOUNTING.** (4 cr; limited to 40 students; prereq 3102; 1220-1415 MWTh; BlegH 120)
Consolidated statements, partnerships, fiduciary, international and fund accounting.
- **5270. REPORTING FOR MANAGEMENT CONTROL.** (4 cr, §3255, §8255; limited to 40 students; prereq 3201; 1220-1415 MWTh; BlegH 220)
Responsibility accounting; transfer pricing problems, capital budgeting; management control systems.
- **8101. ACCOUNTING THEORY AND PRACTICE I.** (4 cr, §3101; limited to 40 students; prereq 8051; 1010-1205 MWTh; BlegH 440)
Accounting principles and concepts of income. Measurement and valuation problems. Funds flow.
- 8990. READINGS IN ACCOUNTING.** (Cr ar; prereq #)
Readings useful to individual students but not available in regular courses.
- 8995. RESEARCH IN ACCOUNTING.** (Cr ar; prereq #)

Business Administration (BA)

Courses with limited enrollment must be reserved in 225 Business Administration Building (see instructions under "Reserved Courses").

FIRST TERM

- **3998. INDEPENDENT STUDY.** (Cr ar [may be repeated for cr]; limited to 40 students; prereq consent of faculty member willing to supervise the study) Staff
Student-initiated project and/or independent course of study.

SECOND TERM

- **3998. INDEPENDENT STUDY.** (Cr ar [may be repeated for cr]; limited to 40 students; prereq consent of faculty member willing to supervise the study) Staff
See First Term.

Business, Government, Society (BGS)

Courses with limited enrollment must be reserved in 225 Business Administration Building (see instructions under "Reserved Courses").

Courses preceded by ● have limited enrollment and must be reserved.

FIRST TERM

3001. MANAGERIAL ECONOMICS. (4 cr; limited to 50 students; §Econ 3105; prereq Econ 1002 or equiv; 0800-0955 MTWTh; BlegH 250) Hastings

Intermediate microeconomics from the perspective of the business enterprise and of the manager. Firm and industry demand, firm revenues and costs, supply, pricing practices, market structures, and other relevant economic concepts are applied to the individual business.

3002. BUSINESS AND SOCIETY. (4 cr; prereq jr or sr; 1010-1145 MTWTh; BlegH 150) Holloway

Basic economic and social goals and various attempts to meet them, with emphasis on American society. Business as an institution; its relationships to other institutions and to society. Ethical and practical conflicts in the role of the firm and the manager are examined in the context of the public policy process. Current social issues and their impact on business.

Business Law (BLaw)

Courses with limited enrollment must be reserved in 225 Business Administration Building (see instructions under "Reserved Courses").

FIRST TERM

● **3058. INTRODUCTION TO LAW, AND THE LAW OF CONTRACTS AND AGENCY.** (4 cr, §8158; each section limited to 50 students; prereq Econ 1002 or equiv) Wright

The origin of law, its place in and effect upon society; the history and development of law; the systems of courts and legal procedure. The law of contracts as the basic law affecting business transactions. Laws affecting the relationship between principal and agent, master and servant, and employer and employee.

Sec 1, 0800-0850 MTWThF, BlegH 120

Sec 2, 0905-0955 MTWThF, BlegH 120

● **8158. INTRODUCTION TO LAW, AND THE LAW OF CONTRACTS AND AGENCY.** (4 cr, §3058; each section limited to 5 students; prereq Econ 1002 or equiv) Wright

See 3058.

Sec 1, 0800-0850 MTWThF, BlegH 120

Sec 2, 0905-0950 MTWThF, BlegH 120

Finance (BFin)

Courses with limited enrollment must be reserved in 225 Business Administration Building (see instructions under "Reserved Courses").

FIRST TERM

● **3000. FINANCE FUNDAMENTALS.** (4 cr, §8000; limited to 50 students; prereq Acct 1051)

A comprehensive, analytical introduction to the principal concepts in finance. The general business environment, valuation theory, financial management decisions concerning uses and sources of funds (i.e., capital budgeting), survey of the nation's financial markets.

Sec 1, 0800-0930 MTWTh, BlegH 135, Stolz

Sec 2, 1000-1130 MTWTh, BlegH 135, Reik

● **3300. INVESTMENT MANAGEMENT AND FINANCIAL MARKETS.** (4 cr, §8300; limited to 40 students; prereq 3000; 1245-1400 MTWTh; BlegH 225) Jessup

Introduces decision procedures for a variety of financial markets. The banking system and other financial intermediaries, risk-return relationships of various marketable securities, analytical techniques of portfolio management in the context of the nation's changing financial markets.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **3500. REAL ESTATE INVESTMENT ANALYSIS.** (4 cr; limited to 40 students; prereq Econ 1002 or equiv; 0930-1200 TTh; BlegH 205) Rosko

Analysis and economic aspects of investments in real property including cash flows; accounting depreciation vs. market value depreciation or appreciation; financing methods and costs; sources of funds; measures of return on investment. Ellwood techniques. Computer models for investment analysis. Impact of property taxes on urban land use.

8990. READINGS AND RESEARCH IN FINANCE. (Cr ar [may be repeated for cr]; prereq consent of adviser and #) Staff

Advanced readings in finance. Experimental subject areas and materials discussed in seminar. Opportunities for individualized readings and research work developed under faculty supervision.

FIRST AND SECOND TERMS: TEN-WEEK COURSES

● **8100. ADVANCED FINANCIAL MANAGEMENT.** (4 cr, §3100; limited to 37 students; prereq 3000 or MBA 8040; 1730-2000 M; BlegH 330) Stolz

Rigorous case-oriented course that simulates executive-level discussion of corporate financial policy. The student is challenged to apply basic principles of finance on his or her own initiative. Effective verbal and written communication stressed. Case discussions augmented by written assignments, lectures, readings, and occasional guest presentations by financial executives.

● **8300. INVESTMENT ANALYSIS AND MANAGEMENT.** (4 cr; limited to 35 students; prereq 3000 or MBA 8040; 1730-2000 W; BlegH 330) Alexander

Introduction to investment decision making from the viewpoints of individual and institutional investors. Analytical techniques of security selection and portfolio management in the context of the nation's changing securities markets. Focus on risk-return relationships of various marketable securities and portfolio strategies.

SECOND TERM

● **3000. FINANCE FUNDAMENTALS.** (4 cr, §8000; limited to 50 students; prereq Acct 1051; 0800-0930 MTWTh; BlegH 135) Stolz

See First Term.

● **3100. FINANCIAL MANAGEMENT.** (4 cr, §8100; limited to 37 students; prereq 3000; 0930-1045 MTWTh; BlegH 135) Reik

A broad, case-oriented course building on concepts introduced in 3000. The viewpoint of a corporation's principal financial officer is generally used. Case discussions, augmented by lectures and readings, enable students to apply finance principles in actual business situations. Experience in problem definition, specification of alternatives, analysis, and decisions. Effective verbal and written communication stressed. *Rigorous analysis of the assignment prior to each class session is expected as preparation for active class discussion.*

● **3300. INVESTMENT MANAGEMENT AND FINANCIAL MARKETS.** (4 cr, §8300; limited to 40 students; prereq 3000; 1115-1230 MTWTh; BlegH 225) Jessup

See First Term.

● **8990. READINGS AND RESEARCH IN FINANCE.** (Cr ar [may be repeated for cr]; prereq consent of adviser and #)

See First Term.

Industrial Relations (IR)

FIRST TERM

3002. INDUSTRIAL RELATIONS SYSTEMS: LABOR MARKETS AND THE MANAGEMENT OF HUMAN RESOURCES. (4 cr, §8002; prereq Econ 1001, 1002, Psy 1001; 0800-0955 MTWTh; BlegH 225)

Labor markets, employee management, federal-state employment policy, and the resolution of industrial conflict. Process followed in valuing, employing, developing, motivating, and maintaining human resources in an industrial society.

Courses preceded by ● have limited enrollment and must be reserved.

3010. HUMAN RELATIONS AND APPLIED ORGANIZATION THEORY. (4 cr; 1010-1205 MTWTh; BlegH 225)

The problems of human relations arising in modern organizations and approaches to their solution. Philosophies and theories of human relations and their translation into policy. Discussion, cases, role playing, and skill building sessions.

8000. GRADUATE TOPICS IN INDUSTRIAL RELATIONS. (Cr ar; prereq 8002 and #; 1430-1625 MTWTh; BlegH 245)

Selected topics in industrial relations.

8002. INDUSTRIAL RELATIONS SYSTEMS: LABOR MARKETS AND THE MANAGEMENT OF HUMAN RESOURCES. (5 cr, §3002; prereq Econ 1001, 1002, Psy 1001; 1220-1415 MTWTh; BlegH 245)

See 3002.

8004. ORGANIZATION THEORY AND ANALYSIS. (4 cr; prereq 8002 or #; 0800-0955 MTWTh; BlegH 245)

Survey of organization theories and application of these theories to the administrative issue of organizational structuring, coordination, control, job design, organizational decision making, leadership, and organizational development.

8007. COLLECTIVE BARGAINING NEGOTIATIONS; PROCESSES IN THE PUBLIC AND PRIVATE SECTORS. (4 cr; prereq 8002 or #; 1010-1205 MTWTh; BlegH 245)

The elements in collective bargaining negotiations and the legal framework imposed on negotiations, both public and private. Conflict and behavioral models containing institutional constraints guide the examination of strategies and tactics that characterize employee-employer bargaining relationships.

SECOND TERM

3002. INDUSTRIAL RELATIONS SYSTEMS: LABOR MARKETS AND THE MANAGEMENT OF HUMAN RESOURCES. (4 cr, §8002; prereq Econ 1001, 1002, Psy 1001; 0800-0955 MTWTh; BlegH 120)

See First Term.

3007. COLLECTIVE BARGAINING NEGOTIATIONS AND MODERN LABOR RELATIONS. (4 cr; 1010-1205 MTWTh; BlegH 205)

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; and significant trends.

8002. INDUSTRIAL RELATIONS SYSTEMS: LABOR MARKETS AND THE MANAGEMENT OF HUMAN RESOURCES. (5 cr, §3002; prereq Econ 1001, 1002, Psy 1001; 1115-1310 MTWTh; BlegH 245)

See First Term.

8003. ORGANIZATION AND STAFFING. (4 cr; prereq 8002 or #; 0950-1100 MTWTh; BlegH 225)

Integration of organization goals and objectives with individual needs and objectives through the staffing processes of human resources planning, recruitment, selection/reduction, allocation and evaluation of human resources.

8005. EMPLOYEE COMPENSATION AND REWARD. (4 cr; prereq 8002 or #; 1325-1520 MTWTh; BlegH 245)

Systems of employee compensation reward within economic organizations. Concepts, models, and theories relating to processes of compensation designed to influence worker behavior and performance within constraints. Wage structuring, pricing, individual appraisal and reward, employee motivation, and compensation controls.

Management (Mgmt)

Courses with limited enrollment must be reserved in 225 Business Administration Building (see instructions under "Reserved Courses").

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

FIRST TERM

● **3001. FUNDAMENTALS OF MANAGEMENT.** (4 cr, §8001; limited to 50 students)
Concepts, theory, research, and operational problems. The principal functional areas of management. Factors and relationships necessary to achieve organizational objectives: establishment of goals, policies, procedures; the planning process; control systems; organizational structure and behavior; leadership.

Sec 1, 0800-1000 MTWTh, BlegH 435, Miller

Sec 2, 1010-1205 MTWTh, BlegH 435, Javidan

● **3002. PSYCHOLOGY IN MANAGEMENT.** (4 cr, §8006; limited to 30 students; 0800-1000 MTWThF; BlegH 115) Solem

Development and application of behavior principles, methods, and skills that underlie managerial competence in preventing and solving problems within and between individuals and groups and aid in effective utilization of human resources. Various laboratory procedures highlight concepts, methods, and skills and furnish practice in applying them to management problems.

● **3004. BUSINESS POLICY: STRATEGY FORMULATION AND IMPLEMENTATION.** (5 cr; limited to 35 students; prereq sr and completion of business core or final core course; 1010-1205 MTWThF; BlegH 330) Erickson

Identifying and analyzing problems, establishing corporate or divisional goals, and designing realistic programs of action. Usually the viewpoint of the general line manager (department, division, or executive level) is taken. Case analysis and discussion, small group work, and occasional presentations made to the class.

● **8006. PSYCHOLOGY IN MANAGEMENT.** (4 cr, §3002; limited to 30 students; 1010-1205 MTWThF; BlegH 115) Solem

See 3002.

● **8990. READINGS IN MANAGEMENT THEORY AND ADMINISTRATION.** (Cr ar; prereq consent of adviser and #, 2nd-yr grad student and requisite introductory courses) Staff

Readings involve intensive research into a particular subject and normally require preparation of a major term paper.

● **8995. GRADUATE RESEARCH IN MANAGEMENT THEORY AND ADMINISTRATION.** (Cr ar; prereq consent of adviser and #, 2nd-yr grad student and requisite introductory courses) Staff
Special research projects on a specific problem completed in cooperation in a business firm.

SECOND TERM

● **3001. FUNDAMENTALS OF MANAGEMENT.** (4 cr, §8001; limited to 50 students)

See First Term.

Sec 1, 0900-1100 MTWTh, BlegH 425, Lippitt

Sec 2, 0800-1000 MTWTh, BlegH 435, Miller

● **8990. READINGS IN MANAGEMENT THEORY AND ADMINISTRATION.** (Cr ar; prereq consent of adviser and #, 2nd-yr grad student and requisite introductory courses) Staff

See First Term.

● **8995. GRADUATE RESEARCH IN MANAGEMENT THEORY AND ADMINISTRATION.** (Cr ar; prereq consent of adviser and #, 2nd-yr grad student and requisite introductory courses) Staff

See First Term.

Management Information Systems (MIS)

Courses with limited enrollment must be reserved in 225 Business Administration Building (see instructions under "Reserved Courses").

FIRST TERM

● **3098. ELEMENTARY COBOL.** (1 cr; S-N only; limited to 50 students; 1220-1310 MW; BlegH 420)
An introduction to programming in the COBOL language. Using a programmed text in this self-paced course, the student will complete a set of simple COBOL programs. Consultants assist and administer quizzes in a laboratory environment.

Courses preceded by ● have limited enrollment and must be reserved.

● **3099. ELEMENTARY FORTRAN.** (1 cr; S-N only; limited to 50 students; 1220-1310 MW; BlegH 425)
An introduction to programming in the FORTRAN language. Using a programmed text in this self-paced course, the student will complete a set of simple FORTRAN programs. Consultants assist and administer quizzes in a laboratory environment.

● **3101. INTRODUCTION TO MANAGEMENT INFORMATION SYSTEMS.** (4 cr, §5101; limited to 45 students; 0800-0955 MTWTh; BlegH 420)

An overview of management information systems. Conceptual foundation including: concepts of information, humans as information processors, systems concepts and information systems, management and organizational concepts, decision-making concepts and the value of information for decision making. The structure, development, organization, management, and evaluation of a management information system. Emphasis on the user/system interface.

8990. READINGS IN MANAGEMENT INFORMATION SYSTEMS. (Cr ar; prereq consent of adviser, 2nd-yr grad student, requisite introductory courses)

8995. GRADUATE RESEARCH IN MANAGEMENT INFORMATION SYSTEMS. (Cr ar; prereq consent of adviser, #, 2nd-yr grad student, requisite introductory courses)

SECOND TERM

● **3100. INTRODUCTION TO COMPUTERS AND COMPUTER DATA PROCESSING.** (4 cr, §5100, §5300, §8300; limited to 55 students; prereq 3098 or 3099 or §3098 or §3099; 0800-0955 MTWTh; BlegH 420)

Elements of computer hardware and their functions. Computer software. Tools and methods for development of computer applications. Preparing computer programs. Acquisition, organization, and management of computer resources. The computer industry. Future developments.

8990. READINGS IN MANAGEMENT INFORMATION SYSTEMS. (Cr ar; prereq consent of adviser, 2nd-yr grad student, requisite introductory courses)

8995. GRADUATE RESEARCH IN MANAGEMENT INFORMATION SYSTEMS. (Cr ar; prereq consent of adviser, #, 2nd-yr grad student, requisite introductory courses)

Marketing (Mktg)

Courses with limited enrollment must be reserved in 225 Business Administration Building (see instructions under "Reserved Courses").

FIRST TERM

● **3000. PRINCIPLES OF MARKETING.** (4 cr, §8000; each section limited to 45 students; prereq Econ 1002 or equiv)

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

Sec 1, 0905-1100 MWF, BlegH 205, Walton

Sec 2, 1115-1310 MWF, BlegH 205, Walton

● **3010. BUYER BEHAVIOR AND MARKETING ANALYSIS.** (4 cr; limited to 50 students; prereq 3000 and QA 1050 or equiv; 0800-0955 MWF; BlegH 130)

Identifying and applying secondary and primary data to solve marketing problems. Emphasis on consumer and organizational buyer behavior. Topics include survey and experimental research techniques, market segmentation, data analysis, behavior concepts and processes, consumer and organizational decision-making models, and managerial applications of these models.

● **3020. MARKETING OPERATIONS MANAGEMENT.** (4 cr; limited to 30 students; prereq 3010; 1115-1310 MWF; BlegH 435)

Development of marketing plans, primarily for manufacturing organizations. Analytical methods for developing and appraising marketing programs, factors important in shaping marketing plans. Planning for selling, communication, distribution, pricing, product development, and marketing research activities.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **8078. MARKETING COMMUNICATIONS.** (4 cr; limited to 30 students; prereq MBA core courses or Mktg 8000; 1010-1205 MWF; BlegH 425) Ross

Design and evaluation of marketing communications; communication theory, theories of persuasion and attitude change, message creation and execution, marketing communications media and guidance research data, and methods of measuring communications effectiveness.

8990. READINGS IN MARKETING. (Cr ar; prereq MBA core courses...or 8000 and Δ ...and consent of adviser, #)

Readings useful to the student's program and objectives that are not available in regular course offerings.

8995. GRADUATE RESEARCH IN MARKETING. (Cr ar; prereq MBA core courses...or 8000 and Δ ...and consent of adviser, #)

Individual research on an approved topic that is appropriate to the student's program and objectives.

SECOND TERM

● **3000. PRINCIPLES OF MARKETING.** (4 cr, §8000; limited to 45 students; prereq Econ 1002 or equiv; 0905-1100 MWF; BlegH 255)

See First Term.

● **3020. MARKETING OPERATIONS MANAGEMENT.** (4 cr; limited to 30 students; prereq 3010; 1115-1310 MWF; BlegH 435)

See First Term.

● **8098. INTRODUCTION TO CONSUMER BEHAVIOR.** (4 cr; limited to 30 students; prereq MBA core courses or 8000; 1115-1310 MWF; BlegH 425)

Application of the behavioral sciences to understanding human behavior in the marketplace. Topics include perception, learning, attitude theory and measurement, persuasion, motivation, personality, social and cultural influences, family decision making, the social influence process, consumer decision-making strategies, managerial implications of consumer research and consumerism.

8990. READINGS IN MARKETING. (Cr ar; prereq MBA core courses...or 8000 and Δ ...and consent of adviser, #)

See First Term.

8995. GRADUATE RESEARCH IN MARKETING. (Cr ar; prereq MBA core courses...or 8000 and Δ ...and consent of adviser, #)

See First Term.

Master of Business Administration (MBA)

All courses must be reserved in 334 Business Administration Building (see instructions under "Reserved Courses").

Note: Students enrolled in the MBA courses pay tuition rates charged in the academic year.

FIRST AND SECOND TERMS: TEN-WEEK COURSES

● **8005. COMPUTER ACCESS AND PROGRAMMING FOR BUSINESS ANALYSIS.** (1 cr; MBA students only; limited to 60 students; 1030-1230 T; BlegH 145) Hoffman

Provides computer access and use information necessary for MBA courses. Covers introduction to computer terminology and computing at Minnesota, plus programming in BASIC.

● **8015. HUMAN RESOURCES MANAGEMENT.** (4 cr; MBA students only; limited to 40 students)
Sec 1, 0800-0955 TTh, BlegH 220

Sec 2, 1215-1410 MW, BlegH

A systematic approach to major phases of human resource management in organizations including knowledge bases and theories; problems; constraints; opportunities; program controls, evaluations and costs; and results of effective and efficient human resource management. Emphasis is that of the generalist, not that of specialist personnel and industrial relations professionals.

Courses preceded by ● have limited enrollment and must be reserved.

● **8025. DECISION SCIENCES AND INFORMATION SYSTEMS.** (4 cr; MBA students only; limited to 40 students; 0900-1200 M; BlegH 335) Anderson

Systems analysis, probability and decision analysis applied to managerial problems under uncertainty. Formulation and interpretation of mathematical models. The role of information systems in decision making. Principles of implementation of decision science models and information systems.

● **8035. MANAGERIAL ECONOMICS AND ACCOUNTING.** (4 cr; MBA students only; limited to 40 students; 1430-1630 MWTh; BlegH 150) Dickhaut

To examine the interplay of microeconomic theory of the firm, managerial accounting, and management of organizations. The specific topics covered are: 1) Cost curves and cost estimation; 2) Demand curves, market structure, and demand estimation; 3) Short-run decision making of the firm and the related accounting information; and 4) accounting choice problems under uncertainty.

● **8040. FINANCIAL MANAGEMENT.** (4 cr; MBA students only; limited to 40 students; 1300-1430 TTh; BlegH 240) Alexander

Financial management is an analytical introduction to the theory and practice of finance. The course applies the basic financial concepts of risk, return, and valuation to the decisions that a person engaged in small business or a corporate financial officer must make about the sources and uses of funds during changing financial markets.

● **8045. MARKETING MANAGEMENT.** (4 cr; MBA students only; limited to 40 students; 1220-1415 MW; BlegH 435) Walton

Managing the marketing function; marketing planning, strategy, and management concepts. Identification of marketing problems and opportunities; construction, evaluation, and management of a marketing plan.

● **8050. OPERATIONS MANAGEMENT.** (4 cr; MBA students only; limited to 40 students)

Sec 1, 0900-1200 Th, BlegH 230

Sec 2, 0900-1200 W, BlegH 235

The operations management function in different types of organizations; the relation of operations to other business decisions. Concepts of operations planning and control; process management; and the relationship to logistics.

Operations Management (OM)

Courses with limited enrollment must be reserved in 225 Business Administration Building (see instructions under "Reserved Courses").

SECOND TERM

● **3000. INTRODUCTION TO OPERATIONS MANAGEMENT.** (4 cr; limited to 45 students; 1010-1205 MTWTh; BlegH 415)

Concepts and principles in the management of operating functions, taught from a managerial point of view. Examples from service industries, nonprofit organizations, and manufacturing. Relationships to other business functions and the environment stressed. Topics include an overview of operations, planning operating processes, productivity measurement, standards, allocation of resources, forecasting, concepts of quality, inventory management, principles of scheduling, and operational control information systems.

8990. READINGS IN OPERATIONS MANAGEMENT. (Cr ar; prereq consent of adviser and #, 2nd-yr grad student, requisite introductory courses)

8995. GRADUATE RESEARCH IN OPERATIONS MANAGEMENT. (Cr ar; prereq consent of adviser and #, 2nd-yr grad student, requisite introductory courses)

Research projects on a specific problem completed in cooperation with a business firm.

Courses preceded by ● have limited enrollment and must be reserved.

Quantitative Analysis (QA)

Courses with limited enrollment must be reserved in 225 Business Administration Building unless otherwise indicated (see instructions under "Reserved Courses").

FIRST TERM

● **1050. ELEMENTARY MANAGERIAL STATISTICS.** (4 cr; limited to 50 students, reserved in JohH 12; prereq Math 1111 or equiv or Math 1131; lect 0900-1130 MTh; lab 0900-1015 TF; BlegH 235) Introduction to quantitative decision making. Probabilistic and statistical techniques in decision making, data analysis, and management information systems; e.g., laws of probability, sampling, estimation, and regression.

● **3055. INTRODUCTION TO MANAGEMENT SCIENCES.** (4 cr; each section limited to 40 students; prereq 1050, Math 1142 or equiv) Analytical approaches and quantitative reasoning in management problems; problem formulation, analytical methods for solution, and use of computer models. Management science concepts, decision theory, simulation, linear programming, implementation.

Sec 1, lect 0900-1130 MTh, lab 0900-1015 TF, BlegH 215

Sec 2, lect 1300-1530 MTh, lab 1300-1415 TF, BlegH 215

8990. READINGS IN QUANTITATIVE ANALYSIS. (Cr ar; prereq #)

8995. GRADUATE RESEARCH IN QUANTITATIVE ANALYSIS. (Cr ar; prereq #)

SECOND TERM

● **1050. ELEMENTARY MANAGERIAL STATISTICS.** (4 cr; limited to 50 students, reserved in JohH 12; prereq Math 1111 or equiv or Math 1131; lect 0900-1130 MTh; lab 0900-1015 TF; BlegH 235) See First Term.

● **3055. INTRODUCTION TO MANAGEMENT SCIENCES.** (4 cr; limited to 40 students; prereq 1050, Math 1142 or equiv; lect 0900-1130 MTh; lab 0900-1015 TF; BlegH 215) See First Term.

8990. READINGS IN QUANTITATIVE ANALYSIS. (Cr ar; prereq #)

8995. GRADUATE RESEARCH IN QUANTITATIVE ANALYSIS. (Cr ar; prereq #)

Risk Management and Insurance (Ins)

FIRST TERM

3100. RISK MANAGEMENT AND INSURANCE. (4 cr, §8100; 0930-1045 MTWTh; BlegH 120) Whitman

How to recognize and evaluate the property, liability, and personnel risks facing a business firm, a family, or some other economic unit. The tools of risk management—retention, loss prevention, and insurance—and the conditions under which they should be used. How to select and deal with an insurer. Public policy issues—government regulation, social insurance, and automobile insurance problems.

3200. LIFE AND HEALTH INSURANCE. (4 cr, §8200; prereq 3100 or equiv; 1115-1230 MTWTh; BlegH 120) Whitman

Types of individual life and health insurance contracts, their uses, and their major provisions. Insurance and pension components of employee benefit plans—their characteristics and regulation. Programming and estate planning. Business uses of individual life and health insurance. Selection of a life and health insurer.

8100. RISK MANAGEMENT AND INSURANCE. (4 cr, §3100; 0930-1045 MTWTh; BlegH 120) Whitman

See 3100.

Courses preceded by ● have limited enrollment and must be reserved.

8200. LIFE AND HEALTH INSURANCE. (4 cr, §3200; prereq 8100 or equiv; 1115-1230 MTWTh; BlegH 120) Whitman
See 3200.

SECOND TERM

3100. RISK MANAGEMENT AND INSURANCE. (4 cr, §8100; 0930-1045 MTWTh; BlegH 120) Whitman
See First Term.

8100. RISK MANAGEMENT AND INSURANCE I. (4 cr, §3100; 0930-1045 MTWTh; BlegH 120) Whitman
See 3100 First Term.

Transportation (Tran)

Courses with limited enrollment must be reserved in 225 Business Administration Building (see instructions under "Reserved Courses").

FIRST TERM

● **3064. BUSINESS LOGISTICS.** (5 cr, §8264; limited to 40 students; prereq 3054; 0730-0850 MTWThF; BlegH 425)

Control of the flow of physical products by the firm. Rate negotiation, transportation alternatives, logistics information systems, inventory control, warehouse operations and location, and logistics system design.

● **8264. BUSINESS LOGISTICS.** (5 cr, §3064; limited to 10 students; prereq 3054 or 8154; 0730-0850 MTWThF; BlegH 425)

See 3064.

8990. READINGS IN TRANSPORTATION AND BUSINESS LOGISTICS. (Cr ar; prereq consent of adviser, # in field covered)

Readings useful to the student's program and objectives that are not available in regular course offerings.

8995. GRADUATE RESEARCH IN TRANSPORTATION AND BUSINESS LOGISTICS. (Cr ar; prereq consent of adviser, # in field covered)

SECOND TERM

● **3054. FUNDAMENTALS OF TRANSPORTATION.** (4 cr, §8154; prereq Econ 1002 or equiv; each section limited to 50 students)

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

Sec 1, 0800-0850 MTWThF, BlegH 425

Sec 2, 0905-0955 MTWThF, BlegH 435

8990. READINGS IN TRANSPORTATION AND BUSINESS LOGISTICS. (Cr ar; prereq consent of adviser, # in field covered)

Readings useful to the student's program and objectives that are not available in regular course offerings.

8995. GRADUATE RESEARCH IN TRANSPORTATION AND BUSINESS LOGISTICS. (Cr ar; prereq consent of adviser, # in field covered)

College of Education

Those expecting to become candidates for the bachelor's or M.Ed. degree should apply for admission as regular students in the College of Education by filling out the application form in the Office of Admissions and Records and filing in that office any credentials necessary to support their request for advanced standing. Students interested in specific degree programs are encouraged to immediately contact the Education Career Development Office (ECDO), 1425 University Avenue S.E., to learn when students are accepted and the deadline for application for those programs. The *College of Education Bulletin* provides current information about programs and requirements.

Summer session students who do not expect to become candidates for undergraduate or graduate degrees do not need to present credentials (see section on Admission and Registration); they are classified as "summer-only" students. Those wishing to enter the Graduate School should apply for admission to the Graduate School (see Admission section).

For detailed descriptions of courses and curricula in education, see the *College of Education Bulletin*.

Although normally classes are *not* scheduled on the final registration day (June 15), some College of Education short-term workshops *will* meet on those dates.

MAIL REGISTRATION

Students registering in the College of Education as B.S., M.Ed., adult special, and summer-only students may register by mail. Teachers registering for courses in any department of the University, as well as other students taking professional education courses, should register through the College of Education and thus are entitled to register by mail. Mail registration is not permitted in the Graduate School, for 8000-level courses, or for courses and workshops listed in this bulletin that have special registration instructions.

Qualified students may obtain registration materials from the Summer Session Office, either by telephoning 373-2925 or by sending in the request card found at the back of this bulletin. All mail registrations *must be received by May 28* in order to be processed in time for the start of the summer session. Any student who registers and then decides not to attend classes should notify the Education Career Development Office as early as possible so that an official cancellation can be processed.

COUNSELING SERVICES

The staff of the Education Career Development Office of the College of Education will be available during both terms for consultation concerning admission, information about requirements of the teaching profession, and counseling. Appointments should be made at 1425 University Avenue S.E.

Courses preceded by ● have limited enrollment and must be reserved.

STUDENT PROGRESS COMMITTEE

Undergraduate and master of education students with questions concerning program adjustments and substitutions for required work should consult their adviser or a representative of the Student Progress Committee at 1425 University Avenue S.E.

GRADUATE CREDIT FOR WORKSHOPS

The amount of graduate credit in workshops that may be applied toward a master's degree program is limited. Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

STUDENT TEACHING

Student teaching during the summer is open *only* to those students completing programs in the College of Education who are regularly approved applicants for student teaching in the nursery school-kindergarten program, and to some students in special education. Because of limited facilities, it is *not* possible to offer student teaching to students completing programs at other institutions.

INSTITUTE OF CHILD DEVELOPMENT

Child Psychology (CPsy)

FIRST TERM

1301. INTRODUCTORY CHILD PSYCHOLOGY. (4 cr; prereq 5 cr introductory psychology; 1010-1100 MTWThF; WuH 230) Charlesworth

Introduction to science of child behavior; review of theories and research.

3302. INFANCY. (4 cr; prereq 1301 or #; 0905-0955 MTWThF; ChDev 105) Salapatek

Perceptual, motor, emotional, social, and cognitive development during the first two years of life; the developing infant in its social and physical environment.

3303. ADOLESCENT PSYCHOLOGY. (4 cr, §5303; prereq 5 cr introductory psychology; 1220-1310 MTWThF; BuH 125) Bobbitt

Physical, cognitive, and social development during adolescence. Meets with 5303.

3304. INTRODUCTION TO MATURITY AND AGING. (4 cr; prereq 1301 or equiv; 0905-0955 MTWThF; ChDev 216) Mitchell

Empirical and theoretical issues in developmental psychology of maturity and aging; survey of perceptual-motor, cognitive, and social-psychological changes from young adulthood to old age.

3311. BEHAVIORAL AND EMOTIONAL PROBLEMS. (4 cr, §5311; prereq 1301 or equiv; 1010-1100 MTWThF; WuH 130) Reed

Description, etiology, development of behavioral and emotional problems of children; treatment where germane. Excluded are problems deriving primarily from sensory or physical handicap, mental retardation, or neurological impairment. Meets with 5311.

3313. PSYCHOLOGY OF ATYPICAL CHILDREN. (4 cr, §5313; prereq 1301 or equiv; 0800-0850 MTWThF; ChDev 216) Brown

Problems of research, assessment, and behavior associated with atypicality; evaluation of research in areas of major concern for sensory, language, intellectual, and physical deviation. Meets with 5313.

3331. PROCESSES OF SOCIALIZATION OF CHILDREN. (4 cr, §5331; prereq 1301 or equiv; 1115-1205 MTWThF; Pth 214) Gunnar

Processes of social learning: identification, social influence, imitation, reward and punishment, internalization, object choice. Meets with 5331.

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

3347. CHILDREN'S LEARNING AND INTELLECTUAL SKILLS. (4 cr; prereq 1301 or #; 1220-1310 MTWThF; WuH 130) Manis

Current research on learning, problem solving, intellectual performance in children, application to practical contexts.

3980. DIRECTED INSTRUCTION. (1-4 cr [max 4 cr]; S-N only; prereq #) Collins

Undergraduates serve as teaching assistants in courses they have successfully completed for credit.

5303. ADOLESCENT PSYCHOLOGY. (4 cr, §3303; prereq 5 cr introductory psychology; 1220-1310 MTWThF; BuH 125) Bobbitt

Physical, cognitive, and social development during adolescence. Meets with 3303.

5311. BEHAVIORAL AND EMOTIONAL PROBLEMS. (4 cr, §3311; prereq 1301 or equiv; 1010-1100 MTWThF; WuH 130) Reed

Description, etiology, development of behavioral and emotional problems of children; treatment where germane. Excluded are problems deriving primarily from sensory or physical handicap, mental retardation, or neurological impairment. Meets with 3311.

5313. PSYCHOLOGY OF ATYPICAL CHILDREN. (4 cr, §3313; prereq 1301 or equiv; 0800-0850 MTWThF; ChDev 216) Brown

Problems of research, assessment, and behavior associated with atypicality; evaluation of research in areas of major concern for sensory, language, intellectual, and physical deviation. Meets with 3313.

5315. INTRODUCTION TO MENTAL RETARDATION. (4 cr, §SpEd 5120, §PsyS 5120; prereq 1301 or equiv; 1115-1205 MTWThF; PtH 111) Ilmer, Turnure

Psychological and educational problems related to the mentally retarded. Meets with PsyS 5120.

5319. CLINICAL PROCEDURES WITH CHILDREN AND YOUTH. (4 cr; prereq 12 cr in child psychology, psychology, educational psychology or sociology; 0800-0850 MTWThF; PtH 215) Gross

Survey of assessment and intervention procedures of child clinical psychology in clinical and community settings. Primarily for students not majoring in clinical psychology.

5331. PROCESSES OF SOCIALIZATION OF CHILDREN. (4 cr, §3331; prereq 1301 or equiv; 1115-1205 MTWThF; PtH 214) Gunnar

Processes of social learning; identification, social influence, imitation, reward and punishment, internalization, object choice. Meets with 3331.

5970. DIRECTED STUDY IN CHILD PSYCHOLOGY. (Cr ar; prereq #) Collins

Independent reading.

5990. DIRECTED RESEARCH IN CHILD PSYCHOLOGY. (Cr ar; prereq #) Collins

Individual empirical investigation.

8970. INDEPENDENT STUDY. (Cr ar; prereq #) Collins

Independent reading.

8990. RESEARCH PROBLEMS. (Cr ar; prereq #) Collins

Individual empirical investigation.

SECOND TERM

1301. INTRODUCTORY CHILD PSYCHOLOGY. (4 cr; prereq 5 cr introductory psychology; 1115-1205 MTWThF; ChDev 216) Adolf

See First Term.

3303. ADOLESCENT PSYCHOLOGY. (4 cr, §5303; prereq 5 cr introductory psychology; 0905-0955 MTWThF; WuH 130) Pancake

See First Term. Meets with 5303.

3311. BEHAVIORAL AND EMOTIONAL PROBLEMS. (4 cr, §5311; prereq 1301 or equiv; 1010-1100 MTWThF; WuH 130) Fox

See First Term. Meets with 5311.

3980. DIRECTED INSTRUCTION. (1-4 cr [max 4 cr]; S-N only; prereq #) Collins

See First Term.

Courses preceded by ● have limited enrollment and must be reserved.

5303. ADOLESCENT PSYCHOLOGY. (4 cr, §3303; prereq 5 cr introductory psychology; 0905-0955 MTWThF; WuH 130) Pancake
See First Term. Meets with 3303.

5311. BEHAVIORAL AND EMOTIONAL PROBLEMS. (4 cr, §3311; prereq 1301 or equiv; 1010-1100 MTWThF; WuH 130) Fox
See First Term. Meets with 3311.

5315. INTRODUCTION TO MENTAL RETARDATION. (4 cr, §SpEd 5120, §PsyS 5120; prereq 1301 or equiv; 0800-0850 MTWThF; PtH 102) Ilmer
See First Term. Meets with PsyS 5120.

5339. PARENT-CHILD RELATIONS. (4 cr; prereq 3331 or 5331; 0800-0850 MTWThF; ChDev 216) Duncan
Discussion of parent-child relationships and evaluation of relevant research (e.g., cross-cultural child rearing perspectives, alternative parenting roles, economics of parent-child relations, rights of parents and children).

5343. COGNITIVE DEVELOPMENT. (4 cr; prereq 1301 or #; 1010-1100 MTWThF; ChDev 216) List, Reiner
Development of cognitive processes; discussion of relevant theory, research literature, and methodology.

5345. LANGUAGE DEVELOPMENT. (4 cr; prereq 1301 or #; 1115-1205 MTWThF; PtH 215) Maratsos
Development of structure and function of language; factors influencing development; methodological problems, language scales, theories.

5970. DIRECTED STUDY IN CHILD PSYCHOLOGY. (Cr ar; prereq #) Collins
See First Term.

5990. DIRECTED RESEARCH IN CHILD PSYCHOLOGY. (Cr ar; prereq #) Collins
See First Term.

8970. INDEPENDENT STUDY. (Cr ar; prereq #) Collins
See First Term.

8990. RESEARCH PROBLEMS. (Cr ar; prereq #) Keating
See First Term.

DEPARTMENT OF CURRICULUM AND INSTRUCTION

Art Education (ArEd)

Courses with limited enrollment must be reserved at 1425 University Avenue S.E. (see instructions under "Reserved Courses").

FIRST TERM

● **3001. SURVEY OF ART ACTIVITIES — July 6-17.** (4 cr; not open to art education majors; limited to 35 students; 1220-1500 MTWThF; and 6 hrs lab ar July 6-17; WuH 220) Slettehaug
Introduction to pictorial expression, design, and the function of art in the school environment.

● **5001. ART MEDIA TECHNIQUES.** (1-12 cr [max 12 cr]; each section limited to 35 students)
Lectures, demonstrations, discussions, critique sessions exploring techniques and processes in creativity; handling specific media; each offering focuses on a single topic.

Sec 1, Creative Problem Solving, June 16-26, 3 cr, 0800-1100 MTWThF, WuH 220, Slettehaug
Exploring techniques and processes in two and three dimensions; discussions of physical properties and the relationships of art media and materials; problems for specific ideas relating to these materials.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

Sec 2, Ceramics, June 16-26, 3 cr, 1220-1510 MTWThF, WuH 120, Day

Basic techniques with ceramic clay for classroom use; hand-building techniques, coil, slab, pinch and surface decoration.

Sec 3, Watercolor Painting, July 6-17, 3 cr, 0800-1100 MTWThF, WuH 120, Day

Fundamentals of watercolor painting; survey of basic painting techniques, papers, brushes, and colors; no previous painting experience required.

•5605. PRACTICUM. (3-9 cr; each section limited to 5 students; prereq #)

Independent project under direction; gathering data, developing proposals, experimenting with evaluating innovative practices.

Sec 21, Day

Sec 22, Slettehaug

•5900. PROFESSIONAL PROBLEMS. (3 cr; each section limited to 5 students; prereq MEd student; hrs ar)

Independent study for M.Ed. candidates integrating learning from art education, art, and education.

Sec 21, Day

Sec 22, Slettehaug

•8900.* PROBLEMS: ART EDUCATION. (Cr ar; each section limited to 5 students; prereq #: hrs ar)

Independent projects under staff guidance; may include advanced studio practice or technical problems requiring experimental or library research.

Sec 21, Day

Sec 22, Slettehaug

SECOND TERM

3200. FIELD EXPERIENCES IN ART EDUCATION. (3-9 cr; S-N only; prereq art educ major or #)

Olson

Art education experiences in the school and community.

•5001. ART MEDIA TECHNIQUES. (1-12 cr [max 12 cr]; each section limited to 35 students)

See First Term.

Sec 1, Puppetry, July 20-31, 3 cr, 0800-1100 MTWThF, WuH 220, Olson

Creation and construction of various types of puppets for use in teaching situations.

Sec 2, Art Projects for Elementary Schools, August 3-14, 3 cr, 0800-1100 MTWThF, WuH 240, DiBlasio

Development of art curriculum projects for use in elementary classroom; several media and techniques will be surveyed.

Sec 3, Printmaking, August 3-14, 3 cr, 1220-1510 MTWThF, WuH 220, Olson

Basic materials and techniques of printmaking for use in elementary and secondary schools.

•5201. INTRODUCTION TO ART THERAPY—July 20-31. (3 cr; limited to 40 students; 1220-1510 MTWThF; WuH 240) DiBlasio

Examination of the history and current conceptions of art therapy.

•5386. IMPROVING ART PROGRAMS IN THE SCHOOLS—August 17-21. (4 cr; limited to 50 students; prereq tchg exper or #: 0900-1200, 1230-1630 MTWThF; WuH 240) Day

Critical examination of present art programs in the schools. This offering will feature a nationally known art curriculum specialist as guest lecturer and focus on development of a regular program of instruction in art.

•5605. PRACTICUM. (3-9 cr; each section limited to 5 students; prereq #: hrs ar)

See First Term.

Sec 21, Day

Sec 23, DiBlasio

Sec 22, Olson

•5900. PROFESSIONAL PROBLEMS. (3 cr; each section limited to 5 students; prereq MEd student; hrs ar)

See First Term.

Sec 21, Day

Sec 22, Olson

Courses preceded by • have limited enrollment and must be reserved.

●8900.* **PROBLEMS: ART EDUCATION.** (Cr ar; limited to 5 students; prereq #: hrs ar) Day
See First Term.

Curriculum and Instructional Systems (CISy)

Courses with limited enrollment must be reserved at 1425 University Avenue S.E. (see instructions under "Reserved Courses").

FIRST TERM

5000. EDUCATIONAL TECHNOLOGY: INSTRUCTIONAL SYSTEMS. (1 cr, §SeEd 5000, §SeEd 5102; 1010-1100 MW; EdH Annex 54) R Tennyson
Introduction to use of technology in instruction; self-instructional, computer-managed module.

● **5003. EDUCATIONAL TECHNOLOGY: COMPUTERS IN THE CLASSROOM.** (1 cr, §SeEd 5003, §SeEd 5102; limited to 25 students; 1300-1500 WF, June 17, 19, 24, 26; PeikH 335) R Tennyson
Introduction to the use of computer technology in instruction; self-instructional, computer-managed module.

5006. EDUCATIONAL TECHNOLOGY: INSTRUCTIONAL COMPUTER PROGRAMMING. (1 cr; 1115-1205 MW; EdH Annex 64) R Tennyson
Introduction to designing computer-based instructional programs using software languages most used in learning environments (BASIC and PILOT). Students need not have mathematics or science background.

5101. INSTRUCTIONAL DESIGN STRATEGIES FOR THE HEALTH PROFESSIONS. (3 cr, §HSU 5011; S-N optional; 0900-1100 TTh; LindH 315) Carrier
Basic processes of instructional design applied to the health profession educational setting; design of learning environments, emphasis on alternative forms of instruction.

5201. SYSTEMS APPROACH TO DESIGN OF INSTRUCTION. (3 cr, §SeEd 5201; prereq 5000 or SeEd 5000 or #: 0900-1100 TTh; EdH Annex 64) R Tennyson
Instructional materials design in accordance with systems principles including design of a specific unit of courseware.

5209. PRINCIPLES AND PROCEDURES IN DESIGNING INSTRUCTION. (4 cr; prereq 5000; 0900-1100 MWF; EdH Annex 64) Carrier
Major models of instructional development; generic components; design models; review of instructional design and learning environments.

● **5509. DIRECTED INDIVIDUAL STUDY.** (1-6 [max 6 cr]; each section limited to 5 students; prereq Δ)
Review of literature in research and theory of instructional systems.

Sec 21, Carrier

Sec 22, R Tennyson

● **5600. INTRODUCTION TO CURRICULUM SYSTEMS.** (3 cr, §SeEd 5113; limited to 40 students; 1010-1100 MTWThF; BuH 125) Kimpston
Exploration of forces influencing goals and curriculum planning, trends and issues, traditional and emergent curricular designs, current proposals for change; a model for curriculum planning.

● **8501.* PROBLEMS: INSTRUCTIONAL SYSTEMS.** (Cr ar; each section limited to 5 students; prereq Δ)
Individual empirical investigation.

Sec 21, Carrier

Sec 22, Kimpston

Sec 23, R Tennyson

8700. CURRICULUM AND INSTRUCTIONAL SYSTEMS FIELD EXPERIENCE. (3-6 cr [max 6 cr]; prereq #: hrs ar) Kimpston
Internship experience in an educational setting; planning, implementing, and supervising curriculum and/or instructional change.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

SECOND TERM

● **5003. EDUCATIONAL TECHNOLOGY: COMPUTERS IN THE CLASSROOM.** (1 cr, §SeEd 5003, §SeEd 5102; limited to 25 students; 1300-1500 WF July 22, 24, 29, 31; EdH Annex 64) R Tennyson
See First Term.

5205. APPLICATIONS OF COMPUTERS IN EDUCATION. (3 cr, §SeEd 5205; prereq 5003 or SeEd 5003; 0900-1100 TTh, EdH Annex 64, and 1300-1500 T, EdH Annex 54) R Tennyson
Computer uses in education and training; instructional applications; simulation, tutorial, counseling, testing, instructional management, modeling and information retrieval (including data base inquiry). Computer-managed course includes criteria for selection, evaluation, and examination of on-line examples.

5509. DIRECTED INDIVIDUAL STUDY. (1-6 cr [max 6 cr]; prereq Δ) R Tennyson
See First Term.

● **5605. PRINCIPLES AND PROCEDURES IN DESIGNING CURRICULUM—July 20-August 7.** (3 cr, §SeEd 5114; limited to 40 students; 1300-1500 MTWThF; BuH 123) Kimpston
Systematic curriculum planning; students develop models for planning, formulate plans, outline a curriculum design for an educational setting.

● **8501.* PROBLEMS: INSTRUCTIONAL SYSTEMS.** (Cr ar; each section limited to 5 students; prereq Δ)
See First Term.

Sec 21, Kimpston

Sec 22, R Tennyson

8700. CURRICULUM AND INSTRUCTIONAL SYSTEMS FIELD EXPERIENCE. (3-6 cr [max 6 cr]; prereq #; hrs ar) Kimpston
See First Term.

Education: Adult, Higher, and Teacher (Educ)

Courses with limited enrollment must be reserved at 1425 University Avenue S.E. (see instructions under "Reserved Courses").

FIRST TERM

● **5190. THE LEARNING ENVIRONMENT OF THE MIDDLE SCHOOL—June 16-26.** (2 cr; S-N optional; limited to 40 students; 1230-1430 MTWThF; EdHAN 64) Kimpston
Implications of the philosophy and organization of middle schools; pre- and early adolescent psychology for structuring the learning environment; curriculum design, teaching and learning, student evaluation.

● **5205. FIELD EXPERIENCE IN ADULT EDUCATION.** (4-8 cr [max 8 cr]; each section limited to 3 students; prereq #)

Sec 21, Park
Sec 22, Willie

Sec 23, Woods

● **8228.* PROBLEMS: HIGHER EDUCATION.** (Cr and hrs ar; each section limited to 3 students; prereq #)

Sec 21, Kellogg

Sec 22, Lewis

● **8302.* PROBLEMS: ADULT EDUCATION.** (3-9 cr; each section limited to 3 students; prereq #)
Individual research in area of adult education.

Sec 21, Park
Sec 22, Willie

Sec 23, Woods

Courses preceded by ● have limited enrollment and must be reserved.

SECOND TERM

● **5205. FIELD EXPERIENCES IN ADULT EDUCATION.** (4-8 cr [max 8 cr]; each section limited to 3 students; prereq #)

Sec 21, Park
Sec 22, Williams

Sec 23, Woods

5250. AMERICAN HIGHER EDUCATION. (4 cr; S-N optional; 0905-1135 MW; PtH 102) Corcoran
Higher and postsecondary educational systems and institutions; purposes and functions; governance and organization, instructional programs, and outcomes.

5401. ADULT LEARNING AND DEVELOPMENT THROUGH THE LIFE SPAN. (3 cr; 1010-1205 MW; ChDev 105) Williams

Physiological, social, and cultural bases of adult behavior; motivation, socialization, personality change as applied to education of adults.

● **8228.* PROBLEMS: HIGHER EDUCATION.** (Cr and hrs ar; each section limited to 3 students; prereq #)

Sec 21, Clark

Sec 22, Corcoran

8252. EFFECTIVE COLLEGE TEACHING. (3 cr; prereq 8250, yr of grad study in any field or 18 cr in education; 1010-1205 TTh; ChDev 105) Williams

Teaching-learning relationship; study and appraisal of methods employed to encourage, guide, and appraise students' learning.

8302.* PROBLEMS: ADULT EDUCATION. (3-9 cr; each section limited to 3 students; prereq #)
See First Term.

Sec 21, Park
Sec 22, Williams

Sec 23, Woods

Elementary Education (Elem)

Courses with limited enrollment must be reserved at 1425 University Avenue S.E. (See instructions under "Reserved Courses").

FIRST TERM

3604.¹ STUDENT TEACHING IN THE NURSERY SCHOOL. (3-6 cr; S-N only; prereq approval of major adviser and director of student tchg; hrs ar) Clark, Pio

● **5100. ELEMENTARY SCHOOL CURRICULUM.** (3 cr; limited to 40 students; prereq 3101; 1115-1205 MTWThF; EItH N119) Howey

● **5107. DIAGNOSIS AND TREATMENT OF LEARNING DIFFICULTIES.** (3 cr, limited to 40 students; 0800-0850 MTWThF; PeikH 225) Park

Evaluation of the results of teaching; diagnosis of pupil difficulty; development and prevention; tests as aids to teaching; following up a testing program.

● **5109. SUPERVISORY STRATEGIES IN PLANNING, OBSERVING, CONFERENCING—June 16-30.** (3 cr; limited to 20 students; prereq #: 0905-1205 MTWThF; BioSci 115) Lambert

Overview of the responsibilities of the supervising teacher; material development and practice in basic supervisory skills and functions. This offering is intended for practicing school principals and will focus on teacher development: how school principals work with teachers through cooperative goal setting and the clinical supervision process.

● **5300. LITERATURE FOR THE ELEMENTARY SCHOOL.** (3 cr; limited to 40 students; 0905-0955 MTWThF; BuH 123) Odland

¹Open only to students admitted to the Nursery School Licensure Program or Early Education-Special Education Program.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

- **5305. SURVEY OF SPECIAL COLLECTIONS IN CHILDREN'S LITERATURE.** (3 cr; limited to 20 students; prereq 5300 or #; 0800-0850 MTWThF; BuH 123) Odland
Content and accessibility of collections that relate to the creation of books; emphasis on possibilities and methods for interpreting the content of the collections to children.
- **5316. TEACHING AND SUPERVISION OF ENGLISH IN THE ELEMENTARY SCHOOL—July 1-17.** (3 cr; limited to 40 students; prereq 3316 or elem tchg exper; 1010-1205 MTWThF; BuH 123) Youngers
Improvement of instruction, study of trends in English education.
- **5318. CREATIVE WRITING FOR AND BY CHILDREN—June 16-30.** (3-6 cr [max 6 cr]; limited to 40 students; prereq 3300 or 3336 or elem tchg exper and #; 1010-1205 MTWThF; BuH 123) Odland
Language arts in the elementary school for experienced teachers, supervisors, graduate students, and college instructors; emphasis on creative aspects of writing of children's literature and the children's own writing. Authors and illustrators of children's books will be involved in this offering for 3 credits. See Special Programs section.
- **5331. TEACHING AND SUPERVISION OF READING IN THE ELEMENTARY SCHOOL.** (3 cr; limited to 40 students; prereq 9 cr in education; 1010-1100 MTWThF; ChDev 216) Schreiner
For graduate students and summer students who hold a bachelor's degree.
- **5335. CLINICAL DIAGNOSIS OF READING DIFFICULTIES.** (3 cr; limited to 30 students; prereq 5334; 1010-1100 MTWTh; off campus) Taylor
Relationship to psychological factors and clinical remedial correction. Students will be informed of where class will meet upon registration.
- **5336. CLINICAL PRACTICE IN REMEDIAL TEACHING.** (3 cr; limited to 30 students; prereq 5334 or 5107 and #; 0905-1100 MTWTh; off campus) Taylor
Remedial tutoring of individual children who have difficulty in school learning. Students will be informed of where class will meet upon registration.
- **5337. BEGINNING READING INSTRUCTION.** (3 cr; limited to 40 students; prereq 3331 and #; 1115-1205 MTWThF; BuH 125) Manning
For teachers and specialists interested in initial teaching procedures; compares alternative methods of beginning instruction; emphasis on readiness program, test-grouping patterns, language factors, and intensive instructional procedures to prevent reading failure.
- **5339.¹ WORKSHOP: CURRICULUM IMPLEMENTATION IN ELEMENTARY SCHOOL READING—June 16-July 2.** (1-9 cr [max 9 cr]; limited to 40 students; prereq elem tchg exper or #; 1325-1520 MTWThF; EltH N119) Manning
This 3-credit offering focuses on analysis of new instructional materials, techniques, recent trends, and innovations in elementary reading instruction.
- **5350. ELEMENTARY SCHOOL SCIENCE: MATERIALS AND RESOURCES.** (3 cr; limited to 30 students; prereq 5349; 1010-1205 MWF; PeikH 385) Heller
Experiences in the use of educational materials and media common to teaching modern elementary school science.
- **5361. TEACHING SOCIAL STUDIES IN THE ELEMENTARY SCHOOL—June 16-July 1.** (3 cr; limited to 40 students; prereq 3101 or equiv; 1115-1310 MTWThF; PeikH 165) Ellis
Content and organization of social studies programs; programs of understanding, improving the learning situation, and effective use of materials.
- **5363.¹ WORKSHOP: CURRICULUM IMPLEMENTATION IN ELEMENTARY SCHOOL SOCIAL STUDIES.** (Cr ar [max 9 cr]; section 1 limited to 40 students, sections 2 and 3 limited to 35 students; prereq elem tchg exper and #)
Analysis of new instructional materials and recent curriculum developments in the field; training in innovative instructional procedures.

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

Sec 1, The Use of Museums in Elementary Social Studies, June 16-July 1, 3 cr. 1330-1600 MTWThF, Minnesota Science Museum, 10th and Wabasha, St. Paul, MN, Ellis

Designed to acquaint teachers with facilities and educational uses of Twin Cities museums. Using the Minnesota Science Museum as a model, participants will explore it and other area museums as resources for the development of museum related field trips and social studies units.

Sec 2, Elementary Economics Education, June 22-July 2, 3 cr. 1300-1600 MTWThF, Peikh 325, Cogan

Focuses on economics education programs, materials, and teaching methods in the elementary school with special attention to the "Trade Offs" program recently developed for elementary school students. A limited number of tuition scholarships will be available to in-service elementary teachers who meet specified criteria. For information, contact Dr. Bruce Dalgaard, Center for Economic Education, 1169 Business Administration Building, 271 19th Avenue South, University of Minnesota, Minneapolis, MN 55455, or call (612) 373-4469. Advance application is required; deadline for application is April 27, 1981.

Sec 3, Elementary Economics Education, June 15-19, 3 cr. 0800-1700 MTWThF; Rochester Extension Center, 2120 East Center Street, Rochester, MN, Cogan

Focuses on economics education programs, materials, and teaching methods in the elementary school with special attention to the "Trade Offs" program recently developed for elementary school students. A limited number of tuition scholarships will be available to in-service elementary teachers who meet specified criteria. For information, contact Lance Johnson, 2120 East Center Street, Rochester, MN 55901, (507) 224-2263, or Dr. John Cogan, 152A Peik Hall, 159 Pillsbury Drive S.E., University of Minnesota, Minneapolis, MN 55455, (612) 373-5629. Advance application is required; deadline for application is April 27, 1981.

● **5376. CURRENT TRENDS IN EARLY CHILDHOOD EDUCATION.** (3 cr; limited to 40 students; prereq tchg exper in kindergarten or primary school or #: 0905-0955 MTWThF; Pth 102) Hansen
Continuing needs of children in our changing culture; current practices and recent research.

● **5377. EARLY CHILDHOOD EDUCATION: MATERIALS AND RESOURCES.** (3 cr; limited to 40 students; prereq 3377 or 5376 and tchg exper; 1115-1310 MWF; Pth 102) Hansen
Experience in the selection and use of commercial and teacher-made education materials common to early childhood education programs.

● **5602. PRACTICUM: IMPROVEMENT OF TEACHING.** (3 cr; each section limited to 5 students; prereq MEd student in elem education, #: S-N only; hrs ar)

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| Sec 21, Dykstra | Sec 28, Odland |
| Sec 22, Cogan | Sec 29, Post |
| Sec 23, Ellis | Sec 30, Schreiner |
| Sec 24, Hansen | Sec 31, Stochl |
| Sec 25, Howey | Sec 32, Taylor |
| Sec 26, Lambert | Sec 33, Youngers |
| Sec 27, Manning | |

● **8300. RESEARCH IN SPECIAL COLLECTIONS OF CHILDREN'S LITERATURE.** (1-3 cr [max 6 cr]; limited to 15 students; 1220-1415 TTh; BuH 123) Odland

This offering for 3 credits will provide comparative study of national and international special collections of original manuscripts, artwork, first editions, and other bases for collection of children's books; research in University Libraries Special Collections or other accessible collections.

● **8916.* PROBLEMS: TEACHING ENGLISH.** (Cr and hrs ar; each section limited to 5 students; prereq #)

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| Sec 21, Dykstra | Sec 22, Youngers |
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● **8931.* PROBLEMS: TEACHING READING.** (Cr and hrs ar; each section limited to 5 students; prereq 5331 or SeEd 5344 and #)

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| Sec 21, Manning | Sec 24, Taylor |
| Sec 22, Odland | Sec 25, Youngers |
| Sec 23, Schreiner | |

● **8961.* PROBLEMS: TEACHING SOCIAL STUDIES.** (Cr and hrs ar; each section limited to 5 students; prereq 5361 or SeEd 5155 or 8104 and #)

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| Sec 21, Cogan | Sec 22, Ellis |
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Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **8976. PROBLEMS: TEACHING KINDERGARTEN.** (3 cr; limited to 5 students; prereq #: hrs ar)
Hansen

● **8991.* PROBLEMS: IMPROVEMENT OF INSTRUCTION.** (Cr and hrs ar; each section limited to 5 students; prereq #)

Sec 21, Dykstra	Sec 28, Odland
Sec 22, Cogan	Sec 29, Post
Sec 23, Ellis	Sec 30, Schreiner
Sec 24, Hansen	Sec 31, Stochl
Sec 25, Howey	Sec 32, Taylor
Sec 26, Lambert	Sec 33, Youngers
Sec 27, Manning	

SECOND TERM

3604.¹ STUDENT TEACHING IN THE NURSERY SCHOOL. (3-6 cr; S-N only; prereq approval of major adviser and director of student tchg; hrs ar) Sternberg
See First Term.

● **5107. DIAGNOSIS AND TREATMENT OF LEARNING DIFFICULTIES—July 20-August 7.** (3 cr; limited to 40 students; 0800-0955 MTWThF; PtH 214) Park
See First Term.

● **5317. MATERIALS LABORATORY FOR TEACHING ENGLISH IN ELEMENTARY SCHOOLS—July 20-August 7.** (3 cr; limited to 40 students; prereq 3316 or elem tchg exper; 1010-1205 MTWThF; BuH 120) Youngers
Examination and evaluation of textbooks, programmed materials, and audiovisual resources for elementary school language arts instruction.

● **5334. READING DIFFICULTIES—July 20-August 7.** (3 cr; limited to 40 students; prereq 5331 or SeEd 5344; 1325-1520 MTWThF; BuH 120) Taylor

● **5338. TEACHING READING IN THE INTERMEDIATE GRADES—July 20-August 7.** (3 cr; limited to 40 students; prereq 3331 and #; 1010-1205 MTWThF; BuH 123) Taylor

● **5339.² WORKSHOP: CURRICULUM IMPLEMENTATION IN ELEMENTARY SCHOOL READING—July 20-August 7.** (1-9 cr [max 9 cr]; limited to 40 students; prereq 3331 and #; 1325-1520 MTWThF; ChDev 216) Manning
See First Term. This offering for 3 credits.

● **5602. PRACTICUM: IMPROVEMENT OF TEACHING.** (3 cr; each section limited to 5 students; prereq MEd student in elem education, #; S-N only; hrs ar)

Sec 21, Dykstra	Sec 24, Stochl
Sec 22, Jackson	Sec 25, Taylor
Sec 23, Manning	Sec 26, Youngers

● **8916.* PROBLEMS: TEACHING ENGLISH.** (Cr and hrs ar; each section limited to 5 students; prereq #)

Sec 21, Dykstra	Sec 22, Youngers
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● **8931.* PROBLEMS: TEACHING READING.** (Cr and hrs ar; each section limited to 5 students; prereq 5331 or SeEd 5344 and #)

Sec 21, Manning	Sec 23, Youngers
Sec 22, Taylor	

● **8991.* PROBLEMS: IMPROVEMENT OF INSTRUCTION.** (Cr and hrs ar; each section limited to 5 students; prereq #)

Sec 21, Dykstra	Sec 24, Stochl
Sec 22, Jackson	Sec 25, Taylor
Sec 23, Manning	Sec 26, Youngers

¹Open only to students admitted to the Nursery School Licensure Program or Early Education-Special Education Program.

²Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

Mathematics Education (MthE)

Courses with limited enrollment must be reserved at 1425 University Avenue S.E. (see instructions under "Reserved Courses").

FIRST TERM

● **5101.¹ WORKSHOP: ELEMENTARY SCHOOL MATHEMATICS.** (1-12 cr [max 12 cr]; limited to 35 students; not open to majors in mathematics education; prereq #: 0800-0955 MWF; PeikH 375) Stochl
Modern trends, methods, and materials used to convey mathematical ideas. This offering for 3 credits.

● **5102.¹ WORKSHOP: MATHEMATICS EDUCATION (Mathematics Teaching in the Junior High School).** (1-12 cr [max 12 cr]; limited to 35 students; 1220-1415 MWF; PeikH 375) House
Issues, materials, and instructional techniques, focusing on a single current topic of particular relevance to secondary school and college mathematics teachers. This offering for 3 credits examines the mathematical concepts and principles appropriate for junior high mathematics teachers, focusing on effective pedagogical practices and methods of evaluation.

5322. MATERIALS LABORATORY FOR SECONDARY SCHOOL MATHEMATICS INSTRUCTION. (3 cr; prereq 5321 or #: 1220-1520 TTh; PeikH 375) House

Sources and types of materials, laboratory projects, and techniques of using mathematics devices and instruments, visual aids, and community resources.

● **5355. MATHEMATICS FOR SLOW LEARNING CHILDREN—June 17-July 10.** (3 cr; limited to 35 students; prereq 5311 or Elem 3391 or #: 1010-1310 MWF; PeikH 375) Post
Units of instruction emphasizing mathematical concepts essential for vocational competence; experimental materials and methods designed to improve performance of low achievers.

● **5680. PRACTICUM IN MATHEMATICS EDUCATION.** (3-9 cr [max 9 cr]; section 1 limited to 25 students, sections 21, 22, 23 limited to 5 students; prereq #)
Supervised experience in teaching or related work in school.

Sec 1, Remedial Mathematics, June 17-July 10, 3 cr, limited to 25 students who are also registered in PsyS 5610, 5611, hrs ar, Wilder Elementary School, 3320-28 Elliot Ave South, Minneapolis, Post

This 3-credit offering is designed to provide individuals enrolled in the special education practicum an opportunity to participate in a supervised mathematics experience. Students will be assigned specific mathematics related tasks to be accomplished with children. In-school seminars will be used to analyze results and plan future activities.

Sec 21, House

Sec 23, Stochl

Sec 22, Post

● **5980. DIRECTED STUDIES IN MATHEMATICS EDUCATION.** (3-9 cr [max 9 cr]; each section limited to 5 students; prereq #)

Survey of recent literature; design and preparation of reports on special problems.

Sec 21, House

Sec 23, Stochl

Sec 22, Post

● **8980.* PROBLEMS: MATHEMATICS EDUCATION.** (Cr ar; each section limited to 5 students; prereq 8500 or 8570)

Sec 21, House

Sec 23, Stochl

Sec 22, Post

SECOND TERM

● **5102.¹ WORKSHOP: MATHEMATICS EDUCATION.** (1-12 cr [max 12 cr]; each section limited to 30 students; not open to majors in mathematics education; prereq #)

See First Term and Special Programs section.

Sec 1, Using Hand-Held Calculators in the Elementary School, July 20-31, 2 cr, 0800-0955 MTWThF, PeikH 315, Stochl

Instructional activities involving the calculator as an integral component to make teaching more effective and relevant to children.

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

Sec 2, Excursions in Outdoor Mathematics for Elementary School Children, July 20-31, 2 cr, 1010-1205 MTWThF, PeikH 375, Jackson

Construction and use of simple instruments for direct and indirect measurements; preparation and testing of lessons to facilitate the learning of mathematical concepts through measurement and data interpretations.

Sec 3, Improving Basic Skills in Mathematics, August 3-7, 1 cr, 1010-1205 MTWThF, PeikH 375, Jackson

Identification of basic skills areas in mathematics; teaching procedures, materials and techniques for initial instruction and for maintenance and improvement of acquired skills in the elementary school.

Sec 4, Productive Use of Commercial Games in Elementary Mathematics, August 3-7, 1 cr, 0800-0955 MTWThF, PeikH 375, Jackson

Classification of mathematical games, procedures for effective use of developmental, strategic, practice, and problem solving games in the instructional setting; research on game use; evaluation techniques applicable to game selection.

Sec 5, Use of the Microcomputer in the Elementary Classroom, July 27-August 7, 2 cr, 0800-0955 MTWThF, PeikH 385, 330, StochI

Using the microcomputers to enhance instruction in language arts, mathematics, science, and social studies; evaluation of existing programs.

Sec 6, Problem Solving Activities in the Middle School, August 3-7, 1 cr, 1010-1205 MTWThF, PeikH 315, StochI

Issues, source materials, and instructional techniques for teaching problem solving.

Sec 7, Developing Interdisciplinary Inquiry Units, July 20-24, 1 cr, 1010-1205 MTWThF, PeikH 315, StochI, Glenn

Study and development of curricular materials that integrate mathematics, science, and social studies; evaluation of existing programs.

Sec 8, Geometry Activities in the Middle School, July 20-24, 1 cr, 1010-1205 MTWThF, PeikH 375, House

Identification of content, teaching procedures, and materials useful in stimulating interest in geometry by use of projects, field trips, and activities in and out of the classroom.

Sec 9, Activities for Teaching Fractions in the Middle School, July 27-31, 1 cr, 0800-0955 MTWThF, PeikH 235, Post

Activities for children involving five interpretations of fractions: part-whole, quotient, operator, measure, and ratio; issues in teaching fractions; improving children's concept of fractions and related algorithmic skills.

Sec 10, Mathematics and Science in Children's Books, July 27-31, 1 cr, 0800-0955 MTWThF, PeikH 375, Odland

Fiction and nonfiction that builds on the child's knowledge of mathematics and science; study of such principles needed to appreciate literature; evaluation of trade books relating to mathematics and science.

●5680. PRACTICUM IN MATHEMATICS EDUCATION. (3-9 cr [max 9 cr]; each section limited to 5 students; prereq #)

See First Term.

Sec 21, Jackson

Sec 22, StochI

●5980. DIRECTED STUDIES IN MATHEMATICS EDUCATION. (3-9 cr [max 9 cr]; each section limited to 5 students; prereq #)

See First Term.

Sec 21, Jackson

Sec 22, StochI

●8980.* PROBLEMS: MATHEMATICS EDUCATION. (Cr ar; each section limited to 5 students; prereq 8500 or 8570)

Sec 21, Jackson

Sec 22, StochI

Courses preceded by ● have limited enrollment and must be reserved.

Secondary Education (SeEd)

Courses with limited enrollment must be reserved at 1425 University Avenue S.E. (see instructions under "Reserved Courses").

FIRST TERM

3600.¹ STUDENT TEACHING. (Cr ar; prereq Δ) E Anderson

Supervised teaching for students wishing to elect credits in student teaching in addition to regular requirements.

5151. SCHOOL-BASED PROJECTS IN SOCIAL STUDIES EDUCATION. (1-12 cr [max 12 cr]) Mackey

Opportunity to work individually or in teams on curricular, instructional, or evaluation problems within the school.

● **5153. NEW PERSPECTIVES IN THE SOCIAL STUDIES.** (1-3 cr [max 12 cr]; each section limited to 40 students) Mackey

Issues, materials, and instructional techniques related to topics of particular relevance to social studies teachers.

Sec 1, Teaching About the Newspaper in the Classroom, June 22-July 2. 3 cr, 1300-1600 MTWThF, BioSci 12

Use of the newspaper as an instructional tool; original teaching activities for both elementary and secondary teachers.

Sec 2, Teaching Political Economy, July 6-17, 3 cr, 0800-1600 MTWThF, Coon Rapids Senior High School, 2340 Northdale Blvd, Coon Rapids, MN

Use of economic content to improve the teaching of civics and government in secondary schools; teaching and curriculum strategies for teachers. A limited number of tuition scholarships will be available to inservice secondary teachers who meet specified criteria. For information, contact Dr. Bruce Dalgaard, Center for Economic Education, 1169 Business Administration Building, 271 19th Avenue South, Minneapolis, MN 55455 or call (612) 373-4469. Advance application is required; deadline for application is April 27, 1981.

5175. SECONDARY REMEDIAL READING INSTRUCTION. (3 cr; prereq 5344 or Elem 5331 or #; 0905-0955 MTWThF; PeikH 225) Graves

Principles and techniques for developing and conducting programs for secondary students seriously deficient in reading skills.

5185. SCHOOL AND PROFESSIONAL BASED EXPERIENCES IN SECOND LANGUAGES AND CULTURES. (1-12 cr [max 12 cr]; prereq MEd students only) Lange

Opportunity for teachers to work together on curricular, instructional, or evaluation problems; internship experiences; participation in professional activities.

5186. ALTERNATIVES IN SECOND LANGUAGE EDUCATION—June 16-July 2. (3 cr; 1010-1205 MTWThF; PeikH 215) Lange

Overview of curricula and instruction in various settings; elementary, secondary, open, free, suburban, and center city schools; bilingual programs, colleges, community colleges, universities, and adult programs including teacher preparation.

5344. TEACHING READING IN CONTENT AREAS. (3 cr; 1115-1205 MTWThF; PeikH 315) Graves

Methods of accommodating to student abilities and facilitating reading in regular content classes.

● **5351. DIRECTED STUDY.** (Cr ar [max 6 cr]; each section limited to 3 students; S-N optional; prereq #)

Individual or group work on curricular, instructional, or evaluation problems.

Sec 21, Gennaro

Sec 23, Lange

Sec 22, Graves

Sec 24, Mackey

¹ Student teaching is open only to students in regular degree programs of the College of Education. Application must be made prior to April 21. Forms and instructions are available in the Education Career Development Office, 1425 University Avenue S.E.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **5394.¹ WORKSHOP: SCIENCE EDUCATION.** (1-12 cr [max 12 cr]; section 1 limited to 20 students, section 2 limited to 30 students)
Analysis of issues, materials, and instructional techniques related to current topics of relevance to secondary school and college science teachers.

Sec 1, Science Teaching and the Development of Reasoning—June 16-26, 3 cr, 0905-1205 MTWThF, PeikH 365, Gennaro

Concepts, text, laboratory work, and evaluation instruments used by science teachers will be examined for the level of reasoning needed by students to successfully complete science course requirements; results of junior/senior high school students on Piagetian reasoning tasks will be explored.

Sec 2, Field Trips for Earth Science Teachers—June 29-July 10. 3 cr, 0900-1200 MTWThF, PeikH 365, ar

Participation in geology, weather, and astronomy field trips using sites within and around the Twin Cities; excursions to fossil cliffs, caves, weather stations, beach front and planetarium; accompanying demonstrations and laboratory activities for middle school, junior high, and senior high teachers.

5395. SCHOOL BASED PROJECTS IN SCIENCE EDUCATION. (1-12 cr [max 12 cr]; prereq MEd student in science education) Gennaro
Individual or group work on curricular, instructional, or evaluation problems and projects applicable to school situations.

5659. SCHOOL-RELATED PROJECTS IN LANGUAGE ARTS. (1-12 cr [max 12 cr]; prereq MEd student in English education) Graves
Individual or group work on curricular, instructional, or evaluation problems and projects applicable to school situations.

● **8801.* PROBLEMS: TEACHING SOCIAL STUDIES.** (3-9 cr; each section limited to 3 students; prereq 5150, 5152, 5156, 8104 or #; hrs ar)
Individual research.

Sec 21, Gardner Sec 22, Mackey

8871.* PROBLEMS: CURRICULUM CONSTRUCTION. (Cr and hrs ar; prereq #) Gennaro

8894.* PROBLEMS: SECOND LANGUAGES AND CULTURES EDUCATION. (Cr ar [max 8 cr]) Lange
Individual research.

● **8895. READINGS IN ENGLISH EDUCATION.** (1-3 cr; each section limited to 3 students)
Readings in secondary school English curriculum and instruction.

Sec 21, Graves Sec 22, Piché

● **8896.* PROBLEMS: TEACHING ENGLISH.** (Cr and hrs ar; each section limited to 3 students)

Sec 21, Graves Sec 22, Piché

8898. READINGS IN SECOND LANGUAGES AND CULTURES EDUCATION. (1-3 cr) Lange
Readings in development, research, curriculum, instruction, evaluation, culture, teacher education, as needed by the student.

SECOND TERM

● **5151. SCHOOL-BASED PROJECTS IN SOCIAL STUDIES EDUCATION.** (1-12 cr [max 12 cr]; limited to 5 students) Glenn
See First Term.

● **5153. NEW PERSPECTIVES IN THE SOCIAL STUDIES (Simulation and Games)—July 27-August 7.** (1-3 cr [max 12 cr]; limited to 40 students; 1300-1600 MTWThF; PeikH 165) Glenn
See First Term. This 3-credit offering introduces teachers to simulations and role-play activities for use in social studies classrooms. Opportunity will be available to analyze and evaluate selected simulations and use computer simulations.

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

5185. SCHOOL AND PROFESSIONAL BASED EXPERIENCES IN SECOND LANGUAGES AND CULTURES. (1-12 cr [max 12 cr]; prereq MEd students only) Jorstad
See First Term.

5191.¹ WORKSHOP: TEACHING OF SECOND LANGUAGES AND CULTURES (Developing New Teaching Strategies for the Classroom)—August 10-21. (1-10 cr [max 10 cr]; 0830-1530 MTWThF; PeikH 215) Jorstad
See First Term. A 6-credit workshop intended for classroom teachers of foreign languages, English as a second language, and bilingual education at all levels. An overview of basic techniques and procedures for teaching listening, speaking, reading, and writing in the second language classroom that includes procedures for developing and using effective supplementary materials to provide communicative practice. Optional follow-up in the classrooms of the participants in September to help teachers implement their new strategies.

● **5350. CURRENT DEVELOPMENTS IN ENGLISH AND SPEECH EDUCATION (Teaching Writing)—July 20-August 14.** (1-6 cr [max 12]; limited to 40 students; 0915-1200 MTWThF; PeikH 225) Beach

New instructional approaches, new materials, current issues and problems in English and language arts education. A 6-credit offering on current theory and methods of writing instruction in all subject areas; the composing process and development of writing ability; devising writing assignments; criteria and techniques for teacher, peer, and self evaluation; stimuli for writing; use of sentence-combining exercises; talk-write activities; writing fiction, poetry, and autobiography; sentence structure; uses of free-writing; incentives for revising; establishing a writing lab; assessing growth in writing.

● **5351. DIRECTED STUDY.** (Cr ar [max 6 cr]; each section limited to 3 students; S-N optional; prereq #)
See First Term.

Sec 21, Beach

Sec 22, Jorstad

● **5394.¹ WORKSHOP: SCIENCE EDUCATION.** (1-12 cr [max 12 cr]; each section limited to 35 students)
See First Term.

Sec 1, Teaching Weather, July 27-31, 1 cr, 1010-1205 MTWThF, PeikH 365

Background and application of principles of meteorology appropriate for middle school children. Design and construction of simple instruments used in teaching.

Sec 2, Daytime and Nighttime Activities in Astronomy for Upper Elementary/Middle/Junior High School Teachers, August 3-7, 1 cr, 1010-1205 MTWThF, PeikH 385, Heller

Construction of simple instruments that can be made by students in the schools, including astrolab, crossbeam, sundial, and sextant to be used in a variety of outdoor activities; ways these activities clarify concepts of latitude and longitude, north-south direction, sun-centered model of the solar system, causes of the seasons, and how astronomical distances are measured.

5659. SCHOOL-RELATED PROJECTS IN LANGUAGE ARTS. (1-12 cr [max 12 cr]; prereq MEd student in English education) Beach
See First Term.

8801* PROBLEMS: TEACHING SOCIAL STUDIES. (3-9 cr; prereq 5150, 5152, 5156, 8104 or #) Glenn
See First Term.

● **8894.* PROBLEMS: SECOND LANGUAGES AND CULTURES EDUCATION.** (Cr ar [max 8 cr]; each section limited to 3 students; prereq #)
See First Term.

Sec 21, Jorstad

Sec 22, Lange

8895. READINGS IN ENGLISH EDUCATION. (1-3 cr) Beach
See First Term.

● **8896.* PROBLEMS: TEACHING ENGLISH.** (Cr and hrs ar) Beach

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.
Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **8898. READINGS IN SECOND LANGUAGES AND CULTURES EDUCATION.** (1-3 cr; each section limited to 3 students)

See First Term.

Sec 21, Jorstad

Sec 22, Lange

DEPARTMENT OF EDUCATIONAL ADMINISTRATION

Educational Administration (EdAd)

Courses with limited enrollment must be reserved at 1425 University Avenue S.E. (see instructions under "Reserved Courses").

FIRST TERM

5127. WORKSHOP: POLICY DEVELOPMENT FOR SCHOOL MANAGERS—June 29-July 17. (3 cr; 1325-1535 MTWThF; BioSci 64) Ammentorp

Elements of feedback control applied to policy development and implementation in education; policies for instructional management, personnel administration, and fiscal control; implementation plans and procedures for analysis of policy impact. This offering will emphasize the use of minicomputers in the policy process.

● **5128.¹ WORKSHOP: EDUCATIONAL ADMINISTRATION—July 13-17.** (1-6 cr; S-N optional; limited to 90 students; 1300-1800 MTWThF; ClaOff B35) Popper

Laboratory approach provides opportunities for experienced administrators to concentrate study on common administrative and supervisory problems. This offering is the 13th Annual Community School Institute. This offering is for 3 credits. Preapplication is required. See Special Programs section.

5167. THE AMERICAN MIDDLE SCHOOL—June 16-29. (3 cr; 1430-1700 MTWThF; EdH Annex 64) Popper

Sources of the movement; purposes, functions and limitations, fundamental problems, types, and curricular implications of reorganization. Students are encouraged to register also for 2 credits in Educ 5190. See Special Programs section. For information write Samuel Popper, 217 Health Service Building, 1518 North Cleveland Avenue, University of Minnesota, St. Paul, MN 55108, or call (612) 373-5568.

5274. TWO-YEAR POSTSECONDARY INSTITUTIONS—June 16-26. (3 cr, §VoEd 5274; 1010-1205 MTWThF; ClaOff 27) Morgan

Present status, development, functions, organization, curriculum, and trends of postsecondary but nonbaccalaureate institutions. Meets with VoEd 5274.

8210. FINANCING ELEMENTARY AND SECONDARY SCHOOLS. (3 cr; 0800-0955 MWF; ClaOff B36) Mueller

Value assumptions and educational finance policy, economic factors, sources and characteristics of educational revenue, state and local distribution systems, federal support, urban/rural variations, institutional financing alternatives.

8215. THE ELEMENTARY SCHOOL PRINCIPALSHIP—June 16-July 2. (3 cr; prereq 8201 or 8202 or #; 1220-1415 MTWThF; BioSci 115) Lambert

Problems in elementary school administration and the principal's role of leadership.

8220. QUANTITATIVE FOUNDATIONS FOR MANAGEMENT METHODS. (3 cr; 1115-1205 MTWThF; ClaOff B42) Hendrix

Quantitative techniques for research and analysis of policy, program, and management problems and decision situations in administration of educational organizations; includes computer usage.

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

8224. LEGAL IMPLICATIONS OF ACTS BY SCHOOL BOARDS, ADMINISTRATORS, AND TEACHERS. (3 cr; 1220-1500 TTh; Law 15) Hooker

Constitutional, statutory, and common law bases of school administration; principles growing out of fundamental legal procedures.

8227. PUBLIC SCHOOL PERSONNEL PROGRAMS—June 16-26. (3 cr; 1325-1625 MTWThF; BioSci 64) Alkire

Selection, assignment, evaluation, and development of school personnel; salary and conditions of service; policies of administrative, instructional, and noninstructional personnel.

8237. SEMINAR: THEORY AND RESEARCH IN EDUCATIONAL LAW. (3 cr; prereq 8224 or 8225 or #; 0800-1100 WF; Law 15) Hooker

Legal theory as it applies to education.

8253. ADMINISTRATION IN HIGHER EDUCATION. (3 cr; prereq Educ 8250; 1220-1310 MTWThF; ClaOff 27) Ammentorp

Control, faculty and employee personnel administration, budget making and administration, financial accounting and reporting, protection of college funds, public relations.

•8270.* PROBLEMS: ELEMENTARY SCHOOL ADMINISTRATION. (Cr and hrs ar; each section limited to 5 students; prereq #)

Sec 21, Alkire

Sec 22, Lambert

8271.* PROBLEMS: SECONDARY SCHOOL ADMINISTRATION. (Cr and hrs ar; prereq #) Popper

•8272.* PROBLEMS: EDUCATIONAL ADMINISTRATION. (1-3 cr per term; each section limited to 5 students; hrs ar)

For superintendents and principals qualified to make intensive studies of a school system.

Sec 21, Mueller

Sec 25, Hooker

Sec 22, Alkire

Sec 26, Lambert

Sec 23, Ammentorp

Sec 27, Morgan

Sec 24, Hendrix

Sec 28, Popper

•8273. FIELD STUDY. (0-10 cr; each section limited to 5 students; prereq #; hrs ar)

Required for specialist in education certificate. The 10 credits will be based on a written report covering an approved field study. Students may register for the general planning and organization of their study without credit.

Sec 21, Mueller

Sec 25, Hooker

Sec 22, Alkire

Sec 26, Lambert

Sec 23, Ammentorp

Sec 27, Morgan

Sec 24, Hendrix

Sec 28, Popper

8275. TWO-YEAR COLLEGE ADMINISTRATION—June 29-July 17. (3 cr; prereq 5274; 1010-1205 MTWThF; ClaOff 27) Morgan

Selected topics and problems with administration and administrative positions, and organization of postsecondary but nonbaccalaureate institutions.

SECOND TERM

5103. SUPERVISION AND ADMINISTRATION OF SPECIAL EDUCATION—July 20-August 7. (3 cr, §SpEd 5160, §PsyS 5160; prereq #; 1325-1625 MTWThF; ClaOff B30)

Procedures for establishing and improving educational programs for exceptional children. Meets with PsyS 5160.

5128¹. WORKSHOP: EDUCATIONAL ADMINISTRATION (Collective Bargaining Workshop)—August 10-21. (1-6 cr; S-N optional; 1220-1625 MTWThF; BioSci 70) Alkire

This offering for 3 credits. See Special Programs section.

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

● **5130. ADMINISTRATOR DEVELOPMENT SEMINAR.** (3-9 cr [max 9 cr]; limited to 25 students; 1010-1520 MTWThF; BioSci 64) Mazzoni, Nickerson

Assessment and development of skills required of the administrator in the areas of planning, decision making, and human relations; introduction to contemporary issues in educational administration; polling community opinions on educational issues confronting schools in urban areas. Initial course for students pursuing professional licensure programs. Participants will register concurrently for 3 credits in EdAd 5130 and 3 credits in EdAd 5139. Preapplication is required. See Special Programs section.

● **5139. LABORATORY IN DECISION MAKING.** (1-4 cr per qtr; limited to 25 students; 1010-1520 MTWThF; BioSci 64) Mazzoni, Nickerson

Contributions of recent research and theory to effective administration; analysis of administrative behavior in realistic settings and relations of administration to human behavior. Participants will register concurrently for 3 credits in EdAd 5130 and 3 credits in EdAd 5139. Preapplication is required. See Special Programs section.

8202. POLITICS OF EDUCATION. (3 cr, §SPFE 8202; 0905-0955 MTWThF; BioSci 6) Mazzoni
Social science findings, concepts, and methods used to consider the political context of educational administration; emphasis on public school policy by local and state governments; role of administrators. Meets with SPFE 8202.

8212. SCHOOL BUDGETING. (3 cr; prereq 8220; 0800-0955 MWF; ClaOff 27) Sederberg
Concepts and skills involved in preparing financial budgets for public schools; competency in translating educational programs into budgetary systems, anticipating revenue receipts, planning expenditures, and techniques for preparing a balanced budget.

8221. QUANTITATIVE MODELS FOR PROGRAM ANALYSIS AND RESEARCH—July 20-August 7. (3 cr; prereq 8220; 1010-1205 MTWThF; ClaOff B30) Hendrix

Quantitative techniques for program analysis, research and decision making in the administration of educational organizations; emphasis on general linear models and computer usage.

8230. PUBLIC RELATIONS FOR SCHOOL ORGANIZATIONS. (3 cr; 1010-1205 MWF; ClaOff 31) Popper

Concepts central to public relations programs in education studied in selective theoretical contexts relevant to administrative leadership.

8264. THE SECONDARY SCHOOL PRINCIPALSHIP. (3 cr; 0800-0850 MTWThF; ClaOff 31) Nickerson

The role of the principal; qualifications, duties, and problems, including current issues and factors of staff and student relationships.

8270.* PROBLEMS: ELEMENTARY SCHOOL ADMINISTRATION. (Cr and hrs ar; prereq #) Alkire

● **8271.* PROBLEMS: SECONDARY SCHOOL ADMINISTRATION.** (Cr and hrs ar; each section limited to 5 students; prereq #)

See First Term.

Sec 21, Nickerson

Sec 22, Popper

● **8272.* PROBLEMS: EDUCATIONAL ADMINISTRATION.** (1-3 cr per term; each section limited to 5 students; hrs ar)

See First Term.

Sec 21, Alkire

Sec 22, Hendrix

Sec 23, Mazzoni

Sec 24, Nickerson

Sec 25, Popper

Sec 26, Sederberg

● **8273. FIELD STUDY.** (0-10 cr; each section limited to 5 students; prereq #; hrs ar)

See First Term.

Sec 21, Alkire

Sec 22, Hendrix

Sec 23, Mazzoni

Sec 24, Nickerson

Sec 25, Popper

Sec 26, Sederberg

Courses preceded by ● have limited enrollment and must be reserved.

Music Education (MuEd)

(See also *Music in the College of Liberal Arts section*)

Courses with limited enrollment must be reserved at 1425 University Avenue S.E. (see instructions under "Reserved Courses").

FIRST TERM

● **3011. TEACHING MUSIC IN THE ELEMENTARY SCHOOL.** (4 cr; prereq Mus 1001 or exemption; limited to 30 students; 1010-1100 MTWThF; ScH 4) Borg
For non-music majors; methods and materials in teaching singing, rhythm, music reading, creativity, classroom instruments, fundamentals, appreciation in K-6.

3504. BRASS TECHNIQUES—June 16-July 2. (4 cr, §1525; prereq music education major or #; 1220-1415 MTWThF; NMA 4) Turrentine
Theory and technical development of instruments, elementary instruction in performing, special attention to routine class instruction.

3851-3852. INTERNSHIP: MUSIC THERAPY. (2-6 cr each; S-N only; prereq #; hrs ar; MusEd 2) Jellison
Six-month resident internship in music therapy at an affiliated, approved hospital or clinic.

5611. TECHNIQUES AND MATERIALS: MUSIC AND RELATED ARTS—July 6-17. (3 cr; prereq #: 1220-1520 MTWThF; ScH 3) Turrentine
Teaching music to reflect the major developments of Western culture.

5613. TEACHING MUSIC LITERATURE—June 16-July 2. (3 cr; prereq #: 1325-1520 MTWThF; ScH 4) Borg
Principles, methods, and materials for teaching music history (appreciation) in grades K-12.

5643. TECHNIQUES AND MATERIALS: WOODWINDS—June 16-July 2. (3 cr, §5515; prereq #: 1325-1520 MTWThF; NMA 5) Schultz
Practical performance with lectures and discussions of research in performance techniques.

5665. MUSIC FOR EXCEPTIONAL CHILDREN—June 16-26. (3 cr; prereq #: 0905-1205 MTWThF; MusEd 103) Jellison
Trends; methods and materials for a functional program of singing, playing, rhythm, listening, and creative activities for mentally and physically handicapped and gifted pupils.

● **5970. INDEPENDENT STUDY.** (1-4 cr; each section limited to 5 students; prereq consent of adviser and of dept; hrs ar; ScH 104)
An independent study project organized by the student with the appropriate instructor.

Sec 21, Turrentine

Sec 22, Borg

● **8990.* RESEARCH PROBLEMS.** (4-12 cr; each section limited to 5 students; prereq knowledge of elem statistics; hrs ar; ScH 104)

Sec 21, Turrentine

Sec 22, Borg

SECOND TERM

● **3011. TEACHING MUSIC IN THE ELEMENTARY SCHOOL.** (4 cr; limited to 30 students; prereq Mus 1001 or exemption; 1115-1205 MTWThF; ScH 4) Caswell
See First Term.

5631. TECHNIQUES AND MATERIALS: CHORAL CONDUCTING—July 20-August 7. (3 cr, §5421; prereq #: 0905-1100 MTWThF; ScH 4) Caswell
Student conducting with class as performing ensemble; criteria for selecting choral and combined choral and instrumental materials; rehearsal techniques.

5750.¹ WORKSHOP: MUSIC EDUCATION (Conducting the Musical Show)—July 20-31. (1-12 cr [max 12 cr]; 1220-1520 MTWThF; NMA 4) Schultz
Selected topics in music education. This 3-credit offering focuses on rehearsal techniques, coordination of singing actors and instrumental accompaniment, and conducting of the pit orchestra; laboratory performance and listening activities will focus on traditions and trends in the musical theater.

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

5970. INDEPENDENT STUDY. (1-4 cr; prereq consent of adviser and of dept; hrs ar; ScH 104) Caswell
See First Term.

8990.* RESEARCH PROBLEMS. (4-12 cr; prereq knowledge of elem statistics; hrs ar; ScH 104)
Caswell
See First Term.

SCHOOL OF PHYSICAL EDUCATION, RECREATION, AND SCHOOL HEALTH EDUCATION

Physical Education (PE)

Students interested in meeting a college requirement for physical education or in taking activity courses for elective credit may register for PE 1007, 1014, 1015, 1036, 1038, 1050, 1073, and Dnce 1022, 1024.

Professional Physical Education—Courses are offered at the undergraduate and graduate levels in physical education. Many of these courses apply toward the licensure requirements for teaching physical education in the state of Minnesota. Courses are also offered that will apply toward the athletic coaching credential requirements for men and women. Courses applicable toward requirements in the various programs that are offered this summer include the following:

1. An Advanced Degree in Physical Education — PE 5100, 5111, 5122, 5134, 5136, 5140, 5151, 5328, 5620, 5710, 5740, 5980, 5981, 5983, 8980, 8981
2. Undergraduate Major in Physical Education—PE 3110, 3111, 3113, 3115, 3130, 3143
3. State of Minnesota Coaching Credential—PE 3110, 3111, 3113, 3115, 3130, 3143, 5620, 5740

Elementary School Majors—PE 3327 is offered to accommodate elementary education majors and classroom teachers.

All activity courses listed below are high intensity (participation requiring a high level of energy expenditure) except those otherwise indicated. It is therefore recommended that students who have questions about their ability to participate safely in the physical activities involved in a course seek advice from a physician.

PHYSICAL ACTIVITY PROGRAM COURSES (PE)

(Open to all students)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

Courses preceded by • have limited enrollment and must be reserved.

FIRST TERM

● **1007. SWIMMING.** (1 cr; each section limited to 22 students) Duoos-Asche

Course for nonswimmers includes aquatic breathing, floating, bobbing, treading, finning, human stroke, elementary backstroke, sidestroke, front crawl.

Sec 1, 0905-0955 MTWTh, NorrisH 58

Sec 2, 1010-1100 MTWTh, NorrisH 58

● **1014. CONDITIONING.** (1 cr; each section limited to 40 students) Foster

Improvement of physical fitness and general appearance through the use of running, circuit training, and progressive exercises of various types.

Sec 1, 0800-0850 MTWTh, Stad S264, Northrop Field, FieldHse

Sec 2, 0905-0955 MTWTh, Stad S264, Northrop Field, FieldHse

● **1015. WEIGHT TRAINING.** (1 cr; each section limited to 30 students) Bernstein

Emphasizes the fundamentals of weight training including skills, techniques, individualized exercise prescription, and theory.

Sec 1, 0800-0850 MTWTh, Stad N202

Sec 2, 0905-0955 MTWTh, Stad N202

● **1036. PADDLEBALL-RACQUETBALL.** (1 cr; limited to 24 students; 0800-0850 MTWTh; Stad N208) Cushman

Basic fundamentals of skills and shots; rules and game strategy are stressed.

● **1038. TENNIS.** (1 cr; sections 1, 4, and 5 limited to 28 students, sections 2 and 3 limited to 18 students)

Includes fundamental strokes such as service, forehand and backhand, drives and volley; court positions and strategy for singles and doubles; rules, terminology, and etiquette.

Sec 1, 1010-1100 MTWTh, BFAB 101, Tennis Courts, Bailin

Sec 2, 1010-1100 MTWTh, St. Paul Gym, Tennis Courts, Kundla

Sec 3, 1115-1205 MTWTh, St. Paul Gym, Tennis Courts, Kundla

Sec 4, 1115-1205 MTWTh, BFAB 101, Tennis Courts, Rogers

Sec 5, 1220-1310 MTWTh, BFAB 101, Tennis Courts, Rogers

● **1050. GOLF.** (1 cr; moderate intensity; each section limited to 24 students) Ewing

Emphasizes fundamentals of grip, stance, and swing in addition to etiquette and rules.

Sec 1, 1010-1100 MTWTh, Stad S267, Golf Course

Sec 2, 1115-1205 MTWTh, Stad S267, Golf Course

● **1073. SOFTBALL.** (1 cr; limited to 40 students; 0905-0955 MTWTh; FieldHse, Northrop Field) Cushman

Fundamental skills and tactics of softball; throwing, catching, batting, running, basic conditioning, and game play.

PROFESSIONAL COURSES (PE)

Courses with limited enrollment must be reserved at 1425 University Avenue S.E. (see instructions under "Reserved Courses").

FIRST TERM

● **3110. HUMAN ANATOMY.** (3 cr; limited to 35 students; 1220-1310 MTWThF; CookeH 215) Serfass
Emphasizes bones, nerves, and muscles and their significance in physical education.

● **3111. MECHANICS OF MOVEMENT.** (3 cr; limited to 35 students; prereq Anat 1027, Phys 1061; 1115-1205 MTWThF; CookeH 215) Stoner

Structure of the body, principles and mechanics of bodily movements.

● **3130. HISTORY OF PHYSICAL EDUCATION AND SPORT.** (3 cr; limited to 35 students; 0800-0850 MTWThF; CookeH 214) Struna

Introductory description and interpretation of influence of past sociocultural events upon development of physical education and sport from primitive to 20th-century civilization.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **3327. TEACHING PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOL.** (3 cr, §1560, §3325, §Hlth 3325; limited to 35 students; prereq elem education major; 0800-0850 MTWThF; NorrisH 153, 153a) Lampe

An overview of the elementary school physical education program; primarily a laboratory course, with participation in representative physical education activities for children; opportunities for observation of children, microteaching, skill analysis, and group discussion.

5111. PHYSICAL EDUCATION FACILITIES—June 16-July 2. (3 cr; 1010-1205 MTWThF; BFAB 285) Jaeger

Planning of areas and facilities for physical education and athletics with special emphasis on current trends and problems in the field.

5122. APPLIED PHYSIOLOGY. (3 cr; prereq PubH 3386 or Phsl 3051 or equiv; 1010-1100 MTWThF; CookeH 215) Serfass

Application of concepts in human physiology to exercise physiology, sports training, and physical activities with particular reference to respiratory and cardiovascular systems.

5140. BIOMECHANICS OF SPORT SAFETY—June 16-July 2. (3 cr; prereq undergrad kinesiology; 0800-0955 MTWThF; CookeH 215) Stoner

Forces and torques developed in sports activities; tolerances of the human body; techniques for preventing injury; design of protective equipment.

5151. CURRICULUM—June 16-July 2. (3 cr; prereq sr; 0800-0955 MTWThF; BFAB 285) Young
For students without previous experience in curriculum; objectives, content, organization, evaluation, and trends.

● **5328. PROSEMINAR: HISTORY OF SPORT AND PHYSICAL EDUCATION—June 16-July 2.** (4 cr; limited to 20 students; S-N optional; prereq 3130 or equiv, one upper division undergrad history course or #: 0940-1205 MTWThF; CookeH 214) Struna

Examination of the secondary literature detailing and interpreting development and cultural integration of sport and physical education, primarily though not exclusively in the United States.

● **5620. PRACTICUM: PREVENTION AND CARE OF ATHLETIC INJURIES—June 22-July 2.** (3 cr; limited to 50 students; prereq Anat 1027 or equiv; 1330-1600 MTWThF; BFAB 285, 144) Marshall, Monroe

An overview of problems (recognition, principles, and responsibilities) related to athletic injuries in secondary and college programs; demonstration and practice in training techniques and familiarity with the use of instruments for athletic rehabilitation. See Special Programs section.

● **5740.¹ WORKSHOP: COACHING OF INDIVIDUAL, DUAL, OR TEAM SPORTS (Coaching Swimming)—June 15-20.** (1-12 cr [max 12 cr]; limited to 50 students; 1200-1630 MTWThF, 0900-1200 S; CookeH 214, 15) Stearns, Freeman, Oman

Instruction at the advanced level including analyses of skills, game strategies; techniques of coaching and methods of training and conditioning. This offering for 3 credits. See Special Programs section.

5980. RESEARCH METHODOLOGY. (3 cr, §Hlth 5980; prereq #: 1220-1310 MTWThF; CookeH 206) Shick

Methods and design for research in health, physical education, and recreation. Meets with Hlth 5980.

● **5981. PROBLEMS.** (Cr and hrs ar; each section limited to 5 students; prereq MEd candidate, #)
Focus on teaching of physical education.

Sec 21, ar, Jaeger

Sec 25, ar, Struna

Sec 22, ar, Jette

Sec 26, ar, Young

Sec 23, ar, Serfass

Sec 27, ar, Stull

Sec 24, ar, Stoner

● **5983. READINGS: PHYSICAL EDUCATION.** (Cr ar [max 9 cr]; each section limited to 5 students; prereq #)

Independent study under tutorial guidance.

Sec 21, ar, Jaeger

Sec 25, ar, Struna

Sec 22, ar, Jette

Sec 26, ar, Young

Sec 23, ar, Serfass

Sec 27, ar, Stull

Sec 24, ar, Stoner

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

- **8981.* RESEARCH PROBLEMS.** (Cr and hrs ar; each section limited to 5 students; prereq 8980 or #; S-N only)
Individual problems.

Sec 21, ar, Jaeger	Sec 24, ar, Struna
Sec 22, ar, Serfass	Sec 25, ar, Young
Sec 23, ar, Stoner	Sec 26, ar, Stull

PHYSICAL ACTIVITY PROGRAM COURSES (PE)

(Open to all students)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

SECOND TERM

- **1007. SWIMMING.** (1 cr; limited to 22 students; 0800-0850 MTWTh; NorrisH 58) Stanne
See First Term.

- **1014. CONDITIONING.** (1 cr; each section limited to 40 students) Kinney
See First Term.

Sec 1, 0800-0850 MTWTh, Stad S264, Northrop Field, FieldHse
Sec 2, 0905-0955 MTWTh, Stad S264, Northrop Field, FieldHse

- **1015. WEIGHT TRAINING.** (1 cr; limited to 30 students; 1010-1100 MTWTh; Stad N202) Bailin
See First Term.

- **1036. PADDLEBALL-RACQUETBALL.** (1 cr; limited to 24 students; 1115-1205 MTWTh; Stad N208)
See First Term.

- **1038. TENNIS.** (1 cr; each section limited to 28 students)
See First Term.

Sec 1, 0800-0850 MTWTh, BFAB 101, Tennis Courts, Renick
Sec 2, 0905-0955 MTWTh, BFAB 101, Tennis Courts, Renick
Sec 3, 1010-1100 MTWTh, BFAB 101, Tennis Courts, Kelley
Sec 4, 1115-1205 MTWTh, BFAB 101, Tennis Courts, Kelley

- **1050. GOLF.** (1 cr; moderate intensity; each section limited to 24 students) Larson
See First Term.

Sec 1, 0905-0955 MTWTh, Stad S267, Golf Course
Sec 2, 1010-1100 MTWTh, Stad S267, Golf Course

PROFESSIONAL COURSES (PE)

Courses with limited enrollment must be reserved at 1425 University Avenue S.E. (see instructions under "Reserved Courses").

SECOND TERM

- **3113. MOTOR LEARNING AND MOTOR DEVELOPMENT—July 20-August 5.** (4 cr; limited to 35 students; 1010-1210 MTWThF; CookeH 206) R Johnson
Motor growth and development of children, adolescents, and adults with emphasis on sociopsychological factors.

- **3115. PHYSIOLOGICAL APPLICATION TO SPORTS.** (3 cr, §PubH 3385, §PubH 3386; limited to 40 students; 0905-0955 MTWThF; CookeH 215) Alexander
Muscular contraction for strength development programs; contributions of training programs to endurance, speed, and skill acquisition; influence of training on the cardiovascular system; fatigue and recovery; early season training, pregame meals and ergogenic aids in athletics. Required for the Minnesota Coaching Endorsement.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **3143. ORGANIZATION AND MANAGEMENT OF SPORT.** (3 cr; limited to 40 students; prereq 2 cr coaching course; 0800-0850 MTWThF; CookeH 215) French
Principles, policies, and procedures involved in the coaching of interscholastic sports.

5100. TEACHING PHYSICAL EDUCATION FOR THE HANDICAPPED—July 20-August 5. (3 cr; prereq #; 1430-1625 MTWThF; CookeH 215) Breihan
Introduction to the role of physical education in the education of the handicapped individual, emphasizing understanding, principles of organization, administration, curriculum supervision and evaluation.

5134. PERCEPTUAL-MOTOR DEVELOPMENT IN CHILDHOOD—July 20-August 5. (3 cr; prereq 3113 or #; 0800-0955 MTWThF; CookeH 214) Plack
The motoric dimension of perception; emphasis on developmental tenets of perception, diagnosis and remediation of perceptual-motor deficiencies and related research.

5136. PSYCHOLOGY OF COACHING—July 20-August 5. (3 cr; prereq 3113 or #; 1010-1205 MTWThF; BFAB 285) Krotee
Psychological aspects of coaching at the elementary, secondary, and college levels.

● **5710.¹ WORKSHOP: PHYSICAL EDUCATION FOR THE ELEMENTARY SCHOOL CHILD (Instructional Strategies)—July 20-August 5.** (1-12 cr [max 12 cr]; limited to 50 students; 1220-1415 MTWThF; CookeH 215) French
Current trends, instructional techniques, and resource material. This offering for 3 credits. See Special Programs section.

● **5981. PROBLEMS.** (Cr and hrs ar; each section limited to 5 students; prereq MEd candidate, #)
See First Term.

Sec 21, ar, Alexander
Sec 22, ar, Breihan
Sec 23, ar, French
Sec 24, ar, Jaeger

Sec 25, ar, Johnson
Sec 26, ar, Krotee
Sec 27, ar, Plack
Sec 28, ar, Stull

● **5983. READINGS: PHYSICAL EDUCATION.** (Cr ar [max 9 cr]; each section limited to 5 students; prereq #)
See First Term.

Sec 21, ar, Alexander
Sec 22, ar, Breihan
Sec 23, ar, French

Sec 24, ar, Jaeger
Sec 25, ar, Plack
Sec 26, ar, Stull

8980.* RESEARCH PROBLEMS—July 20-August 5. (1 cr; prereq 5980, PsyF 5110 or #; S-N only; 1115-1205 MTWThF; CookeH 215) Plack
Designing and reporting on individual problems. Required of all M.A. and Ph.D. candidates. Meets with Hlth 8980.

● **8981.* RESEARCH PROBLEMS.** (Cr and hrs ar; each section limited to 5 students; prereq 8980 or #; S-N only)
See First Term.

Sec 21, ar, Alexander
Sec 22, ar, French
Sec 23, ar, Jaeger

Sec 24, ar, Plack
Sec 25, ar, Stull

DANCE (Dnce)

Courses numbered below 1500 are open to all students and must be reserved in 12 Johnston Hall.

Other courses with limited enrollment must be reserved at 1425 University Avenue S.E. (see instructions under "Reserved Courses").

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

All dance courses listed below are high intensity (participation requiring a high level of energy expenditure) except those otherwise indicated. It is therefore recommended that students who have questions about their ability to participate safely in the physical activities involved in a course seek advice from a physician.

FIRST TERM

- **1022. BALLROOM DANCE.** (1 cr; each section limited to 25 students) Jette
Elementary steps and variations of the foxtrot, waltz, tango, samba, cha-cha, rumba, and swing.
Sec 1, 1220-1310 MTWTh; NorrisH 153, 153A (men only) Jette
Sec 2, 1220-1310 MTWTh; NorrisH 153, 153A (women only) Jette
- **1024. MODERN DANCE.** (1 cr; limited to 30 students; 1115-1205 MTWTh; NorrisH 151) Jette
Introduction to fundamental techniques of modern dance.
- **3181. DANCE THERAPY.** (2 cr; limited to 20 students; 0905-0955 MTWTh; NorrisH 68) Jette
For students and teachers interested in dance therapy as a means of communication and interaction for the emotionally disturbed and/or handicapped person.
- **3381. MODERN DANCE TECHNIQUE AND IMPROVISATION.** (3 cr; limited to 30 students; prereq 1715 or #; 1010-1205 MTWThF; NorrisH 153, 153A) Siegenfeld
Advanced technique. See Special Programs section.
- **3396. DANCE REPERTORY THEATRE.** (3 cr [max 9 cr]; limited to 20 students; prereq audition or #; 1325-1520 MTWThF; NorrisH 153, 153A) Siegenfeld
Technique and improvisation in the construction and performance of a dance theatre work under the direction of a guest choreographer; professionally oriented dance experience for advanced students. See Special Programs section.

Recreation, Park, and Leisure Studies (Rec)

Courses with limited enrollment must be reserved at 1425 University Avenue S.E. (see instructions under "Reserved Courses").

FIRST TERM

- 3700. SENIOR INTERNSHIP.** (1-15 cr; prereq sr, recreation major or minor. Δ; S-N only; hrs ar) McAvoy, Schultz
Supervised experiences in selected agencies.
- **5250. FINANCING PUBLIC RECREATION AND PARKS—June 22-July 17.** (3 cr; limited to 35 students; prereq 3550 or Δ; 0745-0850 MTWThF; CookeH 206) Schultz
Methods and techniques of financing operations and capital improvements in public park and recreation agencies; legal basis, fiscal policy, federal and state aids, revenue sharing and budgeting procedures.
- 5630. PRACTICUM: THERAPEUTIC RECREATION.** (3-9 cr; prereq 12 cr in recreation; hrs ar) McAvoy
Supervised experiences in program operation; administrative and supervisory duties.
- 5640. PRACTICUM: PUBLIC RECREATION AND PARKS.** (3-9 cr; prereq 12 cr in recreation; hrs ar) Schultz
Supervised experiences in program operation; administrative and supervisory duties.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **5900.¹ WORKSHOP: CONTEMPORARY ISSUES IN LEISURE SERVICES—June 15-19.** (1-12 cr [max 12 cr]; limited to 18 students; prereq Δ ; 0800-1200 M, June 15, CookeH 206, and field trip through 2200, June 19) McAvoy

Contemporary issues emphasizing administrative and supervisory functions for recreation and allied professionals; individual offerings focus on special issues and/or professional groups. This 3-credit offering will focus on the leisure and educational resources of a wild and scenic river. Preregistration is required; see Special Programs section.

5981. PROBLEMS. (Cr and hrs ar; prereq MEd candidate, #) McAvoy
Focus on conduct of recreation programs.

5983. READINGS: RECREATION. (1-3 cr; prereq MEd or grad student or Δ ; hrs ar) Schultz
Independent study under tutorial guidance.

8981.* RESEARCH PROBLEMS. (Cr and hrs ar; prereq 8980 or #; S-N only) Schultz
Individual problems.

SECOND TERM

3700. SENIOR INTERNSHIP. (1-15 cr; prereq sr, recreation major or minor, Δ ; S-N only; hrs ar) Ar
See First Term.

3900. DIRECTED STUDY. (3 cr per qtr [max 9 cr]; S-N optional; prereq recreation majors only, Δ ; hrs ar) Ar
Self-directed study preceded by classroom study and possession of basic competence.

● **5200. RECREATION IN COMMUNITY EDUCATION.** (3 cr; limited to 35 students; prereq 1520 or 5100 or Δ ; 0800-0850 MTWThF; CookeH 206) Chapman
Recreation and leisure services in the community education process.

5630. PRACTICUM: THERAPEUTIC RECREATION. (3-9 cr; prereq 12 cr in recreation; hrs ar) Chapman
See First Term.

5640. PRACTICUM: PUBLIC RECREATION AND PARKS. (3-9 cr; prereq 12 cr in recreation; hrs ar) Chapman
See First Term.

5981. PROBLEMS. (Cr and hrs ar; prereq MEd candidate, #) Chapman
Focus on conduct of recreation programs.

5983. READINGS: RECREATION. (1-3 cr; prereq MEd or grad student or Δ ; hrs ar) Chapman
See First Term.

School Health Education (Hlth)

Teaching Requirements for School Health Education—Those interested in teaching school health education in the state of Minnesota may qualify through one of the following professional programs:

1. Courses offered this summer that may be applied to the undergraduate major in school and community health education are Hlth 1500, 1502, 5120, and 5402.
2. Courses offered this summer that may be applied to advanced and graduate degrees in school health education are Hlth 5120, 5301, 5400, 5402, 5685, 5980, 5981, 5983, and 8980.

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

FIRST TERM

1500. AMERICAN RED CROSS STANDARD FIRST AID AND PERSONAL SAFETY. (2 cr; 0905-0955 MTWThF; NorrisH 201) Lemke

Lectures, demonstrations, and practice in first aid and personal safety; ARC Standard First Aid and Personal Safety Certificate awarded upon recommendation of the instructor.

1502. BASIC LIFE SUPPORT. (1 cr; S-N only; 1010-1100 MTTh; NorrisH 201) Lemke

Theory and practice in skills of rescue breathing and external cardiac compression; American Red Cross certification awarded upon demonstration of competence based on recommendation of instructor.

5120. ROLE OF THE SCHOOL HEALTH EDUCATOR IN HEALTH APPRAISAL. (3 cr; 1115-1205 MTWThF; NorrisH 3) Cobb

Role of school medical and dental advisers, nurses, teachers, and other school personnel in protection and maintenance phases.

5402. DEATH EDUCATION IN CONTEMPORARY SOCIETY—June 16-July 2. (3 cr, §PubH 5040, HSU 5040, §Mort 5040; prereq education senior, licensed teacher, health science major, mortuary science major, school or public health nurse or #; 1330-1600 MTWThF; HSUnitA 2-620) Cobb, Rothenberger, Slater

Basic background information on concepts and attitudes toward death, grief, and bereavement with emphasis on instructional aspects for the elementary and secondary schools; role of the school in suicide prevention.

5685. SCHOOL-BASED PROJECTS IN SCHOOL HEALTH EDUCATION. (1-12 cr [max 12 cr]; prereq #; hrs ar) Cobb

Individual or group projects applicable to local school situations, such as curricular, instructional, or evaluative problems.

5980. INTRODUCTION TO RESEARCH. (3 cr, §PE 5980; prereq #; 1220-1310 MTWThF; CookeH 206) Shick

Methods and design for research in health, physical education, and recreation. Meets with PE 5980.

5981. PROBLEMS. (Cr and hrs ar; prereq #) Cobb

Focus on teaching school health education.

5983. READINGS: HEALTH EDUCATION. (1-3 cr; prereq sr honor or grad student, #; hrs ar) Cobb

Independent study under tutorial guidance.

SECOND TERM

5301. TEACHER STRESS: SOURCES, CONSEQUENCES, SOLUTIONS. (3 cr, S-N optional; 0905-0955 MTWThF; NorrisH 3) Needle

Focus on elementary and secondary teachers: individual, collective, and organizational strategies to prevent, eliminate, or reduce workplace environmental stressors and effects of stress.

5400. TOPICS: EDUCATIONAL ASPECTS OF DRUG USE AND ABUSE. (3 cr, §PubH 5032; prereq education sr, licensed teacher or school nurse; 1010-1100 MTWThF; NorrisH 3) Hochhauser

Basic background information on alcohol and other drugs and chemicals with emphasis on curriculum concepts, teaching methodology, materials, and referral procedures appropriate for elementary, junior high, and senior high schools.

5981. PROBLEMS. (Cr and hrs ar; prereq #) Needle

See First Term.

5983. READINGS: HEALTH EDUCATION. (1-3 cr; prereq sr honor or grad student, #; hrs ar) Needle

See First Term.

8980.* RESEARCH PROBLEMS—July 20-August 5. (1 cr; prereq 5980, PsyF 5110 or #; S-N only; 1115-1205 MTWThF; CookeH 215) Plack

Designing, reporting on individual problems; required of all M.A. and Ph.D. candidates. Meets with PE 8980.

Courses preceded by • have limited enrollment and must be reserved.

DEPARTMENT OF PSYCHOEDUCATIONAL STUDIES (PsyS)

Courses with limited enrollment must be reserved at 1425 University Avenue S.E. (see instructions under "Reserved Courses").

FIRST TERM

3106. EXCEPTIONAL STUDENTS IN REGULAR CLASSES. (2 cr, §5106; 1300-1500 MW; BuH 120) Raison

Policies and procedures for teaching handicapped and gifted students in regular school settings; exposure to special curriculum adaptations; collaborative roles of regular and special education teachers, parents, pupil personnel workers, and other educators. Meets with 5106.

5100. CHILDHOOD LANGUAGE DEVELOPMENT: CLASSROOM IMPLICATIONS. (3 cr, §SpEd 5100; 0905-0955 MTWThF; PtH 111) Mercaldo, Turnure

Recent trends and findings in the study of language acquisition; classroom implications for the education of exceptional children.

5101. EDUCATION OF EXCEPTIONAL CHILDREN. (4 cr, §SpEd 5101; 0800-0850 MTWThF; PtH 111) Ilmer

Introduction to field of special education for classroom teachers and other school personnel.

● **5104. SOCIAL AND VOCATIONAL DEVELOPMENT OF HANDICAPPED STUDENTS.** (4 cr, §SpEd 5104; limited to 35 students; prereq #: 1115-1310 TTh; ChDev 105) W Tennyson

Organization and designing of training programs to promote independent living, vocational and community adjustment of handicapped persons; curriculum materials and methods at adolescent and adult levels.

5106. EXCEPTIONAL STUDENTS IN REGULAR CLASSES. (2 cr, §3106; 1300-1500 MW; BuH 120) Raison

Policies and procedures for teaching handicapped and gifted students in regular school settings; exposure to special curriculum adaptations; collaborative roles of regular and special education teachers, parents, pupil personnel workers, and other educators. Meets with 3106.

● **5110. COUNSELING PROCEDURES.** (3 cr, §CSPP 5110; limited to 35 students; 1010-1205 TTh, 1 hr ar; PtH 102) Shaffer

For persons whose professional work includes counseling and interviewing; not for licensure as school counselors. Emphasis on counseling relationship and principles of interviewing; utilizes case studies, role playing, and demonstration.

● **5111. COUNSELING PROCEDURES II.** (3 cr; prereq 5110; limited to 35 students; 1325-1520 TTh, 1 hr ar; PtH 102) Shaffer

Analysis of type of client and stage of counseling; isolation of chain of interactions between client and counselor described and practiced; appropriate techniques.

5120. INTRODUCTION TO MENTAL RETARDATION. (4 cr, §SpEd 5120, §CPsy 5315; prereq 5101 or SpEd 5101 or #: 1115-1205 MTWThF; PtH 111) Ilmer, Turnure

Issues which relate to educational practices; community planning; educational philosophy, administration and organization, and programming. Meets with CPsy 5315.

5140. PSYCHOSOCIAL AND EDUCATIONAL ASPECTS OF DEAFNESS. (3 cr, §SpEd 5140; 1115-1205 MTWThF; PtH 215) Mercaldo

Historical and current societal perceptions of the deaf; analysis of effects and patterns of auditory impairment in children and adults, intelligence, personal and social adjustment, effect of the psychological processes on acquisition of language, speech, and speechreading skills.

5143. TEACHING LANGUAGE TO THE HEARING IMPAIRED I. (3 cr, §SpEd 5143; prereq 5140 or SpEd 5140; 0800-0850 MTWThF; PtH 102) Klansek

Survey of the language curricula and teaching techniques in infant, nursery, preschool, and beginning primary programs for the deaf; overview of language development in the deaf and the hearing child in the primary years.

Courses preceded by ● have limited enrollment and must be reserved.

● **5151. MANAGING PROBLEM BEHAVIOR IN THE CLASSROOM.** (3 cr, §SpEd 5151; limited to 40 students, 1325-1615 TTh; PtH 214) Wood

Typical patterns of problem behavior in classroom settings; relationships to teacher mental health; simulation of methods of prevention and management.

● **5190. EDUCATION OF THE GIFTED AND TALENTED.** (3 cr, §SpEd 5190; 1010-1100 MTWThF; PtH 215) Rubin

Origin and development of terms such as giftedness, creativity, genius, talent, and intelligence; implications for educational practice; current issues and trends.

● **5300.¹ WORKSHOP: COUNSELING PSYCHOLOGY (Career Development of Women and Men)—June 22-July 2.** (1-6 cr [max 12 cr]; limited to 30 students; prereq #: 0830-1600 MTWThF; Law, 30, 1, 3) L Hansen

For counselors, teachers, administrators; aspects of intervention theory in relation to psychological principles; counseling, career development, assessment, psychological education, and consultation. This offering for 6 credits will interest human service workers involved in career development and career counseling in colleges, schools, community agencies, CETA programs, business, government, and industry; life-span development and changing roles of women and men provide a framework for learning new goals and strategies for career guidance; focus on knowledge, attitudes, and skills in career program development, sex-role socialization, employment outlook and labor market trends, new multimedia resources, and reducing career-related stereotyping. Preapplication required. See Special Programs section.

● **5305. BEHAVIOR ANALYSIS PROCEDURES WITH MILDLY AND MODERATELY HANDICAPPED PEOPLE.** (4 cr, §SpEd 5301, §SpEd 5303; PsyF 5149 or Psy 5017 recommended; 0905-0955 MTWThF; PtH 215) Ar

Behavioral approaches to improving the academic and personal-social behavior of mildly and moderately handicapped people in mainstream and resource programs.

● **5601. PRACTICUM: SPECIAL EDUCATION.** (Cr ar; each section limited to 10 students; S-N optional; prereq #)

Supervised experience in teaching or related work in schools or other agencies serving exceptional children. See also section 1 listed under Six-Week Courses.

Sec 21, Ilmer

Sec 24, Turnure

Sec 22, Mercaldo

Sec 25, Wood

Sec 23, Rynders

● **5610. PRACTICUM: DIAGNOSIS AND REMEDIATION OF LEARNING DISABILITY I.** (3 cr, §SpEd 5160; limited to 90 students; S-N optional; prereq #5113 and #; hrs ar MTWThF off-campus; June 15 only 1600-2000; BuH 120) V Bruininks

Clinical practice in prescriptive teaching using a selected range of techniques presented in 5113. Prior application required; limited to Institute participants only. See Special Programs section.

● **5611. PRACTICUM: DIAGNOSIS AND REMEDIATION OF LEARNING DISABILITY II.** (3 cr, §SpEd 5611; limited to 90 students; S-N optional; prereq 5610 or SpEd 5610, #5114, #; hrs ar MTWThF off campus; June 15 only 1600-2000; BuH 120) V Bruininks

Clinical practice in prescriptive teaching using a selected range of techniques presented in 5114 or SpEd 5111.

● **5900. INDEPENDENT STUDY.** (Cr ar [max 12 cr]; each section limited to 10 students; prereq #; hrs ar)

Sec 21, special education majors only, V Bruininks

Sec 22, special education majors only, Ilmer

Sec 23, special education majors only, Mercaldo

Sec 24, special education majors only, Rubin

Sec 25, special education majors only, Rynders

Sec 26, special education majors only, Turnure

Sec 27, special education majors only, Wood

Sec 28, counseling majors only, L Hansen

Sec 29, counseling majors only, Shaffer

Sec 30, counseling majors only, Snoke

Sec 31, counseling majors only, Tennyson

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **8601. ADVANCED PRACTICUM.** (Cr ar; each section limited to 10 students; prereq #: hrs ar) Experience planned with supervising professor in college teaching, supervision of student teachers, or other forms of advanced professional practice; usually taken by advanced graduate students.

Sec 21, Rubin
Sec 22, Rynders

Sec 23, Turnure
Sec 24, Wood

8701. INTERNSHIP: COUNSELING AND STUDENT PERSONNEL PSYCHOLOGY. (0-6 cr per qtr [max 9 cr for MA and specialist students, max 18 cr for PhD students], §CSPP 8701) Snoko Supervised employment at departmentally approved sites.

● **8900. RESEARCH PROBLEMS.** (Cr ar; each section limited to 10 students; prereq #: hrs ar)

Sec 21, special education majors only, V Bruininks
Sec 22, special education majors only, Ilmer
Sec 23, special education majors only, Mercado
Sec 24, special education majors only, Rubin
Sec 25, special education majors only, Rynders
Sec 26, special education majors only, Turnure
Sec 27, special education majors only, Wood
Sec 28, counseling majors only, L Hansen
Sec 29, counseling majors only, Shaffer
Sec 30, counseling majors only, Snoko
Sec 31, counseling majors only, W Tennyson

SPECIAL TERM: SIX-WEEK COURSE

● **5601. PRACTICUM: SPECIAL EDUCATION.** (Cr ar; section 1 limited to 25 Institute participants only; S-N optional; prereq #)

Supervised experience in teaching or related work in schools or other agencies serving exceptional children. Prior application required. See Special Programs section.

Sec 1, Teaching Children With Emotional Disturbances—June 15-July 24, 8 cr, 0800-1520 MTWThF, off campus, Wood

SECOND TERM

5101. EDUCATION OF EXCEPTIONAL CHILDREN. (4 cr, §SpEd 5101; 0905-0955 MTWThF; PtH 111) Force

See First Term.

● **5110. COUNSELING PROCEDURES.** (3 cr, §CSPP 5110; limited to 35 students; 1010-1205 TTh, 1 hr ar; ChDev 218) Shaffer

See First Term.

5112. EDUCATION OF LEARNING-DISABLED CHILDREN. (3 cr, §SpEd 5112; 1010-1100 MTWThF; PtH 111) Balow

Analysis of considerations in design and conduct of services for learning-disabled children; approaches to the education of such children.

5120. INTRODUCTION TO MENTAL RETARDATION. (4 cr, §CPsy 5315, §SpEd 5120; prereq 5101 or SpEd 5101 or #: 0800-0850 MTWThF; PtH 102) Ilmer

See First Term. Meets with CPsy 5315.

5141. METHODS OF TEACHING SCHOOL SUBJECTS TO THE HEARING IMPAIRED. (3 cr, §SpEd 5141; prereq #: 1115-1205 MTWThF; PtH 111) Mercado

Adaptation of materials and teaching methods for hearing impaired children in reading, mathematics, social studies, and science.

● **5151. MANAGING PROBLEM BEHAVIOR IN THE CLASSROOM.** (3 cr, §SpEd 5151; limited to 40 students; 1325-1615 TTh; PtH 111) Wood

See First Term.

5155. PSYCHOEDUCATIONAL INTERVENTIONS: PSYCHOTIC CHILDREN. (3 cr, §SpEd 5155; prereq 12 cr in psychology, child psychology, or special education; 1115-1205 MTWThF; PtH 214) Ilmer

Introduction to psychopathology of children with psychotic characteristics; emphasis on psychoeducational intervention programs and teaching strategies.

Courses preceded by ● have limited enrollment and must be reserved.

5160. SUPERVISION AND ADMINISTRATION OF SPECIAL EDUCATION—July 20-August 7. (3 cr, §EdAd 5103, §SpEd 5160; prereq #: 1325-1625 MTWThF; ClaOff B30) Ar
Procedures for establishing and improving educational programs for exceptional children. Meets with EdAd 5103.

● **5300.¹ WORKSHOP: COUNSELING PSYCHOLOGY—July 20-31.** (1-6 cr [max 12 cr]; each section limited to 35 students; prereq #) W Tennyson
See First Term and Special Programs section for application information.

Sec 1, Developing Work Values, 3 cr; 0900-1200 MTWThF, BuH 125

This section focusing on the study and development of work values may be taken independently of section 2. Preapplication required.

Sec 2, Industry and Community Resources, 3 cr, 1300-1600 MTWThF, BuH 125

An individualized exploration of industry and community resources; class sessions allow for evaluation and considered use of these resources in guidance and career education; may be taken independently of section 1. Preapplication required.

● **5302.¹ WORKSHOP: SPECIAL EDUCATION (Nonvocal Communication).** (Cr ar; limited to 30 students; prereq #: 0800-0955 TTh; PtH 215) Mercaldo

Laboratory approach provides opportunities for school personnel to study specific problems related to special education. This offering for 2 credits requires prior application. See Special Programs section.

● **5601. PRACTICUM: SPECIAL EDUCATION.** (Cr and hrs ar; each section limited to 10 students; S-N optional; prereq #)

See First Term. See also section 1 listed under Six-Week Courses.

Sec 21, Force

Sec 24, Rynders

Sec 22, Ilmer

Sec 25, Wood

Sec 23, Mercaldo

● **5900. INDEPENDENT STUDY.** (Cr ar [max 12 cr]; each section limited to 10 students; prereq #: hrs ar)

Sec 21, special education majors only, Balow

Sec 22, special education majors only, Force

Sec 23, special education majors only, Ilmer

Sec 24, special education majors only, Mercaldo

Sec 25, special education majors only, Rynders

Sec 26, special education majors only, Wood

Sec 27, counseling majors only, Shaffer

Sec 28, counseling majors only, Snoke

Sec 29, counseling majors only, W Tennyson

● **8601. ADVANCED PRACTICUM.** (Cr ar; each section limited to 5 students; prereq #: hrs ar)

See First Term.

Sec 21, Balow

Sec 23, Rynders

Sec 22, Force

Sec 24, Wood

8701. INTERNSHIP: COUNSELING AND STUDENT PERSONNEL PSYCHOLOGY. (0-6 cr per qtr [max 9 cr for MA and specialist students, max 18 cr for PhD students]) Snoke

See First Term.

● **8900. RESEARCH PROBLEMS.** (Cr ar; each section limited to 10 students; prereq #: hrs ar)

Sec 21, special education majors only, Balow

Sec 22, special education majors only, Force

Sec 23, special education majors only, Ilmer

Sec 24, special education majors only, Mercaldo

Sec 25, special education majors only, Rynders

Sec 26, special education majors only, Wood

Sec 27, counseling majors only, Shaffer

Sec 28, counseling majors only, Snoke

Sec 29, counseling majors only, W Tennyson

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

DEPARTMENT OF SOCIAL, PSYCHOLOGICAL, AND PHILOSOPHICAL FOUNDATIONS OF EDUCATION

Psychological Foundations (PsyF)

Courses with limited enrollment must be reserved at 1425 University Avenue S.E. (see instructions under "Reserved Courses").

FIRST TERM

● **3380. INTRODUCTION TO HUMAN RELATIONS—June 22-July 17.** (3 cr; limited to 30 students; prereq education jr, sr; S-N only; 0900-1100 MTWTh; Arch 45) Norem-Hebeisen
Based on small-group training theory and methods; designed to help the student develop an understanding of his or her own behavior, the behavior of other individuals, and group and organizational behavior.

● **5110. INTRODUCTORY STATISTICAL METHODS.** (4 cr; each section limited to 40 students) Stecklein
Techniques for organizing and presenting data; descriptive indices of central tendency, variability, and bivariate correlation/regression; procedures for making inferences concerning means and proportions.
Sec 1, 0800-0850 MTWThF, EItH N647
Sec 2, 0905-0955 MTWThF, EItH N647

5120. EDUCATIONAL MEASUREMENT IN THE CLASSROOM. (4 cr; 0905-0955 MTWThF; PtH 214) Terwilliger
Principles and methods for construction, evaluation, and improvement of classroom measures; techniques for describing results statistically; use of measurement in evaluating instruction and student performance; assignment of grades.

5121. BASIC PRINCIPLES OF MEASUREMENT. (3 cr; prereq 5110 or 8110 or Psy 3801 or equiv; 1010-1100 MTWThF; PtH 214) Terwilliger
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.

5162. PERSONALITY AND SOCIAL DEVELOPMENT. (3 cr; prereq 5 cr introductory psychology; 1010-1100 MTWThF; ChDev 105)
Major concepts and research findings in adjustment and development with emphasis on educational implications.

● **5172. STRUCTURING LEARNING: SOCIAL PSYCHOLOGICAL APPROACHES.** (3 cr; limited to 60 students; June 16-29, 1300-1600 MTWThF, and July 17 1300-1500; PtH 215; and hrs ar off campus)
How to use cooperation, competition, and individualization to affect learning climate and cognitive and affective outcomes of instruction.

5182. PSYCHOLOGY OF STUDENT LEARNING. (3 cr; 0905-0955 MTWThF; EItH 225) Samuels
Survey of psychological methods and principles; models of the learner; topics in development, creativity, intelligence, and motivation; implications for teaching and curriculum design in preschool, elementary, and secondary education; professional training with children and adolescents as clients.

● **5305.¹ WORKSHOP IN HUMAN RELATIONS—June 22-July 17.** (1-6 cr [max 6 cr], §CSPP 5305, §Educ 5305; limited to 25 students; S-N only; 0900-1300 MTWTh; Arch 60) Oden
Experientially based course including simulation activities, curriculum writing, and supervised practice in basic human relations skills emphasizing individual, cultural, and ethnic differences and their implications for educational practice. This offering for 6 credits.

5330. COMPUTER PROGRAMMING. (3 cr; prereq sr; 1010-1100 MTWThF; EItH N647) D Anderson
Computer as a tool for research in the behavioral sciences; computer systems, language, and development of specific programs that demonstrate computer characteristics; laboratory experience.

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

5900. DIRECTED STUDY. (Cr ar; prereq #; hrs ar) MacEachern

8110. STATISTICAL METHODS. (3 cr; prereq 5110 or Psy 3801 or equiv; 0800-0850 MTWThF; Arch 5) MacEachern
Foundations of statistical theory; practice in applying theories to solution of educational and psychological problems.

● **8900.* RESEARCH PROBLEMS.** (Cr ar; each section limited to 5 students; prereq #; hrs ar)
Sec 21, D Anderson
Sec 22, MacEachern
Sec 23, Stecklein
Sec 24, Terwilliger

● **8910.* PROBLEMS: STATISTICS FOR STUDENTS IN EDUCATION AND PSYCHOLOGY.** (Cr and hrs ar; each section limited to 5 students)
Recent developments in statistical science; applications to educational and psychological problems.
Sec 21, D Anderson
Sec 22, MacEachern
Sec 23, Terwilliger

● **8920.* PROBLEMS: MEASUREMENT.** (1-3 cr [max 9 cr]; each section limited to 5 students; hrs ar)
Intensive study and individual research.
Sec 21, Stecklein
Sec 22, Terwilliger

FIRST AND SECOND TERMS: TEN-WEEK COURSE

8112. STATISTICAL METHODS (PARTS I AND II). (3 cr total for both parts; prereq 8111; 0905-0955 MWF; Arch 5) MacEachern
Foundations of statistical theory; practice in applying theories to solution of educational and psychological problems.

SECOND TERM

● **3380. INTRODUCTION TO HUMAN RELATIONS—July 20-August 14.** (3 cr; limited to 30 students; prereq education jr or sr; S-N only; 0900-1100 MTWTh; Arch 45)
See First Term.

● **5110. INTRODUCTORY STATISTICAL METHODS.** (4 cr; each section limited to 40 students)
See First Term.
Sec 1, 0800-0850 MTWThF, BuH 123, Merwin
Sec 2, 0905-0955 MTWThF, EitH N647, D Anderson

5125. PRINCIPLES AND METHODS OF EVALUATION. (3 cr; 0905-0955 MTWThF; BuH 123) Merwin
Introductory course in program evaluation; theory; practical examples; purpose, roles, program descriptions, and evaluation strategies.

5153. INTRODUCTION TO THE PSYCHOLOGY OF INSTRUCTION. (3 cr; 0905-0955 MTWThF; EitH n257) Ar
Survey of psychological factors in design of instruction; performance criteria, strategy, and sequence in the context of research; development and implementation activities in instructional techniques, technologies, and delivery systems; psychological processes relevant to measures of effectiveness in the teaching-learning environment.

● **5305.¹ WORKSHOP IN HUMAN RELATIONS—July 20-August 14.** (1-6 cr [max 6 cr], §CSPP 5305, §Educ 5305; limited to 25 students; S-N only; 0900-1300 MTWTh; Arch 60) Oden
See First Term. This offering for 6 credits.

5900. DIRECTED STUDY. (Cr ar; prereq #; hrs ar) MacEachern

8111. STATISTICAL METHODS. (3 cr; prereq 8110; 0800-0850 MTWThF; Arch 5) MacEachern
Foundations of statistical theory; practice in applying theories to solution of educational and psychological problems.

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

8130. COMPUTER APPLICATION TO STATISTICAL ANALYSES. (3 cr; prereq 8112 or equiv; 1010-1100 MTWThF; EItH N647) D Anderson
Use of computer to analyze data from the behavioral sciences; interpretation of results; attention to large scale problems.

● **8900.* RESEARCH PROBLEMS.** (Cr ar; each section limited to 5 students; prereq #; hrs ar)
Sec 21, D Anderson
Sec 22, Corcoran
Sec 23, MacEachern
Sec 24, Merwin

● **8910.* PROBLEMS: STATISTICS FOR STUDENTS IN EDUCATION AND PSYCHOLOGY.** (Cr and hrs ar; each section limited to 5 students)
See First Term.
Sec 21, D Anderson
Sec 22, MacEachern

8921. PROBLEMS: EVALUATION. (Cr and hrs ar; prereq 5621 or 8525) Corcoran
Designing, implementing, and analyzing strategies; students work on their own problems, on evaluation problems in school of the area, or on problems associated with national curriculum projects.

Social and Philosophical Foundations of Education (SPFE)

FIRST TERM

● **3090. THE SCHOOL AND SOCIETY.** (3 cr; limited to 85 students; prereq sr; 0800-0850 MTWThF; BuH 120) Parsons
Readings in social science and philosophy give the student opportunity to integrate points of view concerning the role of the school in present-day society.

5141. CRITICAL ISSUES IN CONTEMPORARY EDUCATION. (3 cr; 0905-1135 TTh; CD 218) Parsons
Introduces graduate students to ideas involved in current theory and practice.

SECOND TERM

● **3090. THE SCHOOL AND SOCIETY.** (3 cr; limited to 85 students; prereq sr; 0800-0850 MTWThF; BuH 120) Clark
See First Term.

3099. DIRECTED STUDY. (1-6 cr; prereq #; hrs ar) Clark

5099. DIRECTED STUDY. (Cr ar [max 9 cr]; S-N optional; prereq #) Clark
Individual or group work on topics or problems in social or philosophical foundations of education.

5125. YOUTH IN MODERN SOCIETY. (4 cr; §Soc 5952; 0905-0955 MTWThF; ChDev 105) Clark
Youth in advanced societies and as a social entity; functions and roles in industrial society, family, education, politics and government, economy and work, welfare and religion; organizations, social movements, and subcultures; empirical research and cross-cultural perspectives. Meets with Soc 5952.

8202. POLITICS OF EDUCATION. (3 cr, §EdAd 8202; 0905-0955 MTWThF; BioSci 6) Mazzoni
Social science findings, concepts, and methods used to consider the political context of educational administration, emphasis on public school policymaking by local and state governments; role of administrators. Meets with EdAd 8202.

8241.* PROBLEMS: HISTORY AND PHILOSOPHY OF EDUCATION. (Cr ar; prereq #; hrs ar) Clark
For graduate students interested in research and original work in these areas.

Courses preceded by ● have limited enrollment and must be reserved.

DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

Agricultural Education (AgEd)

Courses with limited enrollment must be reserved at 130 Coffey Hall, St. Paul campus. (see instructions under "Reserved Courses").

FIRST TERM

5027. PRACTICUM: PLACEMENT FOR EXTENSION EXPERIENCES. (2-9 cr [max 9 cr]. \$HEEd 3605, §5027; S-N optional; hrs ar; off campus) Norenberg
Observation of the activities of county extension staff; familiarization with staff, program planning and development, county committee, youth activities and office activities, with opportunity to participate in the functions of an extension educator.

5034. PROCEDURES IN TEACHING AGRICULTURE—June 22-July 2. (3 cr; prereq #: 0800-1205 MTWThF; ClaOff 143) Peterson

New developments in methodology; assessment of innovations and procedures; considerations of various levels of instruction. This offering will emphasize utilizing agricultural teaching materials and learning resources.

5041.¹ WORKSHOP: AGRICULTURAL EDUCATION TECHNOLOGY (FFA Workshop)—July 6-10. (1-6 cr [max 6 cr]; 0800-1205, 1325-1625 MTWThF; and hrs ar; off campus) Leske

New understandings, techniques, and materials in animal science, plant science, horticulture, soil science, agricultural mechanics, forestry, natural resources, youth organization, visual aids, and occupational exploration. This 3-credit offering will emphasize FFA.

5051. ENTERPRISE ANALYSIS—July 6-17. (3 cr; prereq #: 0800-1205 MTWThF; ClaOff 143) Persons

Analyzing farm business as basis for identifying problems; planning learning experiences to improve farm management at high school, young farmer, and adult levels.

● **5090. INDEPENDENT STUDY.** (1-3 cr; each section limited to 5 students; prereq sr; hrs ar)
Topics may be chosen to permit study of areas within education or to supplement areas of inquiry not provided in the regular course structure.

Sec 21, Bear
Sec 22, Leske
Sec 23, Marvin
Sec 24, Norenberg

Sec 25, Persons
Sec 26, Peterson
Sec 27, Swanson

● **5095. INDEPENDENT STUDY.** (3 cr; each section limited to 5 students; prereq MEd student in agricultural education; hrs ar)

Preparation of a paper dealing with studies in agricultural education applied to professional responsibilities.

Sec 21, Bear
Sec 22, Leske
Sec 23, Marvin
Sec 24, Norenberg

Sec 25, Persons
Sec 26, Peterson
Sec 27, Swanson

● **8001.* RESEARCH IN AGRICULTURAL EDUCATION.** (Cr ar; each section limited to 5 students; prereq 15 cr in education)

Selecting problems, preparing bibliographies, analyzing and interpreting data, and preparing manuscripts.

Sec 21, Bear
Sec 22, Leske
Sec 23, Marvin
Sec 24, Norenberg

Sec 25, Persons
Sec 26, Peterson
Sec 27, Swanson

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **8091. FIELD PROBLEMS.** (3 cr; each section limited to 5 students; hrs ar)

Making investigations, gathering data, and formulating plans regarding agricultural education.

Sec 21, Bear

Sec 22, Leske

Sec 23, Marvin

Sec 24, Norenberg

Sec 25, Persons

Sec 26, Peterson

Sec 27, Swanson

SECOND TERM

5027. PRACTICUM: PLACEMENT FOR EXTENSION EXPERIENCES. (2-9 cr [max 9 cr], §HEED 3605, §5027; S-N optional; hrs ar; off campus) Norenberg

See First Term.

5034. PROCEDURES IN TEACHING AGRICULTURE—August 10-14. (3 cr; prereq #; 0800-1205 MTWThF; and hrs ar; ClaOff 143) Persons

See First Term. This offering for new farm management instructors.

5072. PRACTICUM: AGRICULTURAL BUSINESS AND INDUSTRY—July 20-24. (1-3 cr [max 9 cr]; prereq 5071 or #; 0800-1205 and 1325-1625 MTWThF; and hrs ar; off campus) Leske

Observation, study, and experience in agricultural business and industry; application to educational programs in agriculture. This offering for 3 credits.

● **5090. INDEPENDENT STUDY.** (1-3 cr; each section limited to 10 students; prereq sr; hrs ar)

See First Term.

Sec 21, Bear

Sec 22, Leske

Sec 23, Marvin

Sec 24, Norenberg

Sec 25, Persons

Sec 26, Peterson

Sec 27, Swanson

● **5095. INDEPENDENT STUDY.** (3 cr; each section limited to 10 students; prereq MEd student in agricultural education; hrs ar)

See First Term.

Sec 21, Bear

Sec 22, Leske

Sec 23, Marvin

Sec 24, Norenberg

Sec 25, Persons

Sec 26, Peterson

Sec 27, Swanson

5128. METHODS OF TEACHING—July 27-August 7. (3 cr; prereq non-agricultural education major and/or #; 0800-1205 MTWThF; ClaOff 143) Peterson

Methods of teaching agriculture or related subjects; developing competencies in planning, organizing, implementing, and evaluating instruction, with practice in instructional techniques.

5129. CURRICULUM PLANNING—July 27-August 7. (3 cr; prereq 5128 or #5128, non-agricultural education major and/or #; 1325-1625 MTWThF; ClaOff 143) Marvin

Methods and procedures in planning a curriculum to teach within a specific subject matter area, curriculum construction for use in native country setting.

● **8001.* RESEARCH IN AGRICULTURAL EDUCATION.** (Cr ar; sec 1 limited to 20 students, others limited to 10 students; prereq 15 cr in education)

See First Term.

Sec 1, July 27-31, 3 cr, 0800-1205, 1325-1625 MTWThF, ClaOff 143, Copa

Sec 21, Bear

Sec 22, Copa

Sec 23, Leske

Sec 24, Marvin

Sec 25, Norenberg

Sec 26, Persons

Sec 27, Peterson

Sec 28, Swanson

● **8091. FIELD PROBLEMS.** (3 cr; each section limited to 10 students; hrs ar)

See First Term.

Sec 21, Bear

Sec 22, Leske

Sec 23, Marvin

Sec 24, Norenberg

Sec 25, Persons

Sec 26, Peterson

Sec 27, Swanson

Courses preceded by ● have limited enrollment and must be reserved.

Business and Distributive Education (BDE)

Courses with limited enrollment must be reserved at 1425 University Avenue S.E. (see instructions under "Reserved Courses").

FIRST TERM

• **1501.¹ BEGINNING TYPEWRITING.** (3 cr, §BsEd 1501; limited to 25 students; S-N optional for nonmajors; 1115-1205 MTWThF; PeikH 265) Okafor
Emphasis on correct typewriting techniques; letter styles; manuscripts; simple tabulations; proofreading.

• **1502.¹ INTERMEDIATE TYPEWRITING.** (3 cr, §BsEd 1502; limited to 5 students; prereq 1501 or proficiency exam; 1115-1205 MTWThF; PeikH 265) Okafor
Speed and accuracy building; carbons, tabulations, simple manuscripts, rough drafts, additional letter styles, interoffice memoranda, office forms, outlines and enumerations.

• **1503.¹ ADVANCED TYPEWRITING.** (3 cr, §BsEd 1503; limited to 5 students; prereq 1502 or proficiency exam; 1115-1205 MTWThF; PeikH 265) Okafor
Proficiency in typing complex manuscripts, footnotes, bibliographies, additional letter styles, complex tabulations.

5154. MATERIALS AND METHODS FOR MODEL OFFICE COURSES—June 29-July 10. (4 cr, §BsEd 5111; 0800-1100 MTWThF and ar; PeikH 245) McLean
Course organization, methods, development, and evaluation of objectives and materials; practicum in simulation.

5158. OFFICE MANAGEMENT TECHNIQUES AND TECHNOLOGY—June 29-July 10. (4 cr, §BsEd 5121; 1220-1520 MTWThF and ar; PeikH 245) McLean
Present and future management principles, financial management, personnel, communications, systems, and environment.

5251. MATERIALS AND METHODS IN COOPERATIVE VOCATIONAL EDUCATION—June 16-26. (4 cr, §DE 5300, §DE 5301; 1220-1520 MTWThF and ar; PeikH 245)
Planning, execution, and evaluation of instruction; selection of instructional materials and management of learning environment.

5353. CURRICULUM CONSTRUCTION IN BUSINESS AND DISTRIBUTIVE EDUCATION—June 16-26. (4 cr, §BsEd 5108, §DE 5110, §DE 5111; 0800-1100 MTWThF and ar; PeikH 245) Hopkins
Content identification, program organization, preparation of instructional objectives, guidelines for selection and development of instructional materials.

• **5359. OCCUPATIONAL EXPERIENCE.** (1-18 cr; limited to 20 students; prereq #: S-N optional; 1730-1930 T and hrs ar; PeikH 245) Hopkins, Ashmun
Observation and employment experiences in business offices or distributive businesses; weekly seminars on application to teaching and guidance of high school and post-high school students. Each 1-credit offering requires 85 hours of work.

• **5361. DIRECTED OCCUPATIONAL EXPERIENCE AND SEMINAR—July 13-17.** (3-9 cr, §DE 5325; limited to 30 students; prereq Δ : 0800-1205, 1325-1535 MTWThF; and hrs ar; PeikH 245) Hopkins
Current operating practices and career opportunities in business and industry combining planned experience in work environments and related seminars. This offering for 3 credits will provide the opportunity to participate in planned on-site experience in selected metropolitan area business firms and related seminars to investigate entry-level job opportunities and requirements; job performance standards with implications for curriculum revision; current training practices and media; and ways in which business and distributive educators can work together. Enrollment is limited and preapplication is required. Address inquiries to Charles R. Hopkins, 275 Peik Hall, 159 Pillsbury Drive S.E., University of Minnesota, Minneapolis, Minnesota 55455.

¹These courses meet concurrently. A total of 35 students will be accepted in the three courses. Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

● **5600. SCHOOL-BASED PROJECTS IN BUSINESS AND DISTRIBUTIVE EDUCATION.** (1-12 cr [max 12 cr]; each section limited to 10 students; prereq #; hrs ar)
Individual or group work on curricular, instructional, developmental, or evaluation problems and projects applicable to local school situations.

Sec 21, Hopkins

Sec 22, McLean

● **5900. DIRECTED STUDY IN BUSINESS AND DISTRIBUTIVE EDUCATION.** (1-6 cr [max 6 cr]; each section limited to 10 students; S-N optional; prereq Δ; hrs ar)
Opportunity for individual learning experiences not covered by regular courses.

Sec 21, Hopkins

Sec 22, McLean

● **8900.* PROBLEMS: BUSINESS AND DISTRIBUTIVE EDUCATION.** (1-9 cr [max 9 cr]; each section limited to 10 students; prereq #; hrs ar)
Individual research.

Sec 21, Hopkins

Sec 22, McLean

SECOND TERM

5153. CONSUMER EDUCATION: CURRICULUM, METHODS, AND MATERIALS—July 20-31. (3 or 4 cr, §HEEd 5153; 1300-1600 MTWThF; McNH 375) Plihal

This 3-credit offering will deal with objectives, content, curriculum organization, teaching methods, materials, and evaluation methods for the elementary, secondary, post-secondary, and adult levels. A \$20.00 stipend will be awarded to 30 students who meet specified criteria. Preapplication by May 1, 1981, is required. Address inquiries to Ruth Thomas, Home Economics Education, 386 McNeal Hall, 1985 Buford Avenue, University of Minnesota, St. Paul, Minnesota 55108. Meets with HEED 5153.

5157. MATERIALS AND METHODS IN OFFICE EDUCATION—July 20-31. (4 cr, §BsEd 5107; 1220-1520 MTWThF and ar; PeikH 245) Lambrecht

Recent research and developments in teaching office procedures, the preparatory and related classes for cooperative office education, and the advising of vocational office education student organizations.

5352. COORDINATION TECHNIQUES IN BUSINESS AND DISTRIBUTIVE EDUCATION—July 20-31. (4 cr, §BsEd 5104, §DE 5105, §DE 5106; 0800-1100 MTWThF and ar; PeikH 245) Ashmun

The cooperative program in distributive and office education; program establishment; guidance, selection, and placement of students; work adjustment; student objectives; evaluation; labor laws; public relations.

● **5360. PROGRAM DEVELOPMENTS IN BUSINESS AND DISTRIBUTIVE EDUCATION.** (1-6 cr; section 1 limited to 20 students, section 2 limited to 30 students)

Developments emerging from research and local, state, and national programs and projects.

Sec 1, Using Microcomputers in Business and Distributive Education, August 3-7, 2 cr, 0800-1205 MTWThF, PeikH 245, Lambrecht

Introduction to the Apple II microcomputer and software packages available in Minnesota for instructional use of Apple II; introduction to BASIC language and related instructional materials for teaching BASIC to secondary and postsecondary students.

Sec 2, Developing Business Ethics in Business and Distributive Education, August 3-7, 2 cr, 1325-1625 MTWThF, PeikH 245

This offering will acquaint teachers with materials and methods appropriate for developing business ethics in the classroom and on the job.

● **5600. SCHOOL-BASED PROJECTS IN BUSINESS AND DISTRIBUTIVE EDUCATION.** (1-12 cr [max 12 cr]; each section limited to 20 students; prereq #; hrs ar)
See First Term.

Sec 21, Ashmun

Sec 22, Lambrecht

Courses preceded by ● have limited enrollment and must be reserved.

● **5900. DIRECTED STUDY IN BUSINESS AND DISTRIBUTIVE EDUCATION.** (1-6 cr [max 6 cr]; S-N optional; each section limited to 10 students; prereq Δ; hrs ar)

See First Term.

Sec 21, Ashmun

Sec 22, Lambrecht

● **8900.* PROBLEMS: BUSINESS AND DISTRIBUTIVE EDUCATION.** (1-9 cr [max 9 cr]; each section limited to 10 students; prereq #; hrs ar)

See First Term.

Sec 21, Ashmun

Sec 22, Lambrecht

Home Economics Education (HEEd)

Courses with limited enrollment must be reserved at 130 Coffey Hall (see instructions under "Reserved Courses").

FIRST TERM

5325. TRENDS IN HOME ECONOMICS EDUCATION—July 6-17. (1-4 cr [max 12 cr]; 1300-1600 MTWThF; McNH 375) Rossmann

Current status; purposes, programs, content emphasis, research, problems, and issues in the field. This 3-credit offering will focus on teaching energy concepts in home economics education.

5403. TEXTILES AND CLOTHING EDUCATION—July 6-17. (3 cr. 1300-1600 MTWThF; McNH 395)

Daly

Curricula, methods, and materials for teaching consumer, social, cultural, psychological, and technical aspects; analysis of family clothing and textile-related problems; decisions at middle, secondary and adult levels; evaluation and critique of instructional design.

● **5405.¹ WORKSHOP: CHILD DEVELOPMENT AND FAMILY RELATIONS—June 22-July 2.** (1-4 cr [max 12 cr]; limited to 50 students; 0845-1200 MTWThF; McNH 375) Thomas

Recent emphasis on growth and guidance of individuals; materials and techniques for high school and adult levels to attain better understanding. This offering for 3 credits. Concurrent registration in section 1 of HEEd 5430 is required. Tuition will be PAID for the 50 preselected students who must meet specified criteria. Preapplication by April 15 is required. Address inquiries to Ruth Thomas, 386 McNeal Hall, 1985 Buford Ave., University of Minnesota, St. Paul, Minnesota 55108.

5407. FAMILY LIFE EDUCATION: CURRICULUM, METHODS AND MATERIALS—June 15-19. (1-3 cr [max 12 cr]; 0900-1200, 1300-1600 MTWThF; and hrs ar; McNH 375) Rossmann

Materials, curriculum articulation, teaching techniques, evaluation for high school and adult levels; theoretical foundations for preparation and critique of curriculum. This offering for 3 credits.

5410.¹ WORKSHOP: FOODS AND NUTRITION—June 22-July 2. (1-4 cr [max 12 cr]; 1300-1615 MTWThF; McNH 41) Wilkosz

Problems in teaching at high school and adult levels; use of new materials and techniques; group and individual projects for experienced teachers. This offering for 3 credits.

● **5430. WORKSHOP: CONTEMPORARY PROBLEMS IN HOME ECONOMICS EDUCATION.** (1-6 cr [max 12 cr]; section 1 limited to 50 students, section 2 limited to 25 students)

Consideration of topic of current concern in home economics education.

Sec 1, Parenting Education, June 22-July 2, 3 cr. 1300-1615 MTWThF, McNH 395. Thomas

Participants will apply concepts and methods learned in HEEd 5405 to individual situations. Small group minisessions will address specific problems. Preapplication and concurrent registration in HEEd 5405 is required; see HEEd 5405 for information. Students pay their own tuition for HEEd 5430.

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

Sec 2, Leadership Skills, June 29-July 2, 3 cr, 0830-1200 and 1300-1700 MTWTh and hrs ar, McNH 274, Reilly
Preapplication is required. Deadline is April 15, 1981. Address inquiries to Ruth Thomas, 386 McNeal Hall, 1985 Buford Ave., University of Minnesota, St. Paul, Minnesota 55108.

● **5900. READINGS IN HOME ECONOMICS EDUCATION.** (1-3 cr [max 12 cr]; each section limited to 10 students; prereq #; hrs ar)
Independent study under tutorial guidance.

Sec 21, Rossmann

Sec 22, Thomas

● **5910. INTEGRATING PAPER.** (3 cr; each section limited to 10 students; prereq MEd student; hrs ar)
Independent paper integrating learnings from a course or courses in education with learnings in home economics education.

Sec 21, Rossmann

Sec 22, Thomas

● **8900.* PROBLEMS: HOME ECONOMICS EDUCATION.** (1-9 cr; each section limited to 10 students; prereq 8300, #; hrs ar)
Independent study of current educational problems.

Sec 21, Rossmann

Sec 22, Thomas

SECOND TERM

5153. CONSUMER EDUCATION: CURRICULUM, METHODS, AND MATERIALS—July 20-31. (3 or 4 cr, §BDE 5153; 1300-1600 MTWThF; McNH 375) Plihal

This 3-credit offering will deal with objectives, content, curriculum organization, teaching methods, materials, and evaluation methods for the elementary, secondary, post-secondary, and adult levels. A \$20.00 stipend will be awarded to 30 students who meet specified criteria. Preapplication by May 1, 1981, is required. Address inquiries to Ruth Thomas, Home Economics Education, 386 McNeal Hall, 1985 Buford Avenue, University of Minnesota, St. Paul, Minnesota 55108. Meets with BDE 5153.

5400.¹ WORKSHOP: HOME PLANNING AND FURNISHING—July 20-31. (1-12 cr [max 12 cr]; 0900-1200 MTWThF; McNH 395) Smith

Problems at high school and adult levels; use of new materials and techniques; group and individual projects to meet the needs and interest of experienced teachers. This offering for 3 credits.

5430.¹ WORKSHOP: CONTEMPORARY PROBLEMS IN HOME ECONOMICS EDUCATION. (1-6 cr [max 12 cr]; each section limited to 30 students)

See First Term. Sections 1, 2, 3 meet with same numbered sections of FSoS 5240.

Sec 1, Child Development for the Practitioner, July 20-24, 2 cr, 0800-1200 MTWThF, McNH 41, Weinberg, Fishaut

Sec 2, Between Parent and Teacher: Issues in Communication During the Early, Middle, and Adolescent Years, July 27-31, 2 cr, 0800-1200 MTWThF, McNH 41, Weinberg, Fishaut

Sec 3, Learning From Observation of Children, August 3-7, 2 cr, 0800-1200 MTWThF, McNH 41, Weinberg, Fishaut

Sec 4, Evaluating Student Learning in Home Economics: Instruments and Procedures for Evaluating Students' Development of Decision-Making and Problem-Solving Skills, August 3-7, 3 cr, 0900-1200, 1300-1600 MTWThF, and hrs ar; McNH 375, Plihal

5505. SEMINAR: SUPERVISION OF STUDENT TEACHING—August 10-14. (2 cr; 0800-1205 MTWThF; McNH 375) Smith

Examination of research pertinent to purposes, procedures, evaluations, and interpersonal relations.

5900. READINGS IN HOME ECONOMICS EDUCATION. (1-3 cr [max 12 cr]; prereq #; hrs ar) Plihal
See First Term.

5910. INTEGRATING PAPER. (3 cr; prereq MEd student; hrs ar) Plihal
See First Term.

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

Industrial Education (Ind)

Courses with limited enrollment must be reserved in 1425 University Avenue S.E. (see instructions under "Reserved Courses").

FIRST TERM

3110. CONSTRUCTION: INTERMEDIATE. (3 or 6 or 9 cr; prereq 1612, #; hrs ar) Bjorkquist
Individualized technical skill development in areas of house framing, concrete work, domestic wiring, plumbing, surveying, painting, paper hanging, and basic construction codes.

3111. CONSTRUCTION: ADVANCED. (3 or 6 or 9 cr; prereq 3110, #; hrs ar) Bjorkquist
Individualized advanced skill development in areas of forming, block and brick, commercial plumbing, industrial circuitry, landscaping, finishing, and advanced construction codes.

3120. GRAPHIC COMMUNICATIONS: INTERMEDIATE. (3 or 6 or 9 cr; prereq 1622, #; hrs ar) Bjorkquist
Individualized technical skill development in areas of offset printing, technical illustrating, machine and architectural drafting, photography.

3121. GRAPHIC COMMUNICATIONS: ADVANCED. (3 or 6 or 9 cr; prereq 3120, #; hrs ar) Bjorkquist
Individualized advanced skill development in areas of color separation, web press operation, drafting design, color renditions, air brush.

3130. MANUFACTURING: INTERMEDIATE. (3 or 6 or 9 cr; prereq 1632, #; hrs ar) Bjorkquist
Individualized technical skill development in areas of welding, lathe operation, milling machine operation, sheet metal construction.

3131. MANUFACTURING: ADVANCED. (3 or 6 or 9 cr; prereq 3130, #; hrs ar) Bjorkquist
Individualized advanced skill development in areas of numerical control and machine setup inspection, electric discharge machining, TIG welding.

3140. POWER AND ENERGY: INTERMEDIATE. (3 or 6 or 9 cr; prereq 1642, #; hrs ar) Bjorkquist
Individualized technical skill development in areas of digital, hydraulic and pneumatic control systems, and radio and TV repair.

3141. POWER AND ENERGY: ADVANCED. (3 or 6 or 9 cr; prereq 3140, #; hrs ar) Bjorkquist
Individualized advanced skill development in areas of digital, hydraulic, and pneumatic system design, electronic maintenance and repair, and alternative energy sources.

3150. TRANSPORTATION: INTERMEDIATE. (3 or 6 or 9 cr; prereq 1652, #; hrs ar) Bjorkquist
Individualized technical skill development in areas of small gas and marine engine repair, automotive tuneup, cooling systems, brakes, and autobody repair.

3151. TRANSPORTATION: ADVANCED. (3 or 6 or 9 cr; prereq 3150, #; hrs ar) Bjorkquist
Individualized advanced skill development in areas of diesel engine repair, auto engine overhaul, front end repair, automatic transmission, aircraft engine maintenance, chassis straightening.

● **3900. INDEPENDENT STUDY.** (3 cr per qtr; each section limited to 5 students; prereq jr or #; hrs ar)
Self-directed study, preceded by classroom instruction in basic research procedures.

Sec 21, Bjorkquist	Sec 24, Moss
Sec 22, Brown	Sec 25, Pucel
Sec 23, Kavanaugh	Sec 26, Smith

● **3901. INDEPENDENT STUDY.** (3 cr per qtr; each section limited to 5 students; prereq jr or #; hrs ar)
Self-directed study, preceded by classroom instruction in basic research procedures.

Sec 21, Bjorkquist	Sec 24, Moss
Sec 22, Brown	Sec 25, Pucel
Sec 23, Kavanaugh	Sec 26, Smith

● **3902. INDEPENDENT STUDY.** (3 cr per qtr; each section limited to 5 students; prereq jr or #; hrs ar)
Self-directed study, preceded by classroom instruction in basic research procedures.

Sec 21, Bjorkquist	Sec 24, Moss
Sec 22, Brown	Sec 25, Pucel
Sec 23, Kavanaugh	Sec 26, Smith

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **5100. COMMUNICATIONS OCCUPATIONAL EXPERIENCE.** (1-5 cr [max 15 cr]; limited to 10 students; prereq #: hrs ar) Bjorkquist

Structured/supervised employment in the communications industry. Credits allowed will be derived from the ratio of 100 clock hours of supervised work experience to each credit given the student. Total credits earned in 5100, 5101, 5102, and 5103 may not exceed 15.

● **5101. PRODUCTION/MANUFACTURING OCCUPATIONAL EXPERIENCE.** (1-5 cr [max 15 cr]; limited to 10 students; prereq #: hrs ar) Bjorkquist

Structured/supervised employment in the production/manufacturing industry. Credits allowed will be derived from the ratio of 100 clock hours of supervised work experience to each credit given the student. Total credits earned in 5100, 5101, 5102, and 5103 may not exceed 15.

● **5102. POWER/ENERGY OCCUPATIONAL EXPERIENCE.** (1-5 cr [max 15 cr]; limited to 10 students; prereq #: hrs ar) Bjorkquist

Structured/supervised employment in the power/energy industry. Credits allowed will be derived from the ratio of 100 clock hours of supervised work experience to each credit given the student. Total credits earned in 5100, 5101, 5102, and 5103 may not exceed 15.

● **5103. CONSTRUCTION OCCUPATIONAL EXPERIENCE.** (1-5 cr [max 15 cr]; limited to 10 students; prereq #: hrs ar) Bjorkquist

Structured/supervised employment in the construction industry. Credits allowed will be derived from the ratio of 100 clock hours of supervised work experience to each credit given the student. Total credits earned in 5100, 5101, 5102, and 5103 may not exceed 15.

● **5112. CONSTRUCTION SPECIALIZATION.** (1-9 cr; limited to 5 students; prereq Δ ; hrs ar) Bjorkquist
Integration of specialized technical instruction in advanced or emerging areas into courses in industrial education.

● **5122. GRAPHIC COMMUNICATIONS: SPECIALIZATION.** (1-9 cr; limited to 5 students; prereq Δ ; hrs ar) Bjorkquist

Integration of specialized technical instruction in advanced or emerging areas into courses in industrial education.

● **5132. MANUFACTURING: SPECIALIZATION.** (1-9 cr; limited to 5 students; prereq Δ ; hrs ar) Bjorkquist

Integration of specialized technical instruction in advanced or emerging areas into courses in industrial education.

● **5142. POWER AND ENERGY: SPECIALIZATION.** (1-9 cr; limited to 5 students; prereq Δ ; hrs ar)

Integration of specialized technical instruction in advanced or emerging areas into courses in industrial education.

● **5152. TRANSPORTATION: SPECIALIZATION.** (1-9 cr; limited to 5 students; prereq Δ ; hrs ar) Bjorkquist

Integration of specialized technical instruction in advanced or emerging areas into courses in industrial education.

5306.¹ INDUSTRIAL EDUCATION WORKSHOP: INDIVIDUALIZED INSTRUCTIONAL PROGRAMS. (1-6 cr; prereq tchg exper and #: 0800-0850 MW, 3 hrs per week ar; PeikH 41) Kavanaugh
Areas of concentration vary with each offering. The objective of this 3-credit offering will be the development of individualized instructional programs for use in industrial arts and vocational-industrial settings. Students will work on instructional problems that they have identified.

5309. CONFERENCE LEADING FOR INDUSTRY—June 22-26. (3 cr; prereq #: 0905-1205, 1325-1625 MTWThF; and hrs ar; PeikH 41) Kavanaugh

Purposes, advantages, and limitations of method; techniques of procedure: experience in planning, leading, and evaluating conferences and in writing summaries.

5310. COORDINATION—June 16-26. (3 cr; 0905-1205 MTWThF; ClaOff B25) Brown
Duties and responsibilities of coordinators in trade schools, part-time programs and comprehensive high schools.

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Courses preceded by ● have limited enrollment and must be reserved.

● **5900. SCHOOL-BASED PROJECT IN INDUSTRIAL EDUCATION.** (1-6 cr [max 12 cr]; each section limited to 5 students; S-N optional; prereq 5305, 5325, MEd students only; hrs ar)
Independent or team project designed to study, improve, evaluate, or develop curriculum or instructional materials to improve quality of instruction.

Sec 21, Bjorkquist
Sec 22, Brown
Sec 23, Kavanaugh

Sec 24, Moss
Sec 25, Pucel
Sec 26, Smith

● **8900. RESEARCH PROBLEMS.** (3-6-9 cr per qtr; each section limited to 5 students; prereq approval of candidacy; hrs ar)
Individual conferences.

Sec 21, Bjorkquist
Sec 22, Brown
Sec 23, Kavanaugh

Sec 24, Moss
Sec 25, Pucel
Sec 26, Smith

● **8901. RESEARCH PROBLEMS.** (3-6-9 cr per qtr; each section limited to 5 students; prereq approval of candidacy; hrs ar)
Individual conferences.

Sec 21, Bjorkquist
Sec 22, Brown
Sec 23, Kavanaugh

Sec 24, Moss
Sec 25, Pucel
Sec 26, Smith

● **8902. RESEARCH PROBLEMS.** (3-6-9 cr per qtr; each section limited to 5 students; prereq approval of candidacy; hrs ar)
Individual conferences.

Sec 21, Bjorkquist
Sec 22, Brown
Sec 23, Kavanaugh

Sec 24, Moss
Sec 25, Pucel
Sec 26, Smith

SECOND TERM

3110. CONSTRUCTION: INTERMEDIATE. (3 or 6 or 9 cr; prereq 1612, #; hrs ar) Miletich
See First Term.

3111. CONSTRUCTION: ADVANCED. (3 or 6 or 9 cr; prereq 3110, #; hrs ar) Miletich
See First Term.

3120. GRAPHIC COMMUNICATIONS: INTERMEDIATE. (3 or 6 or 9 cr; prereq 1622, #; hrs ar) Miletich
See First Term.

3121. GRAPHIC COMMUNICATIONS: ADVANCED. (3 or 6 or 9 cr; prereq 3120, #; hrs ar) Miletich
See First Term.

3130. MANUFACTURING: INTERMEDIATE. (3 or 6 or 9 cr; prereq 1632, #; hrs ar) Miletich
See First Term.

3131. MANUFACTURING: ADVANCED. (3 or 6 or 9 cr; prereq 3130, #; hrs ar) Miletich
See First Term.

3140. POWER AND ENERGY: INTERMEDIATE. (3 or 6 or 9 cr; prereq 1642, #; hrs ar) Miletich
See First Term.

3141. POWER AND ENERGY: ADVANCED. (3 or 6 or 9 cr; prereq 3140, #; hrs ar) Miletich
See First Term.

3150. TRANSPORTATION: INTERMEDIATE. (3 or 6 or 9 cr; prereq 1652, #; hrs ar) Miletich
See First Term.

3151. TRANSPORTATION: ADVANCED. (3 or 6 or 9 cr; prereq 3150, #; hrs ar) Miletich
See First Term.

● **3900. INDEPENDENT STUDY.** (3 cr per qtr; each section limited to 5 students; prereq jr or #; hrs ar)
See First Term.

Sec 21, Bjorkquist
Sec 22, Miletich
Sec 23, Moss

Sec 24, Pucel
Sec 25, Smith

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **3901. INDEPENDENT STUDY.** (3 cr per qtr; each section limited to 5 students; prereq jr or #; hrs ar)
See First Term.

Sec 21, Bjorkquist
Sec 22, Miletich
Sec 23, Moss

Sec 24, Pucel
Sec 25, Smith

● **3902. INDEPENDENT STUDY.** (3 cr per qtr; each section limited to 5 students; prereq jr or #; hrs ar)
See First Term.

Sec 21, Bjorkquist
Sec 22, Miletich
Sec 23, Moss

Sec 24, Pucel
Sec 25, Smith

● **5100. COMMUNICATIONS OCCUPATIONAL EXPERIENCE.** (1-5 cr [max 15 cr]; limited to 10 students; prereq #: hrs ar) Miletich
See First Term.

● **5101. PRODUCTION/MANUFACTURING OCCUPATIONAL EXPERIENCE.** (1-5 cr [max 15 cr]; limited to 10 students; prereq #: hrs ar) Miletich
See First Term.

● **5102. POWER/ENERGY OCCUPATIONAL EXPERIENCE.** (1-5 cr [max 15 cr]; limited to 10 students; prereq #: hrs ar) Miletich
See First Term.

● **5103. CONSTRUCTION OCCUPATIONAL EXPERIENCE.** (1-5 cr [max 15 cr]; limited to 10 students; prereq #: hrs ar) Miletich
See First Term.

● **5112. CONSTRUCTION: SPECIALIZATION.** (1-9 cr; section 1 limited to 25 students, section 21 limited to 5 students; prereq Δ) Miletich
See First Term.

Sec 1, July 20-24, 3 cr, 0905-1205, 1315-1625 MTWThF, and hrs ar, PeikH 41
Retrofitting is being scheduled utilizing representatives from the building supply and construction industry to present topics dealing with the latest in energy conservation materials and construction techniques.

Sec 21, cr and hrs ar

● **5122. GRAPHIC COMMUNICATIONS: SPECIALIZATION.** (1-9 cr; limited to 5 students; prereq Δ; hrs ar) Miletich
See First Term.

● **5132. MANUFACTURING: SPECIALIZATION.** (1-9 cr; limited to 5 students; prereq Δ; hrs ar) Miletich
See First Term.

● **5142. POWER AND ENERGY: SPECIALIZATION.** (1-9 cr; limited to 5 students; prereq Δ; hrs ar) Miletich
See First Term.

● **5152. TRANSPORTATION: SPECIALIZATION.** (1-9 cr; limited to 5 students; prereq Δ; hrs ar) Miletich
See First Term.

● **5900. SCHOOL-BASED PROJECT IN INDUSTRIAL EDUCATION.** (1-6 cr [max 12 cr]; each section limited to 5 students; S-N optional; prereq 5305, 5325, MEd students only; hrs ar)
See First Term.

Sec 21, Bjorkquist
Sec 22, Miletich
Sec 23, Moss

Sec 24, Pucel
Sec 25, Smith

Courses preceded by ● have limited enrollment and must be reserved.

● **8900. RESEARCH PROBLEMS.** (3-6-9 cr per qtr; each section limited to 5 students; prereq approval of candidacy; hrs ar)

See First Term.

Sec 21, Bjorkquist
Sec 22, Miletich
Sec 23, Moss

Sec 24, Pucel
Sec 25, Smith

● **8901. RESEARCH PROBLEMS.** (3-6-9 cr per qtr; each section limited to 5 students; prereq approval of candidacy; hrs ar)

See First Term.

Sec 21, Bjorkquist
Sec 22, Miletich
Sec 23, Moss

Sec 24, Pucel
Sec 25, Smith

● **8902. RESEARCH PROBLEMS.** (3-6-9 cr per qtr; each section limited to 5 students; prereq approval of candidacy; hrs ar)

See First Term.

Sec 21, Bjorkquist
Sec 22, Miletich
Sec 23, Moss

Sec 24, Pucel
Sec 25, Smith

Vocational Education (VoEd)

Courses with limited enrollment must be reserved at 1425 University Avenue S.E. (see instructions under "Reserved Courses").

FIRST TERM

5100. SPECIAL TOPICS IN INSTRUCTION: TRAINING IN INDUSTRY AND BUSINESS—June 15-19. (1-6 cr [max 9 cr]; prereq #: 0905-1205, 1325-1625 MTWThF; and hrs ar; FraH B1) R Swanson
Topics will vary with each offering but course covers planning, providing, and/or evaluating instruction. This 3 credit course will analyze the training function in industry and business, the development of trainer competencies in the areas of needs analysis, work analysis and design and development of training.

5200. EVALUATION OF LOCAL VOCATIONAL EDUCATIONAL PROGRAMS—June 29-July 10. (3 cr; 0905-1205 MTWThF; FraH B1) Smith
Procedures and experience in the use of instruments for conducting program evaluation for teachers, administrators, and state department personnel.

5274. TWO-YEAR POSTSECONDARY INSTITUTIONS—June 16-26. (3 cr, §EdAd 5274, §8274; 1010-1205 MTWThF; ClaOff 27) Morgan
Present status, development, functions, organization, curriculum, and trends in postsecondary but non-baccalaureate institutions. Meets with EdAd 5274.

● **5300. PHILOSOPHY AND PRACTICE OF VOCATIONAL EDUCATION—June 16-26.** (3 cr; limited to 60 students; 1325-1625 MTWThF; ClaOff B25) G Swanson
Interpretation of the purposes of vocational education in varying socioeconomic contexts; analysis of vocational fields in regard to recipients, practices, legislation, and funding.

5500. INTRODUCTION TO VOCATIONAL EDUCATION ADMINISTRATION—June 29-July 10. (3 cr; 1325-1625 MTWThF; ClaOff B30) Ar
Basic concepts of structure, financing, program planning and evaluation, law and liability, personnel policies, and management of vocational education programs.

SECOND TERM

5101. SPECIAL TOPICS IN CURRICULUM: SMALL BUSINESS MANAGEMENT EDUCATION—August 17-21. (1-6 cr [max 9 cr]; 0800-1205 MTWThF; and hrs ar; ClaOff 143) Persons
Topics will vary with each offering covering development and evaluation of curricula and/or curriculum materials. This 3-credit offering covers the organization, implementation, and operation of such a program for adults. Preapplication is required. Address inquiries to Edgar Persons, 130 Classroom Office Building, 1944 Buford Ave., University of Minnesota, St. Paul, Minnesota 55108.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

5102. SPECIAL TOPICS IN ADMINISTRATION: LEGAL ASPECTS OF MANAGING VOCATIONAL EDUCATION—July 27-31. (1-6 cr [max 9 cr]; prereq #: 0905-1205, 1325-1625 MTWThF; and hrs ar; BioSci 58) Pucel

Topics will vary with each offering but will deal with leadership and management of vocational education programs. This 3 credit offering will aid managers of vocational education to understand laws affecting their job responsibilities.

● **5300. PHILOSOPHY AND PRACTICE OF VOCATIONAL EDUCATION**—August 3-7. (3 cr; limited to 60 students; 0905-1205, 1325-1625 MTWThF; and hrs ar; ClaOff B36) Ashmun
See First Term.

Courses preceded by ● have limited enrollment and must be reserved.

College of Forestry

Undergraduate forestry field studies are offered for beginning sophomores and juniors, both resident and transfer students, at the Lake Itasca Forestry and Biological Station, Itasca State Park, during the four weeks immediately preceding the opening of the fall quarter. This fieldwork is required of all students majoring in forest resources and forest science. Required courses offered at Itasca are FR 3100, Important Forest Plants (two credits); FR 3101, Field Forest Ecology (three credits); and FR 3201, Field Forest Measurements (one credit). The intensive field training provides all students entering professional forestry courses in the sophomore or junior year with an introduction to forestry in an excellent field setting. It is timed to interfere as little as possible with summer employment.

About one-half of the nonforestry courses required for graduation in all College of Forestry curricula are available during the summer session on the Twin Cities campus through the various colleges. Students with deficiencies, or those desiring to graduate early, can effectively utilize the summer session to complete required courses in the biological and physical sciences, mathematics, social sciences, communications and other areas.

OFFERED AT LAKE ITASCA FORESTRY AND BIOLOGICAL STATION¹

(SPECIAL TERM FOR FORESTRY STUDENTS—SEPTEMBER 1-24)

The field training session, required of all forest resources and forest science majors, must be completed between the freshman and sophomore or sophomore and junior years. Students must have completed a course in trigonometry and college-level courses in botany and inorganic chemistry with grades of C or better. A minimum grade point average of 2.00 and a minimum of 45 credits are required before the student can attend the Itasca Forestry Session. Transfer students must have been accepted for admission by the College of Forestry. Nonforestry students who have completed most of the prerequisites and who have a strong interest in forestry, outdoor education, or plant ecology may petition to attend the session. Registration for Itasca is administered at the same time as fall quarter registration, in mid-August. The Itasca session occupies the student's full time for six days per week. Most of the time is spent in field laboratories. All students must register for the following courses.

Forest Resources (FR)

3100. IMPORTANT FOREST PLANTS. (2 cr; prereq Biol 1103) Scholten, Splett
Identification of forest plants as related to forest types.

¹For additional courses, see Biology Session.

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

3101. FIELD FOREST ECOLOGY. (3 cr; prereq college physics) Kurmis, Sucoff
Field examination of succession, soils, silvical characteristics, tree classification, stand structure, and the ecology of regeneration.

3201. FIELD FOREST MEASUREMENT. (1 cr; prereq Math 1008) Ek
Introduction to and use of instruments in forest mensuration.

OFFERED ON THE ST. PAUL CAMPUS

Forest Products (ForP)

FIRST TERM

8300.* RESEARCH PROBLEMS. (Cr ar) Staff

8301.* RESEARCH PROBLEMS. (Cr ar) Staff

8302.* RESEARCH PROBLEMS. (Cr ar) Staff

SECOND TERM

8300.* RESEARCH PROBLEMS. (Cr ar) Staff

8301.* RESEARCH PROBLEMS. (Cr ar) Staff

8302.* RESEARCH PROBLEMS. (Cr ar) Staff

Forest Resources (FR)

FIRST TERM

8100.* RESEARCH PROBLEMS IN SILVICULTURE. (Cr ar) Bakuzis, B Brown, Hansen, Scholten, Alm

8101.* RESEARCH PROBLEMS IN FOREST TREE PHYSIOLOGY. (Cr ar) Sucoff, G Brown

8102.* RESEARCH PROBLEMS IN FOREST TREE GENETICS. (Cr ar) Mohn

8103.* RESEARCH PROBLEMS IN FOREST HYDROLOGY. (Cr ar) Brooks

8200.* RESEARCH PROBLEMS IN FOREST MANAGEMENT. (Cr ar) B Brown, Ek, Irving, Hallgren, Rose

8201.* RESEARCH PROBLEMS IN FOREST ECONOMICS. (Cr ar) Skok, Ellefson, Gregersen

8202.* RESEARCH PROBLEMS IN FOREST BIOMETRY. (Cr ar) Ek, Meyer, Rose

8203.* RESEARCH PROBLEMS IN FOREST RECREATION. (Cr ar) Hansen, Merriam, Knopp

8204.* RESEARCH PROBLEMS IN FOREST POLICY. (Cr ar) Irving, Merriam, Skok, Ellefson, Gregersen, Hallgren

8205.* RESEARCH PROBLEMS IN REMOTE SENSING. (Cr ar) Meyer, Lillesand

SECOND TERM

8100.* RESEARCH PROBLEMS IN SILVICULTURE. (Cr ar) Bakuzis, B Brown, Hansen, Scholten, Alm

8101.* RESEARCH PROBLEMS IN FOREST TREE PHYSIOLOGY. (Cr ar) Sucoff, G Brown

8102.* RESEARCH PROBLEMS IN FOREST TREE GENETICS. (Cr ar) Mohn

8103.* RESEARCH PROBLEMS IN FOREST HYDROLOGY. (Cr ar) Brooks

Courses preceded by ● have limited enrollment and must be reserved.

8200.* RESEARCH PROBLEMS IN FOREST MANAGEMENT. (Cr ar) B Brown, Ek, Irving, Hallgren, Rose

8201.* RESEARCH PROBLEMS IN FOREST ECONOMICS. (Cr ar) Skok, Ellefson, Gregersen

8202.* RESEARCH PROBLEMS IN FOREST BIOMETRY. (Cr ar) Ek, Meyer, Rose

8203.* RESEARCH PROBLEMS IN FOREST RECREATION. (Cr ar) Hansen, Merriam, Knopp

8204.* RESEARCH PROBLEMS IN FOREST POLICY. (Cr ar) Irving, Merriam, Skok, Ellefson, Gregersen, Hallgren

8205.* RESEARCH PROBLEMS IN REMOTE SENSING. (Cr ar) Meyer, Lillesand

OFFERED AT CLOQUET FORESTRY CENTER

Forest Resources (FR)

Courses with limited enrollment must be reserved in 130 Coffey Hall (see instructions under "Reserved Courses").

FIRST TERM

8105. ADVANCED FIELD SILVICULTURE. (3 cr; prereq 5101, #) B Brown
Selected current silvicultural problems and research. Plant-soil relationships with particular reference to forest soils. Methods of forest soil investigations in the field and the laboratory. Offered 1980 and alternate years.

General College

The General College is open to any resident of Minnesota who is a high school graduate and for whom its courses and student personnel services are appropriate. Non-high-school graduates who perform satisfactorily on scholastic aptitude tests also may apply for admission.

A student enrolled in the General College pursues a course of study individually planned in consultation with an adviser. The student may use this program to explore educational and personal interests, to test his or her ability to succeed in college-level academic work, or (if previous grades are acceptable) to prepare for advanced study at the University of Minnesota or at another institution. The student may combine general and liberal arts courses with instruction in such career education sequences as dental assisting, marketing, legal paraprofessions, and human services generalist programs. Credits earned in these occupational options, and in some cases through work experience, can be applied toward the requirements for the associate in arts (A.A.), bachelor of general studies (B.G.S.), and bachelor of applied studies (B.A.S.) degrees offered through the General College. Information about these degrees can be found in the current *General College Bulletin*.

General or liberal studies courses in the General College resemble those offered in a traditional curriculum in that they can be classified into the social sciences, the natural sciences, and the humanities. However, the curriculum departs from tradition in some respects. Instruction focuses not only upon factual content but also on relations in and among fields of knowledge, on practical applications, and on critical and creative thinking. The courses tend to be broad in scope rather than specialized and may be used to develop an overview of a field. Students deciding upon a major should register for the basic courses offered by the department in which they plan to complete advanced study.

Students enrolling in the college for the first time as entering freshmen are required to register for General College courses only. After they have satisfactorily completed one quarter in the college, they may consult an adviser about the possibility of registering for a "combination program," in which some of their course work is taken in other colleges of the University. The combination program is especially valuable during the summer session, when only a limited number of General College courses are available.

General College students may transfer to other colleges of the University without undue loss of time or academic credits if their grades meet the level of academic achievement required by the college they wish to enter.

Students and prospective students are urged to bring problems and questions to the General College Counseling and Student Development office, 10 Nicholson Hall.

General College (GC)

Courses with limited enrollment must be reserved in 20 Nicholson Hall (see instructions under "Reserved Courses").

Courses preceded by • have limited enrollment and must be reserved.

FIRST TERM

● **1112. SCIENCE IN CONTEXT: HUMAN USES OF THE ENVIRONMENT.** (5 cr; limited to 75 students; 1010-1205 MTWThF; SciCB 125) Jefferson

Study of ecology as applied to aspects of our past, present, and future existence; application of biological principles and interrelationships between the individual and the environment. Principles of ecology as seen in structure and function of ecosystem; pollution of soil, water, and air resources; population explosion; and relationship of people, disease, food production, environmental controls to survival.

● **1211. PEOPLE AND PROBLEMS.** (5 cr; limited to 50 students; 0800-0955 MTWThF; NichH 213) F Johnson

Politics, productivity, employment, inflation, and other major social problems are examined in several cultural systems.

● **1230. UNITED STATES: 20TH-CENTURY PROBLEMS.** (4 cr; limited to 50 students; 1010-1205 MTWTh; NichH 213) Moen

Traces quest for social justice, security, and peace from 1900 through progressive movement and administrations of F. D. Roosevelt, Truman, Eisenhower, Kennedy, Johnson, Nixon; and against challenges of economic depression, four major wars, developments in nuclear physics, competition with USSR, demands of bypassed domestic groups, and confidence crisis of 1970s.

● **1312. ART: ART TODAY I.** (3 cr; limited to 40 students; 0905-0955 MTWThF; NichH 111) Gates

Participation in selected fields of study related to contemporary art and art activity, generally in areas such as painting, filmmaking, sculpture, architecture, and crafts.

● **1363. LITERATURE FOR CHILDREN.** (4 cr; limited to 50 students; 1010-1205 TWThF; NichH 216) Adamson

Survey of children's literature. For parents, prospective parents, or child care workers who wish to become acquainted with children's literature and to guide children in selecting and reading books, or for others who may not have had an opportunity to read books—including classics—when they were children.

● **1405. COMMUNICATION SKILLS: FUNDAMENTALS OF USAGE AND STYLE.** (3 cr; limited to 30 students; 0905-0955 MTWThF; NichH 209) G Koch

Students practice principles of grammar, usage, and style through exercises and writing sentences and paragraphs.

● **1421. WRITING LABORATORY: PERSONAL WRITING.** (4 cr; limited to 25 students)

Students read and write descriptive narratives, characterizations, and autobiographical sketches. Personal help with writing problems in laboratory. Emphasis is on clear and effective written expression.

Sec 1, 0800-0955 TWThF, NichH 216, Stockdale

Sec 2, 1010-1205 TWThF, NichH 209, Rathburn

● **1433. FUNDAMENTAL COLLEGE MATHEMATICS.** (1-9 cr; initial registration should be for 1-3 cr; limited to 35 students; prereq GCPP math level A or B or C or 1431 or 1434 or Δ ; 0800-0850 MTWThF; E1H N 391) Denny

For students with limited background in arithmetic or elementary algebra who want to study this material at their own pace in a classroom setting using a semiprogrammed text. With aid of instructor, students select topics from the following: whole numbers, fractions, decimals, percents, signed numbers, formulas, simple graphs, ratio and proportion, sets, properties, equations, inequalities, rectangular graphs, polynomials, factoring, rational expressions, and radicals. Students may not receive credit in 1433 for equivalent work done in any other math course.

● **1465. ORAL COMMUNICATION: INTERPERSONAL COMMUNICATION.** (3 cr; limited to 25 students; 0905-0955 MTWThF; NichH 107) Hagen

Students examine their own communication patterns—verbal, nonverbal, and vocal—and try to discover why they are effective or ineffective communicators, to uncover some origins of their communicative behavior, and to understand means we use to relate to each other and ways we alienate ourselves from each other. Course asks students to begin or deepen their search for identity and to aid others in their search. Students apprehensive about the "personal" dimension should not take this course.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **1511. INTRODUCTION TO MODERN BUSINESS.** (5 cr; limited to 40 students; 0800-0955 MTWThF; NichH 207) Kroll

Intended for both business and general education students; overview of economic environment in which business operates. Topics include production, finance, personnel, and marketing. Useful introductory course for students planning further study in business fields; also recommended for those who want to survey field without studying it in detail.

● **1534. PRACTICAL LAW.** (5 cr; limited to 50 students; 1010-1205 MTWThF; NichH 207) Hower
Common legal problems; formation and discharge of contracts, torts (personal injury and property damage suits), criminal law, bailments, nature and classification of real and personal property, and joint ownership and tenancy.

● **3725. INDIVIDUAL SEXUALITY AND SOCIETY.** (4 cr; limited to 50 students; 1010-1205 MTWTh; NichH 109) Thoen

Three independently varying components of human sexuality and development: sexual anatomy, physiology, and reproduction; sex-role learning behavior; and sexual preferences and behavior. Focuses on what is known about sexuality rather than feelings about it, and on the individual's role as both actor and reactor.

SECOND TERM

● **1132. BIOLOGICAL SCIENCE: THE HUMAN BODY.** (5 cr; limited to 75 students; 0800-0955 MTWThF; SciCB 125) Dearden

Problems of physical, mental, and social health are related to anatomy, physiology, and needs of the human organism. Films, televised dissections, and demonstrations supplement lectures.

● **1235. UNITED STATES: LAW IN SOCIETY.** (5 cr; limited to 50 students; 0800-0955 MTWThF; NichH 207) Kahn

The role of law in our changing society; legal aspects of current topics. Students select topics for study from the following: courts and court systems, corrections, police-community relations, environmental problems, drug problems, welfare and domestic problems, wills and probate, insurance, and consumer rights.

● **1237. UNITED STATES: JUVENILE DELINQUENCY.** (4 cr, limited to 50 students; 1010-1205 MTWTh; NichH 207) F Harris

Juvenile delinquency in our society; its nature and extent, causes, and efforts to cope with it. Emphasis on the family, schools, and courts as factors in both cause and control of delinquency.

● **1283. PSYCHOLOGY OF HUMAN DEVELOPMENT.** (5 cr; limited to 50 students; 0800-0955 MTWThF; NichH 213) Latts

Focuses on growth and development of the individual from conception through old age. Physical, motor, social, emotional, and psychological growth, and cognitive and moral development. Integrated view of facets of development in order to understand human being as a complex organism functioning in a complex environment. The family as the main environmental factor in early development of the individual.

● **1402. COMMUNICATION SKILLS: READING, COMPREHENSION, AND STUDY SKILLS.** (3 cr; limited to 20 students; 0905-0955 MTWThF; NichH 201) Gidmark

Physical and mental skills involved in helping students comprehend, retain, and evaluate what they read and in enabling them to read at adequate rate of speed. Basic textbook, machines, tapes, and timed readings provide practice in reading for factual information, main ideas, concepts, and implications. Work by whole-class method, in small groups, and individually.

● **1422. WRITING LABORATORY: COMMUNICATING IN SOCIETY.** (4 cr; prereq 1412 or 1413, or 1421; limited to 30 students; 0905-1100 TWThF; NichH 209) Shaw

How people communicate in society, and how they perceive and think, write, and talk about events. Assumptions, inferences, and distortions involved in thinking; habits and processes of observation; factual and slanted reporting; persuasive devices; and cultural and cross-cultural communication. Primarily a writing course but also involves reading and discussion.

Courses preceded by ● have limited enrollment and must be reserved.

- **1445. MATHEMATICS: INTERMEDIATE ALGEBRA.** (5 cr; limited to 60 students; prereq 1 yr high school algebra; 1010-1205 MTWThF; EltH N119) Barnes
Concepts and manipulative skills necessary for college algebra. The real number system, special products and factoring, exponents and radicals, linear equations in one and two variables, quadratic equations in one variable, progressions, inequalities, variation, and logarithms. Prospective students may have to give evidence of adequate preparation.
- **1464. ORAL COMMUNICATION: GROUP PROCESS AND DISCUSSION.** (4 cr; limited to 27 students; 0800-0955 TWThF; NichH 107) Amram
Nature of groups, how they form and function, what purpose they serve in our society, and how leadership and other role behaviors emerge from their structure. Variety of group projects, activities, and discussions.
- **3531. WRITING FOR BUSINESS AND THE PROFESSIONS.** (4 cr; prereq 1412 or 1421...1422 or 1425 or 1531 recommended; limited to 25 students; 1010-1205 TWThF; NichH 216) Collins
Students write letters, informal and formal reports, recommendations, proposals, summaries, memos—i.e. forms of writing used in business; in health, education, and welfare; and in legal professions. Content adapted to vocational needs of students enrolled. Form, clarity, economy of expression, and suitable tone stressed. *Typed final drafts required.*
- **3605. INTERVIEWING.** (5 cr; limited to 30 students; 1010-1205 MTWThF; NichH 109) Wambach
For students planning to enter occupations in which structured communication—particularly formal interview—is a required skill. For students who are undecided about their life's work, course provides tryout experience in developing skill related to wide spectrum of occupations. Interactive process of interview and roles of participants in dyad, variety of communication patterns in interview context, and how the interviewer affects others (and others affect the interviewer) in goal-directed dyadic interaction. Students develop general interviewing skills through actual and simulated situations.

Health Sciences

SCHOOL OF DENTISTRY

Dentistry (Dent)

The School of Dentistry offers instruction for undergraduate students in the clinical disciplines who elect to continue their clinical experience during the summer months.

FIRST TERM

5054. DENTAL AUXILIARY UTILIZATION CLINIC (DAU I). (2 cr) DiAngelis

Clinical experience designed to help students develop specific skills in sit-down, four-handed dentistry with emphasis on the efficient utilization of chairside assistants. Through seminars, demonstrations, and clinical practice, students work daily with trained dental assisting teaching specialists in providing restorative dental services.

5060. GENERAL DENTISTRY CLINIC (TEAM II). (2 cr; 25 session equivalents; elective) DiAngelis

Designed to give fourth-year dental students the opportunity to provide total patient care within a single clinic patterned after a modern general dental practice. A junior partner/senior partner relationship between students and faculty members is established to encourage involvement of students in the decision-making process.

5070. HEALTH ECOLOGY ELECTIVE. (1 cr) Meskin

5075. RURAL DENTAL PRECEPTORSHIP PROGRAM. (1 cr) Foglesong

Focus on the advantages and realities of a rural practice. Students have opportunity to experience a rural practice and to develop and maintain rural ties. Provides insights to realistic career opportunities in rural areas.

5999. DENTAL CLINIC. (Cr ar) Jensen

SECOND TERM

5054. DENTAL AUXILIARY UTILIZATION CLINIC (DAU I). (2 cr) DiAngelis

See First Term.

5060. GENERAL DENTISTRY CLINIC (TEAM II). (2 cr; 25 session equivalents; elective) DiAngelis

See First Term.

5070. HEALTH ECOLOGY ELECTIVE. (1 cr) Meskin

5075. RURAL DENTAL PRECEPTORSHIP PROGRAM. (1 cr) Foglesong

See First Term.

5080. DENTAL AUXILIARY UTILIZATION CLINIC. (1 cr; prereq 5054; 35 clinic hrs; elective) DiAngelis

Students train a dental auxiliary student in effective chairside assisting with emphasis on sit-down, four-handed dentistry techniques. Through clinic and evaluation sessions supervised by experienced DAU personnel, students develop a structured method to efficiently train auxiliaries.

Courses preceded by • have limited enrollment and must be reserved.

Endodontics (Endo)

FIRST TERM

5303. ADVANCED CLINICAL ENDODONTICS. (1 cr) Jensen

Diagnosis and treatment of clinical cases. Students assigned complex cases and explore new and unique techniques.

5313. ENDODONTIC EMERGENCY PROBLEMS. (1 cr) Jensen

Each student is responsible for all emergencies in the Endodontic Clinic during an assigned 1-week period (8 hours a day).

5323. TREATMENT PLANNING. (1 cr) Jensen

Students are assigned to the Admissions, Treatment Planning area as part of a total treatment planning team with members drawn from other clinical divisions. Students share in the decisions of the overall treatment planning of clinical cases as they are processed in the School of Dentistry and observe how the other disciplines function in this capacity.

5333. REVIEW OF CASES. (1 cr) Jensen

Students present cases from the previous quarter for review by endodontic faculty and graduate students.

8004. RESEARCH IN ENDODONTICS. (1 cr) Jensen

Organized literature review in areas of specific interest to student, selection of this project, and completion of research and thesis.

8323. ADVANCED ENDODONTIC LECTURES. (1 cr) Jensen

Pulpal and periapical pathology, diagnosis, and treatment planning.

FIRST AND SECOND TERMS: TEN-WEEK COURSE

8313. SEMINAR: ENDODONTICS. (2 cr) Jensen

Organized literature review in areas of interest to student, selection of a project, and completion of research and a thesis.

SECOND TERM

5303. ADVANCED CLINICAL ENDODONTICS. (1 cr) Jensen

See First Term.

5313. ENDODONTIC EMERGENCY PROBLEMS. (1 cr) Jensen

See First Term.

5323. TREATMENT PLANNING. (1 cr) Jensen

See First Term.

5333. REVIEW OF CASES. (1 cr) Jensen

See First Term.

8004. RESEARCH IN ENDODONTICS. (1 cr) Jensen

See First Term.

8323. ADVANCED ENDODONTIC LECTURES. (1 cr) Jensen

See First Term.

Oral Biology (OBio)

FIRST TERM

8001. RESEARCH IN ORAL BIOLOGY. (Cr ar) Shapiro

8002. TUTORIAL IN ORAL BIOLOGY. (Cr ar [may be repeated for cr]; 2 hrs per wk = 1 cr) Shapiro

8024. TOPICS IN ORAL BIOLOGY. (1-3 cr [may be repeated for cr]; prereq #)

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

SECOND TERM

8001. RESEARCH IN ORAL BIOLOGY. (Cr ar) Shapiro

8002. TUTORIAL IN ORAL BIOLOGY. (Cr ar [may be repeated for cr]; 2 hrs per wk = 1 cr) Shapiro

8024. TOPICS IN ORAL BIOLOGY. (1-3 cr [may be repeated for cr]; prereq #)

Oral Pathology (OPat)

FIRST TERM

8004. HISTOPATHOLOGY. (2 cr) Vickers

Weekly presentation of various pathologic cases in which methods of diagnosis are stressed. Clinical or radiographic aspects utilized. Covers the spectrum of oral and paraoral pathology.

8006. CURRENT LITERATURE REVIEW. (1 cr) Vickers

8014. EXFOLIATIVE CYTOLOGY OF THE ORAL MUCOSA. (2 cr) Witkop

Comparative histology of skin and normal mucosa; cytology maturation of oral mucosa compared to vaginal mucosa, techniques, stains, and smears, menstrual cycle; benign lesions of oral mucosa, toothbrushing effects; introduction to grading system for malignant lesions; X-ray and drug effects on oral mucosa; oral squamous cell carcinoma; in situ and basal cell carcinoma.

SECOND TERM

8004. HISTOPATHOLOGY. (2 cr) Vickers

See First Term.

8006. CURRENT LITERATURE REVIEW. (1 cr) Vickers

8013. PHYSICAL DIAGNOSIS AND THE MEDICAL EVALUATION OF THE PATIENT. (1 cr) King

Lectures and patient demonstrations to elucidate importance of medical history, physical examination, and diagnostic, clinical, and laboratory procedures, etc., used in treating the whole patient.

8014. EXFOLIATIVE CYTOLOGY OF THE ORAL MUCOSA. (2 cr) Witkop

See First Term.

Oral Radiology (ORad)

FIRST TERM

8100. ORAL RADIOLOGY SEMINAR. (1 cr; prereq #) Kuba

8200. ADVANCED ORAL ROENTGENOGRAPHIC TECHNIQUE. (2 cr; prereq #) Kuba

Theory and principles involved in intraoral and dentally significant extraoral roentgenographic techniques, including temporomandibular joint roentgenographic techniques, including temporomandibular joint roentgenography, sialography, panoramic roentgenography, laminography, cineroentgenography, and cephalometric roentgenography, according to needs and interests of students.

8900. ORAL RADIOLOGY RESEARCH. (Cr ar; prereq #) Kuba

SECOND TERM

8100. ORAL RADIOLOGY SEMINAR. (1 cr; prereq #) Kuba

8900. ORAL RADIOLOGY RESEARCH. (Cr ar; prereq #) Kuba

Oral Surgery (OSur)

FIRST TERM

5257. AMBULATORY GENERAL ANESTHESIA. (1 cr) Gatto and staff

A clinical rotation involving experience in outpatient management utilizing intravenous sedation and general anesthesia.

Courses preceded by ● have limited enrollment and must be reserved.

5258. CLINICAL DENTAL PHYSIOLOGY I. (1 cr) Leonard

Physiological concepts which make the physical evaluation course and the medical instruction comprehensible.

8250. ADVANCED ORAL SURGERY. (1 cr) Waite

Assigned clinics in University, Veterans Administration, Hennepin County Medical Center, and St. Paul-Ramsey Medical Center and School of Dentistry; 4-month rotation in general anesthesiology at University Hospitals; 4-month rotation in general surgery at Fairview Hospital.

8251. SEMINAR: ORAL SURGERY. (1 cr) Lehnert

Oral surgical subjects on a seminar basis.

8252. RESEARCH IN ORAL SURGERY. (Cr ar) Leonard

Research in fields related to oral surgery.

8253. PROBLEMS IN ORAL SURGERY. (1 cr) Waite

Current literature review; experience in surgical techniques.

8254. TOPICS. (1 cr) Gatto, Bevis

Surgical orthodontic techniques on seminar basis.

8255. GENERAL SURGERY. (1 cr) Shons

Clinical rotation on the general surgical service at Fairview Hospital, Minneapolis. Includes seminars, clinics, and operating room experience.

8258. ANESTHESIA II SEMINAR. (1 cr) Gatto and staff

Outpatient general anesthesia topics and related subjects.

SECOND TERM

5257. AMBULATORY GENERAL ANESTHESIA. (1 cr) Gatto and staff

See First Term.

8250. ADVANCED ORAL SURGERY. (1 cr) Waite

See First Term.

8251. SEMINAR: ORAL SURGERY. (1 cr) Lehnert

See First Term.

8252. RESEARCH IN ORAL SURGERY. (Cr ar) Leonard

See First Term.

8253. PROBLEMS IN ORAL SURGERY. (1 cr) Waite

See First Term.

8254. TOPICS. (1 cr) Gatto, Bevis

See First Term.

8255. GENERAL SURGERY. (1 cr) Shons

See First Term.

8258. ANESTHESIA II SEMINAR. (1 cr) Gatto and staff

See First Term.

Orthodontics (Otho)

FIRST TERM

Required Courses for Graduate Students

5004. CLINICAL ORTHODONTICS. (Cr ar; prereq #) Staff

Students are assigned patients for the complete management of orthodontic and orthodontically related occlusal problems under direct staff supervision. Credits from this course may not be used for degree programs.

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

8203. GROWTH AND DEVELOPMENT. (Cr ar; prereq #) Holmberg
Head growth, development, osteology and myology. Includes both normal and abnormal morphology and function; cephalometric methods.

8207. DIAGNOSIS AND TREATMENT PLANNING. (Cr ar; prereq #) Bevis
Etiology, treatment, and prognosis of clinical orthodontic patients.

8211. ORTHODONTIC SEMINAR. (Cr ar; prereq #) Cavanaugh
Review of current literature and discussion of current research and its implications.

8215. RESEARCH IN ORTHODONTICS. (Cr ar; prereq #) Speidel

8219. TOPICS IN ORTHODONTICS. (Cr ar; prereq #) Worms
Studies in special topics for advanced students.

SECOND TERM

5004. CLINICAL ORTHODONTICS. (Cr ar; prereq #) Staff
See First Term.

8203. GROWTH AND DEVELOPMENT. (Cr ar; prereq #) Worms
See First Term.

8207. DIAGNOSIS AND TREATMENT PLANNING. (Cr ar; prereq #) Worms
See First Term.

8211. ORTHODONTIC SEMINAR. (Cr ar; prereq #) Worms
See First Term.

8215. RESEARCH IN ORTHODONTICS. (Cr ar; prereq #) Worms
See First Term.

8219. TOPICS IN ORTHODONTICS. (Cr ar; prereq #) Worms
See First Term.

Pediatric Dentistry (Pedo)

FIRST TERM

5414. ADVANCED CLINICAL PEDODONTICS. (Cr ar; prereq #) Shaw, others
Assignment of patients for treatment of difficult or unusual pedodontic problems under direct faculty supervision.

8001. RESEARCH IN PEDIATRIC DENTISTRY. (Cr ar; prereq #) Messer, others

8290. HOSPITAL PEDODONTICS I. (Cr ar; prereq #) Walker, others
Diagnosis and treatment of difficult and unusual problems in children with various handicapping conditions in the Children's Physical Medicine and Rehabilitation Center under direct faculty supervision. Includes pre-op and post-op discussion of faculty-supervised general anesthetic cases and seminar discussion of operating room techniques and procedures, pharmaceutical adjuncts for dental procedures.

8291. HOSPITAL PEDODONTICS II. (Cr ar; prereq #) Till, others
Diagnosis and treatment of pedodontic problems under direct faculty supervision at Hennepin County Medical Center. Includes participation on a rotation basis in seminars in pediatrics and anesthesia conducted by staff. Pre-op and post-op seminar discussion and evaluation of treatment plans.

8294. PEDODONTIC DIAGNOSIS AND TREATMENT PLANNING. (Cr ar; prereq #) Shaw, others
Systematic approach to diagnosis and treatment planning for various pedodontic problems.

SECOND TERM

5414. ADVANCED CLINICAL PEDODONTICS. (Cr ar; prereq #) Shaw, others
See First Term.

Courses preceded by • have limited enrollment and must be reserved.

8001. RESEARCH IN PEDIATRIC DENTISTRY. (Cr ar; prereq #) Messer, others

8290. HOSPITAL PEDODONTICS I. (Cr ar; prereq #) Walker, others
See First Term.

8291. HOSPITAL PEDODONTICS II. (Cr ar; prereq #) Till, others
See First Term.

8293. ADVANCED PEDODONTIC TECHNIQUES. (Cr ar; prereq #) Shaw, others
Description and exercises in advanced pedodontic skills and techniques.

8295. INDEPENDENT PEDODONTIC STUDY. (Cr ar; prereq #) Till, others
Review of pertinent literature and preparation of a position paper on an assigned topic.

Periodontology (Pero)

FIRST AND SECOND TERMS: TEN-WEEK COURSES

8000. ADVANCED CLINICAL PERIODONTOLOGY. (Cr ar) Pihlstrom
Practical work in clinic in examination, diagnosis, treatment planning, and various phases of treatment of patients with periodontal disease.

8100. RESEARCH IN PERIODONTOLOGY. (Cr ar) Bandt, Herzberg
Opportunity to take part in many phases of laboratory work under way in periodontal research.

8200. LECTURES IN PERIODONTOLOGY. (Cr ar) Pihlstrom
Tissues involved in periodontal disease. Etiology and treatment of periodontal disease.

8300. SEMINAR: PERIODONTOLOGY. (Cr ar) Pihlstrom
Basic structural components of the periodontium as well as fundamental periodontal treatment procedures. The epithelial attachment, periodontal ligament, cementum, alveolar bone, and periodontal pathology. Oral hygiene and scaling and root planing. Literature reviews are required of each student. Second-year students present case reports.

Prosthodontics (Pros)

FIRST AND SECOND TERMS: TEN-WEEK COURSES

8001. RESEARCH IN PROSTHODONTICS. (Cr ar [may be repeated for cr]) Goodkind
Arranged with individual students upon application, after completion of a critical review of current and historical literature pertaining to the problem.

8006. ADVANCED CLINICAL PROSTHODONTICS II. (Cr ar [may be repeated for cr]; prereq #)
Goodkind, Meyer
Experience in prosthodontic treatment of patients having systemic complications.

8030. INTRODUCTION TO COMPREHENSIVE MAXILLOFACIAL CARE. (Cr ar; prereq #) Moller
Milestones in development of maxillofacial prosthetics and interdisciplinary relationships in treatment of the maxillofacial patient.

8034. ADVANCED CLINICAL MAXILLOFACIAL PROTHESIS. (Cr ar) Goodkind
Factors involved in diagnosis and organization of a treatment plan for the maxillofacial patient and practical experience in associated clinical and laboratory procedures.

MEDICAL SCHOOL

Complete listings of courses offered by departments of the Medical School for undergraduate (prebaccalaureate) students, allied health students, medical

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

students (pre-M.D.), and graduate students (postbaccalaureate in basic health science fields or post-M.D. in clinical fields) can be found in the *Medical School Bulletin*, *Graduate Programs in the Health Sciences Bulletin*, *Graduate School Bulletin*, or bulletin of allied health programs. For further information on specific courses, write or call the appropriate health science departmental office. In general, admission to courses offered in the medical student curriculum (pre-M.D.) or in residency training programs in clinical fields (post-M.D.) is restricted to students previously admitted to and enrolled in those programs.

Anatomy (Anat)

FIRST TERM

3970. SPECIAL PROBLEMS. (2 cr; prereq #) Staff

Guided individual reading or study.

8156. ADVANCED ANATOMY. (2-6 cr; prereq #) Staff

Individual problems in gross anatomy, embryology, histology, or neuroanatomy.

8204. RESEARCH IN ANATOMY. (2-10 cr; prereq #) Staff

Gross anatomy, cytochemistry, histology, endocrinology, embryology, hematology, or neuroanatomy. Special facilities offered to graduate students in clinical departments for work on problems in applied anatomy.

SPECIAL TERMS: THREE- OR SIX-WEEK COURSES

5304. HEAD AND NECK ANATOMY FOR MEDICAL/DENTAL RESIDENTS. (5 cr; prereq participation in a residency in the Medical School or School of Dentistry) Robertson and staff

5500. GENERAL GROSS ANATOMY. (3-4½ cr; prereq Phase D) Robertson

5501. THE EXTREMITIES. (3-4½ cr; prereq Phase D) Robertson

5502. HEAD AND NECK. (3-4½ cr; prereq Phase D) Robertson

5508. THE THORAX. (3-4½ cr; prereq Phase D) Robertson

5509. THE ABDOMEN. (3-4½ cr; prereq Phase D) Robertson

5510. PERINEUM, GENITAL-URINARY SYSTEM AND PELVIS. (3-4½ cr; prereq Phase D) Robertson

SECOND TERM

3970. SPECIAL PROBLEMS. (2 cr; prereq #) Staff

See First Term.

8156. ADVANCED ANATOMY. (2-6 cr; prereq #) Staff

See First Term.

8204. RESEARCH IN ANATOMY. (2-10 cr; prereq #) Staff

See First Term.

Courses preceded by ● have limited enrollment and must be reserved.

Anesthesiology (Anes)

FIRST AND SECOND TERMS: TEN-WEEK COURSES

Elective Courses

5181. EXTERNSHIP IN CLINICAL PRACTICE OF ANESTHESIOLOGY. (9 cr; University Hospitals; MTWThF; Mayo C596) Buckley, staff
Primarily for family practice and surgery tracks, although open to others in limited number. Fundamentals of clinical anesthesia with emphasis on airway and ventilatory management, resuscitation, evaluation of the unconscious patient, choice of agents and techniques, practice administration of general and regional anesthesia, pre- and post-anesthetic management.

Required Courses for Graduate Students

8265. GENERAL ANESTHESIA. (12 cr; MTWThF; Mayo C596) Buckley, staff
Instruction and experience in general anesthesia.

8266. REGIONAL ANESTHESIA. (4 cr; MTWThF; Mayo C596) Buckley, staff
Observation, instruction, and administration in all types of local, regional, and spinal anesthesia.

8267. PRE- AND POST-ANESTHETIC EVALUATION. (2 cr; 1430-1520 MTWThF; B580 Mayo) Buckley, staff
Selection of proper anesthetic agent and technique, premedication and observation of recovery from anesthesia.

8268. SEMINAR: ANESTHESIOLOGY. (2 cr; B580 Mayo) Buckley, staff
Review of literature, reporting of case problems, and discussion of research work in progress within the department.

8269. RESEARCH IN ANESTHESIA. (Cr and hrs ar) Buckley, staff
Anesthesia problems in experimental laboratory or in hospital.

Biochemistry (MdBc)

Elective Courses

FIRST TERM

5053. PROBLEMS IN BIOCHEMISTRY. (Cr and hrs ar; may be taken one or both terms; prereq 5100 or 5751) Staff
Special work arranged with qualified students.

8290. CURRENT RESEARCH TECHNIQUES. (1-3 cr; prereq major in biochemistry, #)

8300. RESEARCH IN BIOCHEMISTRY. (Cr and hrs ar) Staff

SECOND TERM

5053. PROBLEMS IN BIOCHEMISTRY. (Cr and hrs ar; may be taken one or both terms; prereq 5100 or 5751) Staff
See First Term.

8290. CURRENT RESEARCH TECHNIQUES. (1-3 cr; prereq major in biochemistry, #)

8300. RESEARCH IN BIOCHEMISTRY. (Cr and hrs ar) Staff

Dermatology (Derm)

FIRST AND SECOND TERMS: TEN-WEEK COURSES

5181. CLINICAL PROBLEMS. (4.5 cr; 0900-1500 MTWThF, 1500-1630 W; Mayo D230-Eustis Amph) Dahl, Gentry, Goltz, Manick, others

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

- 5182. DERMATOLOGY EXTERNSHIP.** (Cr ar; prereq regis med) Dahl, Gentry, Goltz, Manick, others
- 5183. ADVANCED DERMATOLOGY.** (Cr ar; prereq 5182) Dahl, Gentry, Goltz, Manick, others
- 5184. SPECIAL COURSE.** (Cr ar) Manick
- 5185. RESEARCH IN DERMATOLOGY.** (9 cr) Dahl
- 8225. CLINICAL DERMATOLOGY.** (Cr ar; 0800-1625 MTWThF) Dahl, Gentry, Goltz, others
- 8226. CLINICAL SEMINAR.** (Cr ar; 1300-1630 WF; Mayo D230-Eustis Amph) Goltz, Gentry, others
Conference twice weekly on diagnosis and treatment of skin conditions.
- 8227. HISTOLOGY OF THE SKIN.** (Cr ar; 1400-1530 M; and 1500-1630 W; Mayo D230) Goltz, Orkin, others
Includes histopathology, histochemistry, and fluorescence microscopy.
- 8228. RESEARCH IN DERMATOLOGY.** (Cr ar) Goltz, Pass, others
- 8229. ELECTRON MICROSCOPY IN DERMATOLOGY.** (Cr ar) Zelickson, others
- 8230. FUNCTIONAL BIOLOGY OF THE SKIN.** (Cr ar) Goltz, Pass, others
- 8231. CLINICS: DERMATOLOGY: NONDERMATOLOGISTS.** (Cr ar) Goltz, others
- 8232. SEMINAR: DERMATOLOGIC HISTOPATHOLOGY, MYCOLOGY.** (Cr ar) Goltz, others

Family Practice and Community Health (FPCH)

SPECIAL TERM: JULY 1-SEPTEMBER 30

Required Courses

- 8201. CLINICAL FAMILY MEDICINE.** (9 cr; hrs ar) Ciriacy, staff
- 8208. FAMILY MEDICINE CONFERENCE.** (1 cr; hrs ar) Ciriacy, staff
- 8210. FAMILY MEDICINE GRAND ROUNDS.** (0-1 cr; hrs ar) McConnell
- 8212. CLINICAL PSYCHIATRY ROUNDS.** (1 cr; hrs ar) Kelly, staff

Elective Courses

5504. MEDICAL ETHICS. (2 cr; 1200-1330 M, PWB 6-240) Nelson

This course is a seminar on six current ethical issues confronting physicians in contemporary primary care medicine. The student with developing skills and insight in decision making will assess multiple orientations, values, social and religious factors, and countervailing judgment relevant to discussions in ethical issues in human medicine.

Regular attendance and participation in class sessions and discussions is expected. Each week a case study and other relevant readings will be assigned. The student will write a brief outline of an issue discussed in class that has special meaning to the student.

5516. RESEARCH IN HUMAN SEXUALITY. (Cr ar; prereq #) Staff

Clinical and/or laboratory research-related to human sexuality. This elective is flexible according to the specific interests of the student and the faculty and involves ongoing research projects in areas such as: incest, rape, transsexualism, results of penile implantation, prostitution, sex offenses and sexual dysfunction. Contact: Sharon Satterfield, M.D. (376-7520) to discuss possible topics and to make arrangements.

5585. SEXUAL PROBLEMS IN CLINICAL PRACTICE. (Cr ar; prereq med students only; #; hrs ar) Satterfield, staff

5950. SEXUAL HEALTH SEMINAR. (2-3 cr; prereq #; hr ar) Satterfield, staff

5951. RESEARCH IN HUMAN SEXUALITY. (Cr ar; prereq #; hr ar) Satterfield, staff

5955. DIRECTED STUDY—June 29-August 22. (1-15 cr; prereq #; qualified students may register with # for work on a tutorial basis) Staff

Courses preceded by • have limited enrollment and must be reserved.

8207. SEMINAR: COMMON DISEASES SEEN IN FAMILY PRACTICE. (1 cr; hrs ar) Ciriacy, staff
8209. FAMILY MEDICINE X-RAY CONFERENCE. (1 cr; hrs ar) Ciriacy, staff
8253. RESEARCH PROBLEMS. (Cr ar; prereq #: hrs ar) O'Leary, staff

Interdisciplinary Medicine (InMd)

FIRST AND SECOND TERMS: TEN-WEEK COURSES

5227. SKIN. (2 cr; prereq regis med; HSUnitA 2-650) Manick, staff
5228. EAR, NOSE, THROAT. (2 cr; prereq regis med; HSUnitA 2-650) Adams, staff
5229. EYE. (2 cr; prereq regis med; HSUnitA 2-650) Cantrill, staff
5232. BONES, JOINTS, AND CONNECTIVE TISSUE. (4 cr; prereq regis med; HSUnitA 2-650) House, staff

Laboratory Medicine (LMed)

FIRST TERM

5139. ADVANCED MICROBIOLOGY. (Cr ar; prereq #) Balfour, Blazevic, Ederer
5140. CLINICAL VIROLOGY SEMINAR. (1 cr; prereq #) Balfour
5169. RESEARCH: HUMAN GENETICS. (Cr ar; prereq #) Eaton
5170. ADVANCED PROBLEMS: MEDICAL GENETICS. (Cr ar; prereq #) Eaton
5179. CHEMISTRY SEMINAR. (Cr ar; prereq #) Steffes
5180. ADVANCED CHEMISTRY. (Cr ar; prereq #) Benson, staff
5273. ADVANCED IMMUNOLOGY. (Cr ar; prereq #) Azar, Dalmasso
5768. ADVANCED HEMATOLOGY. (Cr ar; prereq #) Brunning
8235. ADVANCED CLINICAL LABORATORY MEDICINE. (Cr ar; prereq #) Benson
8236. RESEARCH ON CLINICAL LABORATORY PROBLEMS. (Cr ar; prereq #) Benson

SECOND TERM

5139. ADVANCED MICROBIOLOGY. (Cr ar; prereq #) Balfour, Blazevic, Ederer
5140. CLINICAL VIROLOGY SEMINAR. (1 cr; prereq #) Balfour
5169. RESEARCH: HUMAN GENETICS. (Cr ar; prereq #) Eaton
5170. ADVANCED PROBLEMS: MEDICAL GENETICS. (Cr ar; prereq #) Eaton
5179. CHEMISTRY SEMINAR. (Cr ar; prereq #) Steffes
5180. ADVANCED CHEMISTRY. (Cr ar; prereq #) Benson, staff
5273. ADVANCED IMMUNOLOGY. (6 cr; prereq #) Azar, Dalmasso
5768. ADVANCED HEMATOLOGY. (Cr ar; prereq #) Brunning
8235. ADVANCED CLINICAL LABORATORY MEDICINE. (Cr ar; prereq #) Benson, Azar
8236. RESEARCH ON CLINICAL LABORATORY PROBLEMS. (Cr ar; prereq #) Benson, Azar

Courses preceded by • have limited enrollment and must be reserved.

Laboratory Medicine and Pathology (LaMP)

Courses for Medical and Undergraduate Students

SPECIAL TERMS: THREE- OR SIX-WEEK COURSES

5113. **SURGICAL PATHOLOGY.** (Cr ar; prereq Phase B) Rosai
5114. **SURGICAL PATHOLOGY (Hennepin County Medical Center).** (Cr ar; prereq Phase B) Anderson
5115. **SURGICAL PATHOLOGY (Veterans Hospital).** (Cr ar; prereq Phase B) Limas
5118. **ENDOCRINE PATHOLOGY (St. Paul-Ramsey Medical Center).** (Cr ar; prereq Phase B) Haus, Lakatua
5123. **PULMONARY PATHOLOGY (St. Paul-Ramsey Medical Center).** (Cr ar) Woolfrey
5125. **CHRONOBIOLOGY.** (Cr ar; prereq Phase B, #) Halberg
5141. **PROBLEMS: EXPERIMENTAL PATHOLOGY.** (Cr ar; prereq Phase B, #) Halberg
5150. **ANATOMIC PATHOLOGY. (University Hospitals).** (Cr ar) Burke
5151. **ANATOMIC PATHOLOGY: HOSPITAL SETTING (Hennepin County Medical Center).** (Cr ar) Anderson
5152. **ANATOMIC PATHOLOGY (Veterans Hospital).** (Cr ar; prereq Phase B) Weigent
5153. **ANATOMIC PATHOLOGY: HOSPITAL SETTING (St. Paul-Ramsey Medical Center).** (Cr ar; prereq Phase B) Posalaky
5158. **CARDIAC PATHOLOGY (Miller Hospital).** (Cr ar; prereq Phase B, #) Edwards
5181. **LABORATORY AND CLINICAL HEMATOLOGY.** (Cr ar; prereq #) Brunning
5182. **LABORATORY STUDIES OF GENETIC DISORDERS.** (Cr ar; prereq #) J Yunis
5184. **IMMUNOHEMATOLOGY IN BLOOD BANKING.** (Cr ar; prereq #) McCullough
5190. **LABORATORY MEDICINE IN A COMMUNITY HOSPITAL (Duluth).** (Cr ar; prereq Phase D) Larson
5192. **LABORATORY MEDICINE FOR PRIMARY CARE (Virginia).** (Cr ar; prereq Phase D) Knabe
5193. **CLINICAL PATHOLOGY EXTERNSHIP (Hibbing Hospital).** (Cr ar; prereq #) Nollet, Blomberg
5203. **CLINICAL BLOOD BANK IMMUNOLOGY (Minneapolis War Memorial Blood Bank).** (Cr ar; prereq Phase D) Polesky

Medical Technology (MedT)

FIRST TERM

5082. **APPLIED CLINICAL CHEMISTRY.** (4 cr; prereq 5063, 5111, #)
Application of basic methods and techniques in chemistry in the clinical laboratory.
5085. **APPLIED CLINICAL HEMATOLOGY.** (4 cr; prereq 5067, 5076, #)
Application of basic methods and techniques in hematology in the clinical laboratory, morphology of blood cells, application of techniques in hemostasis.
5086. **APPLIED CLINICAL IMMUNOHEMATOLOGY.** (4 cr; prereq 5066, #)
Application of basic methods and techniques in serology and immunology in the clinical laboratory. Blood grouping and cross-matching for transfusions.
5088. **APPLIED DIAGNOSTIC MICROBIOLOGY.** (4 cr; prereq 5102, #)
Identification of bacteria by microscopic techniques. Correlation with clinical cases. Identification of parasites and fungi.
5090. **SPECIAL LABORATORY METHODS.** (2 cr; prereq #)
Special assignment on an individual basis in a special area of experience within the clinical laboratory; field experience.

Courses preceded by • have limited enrollment and must be reserved.

SECOND TERM

5082. **APPLIED CLINICAL CHEMISTRY.** (4 cr; prereq 5063, 5111, #)
See First Term.
5085. **APPLIED CLINICAL HEMATOLOGY.** (4 cr; prereq 5067, 5076, #)
See First Term.
5086. **APPLIED CLINICAL IMMUNOHEMATOLOGY.** (4 cr; prereq 5066, #)
See First Term.
5088. **APPLIED DIAGNOSTIC MICROBIOLOGY.** (4 cr; prereq 5102, #)
See First Term.
5090. **SPECIAL LABORATORY METHODS.** (2 cr; prereq #)
See First Term.

Medicine (Med)

SPECIAL TERMS: THREE- OR SIX-WEEK COURSES

Elective Courses for Undergraduate Students

5500. **ADVANCED INTERNAL MEDICINE.** (Cr and hrs ar) Ferris
5501. **MEDICAL ONCOLOGY INTERNSHIP IN MEDICINE.** (Cr and hrs ar) Kennedy
5502. **MEDICINE EXTERNSHIP I.** (Cr and hrs ar) Rosborough
5503. **MEDICINE EXTERNSHIP II.** (Cr and hrs ar) Howard
5504. **MEDICINE EXTERNSHIP.** (Cr and hrs ar) Wang
5505. **INFECTIOUS DISEASE RESEARCH.** (Cr and hrs ar) Sabath
5506. **MEDICINE SUBINTERNSHIP.** (Cr and hrs ar) Rosborough
5509. **RESEARCH IN RHEUMATOLOGY.** (Cr and hrs ar) Handwerger, Messner
5511. **RESEARCH IN GASTROENTEROLOGY.** (Cr and hrs ar) Levitt
5512. **RESEARCH IN HEMATOLOGY.** (Cr and hrs ar) Jacob
5518. **RESEARCH IN ENDOCRINOLOGY.** (Cr and hrs ar) Oppenheimer
5520. **INFECTIOUS DISEASES, ALLERGY AND CLINICAL IMMUNOLOGY.** (Cr and hrs ar) Sabath, Staff
5521. **INFECTIOUS DISEASES, CLINICAL ASPECTS.** (Cr and hrs ar) Sabath
5522. **GASTROENTEROLOGY.** (Cr and hrs ar) Gilberstadt
5523. **MEDICAL ENDOCRINOLOGY AND METABOLISM.** (Cr and hrs ar) Barbosa
5525. **CARDIOVASCULAR MEDICINE.** (Cr and hrs ar) Bache
5527. **CONTEMPORARY PROBLEMS IN INVESTIGATIVE CARDIOLOGY.** (Cr and hrs ar) Bache
5528. **CLINICAL HEMATOLOGY.** (Cr and hrs ar) Howe
5531. **CLINICAL RHEUMATOLOGY.** (Cr and hrs ar) Hathaway
5532. **PULMONARY DISEASE.** (Cr and hrs ar) Kronenberg
5533. **CLINICAL ALLERGY.** (Cr and hrs ar) Blumenthal
5542. **RESEARCH IN PULMONARY DISEASE.** (Cr and hrs ar) Kronenberg
5548. **CLINICAL GENETICS.** (Cr and hrs ar) King
5554. **FLUID, ELECTROLYTE, ACID-BASE METABOLISM.** (Cr and hrs ar) Ma

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

5556. **MEDICAL NEPHROLOGY.** (Cr and hrs ar) Kjellstrand
5557. **RESEARCH IN NEPHROLOGY.** (Cr and hrs ar) Kjellstrand
5562. **NEPHROLOGY.** (Cr and hrs ar) Rao
5570. **CLINICAL MEDICINE IN THE GENERAL CLINICAL RESEARCH CENTER.** (Cr and hrs ar) Bantle
5572. **AMBULATORY INTERNAL MEDICINE.** (Cr and hrs ar) Spilane
5573. **EXTERNSHIP IN GERIATRIC MEDICINE AT ST. PAUL-RAMSEY MEDICAL CENTER** (Cr and hrs ar) Irvine
5583. **DIAGNOSIS, EVALUATION, AND CARE OF ADULTS AND CHILDREN WITH CANCER.** (Cr and hrs ar) Ramsay
5589. **MEDICINE EXTERNSHIP II AT ST. LUKE'S HOSPITAL.** (Cr and hrs ar) Goldish
5590. **PRECEPTORSHIPS IN INTERNAL MEDICINE.** (Cr and hrs ar) Murray
5592. **RURAL PHYSICIANS ASSOCIATE PROGRAM IN MEDICINE.** (Cr and hrs ar) Howe
5594. **PSYCHIATRY IN MEDICINE: CONSULTATION-LIAISON.** (Cr and hrs ar) Popkin
5595. **PSYCHOLOGICAL ASPECTS OF MEDICAL PRACTICE.** (Cr and hrs ar) Nesheim
5596. **OCCUPATIONAL HEALTH.** (Cr and hrs ar) Johnson
5597. **RESEARCH IN OCCUPATIONAL HEALTH.** (Cr and hrs ar) Johnson

Elective Courses for Graduate Students

8201. **CLINICAL MEDICINE.** (Cr and hrs ar) Ferris, staff
8202. **CLINICAL CONFERENCE.** (Cr and hrs ar) Ferris, staff
8203. **CLINICAL RADIOLOGY CONFERENCE.** (Cr and hrs ar) Ferris, staff
8204. **PATHOLOGICAL CONFERENCE.** (Cr and hrs ar) Ferris, staff
8205. **ELECTROCARDIOGRAPHIC CONFERENCE.** (Cr and hrs ar) Tuna
8206. **NEPHROLOGY SEMINAR.** (Cr and hrs ar) Kjellstrand, staff
8209. **TUMOR CLINICAL CONFERENCE.** (Cr and hrs ar) Kennedy, staff
8210. **INFECTIOUS DISEASE SEMINAR.** (Cr and hrs ar) Sabath, staff
8211. **DISEASES OF THE CARDIOVASCULAR SYSTEM.** (Cr and hrs ar) Cohn, staff
8212. **DISEASES OF THE CHEST.** (Cr and hrs ar) Kronenberg, staff
8213. **DISEASES OF THE KIDNEY.** (Cr and hrs ar) Kjellstrand, staff
8214. **DISEASES OF DIABETES, ENDOCRINOLOGY, AND METABOLISM.** (Cr and hrs ar) Oppenheimer, staff
8215. **DISEASES OF HEMATOLOGY.** (Cr and hrs ar) Jacob, staff
8216. **DISEASES OF GASTROENTEROLOGY.** (Cr and hrs ar) Wilson, staff
8217. **DISEASES OF ONCOLOGY.** (Cr and hrs ar) Kennedy, staff
8220. **RESEARCH IN MEDICINE.** (Cr and hrs ar) Ferris, staff
8221. **TOPICS IN MEDICINE.** (Cr and hrs ar) Ferris, staff
8223. **TOPICS IN RELATED BASIC SCIENCE.** (Cr and hrs ar) Ferris, staff

Courses preceded by • have limited enrollment and must be reserved.

Microbiology (MicB)

FIRST TERM

3970. DIRECTED STUDIES. (Cr ar; prereq #) Rogers, staff

3990. UNDERGRADUATE RESEARCH. (Cr ar; prereq #) Rogers, staff

8990. RESEARCH IN MICROBIOLOGY. (Cr and hrs ar) Cleary, staff

Graduate students with the requisite preliminary training may elect research project outside their thesis work.

SECOND TERM

3970. DIRECTED STUDIES. (Cr ar; prereq #) Rogers, staff

3990. UNDERGRADUATE RESEARCH. (Cr ar; prereq #) Rogers, staff

8990. RESEARCH IN MICROBIOLOGY. (Cr and hrs ar) Cleary, staff

See First Term.

SPECIAL TERM: JUNE 1-JULY 29

5206. MICROBIOLOGY FOR MEDICAL STUDENTS. (2 cr; prereq regis med fr...# for others; must be taken with 5205; lect 0915-1000 MTWThF; PWB 2-470) Brand, staff

(Continuation of 5205) Basic medical aspects of immunology, parasitology, mycology, and medical bacteriology, virology with emphasis on pathogenesis. Principles and techniques enabling diagnosis, treatment (especially chemotherapy), and prevention of infectious disease.

Lab A 1015-1200 M, 1415-1600 W

Lab B 1415-1600 M, 1015-1200 W

5226. MICROBIOLOGY FOR MEDICAL STUDENTS. (4 cr; prereq microbiology grad student or #; 0915-1000 MTWThF; PWB 2-470) Brand, staff

Meets with 5206 but without laboratory.

Neurology (Neur)

SPECIAL TERMS: SIX- AND TWELVE-WEEK COURSES

5120. SELECTED PROBLEMS IN NEUROLOGY. (Cr ar; prereq regis med) Staff

5510. EXTERNSHIPS IN CLINICAL NEUROLOGY. (Cr ar; prereq regis med) Klassen, staff

5541. PEDIATRIC NEUROLOGY—NEUROCHEMISTRY. (Cr ar; prereq regis med) Swaiman

5544. CLINICAL ELECTROENCEPHALOGRAPHY. (Cr ar; prereq regis med) Torres

5545. ELECTROMYOGRAPHY. (Cr ar; prereq regis med) Kennedy

5570. IMMUNOLOGY. (Cr ar; prereq regis med) Ansari

FIRST AND SECOND TERMS: TEN-WEEK COURSES

8200. CLINICAL NEUROLOGY. (Cr ar) Resch, staff

8201. CLINICAL PEDIATRIC NEUROLOGY. (Cr ar) Swaiman, staff

8202. RESEARCH. (Cr ar) Resch, staff

8203. APPLIED ELECTROENCEPHALOGRAPHY. (Cr ar) Torres

8204. APPLIED ELECTROMYOGRAPHY. (Cr ar) Kennedy

8205. APPLIED NEUROPATHOLOGY. (Cr ar) Sung, Mastri

8236. RESEARCH: NEUROPATHOLOGY. (Cr ar) Sung, Mastri

8705. NEUROLOGICAL-NEUROSURGICAL CONFERENCE. (1 cr, §Rad 5163, §Surg 8318) Staff

Courses preceded by ● have limited enrollment and must be reserved.

Neurosurgery (NSu)

SPECIAL TERMS: THREE- AND SIX-WEEK COURSES

Elective Courses for Undergraduate Students

5500. NEUROSURGERY EXTERNSHIP (University Hospitals). (4.5 or 9 cr; prereq regis med; MTWThF) Chou, French, Seljeskog, Erickson, Maxwell

5510. NEUROSURGERY EXTERNSHIP (Veterans Administration Hospital). (4.5 or 9 cr; prereq regis med; MTWThF) Maxwell

5511. NEUROSURGERY EXTERNSHIP (Hennepin County Medical Center). (4.5 or 9 cr; prereq regis med; MTWThF) Rockswold

5512. NEUROSURGERY EXTERNSHIP (St. Paul-Ramsey Medical Center). (4.5 or 9 cr; prereq regis med; MTWThF) Thienprasit

5520. NEUROSURGERY INVESTIGATION. (9 cr; prereq regis med; MTWThF; Diehl F109-110 and G134-144) Bloedel

5530. NEUROPSYCHOLOGY. (9 cr; prereq regis med; ar; C667 Mayo) Meier

5550. NEUROPHYSIOLOGICAL LITERATURE SEMINAR. (1 cr; prereq Medical School course in physiology or equiv with #; hrs ar) Bloedel
Study of selected papers covering several topics in neurophysiology. Correlations between neurological and neurosurgical problems and basic concepts in neurophysiology emphasized.

FIRST AND SECOND TERMS: TEN-WEEK COURSES

Required Courses for Graduate Students

8305. NEUROSURGICAL DIAGNOSIS. (4 cr; MTWThF; B524 Mayo) Chou, French, Seljeskog, Erickson, Maxwell
Neurosurgical fellow assists in instruction of clinical clerks and interns, studies problems in diagnosis at University and affiliated hospitals.

8308. NEUROSURGICAL PROBLEMS AND MANAGEMENT. (4 cr; MTWThF; B401 Mayo) Chou, French, Seljeskog, Erickson, Maxwell
Neurosurgical fellow acts as house surgeon at University and affiliated hospitals.

8311. OPERATIVE NEUROSURGERY. (4 cr; MTWThF; B401 Mayo) Chou, French, Seljeskog, Erickson, Maxwell
Neurosurgical fellow acts as first assistant for operations at University and affiliated hospitals and later may be permitted to operate.

8316. NEUROSURGICAL RESEARCH. (6 cr; MTWThF; Diehl F109-110 and G134-144) Chou, French, Seljeskog, Bloedel, Erickson
Problems in experimental or clinical surgery.

8318. NEURORADIOLOGICAL CONFERENCE. (1 cr; 1325-1415 F; Todd Amphitheatre) Chou, French, Seljeskog, Erickson, Maxwell
A review of X-ray films and case histories on neurosurgical service.

8320. NEUROSURGICAL CONFERENCE. (2 cr; 0800-1100 Sat; B507 Mayo) Chou, French, Seljeskog, Bloedel, Erickson, Maxwell
In-depth review of selected topics in basic and clinical neurosurgery.

8322. NEUROSURGERY-OPHTHALMOLOGY SEMINAR—PART I. (1 cr; 0800-0850 T; offered Su and W; Sta 51, 524 Mayo) Staff
Review and discussion of topics.

8323. NEUROSURGERY-OPHTHALMOLOGY SEMINAR—PART II. (1 cr; prereq 8322; T; offered F and S) Staff
Advanced review and discussion of topics.

8324. READINGS: NEUROBIOLOGY. (1 cr; 1600-1800 Th; KE 114) Bloedel

Courses preceded by • have limited enrollment and must be reserved.

8330. NEUROSURGERY LITERATURE SEMINAR. (2 cr; 1st and 2nd Th evenings) Staff
Review and discussion of current literature relating to neurosurgery and the neurosciences.

Obstetrics and Gynecology (Obst)

SPECIAL TERMS: JUNE 22-JULY 31 AND AUGUST 3-SEPTEMBER 11

Elective Courses for Undergraduate Students

● **5500. EXTERNSHIP IN OBSTETRICS AND GYNECOLOGY.** (Cr ar; limited enrollment; prereq Phase D) Foreman, staff

Clinical experience that includes total care of inpatients and outpatients on obstetrics and gynecology service at Hennepin County Medical Center, North Memorial Hospital, St. Joseph's Hospital, St. Mary's Hospital, St. Paul-Ramsey Medical Center, United Hospitals, University Hospitals, and St. Luke's Hospital, Duluth. Emphasis on medical aspects of obstetrics and gynecology.

● **5520. OBSTETRICS AND GYNECOLOGY EXTERNSHIP IN CLINICAL PRACTICE.** (Cr ar; limited enrollment; prereq Phase D) Foreman, staff

Practical community experience in obstetrics and gynecology under preceptorship of one or more practicing members of clinical staff. Both office and hospital practice included.

● **5540. ADVANCED EXTERNSHIP IN OBSTETRICS AND GYNECOLOGY.** (Cr ar; limited enrollment; prereq 5500) Foreman, staff

Full-time clinical experience as acting intern on obstetrical and gynecological service at Hennepin County Medical Center, St. Paul-Ramsey Medical Center, or University Hospitals.

● **5550. PSYCHIATRIC ASPECTS OF OBSTETRICS AND GYNECOLOGY.** (Cr ar; limited enrollment; prereq Phase D) Foreman, Bernstein

Clinical course. Psychiatric problems relating to reproductive system.

● **5560. RESEARCH IN REPRODUCTION.** (Cr ar; limited enrollment; prereq Phase D) Foreman, staff
Topics selected for each student.

● **5575. GYNECOLOGICAL PATHOLOGY AND DIAGNOSTIC CYTOLOGY.** (Cr ar; limited enrollment; prereq 5500) Foreman, Okagaki, Brooker

Review of daily gynecological histopathology material of surgical and clinical cases from the Ob-Gyn Service. Includes diagnostic cytology of Pap smears encountered in actual practice.

● **5590. PRECEPTORSHIP IN OBSTETRICS AND GYNECOLOGY.** (Cr ar; limited enrollment; prereq 5500) Foreman

Full-time preceptorship in clinical obstetrics and gynecology, in outstate Minnesota, offered by AHEC. Student will receive per diem expenses. Similar to 5520, but in smaller community.

Courses for Graduate Students

8201. ADVANCED OBSTETRICS AND GYNECOLOGY. (Cr ar) Prem, staff

8205. ADVANCED OBSTETRICS AND GYNECOLOGY. (Cr ar) Prem, staff

8209. ADVANCED OBSTETRICS AND GYNECOLOGY. (Cr ar) Prem, staff

8210. ADVANCED OBSTETRICS AND GYNECOLOGY. (Cr ar) Prem, staff

8213. ADVANCED OBSTETRICS AND GYNECOLOGY. (Cr ar) Prem, staff

8217. SEMINAR IN OBSTETRICS AND GYNECOLOGY. (Cr ar) Prem, staff

8221. SEMINAR IN OBSTETRICS AND GYNECOLOGY. (Cr ar) Prem, staff

8222. GYNECOLOGICAL ONCOLOGY. (Cr ar) Prem, staff

8223. GYNECOLOGICAL ONCOLOGY. (Cr ar) Prem, staff

8224. GYNECOLOGICAL ENDOCRINOLOGY—PART I. (Cr ar) Prem, staff

8225. GYNECOLOGICAL ENDOCRINOLOGY—PART II. (Cr ar) Prem, staff

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

8226. OBSTETRICAL PHYSIOLOGY AND ANESTHESIOLOGY. (Cr ar) Prem, staff

8230. RESEARCH IN REPRODUCTION. (Cr ar) Prem, staff

Ophthalmology (Oph)

FIRST TERM

5100. INTRODUCTION TO OPHTHALMOLOGIC PATHOLOGY. (1 cr) Cameron

8101. CLINICAL OPHTHALMOLOGY. (8 cr) Staff

8131. PRACTICAL OCULAR SURGERY. (3 cr) Staff

8142. PATHOLOGY LABORATORY. (2 cr) Cameron

8152. OPHTHALMOLOGY LABORATORY. (15 cr) Staff

8155. SPECIAL TOPICS. (Cr ar) Staff

SECOND TERM

5100. INTRODUCTION TO OPHTHALMOLOGIC PATHOLOGY. (1 cr) Cameron

8101. CLINICAL OPHTHALMOLOGY. (8 cr) Staff

8131. PRACTICAL OCULAR SURGERY. (3 cr) Staff

8142. PATHOLOGY LABORATORY. (2 cr) Cameron

8152. OPHTHALMOLOGY LABORATORY. (15 cr) Staff

8155. SPECIAL TOPICS. (Cr ar) Staff

Orthopaedic Surgery (OrSu)

SPECIAL TERMS: THREE- AND SIX-WEEK COURSES

Elective Courses for Undergraduate Students

5180. ORTHOPEDICS I. (Cr ar; prereq regis med)

5185. ORTHOPEDICS II. (Cr ar; prereq regis med)

5186. RESEARCH PROBLEMS IN ORTHOPEDIC SURGERY. (Cr ar; prereq regis med)

5187. EXTERNSHIP IN ORTHOPEDIC SURGERY AND FRACTURES. (Cr ar; prereq regis med)
St. Paul-Ramsey Medical Center.

5188. EXTERNSHIP IN ORTHOPEDIC SURGERY AND FRACTURES. (Cr ar; prereq regis med)
Gillette Children's Hospital, St. Paul.

5189. EXTERNSHIP IN ORTHOPEDIC SURGERY AND FRACTURES. (Cr ar; prereq regis med)
Fairview-St. Mary's Hospitals.

5190. EXTERNSHIP IN ORTHOPEDIC SURGERY AND FRACTURES. (Cr ar; prereq regis med)
Veterans Hospital.

5191. ORTHOPEDIC EXTERNSHIP AT HENNEPIN COUNTY MEDICAL CENTER. (Cr ar; prereq regis med)

FIRST AND SECOND TERMS: TEN-WEEK COURSES

Required Courses for Graduate Students

8401. ORTHOPEDIC CONFERENCE. (3 cr) Thompson, Bradford, House, Mayfield, Premer, Robinson, Hunter

Review of X-ray films and case histories of patients on the orthopedic inpatient or outpatient service.

Courses preceded by • have limited enrollment and must be reserved.

8403. FRACTURES. (5 cr) Gustilo, staff

Orthopedic fellow acts as house surgeon on the fracture service at Hennepin County Medical Center.

8404. FRACTURES. (5 cr) Comfort, staff

Orthopedic fellow acts as house surgeon on the fracture service at St. Paul-Ramsey Medical Center.

8405. ORTHOPEDIC DIAGNOSIS. (3 cr) Thompson, Bradford, House, Mayfield, Robinson, Hunter

Orthopedic fellow assists in instruction of medical students and interns and studies problems in diagnosis in the Outpatient Department and in the University Hospitals.

8407. PEDIATRIC ORTHOPEDICS. (5 cr) Vanden Brink, staff

Orthopedic fellow acts as house surgeon at Gillette Children's Hospital.

8408. ORTHOPEDIC PROBLEMS AND MANAGEMENT. (5 cr) Thompson, Bradford, House, Mayfield, Premer, Robinson, Hunter

Orthopedic fellow acts as house surgeon at University and Veterans Hospitals.

8409. ORTHOPEDIC PROBLEMS AND MANAGEMENT. (5 cr) Winter, Lonstein

Orthopedic fellow acts as house surgeon on the orthopedic service at Fairview Hospital.

8410. ORTHOPEDIC PATHOLOGY. (2 cr) Thompson, Bradford, House, Mayfield, Premer, Robinson, Hunter

Seminar for systematic review of pathology of ossified tissues and soft tissues of the extremities.

8411. ORTHOPEDIC OPERATIVE SURGERY. (5 cr) Thompson, Bradford, House, Mayfield, Premer, Robinson, Hunter

Orthopedic fellow acts as first assistant at operations at University and affiliated hospitals and later may be permitted to operate.

8412. ORTHOPEDIC ANATOMY. (2 cr) House

Orthopedic fellow dissects upper and lower extremities and aids in instruction of medical students in anatomy of the extremities.

8416. ORTHOPEDIC RESEARCH. (5 cr) Thompson, Bradford, House, Mayfield, Robinson, Hunter

Problems in experimental or clinical surgery, University Hospitals.

Otolaryngology (Otol)

SPECIAL TERMS: THREE-, SIX-, AND TWELVE-WEEK COURSES

- 5500. GENERAL—ENT ELECTIVE. (4.5 cr; limited enrollment)
- 5501. ACTING INTERNSHIP—ENT ELECTIVE. (9 cr; limited enrollment)
- 5503. RESEARCH: BASIC SCIENCE—ENT ELECTIVE. (9 or 18 cr; limited enrollment)

SPECIAL TERM: EIGHT-WEEK COURSES

- 8220. RESEARCH. (18 cr)
- 8230. CLINICAL OTORHINOLARYNGOLOGY. (6 cr)
- 8231. SURGERY OF EAR, NOSE, THROAT. (4 cr)
- 8232. MAXILLOFACIAL SURGERY. (1 cr)
- 8233. PLASTIC, RECONSTRUCTIVE SURGERY: HEAD, NECK. (1 cr)
- 8234. ANATOMY: HEAD, NECK, TEMPORAL BONE DISSECTION. (2 cr)
- 8235. ROENTGENOLOGY OF HEAD, NECK. (2 cr)
- 8236. PHARMACOLOGY. (2 cr)
- 8237. ENDOSCOPY. (2 cr)
- 8238. PATHOLOGY OF EAR, NOSE, THROAT. (2 cr)

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

- 8239. OTONEUROLOGY. (2 cr)
- 8240. ALLERGY. (2 cr)
- 8241. TUMOR CLINIC. (1 cr)
- 8242. AUDIOLOGY, SPEECH PATHOLOGY. (2 cr)
- 8243. INTRODUCTION: RESEARCH METHODOLOGY. (2 cr)
- 8244. SEMINAR: CURRENT LITERATURE. (1 cr)
- 8245. MASTER'S THESIS RESEARCH. (Cr ar)
- 8246. PH.D. THESIS RESEARCH. (Cr ar)
- 8248. RESEARCH. (Cr ar)

Pathology (Path)

FIRST AND SECOND TERMS: TEN-WEEK COURSES

Courses for Graduate Program

- 5104. AUTOPSIES. (Cr ar; prereq Phase B or equiv) Staff
- 5106. DISEASES OF THE HEART. (1 cr; prereq Phase B or equiv) Edwards
- 5111. AUTOPSY SLIDE CONFERENCE. (Cr ar; prereq regis grad med or #) Staff
- 5113. SURGICAL PATHOLOGY. (Cr ar; prereq Phase B or equiv) Rosai
- 5140. SEMINAR: EXPERIMENTAL CHRONOBIOLOGY. (1 cr; prereq #) Halberg
- 5141. PROBLEMS IN EXPERIMENTAL CHRONOBIOLOGY. (Cr ar; prereq #) Halberg
- 5169. RESEARCH: HUMAN GENETICS. (Cr ar; prereq #) Eaton
- 5170. ADVANCED PROBLEMS IN MEDICAL GENETICS. (Cr ar; prereq #) Eaton, staff
- 8200. ADVANCED PROBLEMS IN PATHOLOGY. (Cr ar; prereq #) Benson, staff
- 8201. RESEARCH. (Cr ar; prereq #) Benson, staff
Students with the necessary preliminary training may elect research either as a major or minor in pathology.
- 8207. RESEARCH IN EXPERIMENTAL CHRONOBIOLOGY. (Cr ar; prereq #) Halberg
- 8267. MECHANISMS OF CELLULAR MOTILITY, RELATIONSHIP OF MOTILITY OF CELLULAR FUNCTION. (2 cr; prereq MdBc 5101 or #) Schollmeyer
- 8273. ADVANCED IMMUNOBIOLOGY. (Cr ar; prereq #) Kersey or Azar

Pediatrics (Ped)

FIRST AND SECOND TERMS: TEN-WEEK COURSES

Elective Courses

- 5501. PEDIATRIC CLERKSHIP (University Hospitals, Hennepin County Medical Center, St. Paul-Ramsey Medical Center, St. Paul Children's Hospital). (Cr ar) Sinaiko
- 5503. PEDIATRIC CLERKSHIP WITH OUTSTATE CLINICIANS. (Cr ar; prereq #) Sinaiko
- 5512. PEDIATRIC ACTING INTERNSHIP (University Hospitals, St. Paul Children's Hospital, Hennepin County Medical Center). (Cr ar) Sinaiko
- 5514. CHILD CARE CLINIC PROGRAM. (Cr ar) Fisch
- 5515. CHILD DEVELOPMENT AT ST PAUL-RAMSEY MEDICAL CENTER. (Cr ar) Davis

Courses preceded by • have limited enrollment and must be reserved.

5520. **PEDIATRIC OUTPATIENT.** (Cr ar; prereq #) Satran
5522. **AMBULATORY PEDIATRICS AT HENNEPIN COUNTY MEDICAL CENTER.** (Cr ar) Tobin
5523. **OUTPATIENT EXTERNSHIP AT COMMUNITY UNIVERSITY HEALTH CARE CENTER.** (Cr ar; prereq 5501, 5503, 5512, Med 5502) Smelker
5532. **CLINICAL ALLERGY AND IMMUNOLOGY AT UNIVERSITY HOSPITALS.** (Cr ar; prereq 5501, 5503, 5512, Med 5502) Page
5534. **PEDIATRIC CARDIOLOGY AT UNIVERSITY HOSPITALS.** (Cr ar; prereq 5501, 5503, 5512, Med 5502) Moller
5535. **INFECTIOUS DISEASE.** (Cr ar; prereq 5501, 5503, 5512, Med 5502) Ferrieri
5536. **PEDIATRIC HEMATOLOGY-ONCOLOGY AT UNIVERSITY HOSPITALS.** (Cr ar; prereq 5501, 5503, 5512 or Med 5502) Nesbit
5538. **PEDIATRIC GASTROENTEROLOGY.** (Cr ar; prereq 5501, 5503, 5512 or Med 5502) Sharp
5539. **NEONATAL MEDICINE EXTERNSHIP.** (Cr ar; prereq 5501, 5502 or Med 5502) Boros or Thompson
5540. **PEDIATRIC NEUROLOGY.** (Cr ar) Swaiman
5543. **PEDIATRIC NEPHROLOGY.** (Cr ar; prereq 5501, 5503, 5512 or Med 5502) Michael
5544. **PULMONARY DISEASE IN PEDIATRICS.** (Cr ar; prereq 5501, 5503, 5512 or Med 5502) Warwick
5545. **DIAGNOSIS, EVALUATION, AND CARE OF ADULTS AND CHILDREN WITH CANCER.** (Cr ar) Ramsay
5548. **PEDIATRIC GENETICS.** (Cr ar; prereq 5501, 5503, 5512 or Med 5502) Pierpont
8200. **GRADUATE SEMINAR: PEDIATRICS.** (1.5 cr) Staff
8202. **PEDIATRICS CLINICS.** (Cr ar; prereq #) Staff
8204. **RESIDENCY IN PEDIATRICS.** (Cr ar; prereq #) Staff
8206. **PEDIATRIC SPECIAL INTEREST.** (Cr ar; for grad students who have completed at least 1½ yrs of general grad pediatric training; prereq #) Staff
8208. **PEDIATRIC RESEARCH.** (Cr ar; prereq #) Krivit, staff

Pharmacology (Phcl)

FIRST TERM

5109. **PROBLEMS IN PHARMACOLOGY.** (Cr and hrs ar; prereq #) Shideman, staff
8203. **RESEARCH IN PHARMACOLOGY.** (Cr and hrs ar; prereq #) Shideman, staff

SECOND TERM

5109. **PROBLEMS IN PHARMACOLOGY.** (Cr and hrs ar; prereq #) Shideman, staff
8203. **RESEARCH IN PHARMACOLOGY.** (Cr and hrs ar; prereq #) Shideman, staff

Physical Medicine and Rehabilitation (PMed)

SPECIAL TERM: JULY 1-SEPTEMBER 30

8200. **PHYSICAL MEDICINE SERVICE.** (Cr and hrs ar) Staff
8205. **READINGS.** (1 cr; 0800-0955 M; 825 Mayo) Kottke

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

8210. RESEARCH IN PHYSICAL MEDICINE. (Cr and hrs ar) Staff

8212. ELECTROMYOGRAPHY. (Cr and hrs ar) Awad

Occupational Therapy

5396, 5397. FIELDWORK EDUCATION. (Cr ar; for sr OT students) Eliason
Six months of supervised training in affiliated hospitals and community centers.

Physical Therapy

FIRST TERM

5255. CLINICAL TRAINING. (3 cr; limited to PT students in the professional program; hrs ar at affiliated hospitals)

Five weeks of supervised practice at affiliated hospitals.

8103. PHYSICAL THERAPY CLINIC. (Cr ar; prereq physical therapy) Staff

8170. SPECIAL TOPICS. (1 cr; prereq #) Staff

8185. PROBLEMS IN PHYSICAL THERAPY. (Cr ar; prereq physical therapy) Staff

8193. RESEARCH PROBLEMS IN PHYSICAL THERAPY. (Cr ar; prereq physical therapy) Staff

8195. RESEARCH IN PHYSICAL THERAPY. (Cr ar; prereq #) Kottke, Amundsen, staff

SECOND TERM

8103. PHYSICAL THERAPY CLINIC. (Cr ar; prereq physical therapy) Staff

8170. SPECIAL TOPICS. (1 cr; prereq #) Staff

8185. PROBLEMS IN PHYSICAL THERAPY. (Cr ar; prereq physical therapy) Staff

8193. RESEARCH PROBLEMS IN PHYSICAL THERAPY. (Cr ar; prereq physical therapy) Staff

8195. RESEARCH IN PHYSICAL THERAPY. (Cr ar; prereq #) Kottke, Amundsen, staff

Physiology (Phsl)

FIRST TERM

3051. HUMAN PHYSIOLOGY. (5 cr; primarily for baccalaureate nursing students and physical therapy students; prereq biology and 1 yr college chemistry; 1325-1415 MW, HSUnitA 2-650; 1115-1205 and 1430-1625 TTh, 1325-1520 F, HSUnitA 2-530; lab 1430-1730 MW, HSUnitA 3-110) Staff
Introduction to human physiology.

5113. PROBLEMS IN PHYSIOLOGY. (Cr and hrs ar) Staff
Topics assigned for laboratory study; conferences and readings.

5552. READINGS IN PHYSIOLOGY. (Cr and hrs ar) Staff
Topics selected for each student; written reviews prepared and discussed.

5553. RESEARCH IN PHYSIOLOGY. (Cr and hrs ar) Staff

8113. PROBLEMS IN PHYSIOLOGY. (Cr and hrs ar) Staff
Topics assigned for laboratory study; conferences and readings.

8202. READINGS IN PHYSIOLOGY. (Cr and hrs ar) Staff
Topics selected for each student; written reviews prepared and discussed.

8203. RESEARCH IN PHYSIOLOGY. (Cr and hrs ar) Staff

Courses preceded by ● have limited enrollment and must be reserved.

SECOND TERM**5552. READINGS IN PHYSIOLOGY.** (Cr and hrs ar) Staff

Topics selected for each student; written reviews prepared and discussed.

5553. RESEARCH IN PHYSIOLOGY. (Cr and hrs ar) Staff**8202. READINGS IN PHYSIOLOGY.** (Cr and hrs ar) Staff

Topics selected for each student; written reviews prepared and discussed.

8203. RESEARCH IN PHYSIOLOGY. (Cr and hrs ar) Staff**Psychiatry****Adult Psychiatry (AdPy)****SPECIAL TERM: JUNE 22-SEPTEMBER 11****5109. ADULT PSYCHIATRY.** (9 cr per period; prereq med student) Olson

Clinical exposure to psychiatric problems in the general practice of psychiatry in acute care hospital and community settings. Experience in clinical evaluation and follow-up of patients with acute illness. Contact Arthur Aufderheide, M.D., St. Luke's Hospital, 915 East First Street, Duluth; telephone (218) 727-6636, ext. 660.

5110. CONTEMPORARY HOSPITAL PSYCHIATRY. (9 cr per period; prereq med student) Cowan
Experience with evaluation and treatment techniques currently practiced in a general hospital mental health center. The student will be assigned two or three new patients per week, having primary responsibility for care under the supervision of the attending physician and working with the multidisciplinary treatment staff. Contact Arthur Aufderheide, M.D., at St. Luke's Hospital, 915 East First Street, Duluth; telephone (218) 727-6636, ext. 660.

5120. LEARNING PSYCHIATRY: DIAGNOSIS, MANAGEMENT, AND TREATMENT. (Veterans Administration Medical Center). (9 cr per period; prereq med student) Murtaugh

Clinical experience in working with psychiatric patients, emphasizing the development of interviewing and diagnostic skills, knowledge of appropriate treatment modalities, programming treatments, and use of the multidisciplinary team approach in overall treatment.

5222. PRECEPTORSHIPS IN PSYCHIATRY. (9 cr per period; prereq med student) Erickson, Tuason
A number of preceptorships in outstate areas in Minnesota are available for students interested in full-time tutorial experience with a psychiatrist in private practice serving smaller communities. Preceptorships in the Twin Cities are also available to give students the opportunity to function as primary physicians (with supervision by a psychiatrist) in an inpatient psychiatry service in a downtown metropolitan medical complex.

5500. COMBINED INPATIENT AND CRISIS INTERVENTION CENTER (Hennepin County Medical Center). (9 cr per period; prereq med student) Dean

Experience on Adult Inpatient Unit; emphasizes diagnosis and team treatment. This is combined with work in the emergency room of the Crisis Intervention Unit; includes rapid evaluation, prompt psychosocial intervention, home visits, suicide phone experience, agency contacts, individual patient responsibility, and seminars.

5501. CLINICAL PSYCHIATRY (St. Paul-Ramsey Medical Center). (9 cr per period; prereq med student) Tuason

Identifying various psychiatric disorders; their natural history, course, and therapeutic treatment. Students will be involved in the operations of adult inpatient psychiatry, under direct staff supervision as a key member of a psychiatric team.

5506. ADULT OUTPATIENT PSYCHIATRY (University Hospitals, Outpatient Psychiatry Department). (9 cr per period; prereq med student; Mayo A682) Mitchell, Pyle

Students will function as part of a mental health team in an outpatient psychiatric clinic focusing on psychiatric evaluation, short-term treatment of psychiatric problems, and psychopharmacology. Emphasis on psychiatry for the primary care physician.

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

5507. CLINICAL RESEARCH IN PSYCHIATRY (University Hospitals, Station 61). (9 cr per period; prereq med student) Heston
General adult psychiatry with emphasis on pharmacological treatment and research. Work with inpatients and outpatients.

5508. ADULT GENERAL PSYCHIATRY (University Hospitals, Station 60). (9 cr per period; prereq med student) Kroll
General adult psychiatry with emphasis on acutely ill patients and outpatient follow-up.

5510. INTERDISCIPLINARY CLINICAL TEAM SERVICES FOR THE AGING. (Cr ar; prereq med student) Garetz, Meier
As members of interdisciplinary clinical teams, students will provide services designed to maintain realistic levels of health in the frail and well elderly in nontraditional community sites in which the elderly are served, including senior citizens centers, day care centers, and congregate living complexes.

5511. PSYCHIATRY IN MEDICINE: CONSULTATION-LIAISON (University Hospitals). (9 cr per period; prereq med student) Popkin, Mackenzie
Students assist in psychiatric consultation to other services in University Hospitals under direct supervision of staff.

5512. PSYCHOLOGIC ASPECTS OF MEDICAL PRACTICE (Veterans Administration Medical Center). (9 cr per period; prereq med student) Heefner, Nesheim
Emphasis on practical management of common medical and psychosomatic problems. Particularly suited to students entering a primary care discipline or those wishing a survey exposure to the psychological aspects of day-to-day medical practice.

5513. ST. MARY'S REHABILITATION CENTER—ADULT CHEMICAL DEPENDENCY PROGRAM (St. Mary's Rehabilitation Center). (4.5 or 9 cr per period; prereq med student) Mann
Involvement in inpatient service and outpatient follow-up program.

5515. NEUROPSYCHOLOGY (University Hospitals). (9 cr per period; prereq med student) Meier
Screening for impairments of higher cortical functions as a basis for differentiating functional from organic determinants of behavior change. Fundamental clinical competencies in application of screening battery established.

5516. ST. MARY'S REHABILITATION CENTER—ADULT CHEMICAL DEPENDENCY PROGRAM (St. Mary's Rehabilitation Center). (4.5 or 9 cr per period; prereq med student) Mann
As a member of a multidisciplinary treatment team, the student becomes a cofacilitator of patient and family group therapy sessions; involvement in inpatient service and outpatient program.

5518. COMMUNITY PSYCHIATRY (Five-County Human Development Program, Inc., Braham). (9 cr per period; prereq med student) Kollmorgen, staff
Participation as a physician member of a multidisciplinary team composed of health science students and mental health professionals.

5519. CLINICAL PSYCHIATRY (Abbott-Northwestern Hospital). (9 cr per period; prereq med student) Mayberg
Training and supervision in individual therapy, psychiatric hospital management, community psychiatry, group therapy, and an innovative program in the use of some newer techniques of psychiatric intervention such as movement therapy and Gestalt programs.

5521. COMMUNITY PSYCHIATRY (Dakota County Mental Health Center). (9 cr per period; prereq med student) Nagobads
Experience in outpatient community psychiatry. Useful for students considering family practice.

5530. INDEPENDENT STUDY. (Up to 9 cr per period; prereq med student; hrs ar) Heston
Completion of individual projects or study courses in psychiatry or basic sciences.

5602. CLINICAL PSYCHOPHARMACOLOGY SEMINAR. (1 cr; prereq #; hrs ar) Abuzzahab
Structured discussion of current problems in clinical psychopharmacology.

SPECIAL TERM: JULY 1-SEPTEMBER 11

5800. CASE CONFERENCE; PSYCHIATRY IN MEDICINE. (1 cr; prereq MD or #) Popkin, MacKenzie, and Brantner.

Courses preceded by ● have limited enrollment and must be reserved.

- 5801. CONSULTATION-LIAISON PSYCHIATRY.** (Cr ar; prereq MD) Popkin, MacKenzie, and staff
- 5810. ALCOHOL, DRUG ABUSE.** (3 cr; prereq #) Westermeyer
- 8201. CLINICAL PSYCHIATRY.** (Up to 12 cr per qtr; hrs ar) Staff
- 8203. ADVANCED CLINICAL PSYCHIATRY.** (Up to 12 cr per qtr; hrs ar) Staff
- 8205. SPECIAL ASSIGNMENTS.** (Up to 12 cr per qtr; hrs ar) Staff
- 8206. RESEARCH.** (Up to 12 cr per qtr; hrs ar) Staff
- 8208. SURVEY OF PHYSIOLOGICAL TREATMENTS.** (2 cr; hrs ar) Eckert
- 8221. SEMINAR: CURRENT LITERATURE (Hennepin County Medical Center).** (1 cr; hrs ar) Simon
- 8225. TECHNIQUES OF EVALUATION.** (1 cr; hrs ar) Miner, Moore
- 8265. READINGS, PSYCHOSOMATIC MEDICINE, CONSULTATION-LIAISON PSYCHIATRY.** (Cr ar [max 3]; prereq MD, #) Popkin, MacKenzie
- 8970. DIRECTED STUDY.** (Up to 9 cr per qtr; hrs ar) Staff

Child and Adolescent Psychiatry (CAPy)

FIRST TERM

- 5203. CHILD AND ADOLESCENT OUTPATIENT PSYCHIATRY FOR HEALTH CARE PSYCHOLOGY INTERNS.** (Cr ar; prereq #) Erbaugh
Experience in assessment and therapeutic interventions with children, adolescents, and families in an outpatient child and adolescent psychiatric setting.
- 5204. DIAGNOSTIC METHODS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY.** (1 cr; prereq med student, #; hrs ar) Greenberg, staff
Multidisciplinary evaluations of children, adolescents, and their families are presented for discussion, dynamic and diagnostic formulations, and disposition planning in conference setting.
- 5206. THERAPEUTIC METHODS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY.** (1 cr; prereq med student, #; hrs ar) Lawton, staff
Therapeutic techniques utilized in child, adolescent, and family psychiatry are reviewed through presentation and discussion of ongoing cases.
- 5500. PEDIATRIC PSYCHIATRY LIAISON.** (9 cr; prereq med student, #) Pearson
Supervised consultation, diagnostic, and short-term therapy experience in pediatrics and pediatric neurology.
- 5522. CLINICAL INPATIENT ADOLESCENT PSYCHIATRY.** (9 cr per period; prereq med student; hrs ar) Erickson, staff
Supervised diagnostic and therapeutic experiences in an inpatient, multidisciplinary adolescent psychiatry unit with an emphasis on group and milieu therapies.
- 5602. INTRODUCTORY READINGS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY.** (1 cr; hrs ar) Miner, staff
Assigned readings and discussions with faculty. A survey course; includes child development, diagnostic and therapeutic techniques, and psychopathology.
- 5603. INPATIENT CLINICAL CHILD PSYCHIATRY.** (9 cr per term; prereq med student; hrs ar) Moore
Supervised diagnostic and therapeutic experiences in an inpatient, multidisciplinary child psychiatry unit with emphasis on groups and milieu therapies.
- 5608. INTRODUCTION TO FAMILY THERAPY: THEORY AND PRACTICE.** (1 cr; 1 hr ar; prereq MD, course in basic psychopathology or equiv, current supervision of treatment cases, and #) Miner and staff
Introduction to the ideas and treatment approaches of some of the major figures in the current clinical practice of psychotherapy with families: Carl Whitaker, Salvador Minuchin, Lyman Wynne, Jay Haley, Murray Bowen, Virginia Satire and others; practice training experience in problems and techniques for beginning family therapists through review and discussion of videotapes of current treatment cases of course participants.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

5609. CHILD DEVELOPMENT PRACTICUM. (Cr ar; 2½ hrs ar; prereq MD and/or #) Greenberg, staff
Observation conducted at the University Child Care Center consisting of three sessions with infants, three sessions with toddlers, and four sessions with preschoolers. Each session consists of one hour of observation of unstructured activities under the guidance of faculty members, one hour of group discussion with child psychiatry and child development faculty members, and one hour of demonstration illustrating the characteristic behaviors of each age group.

8100. READINGS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY. (1 cr; hrs ar) Greenberg, staff
Comprehensive review of the classical and contemporary literature in the field of child, adolescent, and family psychiatry including growth and development, diagnostic and therapeutic techniques, and psychopathology, with supplemental course work in other departments and schools.

8110. DIAGNOSTIC METHODS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY. (1 cr; hrs ar) Greenberg, staff
See 5204.

8120. THERAPEUTIC METHODS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY. (1 cr; hrs ar) Lawton, staff
See 5206.

8200. OUTPATIENT CLINICAL CHILD AND ADOLESCENT PSYCHIATRY. (3 cr; 15-30 hrs per wk) Greenberg, Erbaugh
Supervised diagnostic and therapeutic experiences in an outpatient setting.

8212. CLINICAL INPATIENT CHILD PSYCHIATRY. (3 cr; 15-30 hrs per wk) Moore, staff
Supervised diagnostic and therapeutic experiences in an inpatient, multidisciplinary child psychiatry unit with an emphasis on group and milieu therapies.

8214. INPATIENT CLINICAL ADOLESCENT PSYCHIATRY. (3 cr; hrs ar) Erickson, staff
Supervised diagnostic and therapeutic experiences in an inpatient, multidisciplinary adolescent psychiatry unit with an emphasis on group and milieu therapies.

8216. PEDIATRIC—PSYCHIATRY LIAISON. (3 cr; prereq med student, #; hrs ar) Pearson, Jensen
See 5500.

8228. RESEARCH IN CHILD AND ADOLESCENT PSYCHIATRY. (1 cr; hrs ar) Greenberg, Yellin
Research design, methodology, and current research projects are reviewed with faculty members and invited guests.

SECOND TERM

5203. CHILD AND ADOLESCENT OUTPATIENT PSYCHIATRY FOR HEALTH CARE PSYCHOLOGY INTERNS. (Cr ar; prereq #) Erbaugh
See First Term.

5204. DIAGNOSTIC METHODS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY. (1 cr; prereq med student, #; hrs ar) Greenberg, staff
See First Term.

5206. THERAPEUTIC METHODS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY. (1 cr; prereq med student, #; hrs ar) Lawton, staff
See First Term.

5500. PEDIATRIC—PSYCHIATRY LIAISON. (9 cr; prereq med student, #) Pearson
See First Term.

5522. CLINICAL INPATIENT ADOLESCENT PSYCHIATRY (University Hospitals, Station 62). (9 cr per period; prereq med student; hrs ar) Erickson
See First Term.

5602. INTRODUCTORY READINGS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY. (1 cr; hrs ar) Miner, staff
See First Term.

Courses preceded by ● have limited enrollment and must be reserved.

- 5603. INPATIENT CLINICAL CHILD PSYCHIATRY.** (9 cr per term; prereq med student; hrs ar) Moore
See First Term.
- 5608. INTRODUCTION TO FAMILY THERAPY: THEORY AND PRACTICE.** (1 cr; 1 hr ar; prereq MD, course in basic psychopathology or equiv, current supervision treatment cases, and #) Miner and staff
See First Term.
- 5609. CHILD DEVELOPMENT PRACTICUM.** (Cr ar; 2½ hrs ar; prereq MD and/or #) Greenberg, staff
See First Term.
- 8100. READINGS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY.** (1 cr; hrs ar) Greenberg, staff
See First Term.
- 8110. DIAGNOSTIC METHODS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY.** (1 cr; hrs ar) Greenberg, staff
See 5204 First Term.
- 8120. THERAPEUTIC METHODS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY.** (1 cr; hrs ar) Lawton, staff
See 5206 First Term.
- 8200. OUTPATIENT CLINICAL CHILD AND ADOLESCENT PSYCHIATRY.** (3-6 cr; 15-30 hrs per wk) Greenberg
See First Term.
- 8212. CLINICAL INPATIENT CHILD PSYCHIATRY.** (Cr ar; 15-30 hrs per wk) Moore, staff
See First Term.
- 8214. INPATIENT CLINICAL ADOLESCENT PSYCHIATRY.** (Cr and hrs ar) Erickson, staff
See First Term.
- 8216. PEDIATRIC—PSYCHIATRY LIAISON.** (3 cr; prereq med student, #; hrs ar) Pearson
See First Term.
- 8228. RESEARCH IN CHILD AND ADOLESCENT PSYCHIATRY.** (1 cr; hrs ar) Yellin
See First Term.

Radiology (Rad)

SPECIAL TERM: THREE-WEEK COURSES

Elective Courses for Third- and Fourth-Year Students

- 5102. EXTERNSHIP: DIAGNOSTIC RADIOLOGY (Veterans Administration Hospital).** (Cr and hrs ar; prereq regis med) Reinke
- 5103. EXTERNSHIP: DIAGNOSTIC RADIOLOGY (Hennepin County Medical Center).** (Cr and hrs ar; prereq regis med) Tsai
- 5104. EXTERNSHIP: DIAGNOSTIC RADIOLOGY (St. Paul-Ramsey Medical Center).** (Cr and hrs ar; prereq regis med) Olson, Smith
- 5105. EXTERNSHIP: DIAGNOSTIC RADIOLOGY (St. Luke's Hospital, Duluth).** (Cr and hrs ar; prereq regis med) Ahrens, staff
- 5140. SPECIAL PROBLEMS: ROENTGENOLOGY.** (Cr and hrs ar; prereq regis med) Gedgaudas, staff
- 5240. SPECIAL PROBLEMS: NUCLEAR MEDICINE.** (Cr and hrs ar; prereq regis med) Loken, staff
- 5530. EXTERNSHIP: NUCLEAR MEDICINE.** (Cr and hrs ar; prereq regis med) Loken, staff
- 5101. EXTERNSHIP: DIAGNOSTIC RADIOLOGY (University Hospitals).** (Cr and hrs ar; prereq regis med) Gedgaudas, staff

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

FIRST AND SECOND TERMS: TEN-WEEK COURSES

Required Courses for Graduate Students

0121. MEDICAL ROENTGENOLOGIC CONFERENCE. (No cr; 1130-1200 T; Hosp Todd Amph) Gedgaudas, staff

Weekly meetings with the medical staff at which all the important medical cases that have used X-ray diagnostic procedures are reviewed from both the clinical and roentgenologic points of view.

0122. PEDIATRIC ROENTGENOLOGIC CONFERENCE. (No cr; 0930-1000 MTWThF; Rigler Library) L'Heureux

Daily meetings with the pediatric staff at which all the important pediatric cases that have used X-ray diagnostic procedures are reviewed from both the clinical and roentgenologic points of view.

0123. SURGICAL ROENTGENOLOGIC CONFERENCE. (No cr; 0905-0955 S; Hosp Todd Amph) Amplatz

Weekly meetings with the surgical staff at which all the important surgical cases that have used X-ray diagnostic procedures are reviewed from both the clinical and roentgenologic points of view.

0124. NEUROSURGICAL ROENTGENOLOGIC CONFERENCE. (No cr; 1325-1415 F; Hosp Todd Amph) Gold

Weekly meetings with the neurosurgical staff at which all the important neurosurgical cases that have used X-ray diagnostic procedures are reviewed from both the clinical and roentgenologic points of view.

0125. CARDIOVASCULAR ROENTGENOLOGIC CONFERENCE. (No cr; 1200-1300 Th; Rigler Library) Amplatz

8100. GASTROINTESTINAL ROENTGENOLOGY. (Cr ar; prereq #) Feinberg

8101. UROLOGIC ROENTGENOLOGY. (Cr ar; prereq #) Goldberg

8102. NEUROLOGICAL ROENTGENOLOGY. (Cr ar; prereq #) Gold

8103. CARDIOVASCULAR ROENTGENOLOGY. (Cr ar; prereq #) Amplatz

8104. PEDIATRIC ROENTGENOLOGY. (Cr ar; prereq #) L'Heureux

8105. PULMONARY ROENTGENOLOGY. (Cr ar; prereq #) Gedgaudas, staff

8150. RESEARCH: ROENTGENOLOGY. (Cr ar) Gedgaudas, staff
Problems in roentgen diagnosis.

8200. NUCLEAR MEDICINE. (Cr ar) Loken, staff

8450. RESEARCH: RADIATION BIOLOGY, NUCLEAR MEDICINE. (Cr ar) Staff

Surgery (Surg)

SPECIAL TERMS: JUNE 22-JULY 31 AND AUGUST 3-SEPTEMBER 11

Elective Courses for Undergraduate Students

5500. EXTERNSHIP IN GENERAL SURGERY (University and Affiliated Hospitals). (Cr ar; prereq regis med) Najarian, staff

5523. EXTERNSHIP IN COLON AND RECTAL SURGERY (Veterans Administration Hospital). (4.5 cr; offered all periods except 5; prereq regis med; 3 weeks) Goldberg

SPECIAL TERMS: JUNE 29-AUGUST 7 AND AUGUST 10-SEPTEMBER 18

Required Courses for Graduate Students

8200. CLINICAL SURGICAL PROBLEMS AND MANAGEMENT. (5 cr; ar MTWThF) Najarian, staff

8201. SURGERY-ROENTGENOLOGY-PATHOLOGY CONFERENCE. (1 cr; 0905-1310 S; Todd Amph) Najarian

Courses preceded by • have limited enrollment and must be reserved.

8202. SURGICAL RESEARCH. (5 cr; ar MTWThF; Sur Res Lab) Staff

8203. SURGERY COMPLICATIONS AND RESEARCH CONFERENCE. (1 cr; 1640-1730 T; PWB 11-157) Najarian, staff

8207. TRANSPLANTATION AND BONE MARROW CONFERENCE. (1 cr; 1640-1730 Th; PWB 11-157) Surgery and Pathology staffs

Therapeutic Radiology (TRad)

FIRST AND SECOND TERMS: TEN-WEEK COURSES

5340. SPECIAL PROBLEMS IN RADIATION THERAPY. (Cr ar; prereq regis med)

5505. EXTERNSHIP IN RADIATION THERAPY. (Cr ar; prereq regis med) Levitt, Jones, Haselow, Kim, Lee, Potish

5506. CANCER DIAGNOSIS AND TREATMENT. (Cr ar; prereq regis med) Levitt, Jones, Haselow, Kim, Lee, Potish

5507. ADVANCED EXTERNSHIP IN RADIATION THERAPY. (Cr ar; prereq regis med) Levitt, Jones, Haselow, Kim, Lee, Potish

5508. SPECIAL PROBLEMS IN RADIATION BIOLOGY. (Cr ar)

5512. DOSIMETRY OF INTERNAL AND EXTERNAL RADIATION. (1 cr; 0830-0930 W; B141 Mayo) Khan, Sharma, Werner, Deibel

5540. SPECIAL PROBLEMS IN RADIOLOGICAL PHYSICS. (Cr ar; prereq regis med) Khan, Loken, Sharma

8300. RADIATION THERAPY. (Cr ar)

8310. FUNDAMENTALS OF RADIATION THERAPY. (1 cr; 1600-1700 M; B141 Mayo)

8315. RADIATION THERAPY PATHOLOGY. (1 cr)

8320. RADIATION THERAPY TREATMENT PLANNING PROBLEMS. (1 cr)

8325. RADIATION THERAPY PEDIATRICS ONCOLOGY. (1 cr)

8350. RESEARCH IN RADIATION THERAPY. (Cr ar)

8410. SEMINAR: RADIATION BIOLOGY. (1 cr; prereq #) Song, Buchsbaum, Rappaport

8450. RESEARCH IN RADIATION BIOLOGY. (Cr ar) Song, Buchsbaum, Rappaport

8550. RESEARCH IN RADIOLOGICAL PHYSICS. (Cr ar) Khan, Loken, Sharma

Urologic Surgery (Urol)

FIRST TERM

5180. EXTERNSHIP IN UROLOGY. (Cr and hrs ar) Staff

Required Courses for Graduate Students

8250. UROLOGICAL SURGERY. (4 cr; 0900-1200 MTThF; Main OR-H) Fraley, others
Urological fellow first assists at operations in the University Hospitals and later is permitted to operate under supervision of the staff.

8251. CYSTOSCOPY AND UROLOGICAL DIAGNOSIS. (4 cr; 0800-1200 MTWThF; Cysto Suite) Fraley, others
Urological fellow performs cystoscopies and other diagnostic procedures.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

8252. UROLOGICAL CONFERENCE. (4 cr; 1600-1700 F, Ward Rds, Sta 57; 0900-1100 S, Sta 57 Conf Rm) Fraley, others
Problems in diagnosis and treatment.

8253. RESEARCH: UROLOGY. (4 cr) Fraley, others
Problems in experimental and clinical surgery.

8254. UROLOGICAL SEMINAR. (3 cr) Fraley, others

8255. UROLOGICAL-RADIOLOGICAL CONFERENCE. (3 cr; 1300-1400 MTWThF; Mayo A503)
Fraley, others

8256. UROLOGICAL-PATHOLOGICAL CONFERENCE. (3 cr; 1640-1700 W; Mayo A503) Fraley, others

SECOND TERM

5180. EXTERNSHIP IN UROLOGY. (Cr and hrs ar) Staff

Required Courses for Graduate Students

8250. UROLOGICAL SURGERY. (4 cr; 0900-1200 MTThF; Main OR-H) Fraley, others
See First Term.

8251. CYSTOSCOPY AND UROLOGICAL DIAGNOSIS. (4 cr; 0800-1200 MTWThF; Cysto Suite)
Fraley, others
See First Term.

8252. UROLOGICAL CONFERENCE. (4 cr; 1600-1700 F, Ward Rds, Sta 57; 0900-1100 S, Sta 57 Conf Rm) Fraley, others
See First Term.

8253. RESEARCH: UROLOGY. (4 cr) Fraley, others
See First Term.

8254. UROLOGICAL SEMINAR. (3 cr) Fraley, others

8255. UROLOGICAL-RADIOLOGICAL CONFERENCE. (3 cr; 1300-1400 MTWThF; Mayo A503)
Fraley, others

8256. UROLOGICAL-PATHOLOGICAL CONFERENCE. (3 cr; 1630-1700 W; Mayo A503) Fraley, others

DEPARTMENT OF MORTUARY SCIENCE

Mortuary Science (Mort)

All courses must be reserved in 114 Vincent Hall (see instructions under "Reserved Courses").

FIRST TERM

3001. ORIENTATION IN FUNERAL SERVICE. (4 cr; 1200-1310 MTWThF; JOAd 2-125) Burger, Mathews

Overview of the funeral service profession, including history, vocabulary, and professional experiences in technical and management areas.

● **5040. DEATH EDUCATION IN CONTEMPORARY SOCIETY—June 16-July 2.** (3 cr, §PubH 5040, §HSU 5040, §Hlth 5402; limited to 100 students; prereq mortuary science major, education sr, certified teacher, health science major, school or public health nurse or #; 1330-1600 MTWThF; HSUnit A 2620) Rothenberger, Slater, Cobb

Basic background information on concepts and attitudes toward death, grief, and bereavement with emphasis on instructional aspects for the elementary and secondary schools and the role of the school in suicide prevention.

Courses preceded by ● have limited enrollment and must be reserved.

FIRST AND SECOND TERMS: TEN-WEEK COURSE

3080. PRACTICUM IN FUNERAL SERVICE. (15 cr; prereq 3001, 3010, 3030, 3040, 3050, 3060, 3070, 3071, 3270, 3271, LaMP 3050, minimum of 8 nondepartmental upper division cr, Δ ; S-N grading) Practical experience in a funeral home as assigned by the department; reports and assigned readings in funeral service literature.

SECOND TERM

3030. EMBALMING CHEMISTRY. (4 cr; prereq introductory course in general chemistry, regis in mortuary science; 0800-0955 MTWTh; JacH 2-153) Mathews Fundamentals of organic chemistry and biochemistry. Chemical changes in the human body during life, after death, and during chemical preservation. Disinfection, solutions, toxicology, and embalming fluids.

3040. PSYCHOLOGY OF FUNERAL SERVICE. (3 cr; prereq introductory course in general psychology; 1010-1100 MTWThF; JOAd 2-125) Burger Applied psychological principles helpful in dealing with clients, especially those experiencing emotional crisis.

SCHOOL OF NURSING

Nursing (Nurs)

Limited enrollment and reserved courses must be reserved in 3320 Powell Hall.

FIRST TERM

5706. NURSING OF THE PERSON WITH CANCER. (6 cr; prereq 5611, 5612, 5613, 5614; seminar 1015-1200 M, 1315-1500 Th; lab ar) Rothweiler Designed to enable the student to gain added knowledge and experience in facilitating both the individual's and family's adaptation to cancer.

● **5730. NURSING AND DRUG THERAPY I.** (3 cr; prereq any two of the following: 5611, 5612, 5613, 5614...or RN; seminar 1415-1600 M) Accola

Sec 2, Reviews common drugs affecting the cardiovascular, renal, endocrine, and autonomic nervous systems. Builds on the students' past knowledge in physiology, pathophysiology, pharmacology and synthesis. Emphasis on assessing the desired effects, side effects, and interactions of common drugs; determining appropriate nursing interventions related to use of the drugs; and using the nursing process and helping relationships to teach clients what they need to know about the drugs they use.

5799. SELF-DIRECTED STUDY. (Cr ar; prereq any two of the following: 5611, 5612, 5613, 5614, written contract with instructor, #; may be used to meet any portion of nursing elective cr requirement) Staff

Sec 1, Opportunity for students to engage in learning experiences not provided for in established nursing elective courses.

8001. SPECIAL EDUCATIONAL EXPERIENCES IN NURSING. (Cr ar; prereq Δ) Staff Various learning experiences planned to meet individual needs.

8009. SPECIAL TOPICS IN NURSING. (Cr ar; prereq #) Staff

● **8010. STRUCTURE OF THE DISCIPLINE OF NURSING.** (3 cr; must be reserved; prereq Δ) The purposes, characteristics, and kinds of structures of nursing with emphasis on theories, models, and conceptual frameworks.

Sec 1, 1315-1600 TTh, Sime

8050. PROBLEMS IN NURSING. (1-9 cr; prereq #) Staff

Sec 1, Individual study of a problem.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

8060. ADVANCED CLINICAL NURSING. (Cr ar; prereq #) Staff

8509. SPECIAL TOPICS IN NURSING EDUCATION. (Cr ar; prereq #) Staff

8609. SPECIAL TOPICS IN NURSING SUPERVISION. (Cr ar) Staff

FIRST AND SECOND TERMS: TEN-WEEK COURSES

5612. SYNTHESIS INCORPORATING CONCEPTS OF STRESS AND CRISIS. (4 cr; 10 wks; prereq 5407, 5408, 5409, 5404, 5405 or ¶5405, abnormal psychology, Phcl 1009, LaMP 5171 or ¶LaMP 5171; lect 1015-1200 M)

Clinical course that focuses on the synthesis of systematic process, adaptation, helping relationships, and tools in care of patient/clients experiencing stress or crisis. Examines dimensions of the stress experience exemplified in patient/clients experiencing various types of crises. Emphasizes priority setting and nursing interventions for acute situations.

Labs ar
1. Reese
2. Reese
3. Schmid
4. Schmid

● **5614. SYNTHESIS INCORPORATING CONCEPTS OF HEALTH.** (3 cr; each lab limited to 8 students; prereq 5404, 5405 or ¶5405, 5407, 5408, 5409, abnormal psychology, Phcl 1009, LaMP 5171 or ¶LaMP 5171; lecture, 1315-1500 F)

Clinical course that focuses on the synthesis of systematic process, adaptation, helping relationships, and tools in the care of recipients who are not experiencing any major disruptive life event. Some constructs used in conceptualizing health and their relationship to individual and family development. Emphasis on goals and nursing interventions aimed at promotion of health and prevention of disease.

Labs ar
1. Jones
2. Jones
3. Ryden
4. Ryden

● **5615. SYNTHESIS IN COMPLEX NURSING SITUATIONS.** (5 cr; each lab limited to 8 students; prereq 5611, 5612, 5613, 5614, FScN 3602; seminar 1415-1600 W)

Clinical course designed to allow students to synthesize the knowledge and skills acquired in the four prerequisite synthesis courses into comprehensive and effective care of individuals and groups experiencing complex disruptive life events.

Labs ar
1. Urueta
2. Urueta
3. Weisensee

● **5620. INDEPENDENT STUDY IN NURSING TOPICS.** (1-9 cr; prereq #) Staff

Sec 1, Opportunity for students to develop and engage in learning experiences beyond those required in the program. A contract with a faculty adviser is required.

● **5700. CRITICAL CARE NURSING.** (5 cr; limited to 5 students; prereq 5611, 5612, 5613, 5614) Jackle Group presentations and discussions, individualized instruction, and supervised clinical experience focusing on care of acutely ill recipients at the primary nurse level.

● **5701. NURSING CARE OF THE EXPANDING FAMILY.** (6 cr; limited to 8 students; prereq 5611, 5612, 5613, 5614) Fairbanks

Application of previous studies and the concept of primary prevention in the nursing care of families during the reproductive process. Opportunity to work with families both within and outside of the hospital.

Lect, 1315-1500 F
Lab, 0730-1200 WF

● **5703. THE FUTURE IS NOW.** (2-3 cr; limited to 15 students minimum and 25 students maximum; prereq any two of the following: 5611, 5612, 5613, 5614; 1415-1600 M) Weisensee

Designed to increase students' awareness of controversial views regarding the future. Interrelationships of the individual with the environment with emphasis on aspects that will influence health care needs in the next century.

Courses preceded by ● have limited enrollment and must be reserved.

- 5714. HEALTH ASSESSMENT.** (3 cr; 0900-1100 MW) Burns
 Designed to assist the student in the development of skills utilized in systematic client assessment. Emphasis on the interpretation of normal findings, distinguishing normal from abnormal findings, and the communication of findings to appropriate health professionals. Use of conceptual framework to determine factors appropriate for nursing assessment will be included.
- **5725. LEGAL PARAMETERS OF NURSING PRACTICE.** (2 cr; completion of two Level II synthesis courses or RN with abnormal psychology; 5409; seminar 1215-1300 T) Accola
 Sec 1, Designed to increase the student's knowledge of legal terminology, and ability to provide high quality nursing care and prevent malpractice suits, especially in suit-prone clients. Content applicable to normal and emergency situations and to employers as well as employees.
- **5730. NURSING AND DRUG THERAPY I.** (3 cr; prereq any two of the following: 5611, 5612, 5613, 5614...or RN; seminar 1215-1300 W) Accola
 Sec 1, See First Term.
- 5799. SELF-DIRECTED STUDY.** (Cr ar; prereq any two of the following: 5611, 5612, 5613, 5614...written contract with instructor, #; may be used to meet any portion of nursing elective cr requirement) Staff
 Sec 2, See First Term.
- 5816. LEADERSHIP MANAGEMENT.** (6 cr; prereq 5611, 5612, 5613, 5614, FScN 3602; lect 1015-1200 M)
 Clinical course introducing basic management and change theory and practice. Provides students with experience in functioning as a first-level manager within a peer group in a clinical setting.
 Labs ar
- | |
|-------------|
| 1. Colloton |
| 2. Canedy |
| 3. Canedy |
- **8011. MORAL AND ETHICAL POSITIONS IN NURSING.** (3 cr; must be reserved; prereq Δ)
 Influence of moral and ethical positions on behavior and decision making in nursing. Emphasis on bases for positions taken, such as selected moral and ethical theories, rights and responsibilities, and conflict.
 Sec 1, 0800-1100 W, Crisham
 Sec 2, 1615-1900 Th, Weise
- **8014. RESEARCH IN NURSING.** (3 cr; must be reserved; prereq inferential statistics, Δ ; 0815-1100 F) Feldman
 Research processes and methodologies appropriate to nursing. Analysis of research reports.
- **8030. NURSING INTERVENTION MODELS.** (8 cr; must be reserved; prereq 8011 or 8011, 8012)
 Developing, providing and evaluating nursing intervention with a specified client population. Students register for a section that focuses on a specific population.
 Sec 1, 1215-1400 TTh, Gordon, Mansfield
 Sec 2, 1215-1400 TTh, Taylor
 Sec 3, 1600-1800 Th, Burns
 Sec 4, 1600-1800 TTh, Maykoski
- 8050. PROBLEMS IN NURSING.** (1-9 cr; prereq #) Staff
 Sec 2, See First Term.
- 8051. SPECIAL TOPICS IN NURSING RESEARCH.** (1-9 cr; must be reserved; prereq #; 0815-1100 W) Duxbury
 Seminar and/or individual study.
- 8315. NURSE MIDWIFERY MANAGEMENT.** (8-10 cr; prereq 8314; 1230-1630 W) Dineen
 Theory and clinical experience in management and care of the laboring woman/couple through the six-week restorative period. Early care of the newborn is an integrated component.
- **8411. KNOWLEDGE DEVELOPMENT UNDERLYING NURSING THERAPY.** (4-6 cr; must be reserved; prereq 8030; 1015-1200 TTh, lab ar) Snyder
 Development of nursing practice for a specified client population. Focus on one element or aspect of an intervention model to expand knowledge in that area. Relevant research literature evaluated.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **8415. NURSE CLINICAL ROLE DEVELOPMENT.** (6-9 cr; must be reserved; prereq any Nursing Focus I course, a course dealing with the health care delivery system; 1600-1800 T) Schumann
Selection and development of a role, either a nurse clinician-specialist or nurse clinician-generalist. Aspects of the role may include patient care, consultation, staff development, research, coordination, and collaboration.

● **8422. PSYCHIATRIC-MENTAL HEALTH NURSING: FAMILY DYNAMICS AND THERAPY.** (3 cr; must be reserved; prereq 8421; 1015-1200 Th, lab ar) Kjervik
Family dynamics, development, and communication patterns. Relationship of selected family to community using concepts from systems theory. Clinical practice in family therapy.

● **8431. CHILDBEARING-CHILDBEARING FAMILY NURSING I.** (4-6 cr; must be reserved; prereq 8030; 1015-1200 T) Gronseth

Maintenance, promotion, improvement, and restoration of health in the childbearing-childrearing family unit. Theoretical concepts related to women, children and families, and family development.

8435. CHILDBEARING-CHILDBEARING FAMILY NURSING II. (6-9 cr; prereq 8431 or #; 1015-1200 TTh) Rode

Development, synthesis, and utilization of intervention models as applied to a child and his or her family and to a childbearing family unit.

● **8451. TEACHING NURSING.** (4 cr; must be reserved; prereq any section of 8030, 1 course in learning theory and #; 1215-1400 TTh, lab 1215-1500 W) Corcoran

Use of theories of learning to develop an intervention model for teaching nursing. Testing the intervention model in simulated situations.

● **8455. THE NURSE EDUCATOR IN HIGHER EDUCATION.** (6 cr; must be reserved; prereq 8451, 1 course in educational measurement, #; 1015-1200 TTh) Andrews

Analysis of roles and responsibilities of nurse educator in higher education. Data for analysis obtained through review of relevant literature and testing of roles in an academic setting.

8600. HEALTH CARE INSTITUTIONS AND NURSING LEADERSHIP. (3 cr; prereq #; 0800-0930 MTh) Hinsvark

Some aspects inherent in American society (alienation, productivity, roles, youth emphasis) and their impact on health care institutions: nurse's effects upon individuals involved in these institutions.

● **8702. NURSING ADMINISTRATION II.** (6 cr; must be reserved; prereq 8701, #; 1600-1800 Th) Edwardson

Intensive study of role of nursing administrator by application of major concepts in organization and management theory and nursing process to nursing administration. Emphasis on instituting and evaluating nursing administration goals.

SECOND TERM

5620. INDEPENDENT STUDY IN NURSING TOPICS. (1-9 cr; prereq #) Staff

Sec 2, See Ten-Week Courses.

● **5725. LEGAL PARAMETERS OF NURSING PRACTICE.** (2 cr; completion of two Level II synthesis courses or RN with abnormal psychology, 5409; seminar 1215-1400 F) Accola

Sec 2, See Ten-Week Courses.

5799. SELF-DIRECTED STUDY. (Cr ar; prereq any two of the following: 5611, 5612, 5613, 5614...written contract with instructor, #; may be used to meet any portion of nursing elective cr requirement) Staff

Sec 1, See First Term.

8001. SPECIAL EDUCATIONAL EXPERIENCES IN NURSING. (Cr ar; prereq Δ) Staff
See First Term.

8009. SPECIAL TOPICS IN NURSING. (Cr ar; prereq #) Staff

● **8012. CONCEPTUAL FRAMEWORK FOR NURSING PRACTICE.** (3 cr; must be reserved; prereq 8010 or 18010; 1315-1600 TTh) Egan

8050. PROBLEMS IN NURSING. (1-9 cr; prereq #) Staff

Sec 1, See First Term.

Courses preceded by ● have limited enrollment and must be reserved.

- 8060. ADVANCED CLINICAL NURSING.** (3-9 cr; prereq Δ , #)
8509. SPECIAL TOPICS IN NURSING EDUCATION. (Cr ar; prereq #) Staff
8609. SPECIAL TOPICS IN NURSING SUPERVISION. (Cr ar) Staff

COLLEGE OF PHARMACY

Pharmacy (Phar)

FIRST TERM

5210. TERMINOLOGY OF THE HEALTH SCIENCES. (2 cr, \S HSU 5210) Bast
Programmed learning format to familiarize students with the language of the health sciences.

SPECIAL TERM: JUNE 15-AUGUST 21

0295. PHARMACY EXTERNSHIP. (No cr; prereq 3rd-yr pharmacy student; 40 hrs per wk for 3 months)
Supervised and evaluated practical experience under college coordinated field preceptors.

0399. PHARM.D. CLERKSHIP. (No cr; prereq 5312 or #)
Monitoring of patient drug therapy in University Hospitals and other affiliated institutions.

5280. CONTEMPORARY PHARMACY. (2 cr; prereq 2nd- or 3rd-yr pharmacy student, #) Wertheimer
Contemporary topics in pharmacy.

5281. OVER-THE-COUNTER PREPARATIONS. (3 cr for 10 wks; prereq 3rd-yr pharmacy student; 1115-1320 T; HSUnitA 2-650) Scott
Evaluation of nonprescription medication and preparation of student for triage role in preventive medicine.

5290. SPECIALTY CLERKSHIPS. (Cr ar) Staff
Experience in community-based practice settings for specialized populations.

5291. HOSPITAL PHARMACY. (2 cr for 10 wks; lect and hospital visitations; 1325-1415 MW; PWB 9-222) Giese
History, organization, and administration of pharmaceutical services in institutional settings.

5295. CLINICAL RESEARCH METHODS AND BIostatISTICS. (3 cr for 10 wks; 1115-1205 TTh, 1220-1310 F; OwreH 2-230) Anderson
Introduction to fundamental mechanical and methodological aspects of clinical research. Development of biostatistical concepts used in clinical research.

5299. SPECIAL PROBLEMS. (Cr ar; prereq #)

5301. CLINICAL THERAPEUTICS. (3 cr for 10 wks; prereq 5350, Phcl 5102 or #; 1115-1205 MWF; PWB 2-470) Canafax
Clinical therapeutics of common disease entities.

5302. CLINICAL THERAPEUTICS. (3 cr for 10 wks; prereq 5350, Phcl 5102 or #; 1115-1205 MWF; OwreH 2-210) Canafax
Clinical therapeutics of common disease entities.

5307. CLINICAL CONFERENCES. (2 cr; prereq 2nd-year PharmD student X) Staff

5670. DRUG INFORMATION RETRIEVAL AND EVALUATION. (2 cr for 10 wks; 1010-1100 TTh; OwreH 2-230) Gallo
Drug information retrieval, drug information evaluation, and pharmaceutical applications.

5970. DIRECTED STUDIES. (Cr ar; prereq #)

5999. SPECIAL PROBLEMS. (Cr ar; prereq #) Staff
Research in Medicinal Chemistry, Pharmacognosy, Pharmaceutics, Social and Administrative Pharmacy, or Clinical Practice.

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

SECOND TERM

5210. TERMINOLOGY OF THE HEALTH SCIENCES. (2 cr, §HSU 5210) Bast
Programmed learning format to familiarize students with the language of the health sciences.

SCHOOL OF PUBLIC HEALTH

Public Health (PubH)

Courses with limited enrollment must be reserved in 1360 Mayo unless otherwise indicated (see instructions under "Reserved Courses").

FIRST TERM

● **3001. PERSONAL AND COMMUNITY HEALTH.** (3 cr, §3004, §GC 3114; meets with 3004, 3033; limited enrollment, reserved in JohH 12; 1010-1205 MWF; HSUnitA 2-690) Rothenberger
Fundamental principles of health conservation and disease prevention.

● **3004. BASIC CONCEPTS IN PERSONAL AND COMMUNITY HEALTH.** (5 cr, §3001, §3033, §GC 3114; limited enrollment, reserved in JohH 12, 1010-1205 MTWThF; HSUnitA 2-690) Rothenberger
Introduction to scientific, sociocultural, and attitudinal aspects of communicable and degenerative diseases, environmental and occupational health hazards, alcohol and drug problems; emphasis on role of education in health conservation, disease control, and drug abuse.

● **3033. FUNDAMENTALS OF ALCOHOL AND DRUG ABUSE.** (2 cr, §3004; meets with 3001, 3004; limited enrollment, reserved in JohH 12; 1010-1205 TTh; HSUnitA 2-690) Rothenberger
Lecture, discussion, and readings on the scientific, socioculture, and attitudinal aspects of alcohol and other drug abuse problems. Emphasis on incidence, prevalence, high risk populations, prevention, and intervention.

● **5005. TOPICS IN PUBLIC HEALTH.** (Cr ar; prereq advance proposal and #; limited enrollment) Staff
Individualized, directed instruction. Selected readings in public health with discussion based on these readings.

5006. INTRODUCTION TO COMMUNITY HEALTH. (5 cr, §5016; prereq pharmacy student, nursing student, other health professional or #; 0800-0955 MTWThF; HSUnitA 2-690) Greene, Snowdon
Lectures, discussions, seminars, individualized readings on critical and current issues in community health, emphasizing public health programs and controversies.

5015. TOPICS IN INTERDISCIPLINARY STUDIES. (Cr ar; prereq #) Staff
Individualized, directed instruction. Selected readings in interdisciplinary studies with discussion based on these readings.

● **5040. DYING AND DEATH IN CONTEMPORARY SOCIETY—June 16-July 2.** (3 cr, §Hlth 5402, §Mort 5040, §HSU 5040; prereq health science major, education senior, certified teachers, mortuary science major, public health grad student, or #; limited enrollment; 1330-1600 MTWThF; HSUA 2-620) Cobb, Rothenberger, Slater
Basic background information on concepts, attitudes, ethics, and life style management in relation to dying, death, grief, and bereavement. Emphasis will be placed on the educational aspects of the above topics for community health and helping professionals and educators.

8002. FIELD OBSERVATION OF SELECTED PUBLIC HEALTH PRACTICES. (Cr ar; prereq #) Staff
Section 1—Environmental health students only. Section 2—Other students majoring in public health.

Courses preceded by ● have limited enrollment and must be reserved.

FIRST AND SECOND TERMS: TEN-WEEK COURSES

● **5004. FIELD INSTRUCTION IN PUBLIC HEALTH.** (10 cr for 10 wks; limited enrollment; prereq grad student in public health, social work or other health or helping field...5003 offered spring 1980, and #: 20-30 hrs per wk) Cohn, Reynolds, Schwanke, Ayers
Generalized, function-oriented or discipline-oriented community experience under academic and professional supervision. Emphasis on application of acquired knowledge and skills to relevant health issues and problems. This offering: Interdisciplinary Team Building. A team field project involving the application of team skills to improve the outcome of selected public health projects. Development of skills such as resource sharing and utilization, verbal and nonverbal communications, giving and receiving feedback, leadership roles and styles, negotiations, decision making and problem solving, conflict utilization, and process intervention. See Special Programs section.

SECOND TERM

5005. TOPICS IN PUBLIC HEALTH. (Cr ar; prereq advance proposal and #: limited enrollment) Staff
See First Term.

5015. TOPICS IN INTERDISCIPLINARY STUDIES. (Cr ar; prereq #) Staff
See First Term.

8002. FIELD OBSERVATION OF SELECTED PUBLIC HEALTH PRACTICES. (Cr ar; prereq #) Staff
See First Term.

Biometry (PubH)

FIRST TERM

5400. INTRODUCTION TO QUANTITATIVE METHODS IN THE HEALTH AND LIFE SCIENCES. (4 cr; for students majoring in the biological and health sciences; prereq Biol 1011, Chem 1004-1005, Math 1231 or equiv, or #: 0800-0850 MTWThF; HSUnitA 2-680, 2-676) Le
Basic quantitative methods for the design and analysis of clinical and laboratory studies in biology and the health sciences.

5446. BIOCOMPUTING CONSULTING SEMINAR. (3 cr; prereq biometry major, 5432, 5452 or #)
Gateway

Overview of computer hardware, operating systems, languages, and program packages for health science applications. Case examples illustrate roles and responsibilities of the project manager in analyzing the requirements of the health science client, designing and specifying computer interfaces, and supervising the development, training, documentation, and evaluation.

5456. BIOMETRY CONSULTING SEMINAR. (Cr ar; prereq biometry major) Boen, staff
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. Internship experiences.

5470. TOPICS IN BIOMETRY. (Cr ar; prereq #) Staff
Selected readings with discussion based on these readings.

8400. SEMINAR IN BIOMETRY. (Cr ar) Staff

8449. TOPICS IN BIOMETRY. (Cr ar; prereq 5450 and #) Staff
Studies in special topics for advanced students.

8450. RESEARCH IN BIOMETRY. (Cr ar) Staff
Opportunities for qualified students to pursue research work.

SECOND TERM

5446. BIOCOMPUTING CONSULTING SEMINAR. (3 cr; prereq biometry major, 5432, 5452 or #)
Gateway
See First Term.

5456. BIOMETRY CONSULTING SEMINAR. (Cr ar; prereq biometry major) Boen
See First Term.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

5470. TOPICS IN BIOMETRY. (Cr ar; prereq #) Staff

See First Term.

8400. SEMINAR IN BIOMETRY. (Cr ar) Staff

8449. TOPICS IN BIOMETRY. (Cr ar; prereq 5450 and #) Staff

See First Term.

8450. RESEARCH IN BIOMETRY. (Cr ar) Staff

See First Term.

Dental Public Health (PubH)

FIRST TERM

5654. TOPICS: DENTAL PUBLIC HEALTH. (Cr ar; prereq student in dental public health or #) Staff

Selected readings with discussion based on these readings.

5657. INDEPENDENT STUDY: DENTAL PUBLIC HEALTH. (Cr ar; prereq student in dental public health or #) Block, staff

Independent study, under tutorial guidance, of selected problems and current issues in the field of dental health and dental health services.

5660. FIELD EXPERIENCE: DENTAL PUBLIC HEALTH. (Cr ar; prereq student in dental public health or #)

Supervised field experience in selected community or public health agencies and institutions.

5663. ADMINISTRATIVE RESIDENCY IN DENTAL PUBLIC HEALTH. (Cr ar; prereq #) Block, staff, clinical preceptors

Eleven months of field work in an approved community or public health agency, delivery of dental services and implementation of programs, solution of management problems, and special projects. Preparation of formal report.

SECOND TERM

5654. TOPICS: DENTAL PUBLIC HEALTH. (Cr ar; prereq #) Staff

See First Term.

5657. INDEPENDENT STUDY IN DENTAL PUBLIC HEALTH. (Cr ar; prereq #) Block, staff

See First Term.

5660. FIELD EXPERIENCE: DENTAL PUBLIC HEALTH. (Cr ar; prereq #) Block, staff

See First Term.

5663. ADMINISTRATIVE RESIDENCY IN DENTAL PUBLIC HEALTH. (Cr ar; prereq #) Block, staff, clinical preceptors

See First Term.

Environmental Health (PubH)

FIRST TERM

5150. TOPICS IN ENVIRONMENTAL HEALTH. (Cr ar; prereq #) Staff

Selected readings with discussions of problems.

5170. TOPICS IN ENVIRONMENTAL BIOLOGY. (Cr ar; prereq #) Staff

Selected readings with discussion of control techniques.

5180. TOPICS IN AIR POLLUTION. (Cr ar; prereq #) Staff

Selected readings with discussion based on these readings.

5200. TOPICS IN RADIOLOGICAL HEALTH. (Cr ar; prereq #) Staff

Selected readings with discussion based on these readings.

Courses preceded by • have limited enrollment and must be reserved.

- 5210. TOPICS IN OCCUPATIONAL HEALTH.** (Cr ar; prereq #) Staff
Selected readings with discussion based on these readings.
- 5220. TOPICS IN FOOD SANITATION.** (Cr ar; prereq #) Staff
Review of literature and practice to identify association of food sanitation problems to public health.
- 5230. TOPICS IN INSTITUTIONAL ENVIRONMENTAL HEALTH.** (Cr ar; prereq #) Staff
Review of literature and practice to identify institutional environmental health problems.
- 5240. TOPICS IN WATER HYGIENE.** (Cr ar; prereq #) Staff
Selected readings and discussions of problems relating to the health aspects of water supply and waste water systems.
- 8150. RESEARCH: ENVIRONMENTAL HEALTH.** (Cr ar) Staff
- 8170. RESEARCH: ENVIRONMENTAL BIOLOGY.** (Cr ar; prereq #) Ruschmeyer
- 8180. RESEARCH: AIR POLLUTION.** (Cr ar; prereq #) McJilton
- 8200. RESEARCH: RADIOLOGICAL HEALTH.** (Cr ar; prereq #) Barber
- 8208. FIELD PRACTICE IN RADIOLOGICAL HEALTH.** (Cr ar; prereq #) Barber
- 8210. RESEARCH: OCCUPATIONAL HEALTH.** (Cr ar; prereq #) McJilton
- 8220. RESEARCH: FOOD SANITATION.** (Cr ar; prereq #) Pflug
- 8230. RESEARCH: INSTITUTIONAL ENVIRONMENTAL HEALTH.** (Cr ar; prereq #) Vesley
- 8240. RESEARCH: WATER HYGIENE.** (Cr ar; prereq #) Straub

SECOND TERM

- 5150. TOPICS IN ENVIRONMENTAL HEALTH.** (Cr ar; prereq #) Staff
See First Term.
- 5170. TOPICS IN ENVIRONMENTAL BIOLOGY.** (Cr ar; prereq #) Staff
See First Term.
- 5180. TOPICS IN AIR POLLUTION.** (Cr ar; prereq #) Staff
See First Term.
- 5200. TOPICS IN RADIOLOGICAL HEALTH.** (Cr ar; prereq #) Staff
See First Term.
- 5210. TOPICS IN OCCUPATIONAL HEALTH.** (Cr ar; prereq #) Staff
See First Term.
- 5220. TOPICS IN FOOD SANITATION.** (Cr ar; prereq #) Staff
See First Term.
- 5230. TOPICS IN INSTITUTIONAL ENVIRONMENTAL HEALTH.** (Cr ar; prereq #) Staff
See First Term.
- 5240. TOPICS IN WATER HYGIENE.** (Cr ar; prereq #) Staff
See First Term.
- 8150. RESEARCH: ENVIRONMENTAL HEALTH.** (Cr ar) Staff
See First Term.
- 8170. RESEARCH: ENVIRONMENTAL BIOLOGY.** (Cr ar; prereq #) Ruschmeyer
- 8180. RESEARCH: AIR POLLUTION.** (Cr ar; prereq #) McJilton
- 8200. RESEARCH: RADIOLOGICAL HEALTH.** (Cr ar; prereq #) Barber
- 8208. FIELD PRACTICE IN RADIOLOGICAL HEALTH.** (Cr ar; prereq #) Barber
- 8210. RESEARCH: OCCUPATIONAL HEALTH.** (Cr ar; prereq #) McJilton
- 8220. RESEARCH: FOOD SANITATION.** (Cr ar; prereq #) Pflug

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

8230. RESEARCH: INSTITUTIONAL ENVIRONMENTAL HEALTH. (Cr ar; prereq #) Vesley

8240. RESEARCH: WATER HYGIENE. (Cr ar; prereq #) Straub

Epidemiology (PubH)

See the Special Programs section for a series of courses offered through Continuing Education and Extension.

FIRST TERM

5379. TOPICS IN EPIDEMIOLOGY. (Cr ar; prereq epidemiology student or #) Staff
Selected readings with discussion based on these readings.

8330. RESEARCH: EPIDEMIOLOGY. (Cr ar) Staff
Opportunities offered by the School of Public Health and various cooperating organizations for qualified students to pursue research work.

SECOND TERM

5379. TOPICS IN EPIDEMIOLOGY. (Cr ar; prereq epidemiology student or #) Staff
See First Term.

8330. RESEARCH: EPIDEMIOLOGY. (Cr ar) Staff
See First Term.

Health Care Psychology (PubH)

FIRST TERM

5800. RESEARCH PROJECT IN HEALTH CARE PSYCHOLOGY. (Cr ar up to 6/qtr) Staff

5801. DIRECTED STUDY IN HEALTH CARE PSYCHOLOGY. (Cr ar up to 4/qtr) Staff

5802. SPECIAL TOPICS IN HEALTH CARE PSYCHOLOGY. (Cr ar; prereq #) Staff

5811. CLERKSHIP IN PSYCHOLOGICAL ASSESSMENT. (Cr ar up to 4/qtr; prereq grad student in clinical psychology, school psychology or #) Staff

5812. CLERKSHIP IN NEUROPSYCHOLOGICAL ASSESSMENT. (Cr ar up to 4/qtr; prereq #) Meier, Thomas

5813. FIELDWORK EXPERIENCE IN HEALTH CARE PSYCHOLOGY. (Cr ar up to 4/qtr; prereq clinical psychology intern or #; observed by staff) Staff

5814. CASE CONFERENCE IN HEALTH CARE PSYCHOLOGY. (1 cr; prereq clinical psychology intern or #) Staff

5815. CASE CONFERENCE IN NEUROPSYCHOLOGY. (1 cr; prereq clinical psychology intern or #) Meier, Thomas

5820. INTERNSHIP IN CLINICAL PSYCHOLOGY. (Cr ar up to 4/qtr; prereq PhD candidate & 400 hrs clerkship experience) Staff

5821. HEALTH CARE PSYCHOLOGY CLINIC INTERNSHIP. (Cr ar up to 4/qtr; prereq clinical psychology intern or #) Hafner, Petzel, Quast, staff

5822. MEDICAL CONSULTATION FOR HEALTH CARE PSYCHOLOGY INTERNS. (Cr ar up to 4/qtr; prereq clinical psychology intern or #) Brantner

5823. HEALTH CARE PSYCHOLOGY INTERNSHIP AT THE BOYNTON HEALTH SERVICE. (Cr ar up to 4/qtr; prereq clinical psychology intern or #) Heiberg

5824. HEALTH CARE PSYCHOLOGY FOR THE PHYSICALLY HANDICAPPED CHILD. (Cr ar up to 4/qtr; prereq clinical psychology intern or #) Blackburn

Courses preceded by • have limited enrollment and must be reserved.

- 5825. INTRODUCTION TO NEUROPSYCHOLOGICAL ASSESSMENT.** (Cr ar up to 4/qtr; prereq clinical psychology intern or #) Meier, Thomas
- 5826. ADVANCED NEUROPSYCHOLOGICAL ASSESSMENT.** (Cr ar up to 4/qtr; prereq clinical psychology intern) Meier, Thomas
- 5827. RURAL COMMUNITY MENTAL HEALTH INTERNSHIP FOR PSYCHOLOGISTS.** (Cr ar up to 4/qtr; prereq clinical psychology intern or #) Morgan, staff
- 5828. COMMUNITY CHILD GUIDANCE CENTER PSYCHOLOGY INTERNSHIP.** (Cr ar up to 4/qtr; prereq clinical psychology intern or #) Harvik, Reed, staff
- 5829. STUDENT COUNSELING BUREAU PSYCHOLOGY INTERNSHIP.** (Cr ar up to 4/qtr; prereq clinical psychology intern or #) Loper, staff
- 5830. HEALTH CARE PSYCHOLOGY OF THE ELDERLY.** (Cr ar up to 4/qtr; prereq PhD candidate and 400 hrs clerkship experience or #) Anderson
- 5831. BEHAVIORAL MEDICINE.** (Cr ar up to 4/qtr; prereq PhD candidate and 400 hrs clerkship experience or #) Hung
- 5840. CASE SEMINAR IN HEALTH CARE PSYCHOLOGY.** (2 cr; prereq clinical psychology intern or #) Petzel, Schofield, staff
- 5841. SUPERVISED PSYCHOLOGICAL THERAPY.** (Cr ar up to 4/qtr; prereq #) Staff
- 8800. HEALTH CARE PSYCHOLOGY LABORATORY.** (2 cr; prereq Psy 8611, 8612, 8613, 8614) Staff

SECOND TERM

- 5800. RESEARCH PROJECT IN HEALTH CARE PSYCHOLOGY.** (Cr ar up to 6/qtr) Staff
- 5801. DIRECTED STUDY IN HEALTH CARE PSYCHOLOGY.** (Cr ar up to 4/qtr) Staff
- 5802. SPECIAL TOPICS IN HEALTH CARE PSYCHOLOGY.** (Cr ar; prereq #) Staff
- 5811. CLERKSHIP IN PSYCHOLOGICAL ASSESSMENT.** (Cr ar up to 4/qtr; prereq grad student in clinical psychology, school psychology or #) Staff
- 5812. CLERKSHIP IN NEUROPSYCHOLOGICAL ASSESSMENT.** (Cr ar up to 4/qtr; prereq #) Meier, Thomas
- 5813. FIELDWORK EXPERIENCE IN HEALTH CARE PSYCHOLOGY.** (Cr ar up to 4/qtr; prereq clinical psychology intern or #; observed by staff) Staff
- 5814. CASE CONFERENCE IN HEALTH CARE PSYCHOLOGY.** (1 cr; prereq clinical psychology intern or #) Staff
- 5815. CASE CONFERENCE IN NEUROPSYCHOLOGY.** (1 cr; prereq clinical psychology intern or #) Meier, Thomas
- 5820. INTERNSHIP IN CLINICAL PSYCHOLOGY.** (Cr ar up to 4/qtr; prereq PhD candidate and 400 hrs clerkship experience) Staff
- 5821. HEALTH CARE PSYCHOLOGY CLINIC INTERNSHIP.** (Cr ar up to 4/qtr; prereq clinical psychology intern or #) Hafner, Petzel, Quast, staff
- 5822. MEDICAL CONSULTATION FOR HEALTH CARE PSYCHOLOGY INTERNS.** (Cr ar up to 4/qtr; prereq clinical psychology intern or #) Brantner
- 5823. HEALTH CARE PSYCHOLOGY INTERNSHIP AT THE BOYNTON HEALTH SERVICE.** (Cr ar up to 4/qtr; prereq clinical psychology intern or #) Heiberg
- 5824. HEALTH CARE PSYCHOLOGY FOR THE PHYSICALLY HANDICAPPED CHILD.** (Cr ar up to 4/qtr; prereq clinical psychology intern or #) Blackburn
- 5825. INTRODUCTION TO NEUROPSYCHOLOGICAL ASSESSMENT.** (Cr ar up to 4/qtr; prereq clinical psychology intern) Meier, Thomas

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

- 5826. ADVANCED NEUROPSYCHOLOGICAL ASSESSMENT.** (Cr ar up to 4/qtr; prereq clinical psychology intern) Meier, Thomas
- 5827. RURAL COMMUNITY MENTAL HEALTH INTERNSHIP FOR PSYCHOLOGISTS.** (Cr ar up to 4/qtr; prereq clinical psychology intern or #) Morgan, staff
- 5828. COMMUNITY CHILD GUIDANCE CENTER PSYCHOLOGY INTERNSHIP.** (Cr ar up to 4/qtr; prereq clinical psychology intern or #) Hanvik, Reed, staff
- 5829. STUDENT COUNSELING BUREAU PSYCHOLOGY INTERNSHIP.** (Cr ar up to 4/qtr; prereq clinical psychology intern or #) Loper, staff
- 5830. HEALTH CARE PSYCHOLOGY OF THE ELDERLY.** (Cr ar up to 4/qtr; prereq PhD candidate and 400 hrs clerkship experience or #) Anderson
- 5831. BEHAVIORAL MEDICINE.** (Cr ar up to 4/qtr; prereq PhD candidate and 400 hrs clerkship experience or #) Hung
- 5840. CASE SEMINAR IN HEALTH CARE PSYCHOLOGY.** (2 cr; prereq clinical psychology intern or #) Petzel, Schofield, staff
- 5841. SUPERVISED PSYCHOLOGICAL THERAPY.** (Cr ar up to 4/qtr; prereq #) Staff
- 8800. HEALTH CARE PSYCHOLOGY LABORATORY.** (2 cr; prereq Psy 8611, 8612, 8613, 8614) Staff

Health Education (PubH)

FIRST TERM

- 5090. RESEARCH TOPICS IN HEALTH EDUCATION.** (4-8 cr; prereq health educ major only) Carlaw, Veninga
Development of a scholarly review of health education research and experience in a selected area. (Plan B Project).

Hospital and Health Care Administration (PubH)

FIRST TERM

- 5767. PLANNING FOR HEALTH CARE ORGANIZATIONS.** (2 cr; prereq hospital administration student or #: 0800-0955 MF; HSUnitA 2-520) Sweetland, Bieter
Aspects of institutional planning with an emphasis on role program and physical facilities planning.
- 5778. PATIENT CARE MANAGEMENT AND ORGANIZATION WITHIN THE HOSPITAL AND HEALTH CARE ORGANIZATION—July 19-31.** (25 cr; prereq present employment as administrator of patient care [director of nursing or equivalent] or #) Danielsen, Weckwerth, staff
A 12-month program consisting of an on-campus residential session (3 weeks), independent study.
- 5779. MANAGING MULTIPLE FORCES: INTERNAL AND EXTERNAL ASPECTS OF PATIENT CARE ADMINISTRATION—July 12-24.** (Cr ar; prereq present employment as administrator of patient care [director of nursing or equivalent], 5778 and #) Weckwerth, Danielsen, staff
A 12-month program of an on-campus (3 weeks) and independent study which begins with a one-week introductory residential session each August. Seminars on planning, organizing and staffing, directing and controlling are scheduled during initial phase of course. Students return to campus the following summer to share and demonstrate the research projects they have prepared with their peers.
- 5793. HOSPITAL AND OTHER HEALTH CARE ORGANIZATIONS FINANCIAL STATE ANALYSIS.** (4 cr; prereq 5791; 1800-2100 Th; HSUnitA 2-530) Oszustowicz
Case studies and readings involving review and analysis of actual hospital financial statements, third-party payer cost reports, and other financial documents. Students apply key financial ratios to financial statement analysis to test their ability to apply course material presented in the winter and spring quarters and to become familiar with basic financial documents.

Courses preceded by • have limited enrollment and must be reserved.

5796. INTERNAL OPERATIONS OF A MENTAL HEALTH FACILITY—July 19-31. (15 cr; prereq 1 yr experience as mental health facility administrator or #) Weckwerth, staff

A 12-month program beginning with an on-campus residential session (2 weeks) and involving off-campus independent study that includes periodic seminars and monthly dialogue with program preceptors. Principles of management, organizational behavior, personnel, problem solving and decision making, financial management, mental health professionals and paraprofessionals, and mental health programs and services.

5797. EXTERNAL RELATIONSHIPS AFFECTING THE ROLE AND FUNCTION OF THE MENTAL HEALTH FACILITY—July 12-24. (15 cr; prereq 5796) Weckwerth, staff

A 12-month program beginning with an on-campus residential session (2 weeks) and involving off-campus independent study that includes periodic seminars and monthly dialogue with program preceptors. Governance, legal aspects, public education and information, evaluation of mental health programs, prevention and primary treatment in mental health, current trends and concepts, public relations and the legislative process.

5799. MENTAL HEALTH ADMINISTRATION SEMINAR. (2 cr; restricted to, and required of students enrolled in mental health training project)

Historical overview, trends, governance, manpower issues, disability groups, treatment controversies, legal aspects, financial considerations, and standards of quality assurances of mental health services.

8796. TOPICS IN HEALTH ECONOMICS. (3 cr; prereq one economics course and #; 0800-1205 TTh; USUnitA 2-520) Dahl

General principles of health economics are applied to current issues in health such as insurance, licensure, family practice, malpractice, and hospital costs. Models of hospital functioning, area planning, time management, and disease intervention are presented within the framework of economic analysis and used to explain and predict health behavior. Concepts of cost benefit and cost effectiveness analysis and their application to problems in health care delivery.

FIRST AND SECOND TERMS: TEN-WEEK COURSES

5752. CLERKSHIP. (4 cr for 10 wks; prereq 5753) Bieter, Dornblaser, staff, clinical preceptors

Survey and solution of management problem within a local health services organization and preparation of formal report.

SECOND TERM

5755. ADMINISTRATIVE RESIDENCY.** (Cr ar; prereq 5753) Dornblaser, staff, clinical preceptors

Ten months of fieldwork in an approved health care planning or operating organization, rotation through departments, solution of management problems, and special projects. Preparation of a thesis and a formal report.

5767. PLANNING FOR HEALTH CARE ORGANIZATIONS. (2 cr; prereq hospital administration

student or #; 0800-0955 MF; HSUnitA 2-520) Sweetland, Bieter

Aspects of institutional planning with an emphasis on role program and physical facilities planning.

5775. MANAGEMENT AND ORGANIZATION IN HOSPITAL AND HEALTH CARE FACILITIES. (15 cr; prereq current employment as health care facility administrator or #) Weckwerth, staff

A 12-month program consisting of an on-campus residential session (2 weeks) and off-campus independent study that includes a seminar and monthly classes under program preceptors. Principles of management, executive role, hospital development and organization, functions of personnel, financial control, business office, and patient care services.

5776. ADMINISTRATIVE AND PROFESSIONAL RELATIONSHIPS WITHIN THE HEALTH CARE FACILITY. (15 cr; prereq 5775) Weckwerth, staff

A 12-month program consisting of an on-campus residential session (2 weeks) and off-campus independent study that includes seminars and monthly classes under program preceptors. Board of trustees, medical staff, nursing, hospital law, medical records, planning, community health systems, continuing health education, change theory.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

5777. EXTERNAL FORCES AFFECTING HEALTH CARE DELIVERY. (25 cr; prereq 5776)
Weckwerth, staff

A 10-month program consisting of an on-campus residential session (2 weeks) and off-campus study that includes three regional seminars covering financing, human resources, organizing, social policy, and project planning and design. Requires a project that can be either a management study or a research thesis. Each student must verbally present and defend the project at a week-long symposium at end of course.

5792. LEGAL ASPECTS OF HOSPITAL AND HEALTH CARE ADMINISTRATION. (3 cr; prereq #; 1115-1245 MF, HSUnitA 2-530) McInerney

Laws affecting administration of hospitals and other health care organizations; administrative law, corporate and business law, labor law, civil liability and tax-related issues. Focuses on legal issues relevant to the administrator, and the decision-making and planning processes.

Maternal and Child Health (PubH)

FIRST TERM

5614. FIELD EXPERIENCE IN MATERNAL, CHILD HEALTH. (Cr ar; prereq 5610, 5611 or #)
Field experiences are selected by the student to meet career goals.

5641. CHILD ABUSE AND NEGLECT IN THE JUVENILE JUSTICE SYSTEM—July 6-10. (2 cr; 800-1115; Law 45) ten Bensel

This course is 24 hours of lecture and discussion designed for juvenile justice personnel. The course is given in the summer as part of the Juvenile Justice Institute. The curriculum covered will include the historical aspects of child abuse, terminology, identification, dynamics, outcomes, treatment programs, the role of the police and courts, and prevention programs.

5649. TOPICS IN MATERNAL, CHILD HEALTH. (Cr ar; prereq #)

Selected readings in maternal and child health with discussion based on these readings.

SECOND TERM

5614. FIELD EXPERIENCE: MATERNAL, CHILD HEALTH. (Cr ar; prereq 5610, 5611 or #)

5649. TOPICS: MATERNAL, CHILD HEALTH. (Cr ar; prereq #)

Public Health Administration (PubH)

FIRST TERM

5703. PUBLIC HEALTH ADMINISTRATION CLERKSHIP. (Cr ar; prereq student in public health administration)

Assignment to State Health Department or other health agency for supervised work on a project of limited scope and preparation of a formal report.

5704. FIELD EXPERIENCE: PUBLIC HEALTH ADMINISTRATION. (Cr ar; prereq student in the public health administration or #) Block

Supervised field experience at a management level in selected community or public health agencies and institutions.

5749. TOPICS: PUBLIC HEALTH ADMINISTRATION. (Cr ar; prereq #) Block

Selected readings with discussion based on these readings.

SECOND TERM

5703. PUBLIC HEALTH ADMINISTRATION CLERKSHIP. (Cr ar; prereq student in public health administration or #)

See First Term.

Courses preceded by • have limited enrollment and must be reserved.

5704. FIELD EXPERIENCE: PUBLIC HEALTH ADMINISTRATION. (Cr ar; prereq #) Block
See First Term.

5749. TOPICS: PUBLIC HEALTH ADMINISTRATION. (Cr ar; prereq #) Block
See First Term.

Public Health Nursing (PubH)

5554. NURSING ADMINISTRATION SEMINAR IV. (3 cr; prereq #) Danielsen
Examination of theories and models relevant to nursing administration using an organizational diagnostic framework. Literature review, discussion, and analysis culminating in the development of individual frameworks for practice. Consultants and practicing professionals participate.

5555. RESEARCH METHODS. (3 cr; prereq #) Danielsen
Presentation, discussion and utilization of research processes and methodologies to serve as the basis for the Plan B research project.

● **5572. ADULT HEALTH ASSESSMENT—June 16-July 31.** (4 cr; prereq #; limited enrollment; 1200-1600 TTh, HSUnitA 2-533) Ostwald
Course designed to prepare registered nurses to systematically collect and record an adult health data base, including history, physical examination and screening laboratory tests. Problem-oriented system used. Supervised, arranged lab/clinical.

5575. TOPICS IN PUBLIC HEALTH NURSING. (Cr ar; prereq #) Staff
Topics of interest.

FIRST AND SECOND TERMS: TEN-WEEK COURSES

● **5585. PUBLIC HEALTH NURSING.** (8 cr for 10 wks; prereq current RN licensure and #; limited enrollment; 1000-1200 T, rm ar) Lentsch
Prepares registered nurses to provide public health nursing to families and groups. Using a health promotion framework, nurses assist families in assessing and managing their own health care. Also studied are nursing strategies to provide health promotion services to groups and communities. Opportunity to gain both theoretical knowledge and clinical skills is provided through a concurrent lecture and practicum format.

SECOND TERM

5575. TOPICS: PUBLIC HEALTH NURSING. (Cr ar; prereq #) Staff
Topics of interest.

Public Health Nutrition (PubH)

FIRST TERM

5600. FIELD COURSE I: PUBLIC HEALTH NUTRITION. (Cr ar; prereq public health nutrition student) Brown, staff
Placement in approved agency with opportunity for experience in nutritional aspects of public health programs.

5601. SEMINAR: PUBLIC HEALTH NUTRITION. (Cr ar; prereq public health nutrition student) Brown, Fleming

5609. TOPICS IN PUBLIC HEALTH NUTRITION. (Cr ar; prereq public health nutrition student or #) Brown, Fleming
Independent study.

SECOND TERM

5600. FIELD COURSE IN PUBLIC HEALTH NUTRITION. (Cr ar; prereq #)
See First Term.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

5601. SEMINAR: PUBLIC HEALTH NUTRITION. (Cr ar; prereq #) Brown, Fleming

5609. TOPICS: PUBLIC HEALTH NUTRITION. (Cr ar; prereq #) Brown, Fleming

Veterinary Public Health (PubH)

FIRST TERM

5326. RESEARCH IN ANIMAL/HUMAN HEALTH. (Cr ar; prereq D.V.M. or #) Anderson
Research in the relationship of animal health to human health.

SECOND TERM

● **5300. COMPARATIVE MEDICINE AND PUBLIC HEALTH.** (2 cr; limited enrollment; 1325-1520 TTh; HSUnitA 1-108) Anderson

Survey of comparative medicine including sources of animal diseases, world food supplies, food protection, environmental pollution, population control, animal models of disease, and relation to the biologic environment. Discussion of these health issues as they affect public health and public policy.

5326. RESEARCH IN ANIMAL/HUMAN HEALTH. (Cr ar; prereq D.V.M. or #) Anderson
Research in the relationship of animal health to human health.

College of Home Economics

Undergraduate and graduate majors in the various fields of the College of Home Economics will find a variety of courses offered by the departments of Design, Family Social Science, Food Science and Nutrition, and Textiles and Clothing as well as by the Center for Youth Development and Research. Many of the courses will interest secondary school home economics teachers for licensure purposes. Further information may be obtained by writing Gertrude Strinden, College of Home Economics, University of Minnesota, St. Paul, Minnesota 55108. (See also Home Economics Education and Vocational and Technical Education listings under the College of Education.)

Design (Dsgn)

Courses with limited enrollment must be reserved in 130 Coffey Hall (see instructions under "Reserved Courses").

FIRST TERM

1501. INTRODUCTION TO DESIGN. (3 cr; 0800-0850 MTWThF; McNH 33) Miller
Awareness of design in the near environment.

● **1521. COLOR AND DESIGN.** (4 cr; limited to 24 students; 0905-1100 MTWThF; McNH 262)
Color concepts and their applications to design.

● **1523. VISUAL PRESENTATION.** (4 cr; limited to 24 students; 1115-1310 MTWThF; McNH 258)
Development of basic drawing skills for the designer.

● **1525. TWO DIMENSIONAL DESIGN.** (4 cr; limited to 24 students; 1325-1520 MTWThF; McNH 262)
Blade
Experiments with principles of two-dimensional design.

● **1555. INTERIOR DESIGN I: INTERIOR DESIGN PROBLEMS.** (3 cr; prereq 1554; limited to 24 students; 1325-1520 MTWThF; McNH 316) Erickson
Problems in designing for living space needs with emphasis on behavioral concerns as related to interiors.

● **3527. THREE-DIMENSIONAL DESIGN.** (4 cr; limited to 24 students; 0800-0955 MTWThF; McNH B3) Alm, Larkin
Study and application of principles of three-dimensional design.

3580. FIELD EXPERIENCES: HOUSING. (cr ar [max 15] Offered S-N only; prereq completion of one-half professional sequence or #)
International, intercultural or other directed work in the community which offers a variety of housing experiences.

● **5570. SEMINAR: DESIGN—ANTHROPOLOGY OF ART.** (3 cr; limited to 15 design students; 1330-1500 MWF; McNH 198) Hatcher
An exploration of the ways in which the visual arts reflect and influence all other aspects of culture; clothing and adornment in this context.

5588. PROBLEMS IN DESIGN: HISTORY OF NINETEENTH AND TWENTIETH CENTURY TEXTILES. (4 cr; 1325-1415 MTWThF; McNH 216) Thieme
Focus on textiles produced in Europe and America since 1800 with emphasis on identification of the textiles and study of the progression of design styles, influences on design, and the relationships between design, technology, and merchandising.

● **8585. PROBLEMS: DESIGN.** (1-5 cr; prereq #) Staff

8586-8587. PROBLEMS: DESIGN. (1-5 cr per term; prereq #; hrs ar) Staff

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

Family Social Science (FSoS)

Courses with limited enrollment must be reserved in 130 Coffey Hall or 12 Johnston Hall unless otherwise indicated (see instructions under "Reserved Courses").

FIRST TERM

● **1001. DYNAMICS OF FAMILY RELATIONSHIPS.** (3 cr, §1002; limited enrollment; 0905-0955 MTWThF; RarigC 616) Hagen

Applications of behavioral sciences to mate selection, interaction in marriage, and other committed relationships, sex roles, maintaining, and ending of relationships.

● **1025. PARENTHOOD.** (4 cr; limited enrollment; 1000-1130 MWF; BlegH 430) Kwiecien

Differing concepts of family roles—father, mother, son, daughter, sister, brother. Implications for parent-child and sibling interaction. Effects of parenthood on husband-wife relations.

3260. HOME MANAGEMENT PRINCIPLES. (3 cr; prereq AgEc 1030; 1325-1520 TTh; 179 McNH) Hogan

Development of a theoretical systems framework for analysis of behavior in families with emphasis on managerial aspects of behavior: goal setting, planning, and implementing in use of resources.

● **5001. HUMAN SEXUAL BEHAVIOR.** (4 cr; limited enrollment; prereq 15 cr in psychology or sociology; 0800-0850 MTWThF; BlegH 10) Stein-Schmidt

Nature of sexual functions, sexual development, ethics and attitudes, research problems.

● **5200. FAMILY RELATIONSHIPS.** (5 cr, §Soc 5501; limited enrollment; prereq Psy 1001 or equiv, Soc 1001 or equiv; 1400-1600 MW; BioSci 18) Budd

The family as an institution and system of relationships. Current developments in study of the family. Changes in American society and their influence on family life.

5202. INTRODUCTION TO SOCIAL PSYCHOLOGY WITH APPLICATIONS TO THE FAMILY. (5 cr; prereq Psy 1001 and Introductory Sociology or #; §Psy 5201, Soc §5201, §PsyF 5170; 0905-0955 MTWThF; McNH 69) Rosenblatt

Introduction to social psychology with applications to courtship, marriage, and the family. Social interaction, communication, social effects, individual functioning, family as small group, social influence, social ecology, person perception, social motivation, interpersonal attraction, and other topics.

5230. INDEPENDENT STUDY. (Cr ar [max 4 cr]) Staff

5240. SPECIAL TOPICS IN FAMILY SOCIAL SCIENCE. (2-6 cr per qtr [max 16 cr]; prereq set by instructor for each topic; this offering for 3 cr)

Sec 1, Family Systems: Overview and Application—June 15-26, 1300-1600 MTWThF, St. Paul Campus; D. Olson

This course will provide an overview of family system theory and how it can be applied in counseling, research and teaching. Particular emphasis will be given to the Circumplex Model and its application to the family and other social systems. This offering for 3 credits.

8251. PROBLEMS: FAMILY SOCIAL SCIENCE. (1-5 cr; prereq #; hrs ar) Staff

8252. PROBLEMS: FAMILY SOCIAL SCIENCE. (4 cr; prereq #; hrs ar) Staff

SECOND TERM

5201. FAMILY IN AMERICAN SOCIAL STRUCTURE. (4 cr; prereq 5200, 25 cr in social science courses exclusive of economics, or #; 1400-1530 TTh; 179 McNH) Berry

The family as a social institution interrelated with the economic, political, and other social institutions of society. Sources of change in the family and effects of other subsystems or social structures on the family viewed within the framework of sociological theories useful in understanding the process of change.

Courses preceded by ● have limited enrollment and must be reserved.

5230. INDEPENDENT STUDY. (Cr ar [max 4 cr]) Staff

5240. SPECIAL TOPICS IN FAMILY SOCIAL SCIENCE. (3 cr; 2-6 cr per qtr; [max 16 cr]; prereq set up by instructor for each topic)

Sec 1, Child Development for the Practitioner—July 20-24, 0800-1200; 2 cr; 41 McNH

Sec 2, The Principles of Family Financial Management—July 20-31, 0905-1205 MTWThF, McNH 179, Guadagno

Examination of family financial resource management. Emphasis on choices faced by families in relation to family financial planning, credit, savings, investments, Social Security, life, property, auto and casualty insurance, taxation, estate planning and leisure needs. Special attention to family economic coping and suggestions for strengthening the families' stock of resources in inflation.

Sec 3, Between Parent and Teacher: Issues in Communication During the Early, Middle, and Adolescent Years—July 27-31, 0800-1200; 2 cr; 41 McNH

Sec 4, Learning from Observation of Children—August 3-7, 0800-1200; 2 cr; 41 McNH

8251. PROBLEMS: FAMILY SOCIAL SCIENCE. (1-5 cr; prereq #: hrs ar) Staff

8252. PROBLEMS: FAMILY SOCIAL SCIENCE. (4 cr; prereq #: hrs ar) Staff

Food Science and Nutrition (FScN)

Courses with limited enrollment must be reserved in 130 Coffey Hall (see instructions under "Reserved Courses").

FIRST TERM

● **3600. PRINCIPLES OF NUTRITION.** (4 cr; limited to 25 students; prereq Biol 1011 and Chem 1004 or equiv; 0800-0955 MWF, 0905-0955 TTh; FScN 15)

The fundamental principles of nutrition, including the essentiality and metabolism of nutrients and results of nutritional deficiencies or excesses. Presented in the context of personal, national and global aspects of human nutrition.

3720. ADMINISTRATIVE EXPERIENCE: HOSPITALITY OR FOOD SERVICE ENTERPRISE. (5 cr; prereq 3760, sr in hospitality and food service management or #: hrs ar) Staff

Planned management experience in a selected food service or hospitality business, including understanding of the operation, planning, purchasing, personnel management, financial management, supervision, and related functions.

5111. INDEPENDENT STUDY IN FOOD SCIENCE AND NUTRITION. (1-5 cr [may be repeated for cr]; prereq Δ ; hrs ar) Staff

Individual laboratory or library research in some area related to food chemistry, food processing, nutrition, food service, or hospitality management.

5321. INDEPENDENT STUDY IN FOOD MICROBIOLOGY. (1-5 cr; prereq sr, Δ ; hrs ar) Staff

Laboratory or library research on problems related to the microbiology of dairy and food products.

● **5404. CURRENT ISSUES IN FOOD AND NUTRITION—June 29-July 10.** (3 cr; limited to 25 students; prereq 15 cr in food science and nutrition or #: 0905-1205 MTWThF; ABLMS 125) Levine

Evaluation of popular and scientific literature as it deals with nutrition, food additives, food safety, food fads, health foods, environmental contamination, the consumer movement, naturally occurring food toxicants, processed foods, synthetic foods, organically grown foods.

8401. INDEPENDENT STUDY: FOOD SCIENCE. (1-5 cr; prereq #: hrs ar) Staff

Independent study and written reports.

8621. INDEPENDENT STUDY: NUTRITION. (1-9 cr; prereq Δ ; hrs ar) Staff

Independent study and written reports.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

SECOND TERM

1102. TECHNOLOGY OF FOOD PROCESSING. (4 cr; prereq high school chemistry and biology; 0800-0955 MWF, 0905-0955 TTh; ABLMS 125) Schellhaass
Introduction to the technology of processing and distributing foods with reference to the prevention of biological, physical, and chemical deterioration. Changes in food composition, microbiological safety, food laws and regulations, technologies of the major food processes such as canning, freezing, drying, and cereal and oilseed processing.

3720. ADMINISTRATIVE EXPERIENCE: HOSPITALITY OR FOOD SERVICE ENTERPRISE. (5 cr; prereq 3760, sr in hospitality and food service management or #; hrs ar) Staff
See First Term.

5111. INDEPENDENT STUDY IN FOOD SCIENCE AND NUTRITION. (1-5 cr [may be repeated for cr]; prereq Δ ; hrs ar) Staff
See First Term.

5321. INDEPENDENT STUDY IN FOOD MICROBIOLOGY. (1-5 cr; prereq sr, Δ ; hrs ar) Staff
See First Term.

8401. INDEPENDENT STUDY: FOOD SCIENCE. (1-5 cr; prereq Δ ; hrs ar) Staff
See First Term.

8621. INDEPENDENT STUDY: NUTRITION. (1-9 cr; prereq #; hrs ar) Staff
See First Term.

Textiles and Clothing (TexC)

Course with limited enrollment must be reserved in 130 Coffey Hall (see instructions under "Reserved Courses").

FIRST TERM

1643. APPAREL INDUSTRIES. (4 cr; prereq Econ 1002 or AgEc 1030; 1115-1205 MTWThF; McNH 198) Pedersen

Structure, operation, and problems of domestic and foreign apparel industries including ready-to-wear, couture, and auxiliary fashion sector. Interrelationships with the textile industry and distributors.

5003. COOPERATIVE EDUCATION PROGRAM. (4-8 cr, not for grad cr; S-N only; 5003-5004†, †5004, prereq sr, #; minimum GPA 2.50; hrs ar) Grindereng

A planned work experience relating activity in business, industry, or government to the student's area of study. Written consent of faculty supervisor prior to registration is required.

5004. COOPERATIVE EDUCATION INTEGRATIVE PAPER. (4 cr; not for grad cr; A-N only, 5003-5004†, †5003; prereq sr, #; hrs ar) Grindereng

Paper analyzing a problem encountered in the planned work experience in terms of the student's area of study.

5622. ISSUES AND TRENDS IN TEXTILE CONSUMER PROTECTION. (3 cr; 1010-1100 MTWThF, McNH 198) R Johnson

The needs of the textile consumer for protection from deception and hazard; critical analysis of federal, state, and local legislation as well as voluntary industrial systems; case histories; change mechanisms.

● **5660. PROBLEMS IN CLOTHING—JULY 6-17.** (3 cr; limited to 25 students; prereq #; 1045-1300 MTWThF, McNH 470) Hillestad

Discussion and laboratory work in clothing problems. The topic for this offering is *Communications and Dress*.

● **5661. CLOTHING AND HUMAN BEHAVIOR.** (4 cr; limited to 40 students; prereq sr, 3662 or equiv, Soc 1001, Psy 1001, or #; 0840-0955 MTWThF; McNH 198) Holloman

Clothing in relation to individual and group behavior patterns; personal and social meaning attributed to dress; conventions and standards influencing clothing choice and use.

Courses preceded by ● have limited enrollment and must be reserved.

● **5680. SPECIAL TOPICS IN TEXTILES AND CLOTHING.** (3 cr; limited enrollment, Δ ; 1330-1500 MWF, McNH 198) Hatcher

The topic for this offering is *Anthropology of Art*. An exploration of the ways in which the visual arts reflect and influence all other aspects of culture; clothing and adornment in this context.

8621. READINGS IN TEXTILES. (1-3 cr; prereq #; hrs ar) R Johnson

Independent reading useful for individual programs but not available in other course offerings.

8625. PROBLEMS: TEXTILES AND CLOTHING. (3-9 cr [max 9 cr]; prereq #; hrs ar) R Johnson
Independent study in the physical behavioral aspects of textiles and/or clothing.

8661. READINGS IN CLOTHING. (1-3 cr; prereq minimum 12 cr in TexC courses; #; hrs ar) Grindereing

Independent study; survey of literature in selected areas related to human behavioral aspects of clothing and textiles. Written reports.

8663. PROBLEMS: CLOTHING AND TEXTILES. (3-9 cr [max 9 cr]; prereq #; hrs ar) Grindereing
Independent study in human behavioral aspects of clothing or textiles.

SPECIAL TERM: SEVEN WEEK COURSE—June 16-July 31

● **3601. TAILORING.** (4 cr; limited to 20 students, prereq 1601, 1602, 3621, or #; 0800-1030 MTWTh; McNH 375) Hall

Principles of assembling a wool jacket by traditional methods. Construction techniques analyzed relative to variations in fabric, style and use and custom vs. mass production methods.

SECOND TERM

5003. COOPERATIVE EDUCATION PROGRAM. (4-8 cr; not for grad cr, S-N only; †5003, 5004; prereq †5004, sr, # minimum GPA 2.50; hrs ar) Grindereing

A planned work experience relating activity in business, industry, or government to the student's area of study. Written consent of faculty supervisor prior to registration required.

5004. COOPERATIVE EDUCATION INTEGRATIVE PAPER. (4 cr, not for grad cr, A-N only, †5003, 5004; prereq †5003, sr, #; hrs ar) Grindereing

Paper analyzing a problem encountered in the planned work experience in terms of the student's area of study.

8621. READINGS IN TEXTILES. (1-3 cr; prereq #; hrs ar) R Johnson

Independent reading useful for individual programs but not available in other course offerings.

8625. PROBLEMS: TEXTILES AND CLOTHING. (3-9 cr [max 9 cr]; prereq #; hrs ar) R Johnson
Independent study in the physical behavioral aspects of textiles and/or clothing.

8661. READINGS IN CLOTHING. (1-3 cr; prereq minimum 12 cr in TexC courses; #; hrs ar) Grindereing

Independent study; survey in literature in selected areas related to human behavioral aspects of clothing and textiles. Written reports.

8663. PROBLEMS: CLOTHING AND TEXTILES. (3-9 cr [max 9 cr]; prereq #; hrs ar) Grindereing
Independent study in human behavioral aspects of clothing or textiles.

Center for Youth Development and Research (YoSt)

FIRST TERM

5120. INDEPENDENT STUDY IN YOUTH STUDIES. (Cr ar [max 12 cr per qtr]; prereq #; hrs ar) Seltzer, staff

Independent reading and/or research under faculty supervision.

5130. SPECIAL TOPICS: Summer Seminar on Youth Work—June 21-26. (5 cr; prereq #; hrs ar) Teeter

SECOND TERM

5120. INDEPENDENT STUDY IN YOUTH STUDIES. (Cr ar [max 12 cr per qtr]; prereq #; hrs ar) Seltzer, staff

See First Term.

Courses preceded by ● have limited enrollment and must be reserved.

College of Liberal Arts

College of Liberal Arts courses primarily seek to provide knowledge and understanding of the world and of the social and intellectual problems of modern life through exploration of both historical and contemporary subject matter. Although many courses are designed for specialized or professional interests, almost all contribute to general education. Courses are open not only to CLA degree candidates but also to students enrolled in other colleges inside and outside of the University. They serve students enrolled for a variety of purposes: progress toward graduate or undergraduate degrees, personal or professional enrichment, advancement of scholastic records, and many others.

CLA summer courses offer a wide selection from the regular curriculum. In addition, many courses from business, medical, scientific, agricultural, and other divisions of the University are open to CLA summer students who have completed the necessary prerequisites.

Summer session registration does not of itself constitute admission to CLA or to the Graduate School; students working toward degrees or wishing to attend during the regular academic year must file standard admission applications.

Students should be aware that credit, cancel-add, and other procedures in summer sometimes differ from those of the regular year. Problems or questions may be brought to the CLA summer session advising office, 220 Johnston Hall.

Afro-American Studies (Afro)

FIRST TERM

3910. TOPICS: LITERATURE IN CONTEMPORARY AFRICA. (4 cr, 1220-1310 MTWTh; BlegH 260) Pike

Analysis of thematic change in African literature since the 1950s, and its relationship to independent African societies. Soyinka, Ngugi, Gordimer, Achebe, Oouologuem, Sembene. All reading in English.

5072. RACISM: SOCIAL-PSYCHOLOGICAL, CONSEQUENCES FOR BLACK AMERICANS. (4 cr, 3072, 0905 -1100 TTh; BlegH 360) Taborn

Racism and its effects on black Americans; definitions, determinants, and dynamics. Examined in an experiential context to reflect individual and institutional racism in mileaus of student interest.

American Indian Studies (AmIn)

FIRST TERM

3116. AMERICAN INDIAN LITERATURE. (4 cr; 1115-1205 MTWTh; BlegH 340) Vizenor
Comparative studies of oral traditions and modern tribal literature.

Courses preceded by • have limited enrollment and must be reserved.

American Studies (AmSt)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

FIRST TERM

● **1103. AMERICAN LIFE: ENERGY AND CULTURE.** (4 cr; limited to 49 students; 0800-0850 MTWThF; BlegH 155) Staff
Critical analysis of American culture.

3970. DIRECTED STUDIES. (1-15 cr; prereq #, Δ) Staff

5920. TOPICS: "The Crisis of American Space, 1880-1920" (4 cr; 1010-1100 MTWThF; BlegH 404) Noble

Investigation into the ways in which the assumption that America is a space separate from Europe was called into question during the processes of urbanization and industrialization, ca. 1880-1920, through study of literature, the social sciences, architecture, the fine arts and popular culture.

● **8202. INTRODUCTION TO AMERICAN STUDIES.** (4 cr; limited to 12 students; prereq MA candidate; 1325-1520 MTh; SocSci 628) DeLattre
Meets concurrently with 8203.

● **8203. INTRODUCTION TO AMERICAN STUDIES.** (4 cr; limited to 12 students; prereq MA candidate; 1325-1520 MTh; SocSci 628) DeLattre
Exposition of interdisciplinary methods and of the concept of American studies; reading of classics in American civilization; extended exploration of a topic. Meets concurrently with 8202.

8970. INDEPENDENT READINGS IN AMERICAN CIVILIZATION. (Cr and hrs ar; prereq consent of program chair) Staff

SECOND TERM

● **1102. AMERICAN LIFE: CONSCIOUSNESS AND SOCIAL ARRANGEMENTS.** (4 cr; limited to 49 students; 0800-0850 MTWThF; BlegH 155) Staff
Critical analysis of American culture.

3970. DIRECTED STUDIES. (1-15 cr; prereq #, Δ) Staff

8970. INDEPENDENT READINGS IN AMERICAN CIVILIZATION. (Cr and hrs ar; prereq consent of program chair) Staff

Ancient Near Eastern and Jewish Studies—

See Near and Middle Eastern Studies

Anthropology (Anth)

FIRST TERM

1101. HUMAN ORIGINS. (5 cr, §1101H; lect 0800-0850 MTWThF; ForH 115) Dobbs
World prehistory as investigated by archaeologists; methods and concepts used by archaeologists in studying of prehistoric human biological and cultural development.

1102. INTRODUCTION TO SOCIAL AND CULTURAL ANTHROPOLOGY. (5 cr, §1115, §5102; lect 0905-0955 MTWTh; ForH 120) Barstow
Varieties and range of human behavior as revealed through comparative study of cultures in all parts of the world.

Sec 1, 0905-0955 F, ForH 15

Sec 2, 1010-1100 F, ForH 15

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

3131. RELIGION AND CULTURE. (4 cr [no cr for majors]; prereq 1102 or #: 0905-0955 MTWThF; ForH 285) Ogan

Comparative study of religion in its cultural contexts.

3201. METHOD AND THEORY IN CULTURAL AND SOCIAL ANTHROPOLOGY. (5 cr; prereq 1102 or #: 1115-1205 MTWThF; ForH 115) Prell-Foldes

Description and explanation in anthropology. Role of theory in defining problems. Subjective and objective approaches to fieldwork.

3376. FIELD RESEARCH IN ARCHAEOLOGY. (10 cr; prereq #) Gibbon

Archaeological field excavation, survey, and research in prehistoric sites in Minnesota. Excavation techniques, recordation analysis, and interpretation of archaeological materials.

3501. MINNESOTA ARCHAEOLOGY—June 22-July 2. (4 cr; prereq 1101 or #, (\$10.00 field trip fee)

MTW, June 22-24, 0800-0930 lecture; 1000-1200 lab; Th June 25, 0800-1700, field trip; MTTh, June 29, 30; July 2, 0800-0930, lecture, 1000-1200, lab, W July 1, 0800-1700, field trip; ForH 15) Johnson
Prehistoric and historic site archaeology of Minnesota in the context of the western Great Lakes and northern plains regions.

3970. DIRECTED STUDIES. (Cr and hrs ar; prereq #) Staff

5331. CULTURE THEORY: AN INTRODUCTION. (4 cr; jr, sr, or grad student or #: 0905-1055 MTWThF; VinH 113) Penn

Selected issues in the development of culture theory, e.g., do cultural phenomena have an independent reality or are they derived from social systems?

5910. TOPICS: ANTHROPOLOGY OF ART. (3 cr; no prereq, 1330-1500 MWF; McNH 198) Hatcher

An exploration of the ways in which visual arts reflect and influence all other aspects of culture; clothing and adornment in this context.

8508. ADVANCED FIELD TECHNIQUES IN ARCHAEOLOGY. (Cr and hrs ar; prereq #) Staff

8950. ADVANCED RESEARCH. (Cr and hrs ar; prereq grad, #) Staff

SECOND TERM

1102. INTRODUCTION TO SOCIAL AND CULTURAL ANTHROPOLOGY. (5 cr, §1115; lect 0905-0955 MTThF; ForH 115) Ingham

See First Term.

Sec 1, 0905-0955 W; ForH 15

Sec 2, 1010-1100 W; ForH 15

3376. FIELD RESEARCH IN ARCHAEOLOGY. (10 cr; prereq #) Spector

See First Term.

3970. DIRECTED STUDIES. (Cr and hrs ar; prereq #) Staff

5141. CULTURE AND PERSONALITY. (4 cr; prereq 1102 or # [waived for majors in public health, nursing, psychology, sociology, and social work]; 1115-1205 MTWThF; ForH 115) Rowe

Role of culture in formation of personality. Problems of individual adjustments to demands of culture. Psychological approach to culture.

5151. CULTURAL CHANGE AND DEVELOPMENT. (4 cr; prereq 1102 or 5102 or #: 1010-1100 MTWThF; ForH 115) Miller

Processes of cultural change; invention, diffusion, and acculturation. Effects of colonialism, urbanization, and modernization. Analysis of developing societies. Applied anthropology.

8508. ADVANCED FIELD TECHNIQUES IN ARCHAEOLOGY. (Cr and hrs ar; prereq #) Staff

8950. ADVANCED RESEARCH. (Cr and hrs ar; prereq #) Staff

Arabic—See Near and Middle Eastern Studies

Art History (ArH)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

Courses preceded by • have limited enrollment and must be reserved.

FIRST TERM

1016. INTRODUCTION TO ASIAN ART. (4 cr. §3013; limited to 55 students; 0905-0955 MTWThF; JonesH 207B) Asher

Major themes of Indian and Far Eastern art.

●3008. HISTORY OF ANCIENT ART. (4 cr; limited to 55 students; 1115-1205 MTWThF; JonesH 207B) Asher

Architecture, sculpture, and painting of selected early cultures; stress on those contributing to the development of Western art.

●3936. ARTS OF BLACK AFRICA. (4 cr; limited to 55 students; 1010-1100 MTWThF; Jones 207B) Smith

Survey of the traditional arts and architecture of sub-Saharan Africa. Contemporary developments will also be considered.

●5521. 20TH-CENTURY ART IN THE UNITED STATES. (5 cr; prereq 4 cr of art history; limited to 55 students; 1010-1100 MTWThF; JonesH 207A) Marling

Contemporary movements in American painting and sculpture beginning in early 20th century with "the eight" and the Armory Show, 1913.

●5950. TOPICS IN ART HISTORY: MEDIEVAL ART, ILLUMINATED MANUSCRIPTS—June 15-June 26. (4 cr; limited to 10 students; prereq #: 0830-1630 MTWThF; St. John's University) Stones
Intensive course on illuminated manuscripts of the Romanesque and Gothic periods, focusing on iconographic and stylistic developments. Offered at Hill Monastic Microfilm Library, St. John's University, Collegeville, MN. Accommodations and meals at St. John's.

●5991. INTRODUCTION TO MUSEOLOGY. (4 cr; prereq senior, #: limited to 25 students; 1220-1310 MTWThF; JonesH 1) Smith

An intensive survey of the literature in museum studies and an investigation of local museums, arts centers and historical societies.

SECOND TERM

●3009. HISTORY OF MEDIEVAL ART. (4 cr; limited to 55 students; 1010-1100 MTWThF; FraH 102) Steyaert

Medieval architecture, painting, and sculpture from early Christian to Gothic period.

●3011. HISTORY OF RENAISSANCE AND BAROQUE ART. (4 cr; limited to 144 students; 1220-1310 MTWThF; FraH 102) Canedy

The major monuments in architecture, sculpture, and painting from the early 14th century through the baroque period.

●3012. HISTORY OF 19TH- AND 20TH-CENTURY ART. (4 cr; limited to 144 students; 0905-0955 MTWThF; FraH 102) Staff

Major monuments and concepts of the modern period: sculpture, architecture, painting, and prints.

●3467. MODERN ART. (4 cr; limited to 150 students; 1115-1205 MTWThF; FraH 102) Staff
Major directions in late 19th- and 20th-century art. The influence of mass media advertising and advanced technology on modern art.

●5313. ITALIAN HIGH RENAISSANCE ARCHITECTURE, SCULPTURE, AND PAINTING. (4 cr; limited to 45 students; 1010-1100 MTWThF; Jones 207B) Canedy

Leonardo da Vinci, Michelangelo, Raphael, and Titian and lesser artists working in Florence, Rome, Venice, and northern Italy. Painting emphasized.

●5960. TOPICS IN ART HISTORY: PRINCIPLES OF HISTORICAL ARCHAEOLOGY. (4 cr; prereq #: limited to 40 students; 1300-1600 MW; JonesH 207B) McNally
See Special Programs and Workshops section, page 49.

●5970. DIRECTED STUDIES: HISTORICAL ARCHAEOLOGY. (2-4 cr; prereq concurrent regis in 5960, #: limited to 40 students; ar) McNally
Research paper.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

Arts, Studio (ArtS)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

The Department of Studio Arts covers part of the cost of expendable materials by requiring students in most of its courses to purchase fee cards from the bursar by the end of the second week of classes.

FIRST TERM

● **1101. DRAWING I.** (4 cr; each section limited to 28 students)

Introduction to studio work; exploration of contemporary and traditional methods. Work from nature, various drawing mediums.

Sec 1, 0800-0955 MTWThF, ArtB 140, Myers

Sec 2, 1010-1205 MTWThF, ArtB 150, Feinberg

Sec 3, 0800-0955 MTWThF, ArtB 150, Somberg

● **1102. DRAWING II.** (4 cr; limited to 28 students; prereq 1101; 1010-1205 MTWThF; ArtB 140) Somberg

Work from life and nature; introduction to color and pictorial structure.

● **1104. COLOR.** (4 cr; limited to 25 students; prereq 1101; 0800-0955 MTWThF; ArtB 160) Feinberg
Color and its visual implications

● **1105. BEGINNING PAINTING.** (4 cr; limited to 15 students; 0800-0955 MTWThF; ArtB 151) Hendler
Contemporary and traditional surfaces in oil and acrylic media. Meets with 3120.

● **1301. SCULPTURE.** (4 cr; limited to 22 students; 0800-0955 MTWThF; ArtB 50) Baldwin
Study of structure with emphasis on form and space. Direct construction in metal.

● **1401. INTRODUCTION TO STUDIO ARTS.** (4 cr; limited to 170 students; 1010-1205 MTWThF; Law 20) Hendler

Concepts of visual art making in their contemporary and historical context. The concerns, media, and environment of the practicing artist. Offers broad aesthetic foundation for entering beginning courses in any medium offered by the department and better understanding of the creative process, visual expression, and criteria. Lectures, demonstrations, and discussions. Strongly recommended it precede or be taken concurrently with 1xxx courses. It is a prerequisite for all 3xxx courses.

● **1420. WORKSHOP: NATURE OF ABSTRACTION.** (4 cr; limited to 15 students; 0800-0955 MTWThF; ArtB 141) Rowan.

Structured problems in nature of abstraction in painting and drawing. Experiencing values, proportions, size, and movement of forms as a factor of artistic sensibility. Various mediums. Meets with 3420.

● **1510. PRINTMAKING: INTAGLIO.** (4 cr per term [max 8 cr]; limited to 25 students; 0800-0955 MTWThF; ArtB 170) Bethke

Intaglio printing processes. Intensive study of etching, engraving, and collagraphic techniques in their creative context.

● **1530. PRINTMAKING: RELIEF.** (4 cr per term [8 cr max]; limited to 25 students; 1010-1205 MTWThF; ArtB 175) Bethke

Traditional and contemporary relief printing media. Lino, woodcut, cardboard, metal, and letterpress techniques, and their aesthetic applications.

● **1701. PHOTO MEDIUM.** (4 cr; limited to 20 students; 0800-0955 MTWThF; ArtB 131) Hallman
The photographic medium and its background and meaning today. Lectures on contemporary and historical use of photography. Methods of use of camera, film development, and enlarging. Emphasis on the creative process.

● **1801. CERAMIC PROCESSES.** (4 cr; limited to 28 students; 0800-0955 MTWThF; ArtB 10) Hoard
Clay work by hand and forming on potter's wheel. Ceramics as creative expression, with technical considerations of clays, glazes, and kilns. Pottery and sculptural approaches.

● **3110. DRAWING.** (4 cr per qtr [12 cr max]; limited to 18 students; prereq 1102, 1401; 1010-1205 MTWThF; ArtB 151) Rowan

Drawing from model, still life, nature. Principles of anatomy. Meets with 5110.

Courses preceded by ● have limited enrollment and must be reserved.

● **3120. PAINTING.** (4 cr per qtr [12 cr max]; limited to 10 students; prereq 1105, 1401, and 8 cr of 3110 or #; 0800-0955 MTWThF; ArtB 151) Hendler

Media and problems in painting; individual projects and instruction. Meets with 1105.

● **3160. WATERCOLOR.** (4 cr per qtr [12 cr max]; limited to 15 students; prereq 1101, 1104, 1401 or #; 1010-1205 MTWThF; ArtB 141) Myers

Transparent watercolor, gouache, casein, tempera. Figure, still life, landscape, abstract design. Meets with 5160.

● **3420. WORKSHOP: NATURE OF ABSTRACTION.** 4 cr; limited to 10 students; 0800-0955 MTWThF; ArtB 141) Rowan

Structured problems in nature of abstraction in painting and drawing. Experiencing values, proportions, size, and movement of forms as a factor of artistic sensibility. Various mediums. Meets with 1420.

● **3710. PHOTOGRAPHY.** (4 cr per qtr [12 cr max]; limited to 15 students; prereq 1401, 1710 or Jour 3301 or #; 1010-1205 MTWThF; ArtB 131) Hallman

Photographic controls and processes. Related photosensitive media. Creative processes suited to individual interests. Meets with 5710.

● **3810. CERAMIC DESIGN.** (4 cr per qtr [12 cr max]; limited to 20 students; prereq 1801, 1401, or #; 1010-1205 MTWThF; ArtB 10) Hoard

Emphasis on wheel throwing. Advanced design problems and introduction to glaze and clay experimentation. Development of personal expression in ceramic medium. Meets with 5810.

3970. DIRECTED STUDY. (1-5 cr per qtr [8 cr max]; prereq 24 cr in studio arts and #)

3980. DIRECTED INSTRUCTION. (1-5 cr per qtr [8 cr max]; prereq #)

Students assist in teaching a course they have completed.

● **5110. DRAWING.** (4 cr per qtr [16 cr max]; limited to 10 students; prereq 12 cr of 3110 or equiv; 1010-1205 MTWThF; ArtB 151) Rowan

Drawing in all mediums from life. Meets with 3110.

● **5160. WATERCOLOR.** (4 cr per qtr [16 cr max]; limited to 15 students; prereq 3160 or #; 1010-1205 MTWThF; ArtB 141) Myers

Advanced watercolor techniques, aesthetic directions. Individual concepts and development of sensibilities. Meets with 3160.

● **5710. PHOTOGRAPHY.** (4 cr per qtr [16 cr max]; limited to 5 students; prereq 12 cr of 3710 or #; 1010-1205 MTWThF; ArtB 131) Hallman

Individual work in photographic controls, processes; related photosensitive media. Meets with 3710.

● **5810. CERAMICS.** (4 cr per qtr [16 cr max]; limited to 5 students; prereq 12 cr of 3810 or #; 1010-1205 MTWThF; ArtB 10) Hoard

Aesthetic awareness and development; techniques and materials. Meets with 3810.

5970. DIRECTED STUDY. (1-5 cr per qtr [12 cr max]; prereq 24 cr in studio arts and #)

8110. DRAWING. (3 cr per qtr [9 cr max]; prereq #) Myers, Hendler, Somberg, Gray, Feinberg, Rowan

8120. PAINTING. (3 cr per qtr [18 cr max]; prereq #) Myers, Hendler, Somberg, Gray, Feinberg, Rowan

8510. PRINTMAKING. (3 cr per qtr [27 cr max]; prereq #) Bethke

8710. PHOTOGRAPHY. (3 cr per qtr [18 cr max]; prereq #) Hallman

8810. CERAMICS. (3 cr per qtr [18 cr max]; prereq #) Hoard

SECOND TERM

● **1101. DRAWING I.** (4 cr; each section limited to 28 students; 0800-0955 MTWThF; ArtB 141) Roode
See First Term.

● **1102. DRAWING II.** (4 cr; limited to 28 students; prereq 1101; 0800-0955 MTWThF; ArtB 140) Cowette
See First Term.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

- **1302. SCULPTURE.** (4 cr; limited to 22 students; 0800-0955 MTWThF; ArtB 65, 90) Rose
Study of structure with emphasis on form and space. Clay, plaster, wood. Mold making and casting.
- **1520. PRINTMAKING: LITHOGRAPHY.** (4 cr per qtr [8 cr max]; limited to 25 students; 0800-0955 MTWThF; ArtB 176) Krepps
Planographic printing processes from stones and metal plates. Image-making, processing, printing, and presentation in the creative context.
- **1701. PHOTO MEDIUM.** (4 cr; each section limited to 20 students; ArtB 131) Henkel
See First Term.
 - Sec 1, 0800-0955 MTWThF
 - Sec 2, 1010-1205 MTWThF
- **1801. CERAMIC PROCESSES.** (4 cr; limited to 28 students; 1010-1205 MTWThF; ArtB 10) Lane
See First Term.
- **3110. DRAWING.** (4 cr per qtr [12 cr max]; limited to 18 students; prereq 1102, 1401; 1010-1205 MTWThF; ArtB 140) Roode
See First Term. Meets with 5110.
- **3120. PAINTING.** (4 cr per qtr [12 cr max]; limited to 15 students; prereq 1105, 1401, and 8 cr of 3110 or #; 1010-1205 MTWThF; ArtB 140) Cowette
See First Term. Meets with 5120.
- 3420. WORKSHOP.** (4 cr)
 - Sec 1, Kiln Building.** (limited to 20 students; prereq 1801; 1215-1425 MTWThF; ArtB 176) Lane
Introduction to the design, construction and operation of kilns for the studio ceramist. Meets with 5420, Sec 1.
 - Sec 2, Papermaking.** (limited to 15 students; prereq 1401; 1215-1425 MTWThF; ArtB 176) Krepps
Creative and traditional papermaking techniques, for paper sheets, images and sculpture. Meets with 5420, Sec 2.
- 3970. DIRECTED STUDY.** (1-5 cr per qtr [8 cr max]; prereq 24 cr in studio arts and #)
- 3980. DIRECTED INSTRUCTION.** (1-5 cr per qtr [8 cr max]; prereq #)
See First Term.
- **5110. DRAWING.** (4 cr per qtr [16 cr max]; limited to 5 students; prereq 12 cr of 3110 or equiv; 1010-1205 MTWThF; ArtB 140) Roode
Drawing in all mediums from life. Meets with 3110.
- **5120. PAINTING.** (4 cr per qtr [16 cr max]; limited to 10 students; prereq 12 cr of 3120 and #; 1010-1205 MTWThF; ArtB 151) Cowette
See First Term. Meets with 3120.
- **5420. WORKSHOP.** (4 cr)
 - Sec 1, Kiln Building.** (limited to 10 students; prereq 1801; 1215-1425 MTWThF; ArtB 176) Lane
Introduction to the design, construction and operation of kilns for the studio ceramist. Meets with 3420, Sec 1.
 - Sec 2, Papermaking.** (limited to 5 students; prereq 1401; 1010-1205 MTWThF; ArtB 175) Krepps
Creative and traditional papermaking techniques. For paper sheets, images and sculpture. Meets with 3420, Sec 2.
- 5970. DIRECTED STUDY.** (1-5 cr per qtr [12 cr max]; prereq 24 cr in studio arts and #)
- 8110. DRAWING.** (3 cr per qtr [9 cr max]; prereq #) Roode, Cowette
- 8120. PAINTING.** (3 cr per qtr [18 cr max]; prereq #) Roode, Cowette
- 8510. PRINTMAKING.** (3 cr per qtr [27 cr max]; prereq #) Krepps
- 8710. PHOTOGRAPHY.** (3 cr per qtr [18 cr max]; prereq #) Henkel
- 8810. CERAMICS.** (3 cr per qtr [18 cr max]; prereq #) Lane

Courses preceded by ● have limited enrollment and must be reserved.

Chinese—See East Asian Languages

Classics

*Classics (Clas)*¹

FIRST TERM

1042. GREEK AND ROMAN MYTHOLOGY. (4 cr; prereq soph; 0905-0955 MTWThF; FolH 202) Cafarelli

Classical myths; stories of gods, demigods, and heroes that are a basic component of European cultural heritage; their artistic, religious, psychological, and anthropological implications.

1045. BASIC PROGRAM IN TECHNICAL TERMINOLOGY AND WORD STUDY. (2 cr. §3045, ¶1048, ¶3048; orientation: 1010-1100 1st day of class or 0800-0850 2nd day of class, 308 FolH; optional assistance labs: 1 hr ar W, 2 hrs ar ThF, 53 FolH; independent labs: 0800-1520 MTWThF, LRC)

1048. TECHNICAL TERMS OF THE MEDICAL AND BIOLOGICAL SCIENCES. (2 cr, §3048; prereq 1045 or ¶1045 or 3045 or ¶3045; orientation: 1010-1100 1st day of class or 0800-0850 2nd day of class, 308 FolH; optional assistance labs: 1 hr ar W, 2 hrs ar ThF, 53 FolH; independent labs: 0800-1520 MTWThF, LRC)

3045. BASIC PROGRAM IN TECHNICAL TERMINOLOGY AND WORD STUDY. (2 cr, §1045; ¶1048, ¶3048; orientation: 1010-1100 1st day of class or 0800-0850 2nd day of class, 201 FolH; optional assistance labs: 1 hr ar W, 2 hrs ar ThF, 53 FolH; independent labs: 0800-1520 MTWThF, LRC)

3048. TECHNICAL TERMS OF THE MEDICAL AND BIOLOGICAL SCIENCES. (2 cr, §1048; prereq 1045 or ¶1045 or 3045 or ¶3045; orientation: 1010-1100 1st day of class or 0800-0850 2nd day of class, 308 FolH; optional assistance labs: 1 hr ar W, 2 hrs ar ThF, 201 FolH; independent labs: 0800-1520 MTWThF, LRC)

3072. RELIGION IN ANTIQUITY: THE NEW TESTAMENT (4 cr, §5072; prereq jr; 1010-1100 MTWThF; FolH 209) 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*.

5072. RELIGION IN ANTIQUITY: THE NEW TESTAMENT. (4 cr, §3072; prereq #; 1010-1100 MTWThF; FolH 209) Kraabel

Meets with 3072, students do additional work for graduate credit.

5120. FIELD RESEARCH IN ARCHAEOLOGY. (4 cr)

Field excavation, survey, and research. Techniques of excavation and exploration; interpretation of archaeological materials. Contact department for further information.

SECOND TERM

3082. GREEK TRAGEDY IN TRANSLATION (AESCHYLUS, SOPHOCLES, EURIPIDES). (4 cr, §5082; prereq 8 cr in English literature beyond Engl 1002, or in foreign language literature, or Δ. 1010-1100 MTWThF; 305 FolH) Hershbell

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.

3088. SURVEY OF ROMAN LITERATURE. (4 cr; no prereq; 1115-1205 MTWThF; FolH 307) Sheets
A general introduction to the major genres and periods and several of the principal authors. Focus on the Roman literary tradition, its evolution and influence.

3145. CLASSICAL MYTHOLOGY: METHODOLOGY, INTERPRETATION, AND TRADITION. (4 cr; for non-language majors; 0800-0850 MTWThF; FolH 308) Solomon

Methodologies for the interpretation of myth, such as those of Müller, Jung, and Levi-Strauss, as applied to Greek and Roman mythology; successive reinterpretations and applications of selected myths in literature, art, and music. Meets with 5145.

¹Knowledge of Greek or Latin is not required.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

5082. GREEK TRAGEDY IN TRANSLATION (AESCHYLUS, SOPHOCLES, EURIPIDES) (4 cr, §3082; prereq 8 cr in English literature beyond Engl 1002, or in foreign literature, or Δ ; 1010-1100 MTWThF; FolH 305) Hershbell

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.

5088. SURVEY OF ROMAN LITERATURE. (4 cr; no prereq; 1115-1205 MTWThF; FolH 307) Sheets
Meets with 3088; students do additional work for graduate credit.

5145. CLASSICAL MYTHOLOGY: METHODOLOGY, INTERPRETATION, AND TRADITION. (4 cr, §3145; prereq 1042 or #: 0800-0850 MTWThF; FolH 308) Solomon

Same classwork as 3145; independent reading and research assignments in consultation with the instructor. Meets with 3145.

Greek (Grk)

SECOND TERM

3104. GREEK READINGS. (5 cr; prereq 1104 or equiv or #: 1010-1100 MTWThF; FolH 308) Solomon
Reading of selected Greek authors, development of reading proficiency. Introduction to cultural and literary studies—as in 1104, but students do more advanced assignment. Meets with 5970 and 8120.

5970. DIRECTED STUDIES. (1-5 cr per qtr; prereq # and Δ ; FolH 308)
Guided individual reading or study. Meets with 3104 and 8120.

8120. GREEK TEXT COURSE. (4 cr; prereq 3052 or Δ ; restricted to students in depts other than Classics; FolH 308).

Students attend 3000-level Greek courses if they meet the prerequisites for these courses. Supplementary work at the discretion of the instructor. Meets with 3104 and 5970.

Latin (Lat)

FIRST TERM

3001. BEGINNING LATIN: INTENSIVE ACCELERATED. (10 cr, §1101-1102-1103, §3051-3052; 0905-1205 MTWThF; Arch 20) Miller

Ten class hours weekly, plus individual and small group sessions. Grammar, syntax, composition, and reading. See Special Programs section.

SECOND TERM

3104. LATIN READINGS. (5 cr; prereq 1104 or equiv or #: 0905-0955 MTWThF; FolH 302) Sheets
Reading of selected Latin authors, development of reading proficiency, introduction to cultural and literary studies as in 1104, with advanced assignments. Meets with 8120.

8120. LATIN TEXT COURSE. (4 cr; prereq 3052 or Δ ; restricted to students in depts other than Classics; 0905-0955 MTWThF; FolH 302) Sheets

For nonmajors who wish text work in Latin for a minor or related field. Meets with 3104. Supplementary work at the discretion of the instructor.

Courses preceded by • have limited enrollment and must be reserved.

Communication Disorders (CDIs)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

FIRST TERM

● **3100. CLINICAL AND RESEARCH OBSERVATION.** (2 cr; S-N only; limited to 10 students; prereq departmental written permission) Staff

Supervised observation of clinical procedures such as evaluation and treatment of persons with communication disorders or of research relating to normal and disordered communication.

3101. INTRODUCTION TO SPEECH PATHOLOGY AND AUDIOLOGY. (4 cr; 0905-1100 TTh; FolH 303) Haroldson

Concepts basic to understanding normal and abnormal speech and hearing functions. Selected communication problems. Strategies and systems of delivery of clinical services.

5900. TOPICS IN COMMUNICATION DISORDERS.

Sec 1, The Nature and Nurture of the Human Voice. (2 cr; 1115-1205 TTh; FolH 303) Starr

Designed for persons in the speaking professions (i.e., teachers, actors, singers, lawyers) and for those who teach others to speak or sing. The physical, acoustical, and psychological bases of voice. Medical and functional conditions associated with voice disorders. Strategies and procedures used in management and prevention of voice problems.

Sec 2, Psychoacoustics of Music. (4 cr; 0905-1100 MW; FolH 303) Schubert

A study of the operation of auditory phenomena in the perception of musical sounds. The course will include sufficient instruction in auditory processing and in the acoustics of musical sounds to appreciate such phenomena as the formation of musical timbres, the contrasts between harmonic and non-harmonic sounds, the simultaneous processing of melodic lines, and the contribution of stereophonic presentation of sound. No formal training in music is assumed.

Sec 3, Perception of Speech by the Hearing Impaired. (4 cr; 1325-1520 MW; FolH 303) Schubert

A survey of the methods of measuring and alleviating the speech communication problems of persons with hearing losses. Current practices and difficulties in clinical speech discrimination testing will be discussed, emphasizing problems in validity and reliability. Methods of possible pre-processing of speech and amplification of speech will be explored, including the problem of speech coding for auditory implants.

5970. DIRECTED STUDIES. (Cr ar [may be repeated for cr]; prereq #) Staff

Directed readings and preparation of reports on selected subjects.

8504. SEMINAR: ARTICULATION. (3 cr; prereq 5504 or #; 1325-1520 MW, Ar) McDermott
Advanced Study and independent research.

8520. ADVANCED CLINICAL PRACTICE IN SPEECH PATHOLOGY. (2, 4, or 6 cr [may be repeated for cr]; prereq #) Broen, Starr, Haroldson

Specialized clinical practice. Evaluation and clinical management of persons with communication disorders.

8720. CLINICAL METHODS AND PRACTICE IN AUDIOLOGY. (2, 4, or 6 cr [may be repeated for cr]; prereq #) Staff

Supervised internship experiences for graduate students working with communication disorders of persons with auditory impairment.

8990. DIRECTED RESEARCH. (Cr ar [may be repeated for cr]; prereq #) Staff

Open to graduate students engaged in research.

SECOND TERM

● **3100. CLINICAL AND RESEARCH OBSERVATION.** (2 cr; S-N only; limited to 10 students; prereq departmental written permission) Staff

See First Term.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

3101. INTRODUCTION TO SPEECH PATHOLOGY AND AUDIOLOGY. (4 cr; 0905-1100 TTh; FolH 303) Burzynski
See First Term.

5704. NOISE AND MAN. (4 cr; prereq 5301 or #: 0800-0955 MWF; 118 Medical Research East) 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.

5970. DIRECTED STUDIES. (Cr ar [may be repeated for cr]; prereq #) Staff
See First Term.

8520. ADVANCED CLINICAL PRACTICE IN SPEECH PATHOLOGY. (2, 4, or 6 cr [may be repeated for cr]; prereq #) Staff
See First Term.

8720. CLINICAL METHODS AND PRACTICE IN AUDIOLOGY. (2, 4, or 6 cr [may be repeated for cr]; prereq #) Staff
See First Term.

8990. DIRECTED RESEARCH. (Cr ar [may be repeated for cr]; prereq #) Staff
See First Term.

Composition—See English

Criminal Justice Studies (CJS)

FIRST TERM

5101. CRIMINAL LAW. (4 cr; 0800-0930 TWTh; Law 65) Samaha
General criminal law, emphasizing its philosophical underpinnings. Substantive law of homicide, theft, conspiracy, and attempt; defenses of insanity, self-defense, and mistake of fact or law.

5102. CRIMINAL PROCEDURE. (4 cr; 0930-1100 TWTh; Law 65) Samaha
Processes by which persons are convicted of crime. Police discretion to arrest, the constitutional law of arrest, search and seizure, role of the prosecutor, plea bargaining, sentencing, and postconviction relief.

SECOND TERM

5101. CRIMINAL LAW. (4 cr; 0930-1100 TWTh; Law 65) Samaha
See First Term.

5102. CRIMINAL PROCEDURE. (4 cr; 0800-0930 TWTh; Law 65) Samaha
See First Term.

East Asian Languages

Chinese (Chn)

See Special Programs section for Minnesota-Nankai Summer Intensive Chinese Language Institute.

Courses preceded by • have limited enrollment and must be reserved.

Japanese (Jpn)

FIRST AND SECOND TERMS: TEN-WEEK COURSE

A concentrated program of study permitting students to earn 15 hours of credit, the equivalent of a full year's sequence in language. Students must register for both terms of the Summer Session and may not enroll in other courses in the Summer Session.

1011-1012-1013†. INTENSIVE FIRST-YEAR JAPANESE. (15 qtr cr for both terms [10 semester cr]) Five hours with linguist, 15 hours with drillmasters, extra hours of assigned laboratory work.

Sec 5, 0800-1205 MTWThF, KolH S133

Economics (Econ)

See also Public Affairs

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

FIRST TERM

● **1001. PRINCIPLES OF MACROECONOMICS.** (4 cr, §1004, §1014, §3001, §3002; each section limited to 50 students; prereq 3rd-qtr fr)

Principles underlying economic activity and the economic institutions within which economic units function. National income, money and banking, business cycles, and international trade.

Sec 1, 0800-0850 MTWThF, BlegH 110

Sec 2, 0905-0955 MTWThF, BlegH 150

Sec 3, 1010-1100 MTWThF, BlegH 120

Sec 4, 1115-1205 MTWThF, BlegH 120

Sec 5, 1220-1310 MTWThF, BlegH 130

● **1002. PRINCIPLES OF MICROECONOMICS.** (4 cr, §1005, §1015, §3001, §3002; each section limited to 50 students; prereq 3rd-qtr fr)

Demand and supply, competition and monopoly, and the distribution of income.

Sec 1, 0905-0955 MTWThF, BlegH 425

Sec 2, 1010-1100 MTWThF, BlegH 130

Sec 3, 1115-1205 MTWThF, BlegH 130

● **3101. MICROECONOMIC THEORY.** (4 cr, §5151; each section limited to 50 students; prereq 1001, 1002, Math 1111 or equiv or #)

Behavior of firms and industries under competitive and monopolistic conditions; factors influencing production, price, and advertising decisions.

Sec 1, 0905-0955 MTWThF, BlegH 250

Sec 2, 1010-1100 MTWThF, BlegH 250

● **3102. MACROECONOMIC THEORY.** (4 cr, §5152; limited to 45 students; prereq 1001, 1002, Math 1111 or equiv or #; 1115-1205 MTWThF, BlegH 110) Simler

Determinants of national income, employment, and price level; aggregate consumption and investment.

● **3701. MONEY AND BANKING.** (4 cr, §5721; limited to 30 students; prereq 1001, 1002 or equiv; not open to economics majors; 0905-0955 MTWThF; BlegH 412)

Historical development, present characteristics, and economic role of financial institutions. Commercial banking, the Federal Reserve system, and monetary policy. Meets with 5721.

3970. DIRECTED STUDIES. (Cr ar; prereq 1002, #)

5151. ELEMENTS OF ECONOMIC ANALYSIS: FIRM AND HOUSEHOLD. (3 cr, §3101; each section limited to 15 students; prereq 1001, 1002, 1 qtr calculus, grad student or #)

Individual decision making by households and firms under conditions of monopoly, competition; some welfare economics.

Sec 1, 0905-0955 MTWThF, BlegH 250

Sec 2, 1010-1100 MTWThF, BlegH 250

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

5152. ELEMENTS OF ECONOMIC ANALYSIS: INCOME AND EMPLOYMENT. (3 cr, §3102; limited to 15 students; prereq 1001, 1002, 1 qtr calculus, grad student or #; 1115-1205 MTWThF; BlegH 110) Simler

Determinants of national income, employment, and price level; aggregate consumption, investment, and asset holding.

● **5301. ECONOMIC DEVELOPMENT.** (4 cr, §5331; limited to 35 students; prereq 1001, 1002 or equiv; not open to economics majors; 1115-1205 MTWThF; BlegH 155) Smith

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. Meets with 5331.

● **5331. ECONOMIC DEVELOPMENT.** (4 cr, §5301; limited to 35 students; prereq 3101, 3102 or equiv or #; 1115-1205 MTWThF; BlegH 155) Smith
See 5301.

● **5401. INTERNATIONAL ECONOMICS.** (4 cr, §5431; limited to 35 students; not open to economics majors; prereq 1001, 1002 or equiv; 1010-1100 MTWThF; BlegH 420) Smith

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. Meets with 5431.

● **5431. INTERNATIONAL ECONOMICS.** (4 cr, §5401; limited to 25 students; prereq 3101, 3102 or equiv or #; 1010-1100 MTWThF; BlegH 420) Smith

See 5401.

● **5721. MONEY AND BANKING.** (4 cr, §3701, §5701; limited to 30 students; prereq 3102 or equiv; 0905-0955 MTWThF; BlegH 435)

See 3701.

5970. DIRECTED STUDIES. (Cr ar; prereq #) Staff

Areas useful to individual programs and objectives not available in regular course offerings.

8990. INDIVIDUAL GRADUATE RESEARCH. (Cr ar) Staff

SECOND TERM

● **1001. PRINCIPLES OF MACROECONOMICS.** (4 cr, §1004, §1014, §3001, §3002; each section limited to 50 students; prereq 3rd-qr fr)

See First Term.

Sec 1, 0800-0850 MTWThF, BlegH 110

Sec 2, 0905-0955 MTWThF, BlegH 150

● **1002. PRINCIPLES OF MICROECONOMICS.** (4 cr, §1005, §1015, §3001, §3002; each section limited to 50 students; prereq 3rd-qr fr)

See First Term.

Sec 1, 0800-0850 MTWThF, BlegH 130

Sec 2, 0905-0955 MTWThF, BlegH 130

Sec 3, 1010-1100 MTWThF, BlegH 120

Sec 4, 1115-1205 MTWThF, BlegH 110

● **3101. MICROECONOMIC THEORY.** (4 cr, §5151; each section limited to 45 students; prereq 1001, 1002, Math 1111 or equiv or #)

See First Term.

Sec 1, 0905-0955 MTWThF, BlegH 110

Sec 2, 1010-1100 MTWThF, BlegH 150

● **3102. MACROECONOMIC THEORY.** (4 cr, §5152; limited to 50 students; prereq 1001, 1002, Math 1111 or equiv or #; 1115-1205 MTWThF; BlegH 120)

See First Term.

Courses preceded by ● have limited enrollment and must be reserved.

- **3103. WELFARE ECONOMICS.** (4 cr; limited to 50 students; prereq 3101 or 3101H or equiv; 0800-0850 MTWThF; BlegH 150)
Introduction to welfare economics. Economic efficiency and the conditions necessary to sustain it. Conflicts between the efficiency and income distribution goals. How market structure and public policies increase or decrease efficiency.
- **3501. LABOR ECONOMICS.** (4 cr, §5531; limited to 35 students; prereq 1001, 1002 or equiv; not open to economics majors; 1115-1205 MTWThF; BlegH 115) Turnbull
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. Meets with 5531.
- **3701. MONEY AND BANKING.** (4 cr, §5721; limited to 30 students; prereq 1001, 1002 or equiv; not open to economics majors; 1010-1100 MTWThF; BlegH 415)
See First Term. Meets with 5721.
- **3801. ELEMENTS OF PUBLIC FINANCE.** (4 cr, §5821; limited to 35 students; prereq 1001, 1002 or equiv; 0905-0955 MTWThF; AndH 270)
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. Meets with 5821.
- 3970. DIRECTED STUDIES.** (Cr ar; prereq 1002, #)
- **5151. ELEMENTS OF ECONOMIC ANALYSIS: FIRM AND HOUSEHOLD.** (3 cr, §3101; each section limited to 15 students; prereq 1001, 1002, 1 qtr calculus, grad student or #)
See First Term.
Sec 1, 0905-0955 MTWThF, BlegH 250
Sec 2, 1010-1100 MTWThF, BlegH 250
- **5152. ELEMENTS OF ECONOMIC ANALYSIS: INCOME AND EMPLOYMENT.** (3 cr, §3102; limited to 15 students; prereq 1001, 1002, 1 qtr calculus, grad student or #; 1115-1205 MTWThF; BlegH 120)
See First Term.
- **5621. ECONOMICS OF URBAN PROBLEMS.** (4 cr; limited to 45 students; prereq 1001, 1002 or equiv; 1010-1100 MTWThF; BlegH 420)
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.
- **5721. MONEY AND BANKING.** (4 cr, §3701, §5701; limited to 30 students; prereq 3102 or equiv; 1010-1100 MTWThF; BlegH 415)
See First Term. Meets with 3701.
- **5821. ELEMENTS OF PUBLIC FINANCE.** (4 cr, §3801; limited to 35 students; prereq 3101...3101 recommended; 0905-0955 MTWThF; AndH 270)
See 3801.
- 5970. DIRECTED STUDIES.** (Cr ar; prereq #) Staff
See First Term.
- 8990. INDIVIDUAL GRADUATE RESEARCH.** (Cr ar) Staff

English

English (Engl)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

FIRST TERM

- **1016. INTRODUCTION TO AMERICAN LITERATURE.** (4 cr; limited to 40 students; 0905-0955 MTWThF; LindH 215) Solotaroff
Selected texts; critical discussion and writing.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **1019. INTRODUCTION TO MODERN DRAMA.** (4 cr; limited to 40 students; 0800-0850 MTWThF; LindH 215) Sugnet

Critical discussion of and writing about selected modern plays.

1241. INTRODUCTION TO SHAKESPEARE. (4 cr; 0905-0955 MTWThF; LindH 203) Haley
Lecture survey of Shakespeare's work, treating approximately 10 plays. For students in all colleges of the University.

3119. THE VICTORIAN AGE. (4 cr; 1115-1205 MTWThF; LindH 203) Hirsch
Major and representative works of the Victorian period (1832-1901). Typical authors: Tennyson, Browning, Hopkins, Arnold, Dickens, the Brontes.

3241. SHAKESPEARE. (4 cr; 1010-1100 MTWThF; LindH 203) Reed
Plays from Shakespeare's early and middle periods. All sections will read *A Midsummer Night's Dream*, *Hamlet*, a history play, and three or four other plays.

3242. SHAKESPEARE. (4 cr; 1115-1205 MTWThF; LindH 215) O'Brien
Plays from the middle and late periods. All sections will read *King Lear*, *Macbeth*, *The Tempest*, and three or four other plays.

3455. AMERICAN SHORT STORY. (4 cr; 0800-0850 MTWThF; LindH 217) MacLeish
Readings from Irving to the present.

● **3851. THE ENGLISH LANGUAGE.** (4 cr, §5851; limited to 50 students; 0800-0850 MTWThF; LindH 305) Escure

An introduction to the English language including English grammars, phonetics and phonology, British and American dialects, and native language acquisition.

5153. 20TH-CENTURY ENGLISH NOVEL. (4 cr; 0800-0850 MTWThF; LindH 203) Reed
Novels by such authors as Conrad, Ford, Joyce, Woolf, Lawrence, Forster, Cary, and Waugh.

5452. AMERICAN NOVEL. (4 cr; 0905-0955 MTWThF; LindH 229) Ross
Late 19th and 20th centuries. Typical authors: James, Dreiser, Cather, Hemingway, Fitzgerald, Faulkner.

5610. 20TH-CENTURY WRITERS: RECENT AMERICAN NOVELS. (4 cr; 1115-1205 MTWThF; LindH 217) Solotaroff

Reading of novels illustrating the most significant directions of the form in the last 15 years. Possible authors: Coover, Bellow, Roth, Percy, Brautigan.

5851. STRUCTURE OF MODERN ENGLISH. (4 cr, §3851; 1010-1100 MTWThF; LindH 217) Escure
Modern English grammar: phonology, syntax, and semantics; variations and change.

5940. FIGURES IN ENGLISH AND AMERICAN LITERATURE. (4 cr)

Sec 1, Chaucer I: The Canterbury Tales, 1010-1100 MTWThF, LindH 215, MacLeish
Reading of the *Canterbury Tales*, Chaucer's language.

Sec 2, Religious Conflicts in Modern Literature, §RelS 5960; 0905-0955 MTWThF, LindH 215, O'Brien

Treatment in modern literature of the conflicts between science and theology and between various religious persuasions and the modern liberal tradition. Selections from the work of Alfred Tennyson, T. H. Huxley, G. B. Shaw, Sinclair Lewis, H. L. Mencken, Jerome Lawrence and Robert E. Lee, and from others who have chronicled the warfare of ideas touched off by LaPlace, Lyell, Darwin, and Freud and a host of Judea-Christian apologists.

SECOND TERM

● **1017. INTRODUCTION TO MODERN POETRY.** (4 cr; limited to 40 students; 1010-1100 MTWThF; LindH 215) Luke

Critical discussion of and writing about selected modern poems.

● **1018. INTRODUCTION TO MODERN LITERATURE: PROSE FICTION.** (4 cr; limited to 40 students; 0905-0955 MTWThF; LindH 215) McNally

Selected texts; critical discussion and writing.

Courses preceded by ● have limited enrollment and must be reserved.

- 3118. THE ROMANTIC AGE.** (4 cr; 1010-1100 MTWThF; LindH 305) Rosendahl
Major and representative works of the romantic period (1798-1832). Typical authors: Blake, Wordsworth, Coleridge, Byron, Shelley, Keats.
- 3241. SHAKESPEARE.** (4 cr; 0905-0955 MTWThF; LindH 203) McNaron
See First Term.
- 3242. SHAKESPEARE.** (4 cr; 0905-0955 MTWThF; LindH 217) Clayton
See First Term.
- 3356. SURVEY OF MODERN BRITISH LITERATURE.** (4 cr; 1010-1100 MTWThF; LindH 217) Fuller
Historical survey of important authors, intellectual currents, movements, conventions, genres, and themes, 1914-1939. Typical authors: later Yeats, Eliot, Woolf, Joyce, Lawrence, Huxley, Waugh, Auden, and Thomas.
- 3455. AMERICAN SHORT STORY.** (4 cr; 1115-1205 MTWThF; LindH 215) Geffen
Readings from Irving to the present.
- **3851. THE ENGLISH LANGUAGE.** (4 cr, §5851; limited to 50 students; 0800-0850 MTWThF; LindH 215) Brown
See First Term.
- 3920. TOPICS IN ENGLISH AND AMERICAN LITERATURE: CHILDREN'S LITERATURE.** (4 cr; 0905-0955 MTWThF; LindH 229) Anderson
Introduction to children's literature, including some composed by children. Readings in folk tales, fables, fairy tales, nursery rhymes, fantasy fiction, etc. Some attention to critical approaches, including psychoanalytic and structuralist views.
- 5365. T. S. ELIOT.** (4 cr; 1115-1205 MTWThF; LindH 217) Fuller
Readings in Eliot's poetry, plays and criticism.
- 5530. EARLY 19TH-CENTURY AMERICAN WRITERS: HAWTHORNE AND MELVILLE.** (4 cr; 0905-0955 MTWThF; LindH 302) Roth
- 5610. 20TH CENTURY WRITERS.** (4 cr; 0800-0850 MTWThF; LindH 302) Furia
Fitzgerald and Hemingway. A study of the major novels, stories, and autobiographical writings of F. Scott Fitzgerald and Ernest Hemingway.
- 5620. BRITISH AND AMERICAN WOMEN WRITERS.** (4 cr; 1115-1205 MTWThF; LindH 203) McNaron
Adrienne Rich: Poet and Critic.
- 5711. CLASSICS OF LITERARY CRITICISM.** (4 cr; 1115-1205 MTWThF; LindH 229) Clayton
Major works in the classic critical tradition. Aristotle and Coleridge and such authors as Plato, Horace, Longinus, Sidney, Dryden, Johnson, Hume, and Eliot.
- 5910. TOPICS IN ENGLISH AND AMERICAN LITERATURE: POPULAR FICTION.** (4 cr; 1115-1205 MTWThF; LindH 302) Roth
The nature and appeal of popular fiction studied through conventions of particular adventure forms; i.e., the western, science fiction, detective fiction, and the thriller.
- 5920. TOPICS IN ENGLISH AND AMERICAN LITERATURE: RECENT AMERICAN POETRY.** (4 cr; 1010-1100 MTWThF; LindH 302) Furia
Historical survey of major figures and movements in American Poetry since 1945. Typical authors: Lowell, Ginsberg and the Beats, Plath, Berryman, Black Mountain poets, Bly, Baraka.
- 8050. STUDIES IN SPECIAL SUBJECTS: PSYCHOANALYTIC AND PHENOMENOLOGICAL CRITICISM.** (4 cr; 1115-1205 MTWThF; LindH 305) Anderson
Readings in the works of Freud, Jung, Klein, Binswanger, Erickson, Bachelard and others, as well as in the "practical criticism" of Holland, Crews and others; class members will attempt to assess such knowledge and to apply it to literary texts.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

English Composition (Comp)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

See also Rhetoric 3551, 3562, 5100.

FIRST TERM

● **1001.¹ INTRODUCTORY COMPOSITION.** (4 cr; each section limited to 28 students; prereq assignment to Category 3 or 5 or completion of 0001...# after first day of class)

Guided practice in the fundamental structural and stylistic features of exposition and argumentation. Not an introduction to literary studies or to humanities.

Sec 1, 0905-0955 MTWThF, LindH 302, Hirsch

Sec 2, 1010-1100 MTWThF, LindH 302, Browne

Sec 3, 1115-1205 MTWThF, LindH 303, Haley

● **1002.¹ INTRODUCTORY COMPOSITION.** (4 cr; limited to 28 students; prereq assignment to Category 2 or completion of 1001...# after first day of class; 1115-1205 MTWThF; LindH 229) Sugnet
See 1001.

● **1027.¹ INTERMEDIATE COMPOSITION.** (4 cr; limited to 25 students; prereq soph and completion of fr English or Δ ...# after first day of class; 0905-0955 MTWThF; LindH 303) Burns

Mastery of expository forms (e.g., comparison, analysis, cause-effect) and strategies of tone and diction for clear, accurate style.

● **3101. INTERMEDIATE FICTION WRITING.** (4 cr; limited to 25 students; 1010-1100 MTWThF; LindH 320) Burns

For those with some experience in writing fiction. Discussion of students' works; set texts, assignments, and experiments.

● **3104. INTERMEDIATE POETRY WRITING.** (4 cr; limited to 25 students; 1115-1205 MTWThF; LindH 302) Browne

For those with some experience in writing poetry. Discussion of students' works; set texts, assignments, and experiments.

3085. CONFERENCE COURSE IN ADVANCED COMPOSITION. (1-4 cr; prereq completion of fr English, Δ ; hrs ar) Ross

Frequent writing conferences for individual students; lectures and discussion sessions in cooperation with major department; special arrangements for IT and CLA students.

SECOND TERM

● **1001.¹ INTRODUCTORY COMPOSITION.** (4 cr; limited to 28 students; prereq assignment to Category 3 or 5 or completion of 0001...# after first day of class; 1010-1100 MTWThF; LindH 203) Browne

See First Term.

● **1002.¹ INTRODUCTORY COMPOSITION.** (4 cr; each section limited to 28 students; prereq assignment to Category 2 or completion of 1001...# after first day of class)

See 1001 First Term.

Sec 1, 0800-0850 MTWThF, LindH 203, Luke

Sec 2, 0905-0955 MTWThF, LindH 203, Geffen

Sec 3, 1115-1205 MTWThF, LindH 54, McNally

¹ Any student absent the first day (Tuesday, June 16, for first term, and Monday, July 20, for second term) will lose his or her place in class.

Courses preceded by ● have limited enrollment and must be reserved.

Foreign Study (FoSt)

FIRST TERM

5960. SPAN SEMINAR FOR FOREIGN STUDY. (6 cr; prereq approval before Oct 1980 by a faculty selection committee) Wright, Tesdell, Scott
Preparation for independent study in Austria, Egypt, West Germany, investigating history, social and political ambience, and culture.

SECOND TERM

5960. SPAN INDEPENDENT PROJECT. (6 cr; prereq satisfactory completion of first term) Wright, Tesdell, Scott
Following an 8-week stay in Austria, Egypt, West Germany, participants prepare and submit a project growing from their study at home and abroad.

French and Italian

French (Fren)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

FIRST TERM

- **1101. BEGINNING FRENCH.** (5 cr; each section limited to 30 students)
Sec 1, 0905-1100 MTWThF, FolH 205
Sec 2, 0905-1100 MTWThF, LindH 325
- **1102. BEGINNING FRENCH.** (5 cr; limited to 30 students; prereq 1101 or 1 yr high school French; 0800-0955 MTWThF; FolH 302)
- **1103. BEGINNING FRENCH.** (5 cr; limited to 30 students; prereq 1102 or 2 yrs high school French; 0800-0955 MTWThF; FolH 208)
- **1104. INTERMEDIATE FRENCH.** (5 cr; each section limited to 30 students; prereq 1103 or 3 yrs high school French)
Sec 1, 1010-1205 MTWThF; FolH 208
Sec 2, 1010-1205 MTWThF; FolH 202
- **3015. FRENCH CONVERSATION AND COMPOSITION.** (5 cr; limited to 15 students; prereq 1105; 1010-1205 MWF; FolH 108)
Combines traditional conversational and composition courses. Orthoepic in approach, seeking command of French both in pronunciation and grammar. Includes pastiche work, free composition, and translation from and into French.
- **3016. ADVANCED FRENCH COMPOSITION AND CONVERSATION.** (5 cr; limited to 15 students; prereq 3015 or equiv; 1010-1205 MWF; FolH 302)
- 3101. INTRODUCTION TO FRENCH LITERARY TEXTS: POETRY.** (5 cr; prereq 3015 or equiv; 0905-1100 MWF; FolH 304)
Approaches to literary analysis and techniques examined through critical reading. Aims beyond, but focuses on, poetry.
- 3269. TOPICS IN 19TH-CENTURY FRENCH LITERATURE.** (5 cr; prereq 3102, 3103; 0905-1100 MWF; LindH 315)
Selected texts. Taught in French.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

3602. FRENCH LITERATURE IN TRANSLATION. (5 cr [cr does not count toward French major]; taught in English; 1325-1520 MWF; FolH 308) Lock
Representative works from medieval times to present examined through movements, genres, or themes.

3970. DIRECTED READINGS. (1-5 cr; prereq undergrad, Δ)

5900. TOPICS IN FRENCH LITERATURE. (5 cr; prereq #) Akehurst

8970. DIRECTED READINGS. (1-5 cr; prereq # and consent of dept chair; hrs ar) Staff

FIRST AND SECOND TERMS: TEN-WEEK COURSE

A concentrated program of study permitting students to earn 15 hours of credit, the equivalent of a full year's sequence in language. Students must register in both terms of the summer session and may not enroll in other summer courses.

● **1101-1102-1103†. BEGINNING FRENCH.** (15 cr for both terms; limited to 30 students)

Sec 5, 0905-1205 MTWThF, KolH S139

Sec 6, 0905-1205 MTWThF, KolH S140

SECOND TERM

● **1102. BEGINNING FRENCH.** (5 cr; each section limited to 30 students)

Sec 1, 0905-1100 MTWThF; FolH 207

Sec 2, 0905-1100 MTWThF; FolH 209

● **1103. BEGINNING FRENCH.** (5 cr; limited to 30 students; prereq 1102 or 2 yrs high school French; 0800-0955 MTWThF; FolH 304)

● **1104. INTERMEDIATE FRENCH.** (5 cr; limited to 30 students; prereq 1103 or 3 yrs high school French; 0905-1100 MTWThF; FolH 103)

● **1105. INTERMEDIATE FRENCH.** (5 cr; each section limited to 30 students; prereq 1104)

Sec 1, 1010-1205 MTWThF; FolH 107

Sec 2, 1010-1205 MTWThF; FolH 108

● **3015. FRENCH COMPOSITION AND CONVERSATION.** (5 cr; limited to 15 students; prereq 1105; 1010-1205 MWF; FolH 303)

● **3016. ADVANCED FRENCH COMPOSITION AND CONVERSATION.** (5 cr; limited to 15 students; prereq 3015 or #; 1010-1205 MWF; FolH 302)

3103. FRENCH LITERARY TEXTS: NOVEL. (5 cr; prereq 3101 or equiv; 0905-1205 MWF; FolH 307)
Approaches to literary analysis and techniques examined through critical reading.

3970. DIRECTED READINGS. (1-5 cr; prereq undergrad, Δ) Staff

5458. VOLTAIRE. (5 cr; prereq 3209 or above; 1010-1205 MWF; ChDev 218) Waldauer

8970. DIRECTED READINGS. (1-5 cr; prereq # and consent of dept chair; hrs ar) Staff

French and Italian (Frlt)

SECOND TERM

3604. MODERN FRENCH CINEMA: ITS LITERARY AND CULTURAL IMPACT. (5 cr; cr does not count toward French major; knowledge of French helpful but not necessary; 1220-1415 MWF; Ph 210) Conley

Principal directions and movements including Renoir, new wave, Godard, and Rivette; essays on critical vocabulary of Bazin, Metz, others.

Courses preceded by ● have limited enrollment and must be reserved.

Italian (Ital)

FIRST AND SECOND TERMS: TEN-WEEK COURSE

A concentrated program of study permitting students to earn 15 hours of credit, the equivalent of a full year's sequence in language. Students must register in both terms of the summer session and may not enroll in other summer courses.

● **1101-1102-1103†. BEGINNING ITALIAN.** (15 cr for both terms; limited to 30 students, must be reserved in JohH 12)

A course with speaking objectives based on an audiolingual approach. Students learn to understand and express fundamental structures of the language. Includes audiovisual aids.

Sec 5, 0905-1205 MTWThF, KolH S132

Geography (Geog)

FIRST TERM

3331. ECONOMIC GEOGRAPHY. (4 cr; 0905-0955 MTWThF; BlegH 330) Sheppard
World patterns of economic activity; levels of development; appraisal of resources, production, circulation, and consumption; principles, models, and planning of economic behavior.

3371. URBAN GEOGRAPHY. (4 cr; 1115-1205 MTWThF; Law 55) Sheppard
Character, distribution, and development of cities in present-day world. Internal and external locational relationships.

3970. DIRECTED STUDIES. (1-15 cr per qtr) Staff

5132. SOUTH AMERICA. (4 cr; 0800-0850 MTWThF; BlegH 415) Mather
Physical resources, population, agriculture, manufacturing, and transportation in countries of South America.

5391. RURAL GEOGRAPHY. (4 cr; 1010-1100 MTWThF; BlegH 415) Mather
Geographic components and assemblages of rural settlement. World patterns and geographic problems of rural settlement on the American scene.

8970. DIRECTED READINGS. (1-5 cr) Staff

SECOND TERM

● **1301. HUMAN GEOGRAPHY.** (5 cr; Lect 0905-0955 MTWThF; each rec limited to 30 students; Law 15) Weil

Geography of population and principal ways of life; capacity of earth for future population.

Rec 1, 0800-0850 MWF, BlegH 445

Rec 2, 1010-1100 MWF, BlegH 445

3381. POPULATION GEOGRAPHY. (4 cr; 1115-1205 MTWThF; BlegH 330) Weil
Characteristics of human populations that relate to the nature of places and regions. Differential growth of populations with consideration of spatial variations in fertility, mortality, and migration. Regional variations in relationship of population and material welfare.

3970. DIRECTED STUDIES. (1-15 cr per qtr) Staff

8970. DIRECTED READINGS. (1-5 cr) Staff

Course Descriptions

German (Ger)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

The Summer Session and the German department will sponsor a special program using the facilities of Ludwig-Maximilians Universität, Munich, Germany. Permission of the German department is required for registration. See Special Programs section.

FIRST TERM

● **1101. BEGINNING GERMAN.** (5 cr, §1110; limited to 30 students; 0800-0955 MTWThF; FolH 104)
Emphasis on structure, reading, and listening comprehension.

● **1103. BEGINNING GERMAN.** (5 cr, §1110; limited to 30 students; prereq 1102; 0905-1100 MTWThF; FolH 105)
See 1101.

● **1301. INTERMEDIATE GERMAN.** (5 cr; limited to 30 students; prereq 1103 or 15 cr of 1110 or placement; 0905-1100 MTWThF; FolH 203)
Expansion of basic skills; discussion, reading, and writing.

● **3104. READING AND ANALYSIS OF LITERARY TEXTS: PROSE.** (4 cr; limited to 25 students; required of all German majors; prereq 1302 or #: 1010-1100 MTWThF; Arch 30) Duroche
Reading fluency; appreciation of literary values through literary interpretation and familiarization with critical terminology.

● **3601. GERMAN LITERATURE IN TRANSLATION: MEDIEVAL LITERATURE.** (4 cr [cr does not count toward German major]; limited to 30 students; may be used in fulfillment of Route II, Part B of BA foreign language requirement; knowledge of German not required; 1010-1100 MTWThF; FolH 204) Wakefield
Representative literary works from medieval literature, related to other literatures.

● **3602. GERMAN LITERATURE IN TRANSLATION: THE AGE OF GOETHE.** (4 cr [does not count toward German major]; limited to 30 students; may be used in fulfillment of Route II, Part B of BA foreign language requirement; knowledge of German not required; 0905-0955 MTWThF, FolH 204)
Representative literary works from the age of Goethe related to other literatures.

5970. DIRECTED STUDIES. (1-5 cr) Duroche
Guided individual reading or study.

FIRST AND SECOND TERMS: TEN-WEEK COURSE

A concentrated program of study permitting students to earn 15 hours of credit, the equivalent of a full year's sequence in language. Students must register in both terms of the summer session and may not enroll in other summer courses.

● **1101-1102-1103†. BEGINNING GERMAN.** (15 cr for both terms; limited to 30 students, must be reserved in JohH 12) Hirschbach
Emphasis on structure, reading, and listening comprehension.
Sec 5, 0905-1205, MTWThF, KoltH S134

SECOND TERM

● **1102. BEGINNING GERMAN.** (5 cr, §1110; limited to 30 students; prereq 1101; 0800-0955 MTWThF; FolH 204)
See 1101 First Term.

Courses preceded by ● have limited enrollment and must be reserved.

- **1302. INTERMEDIATE GERMAN.** (4 cr; limited to 30 students; prereq 1301 or placement; 0905-1100 MTWTh; FolH 105) Wakefield
See 1301, First Term.
- **3105. READING AND ANALYSIS OF LITERARY TEXTS: DRAMA AND POETRY.** (4 cr; limited to 25 students; required of all German majors; prereq 1302 or #; 1010-1100 MTWThF; FolH 204)
See 3104, First Term.
- **3603. GERMAN LITERATURE IN TRANSLATION: MODERN LITERATURE.** (4 cr [cr does not count toward German major]; limited to 30 students; may be used in fulfillment of Route II, Part B of BA foreign language requirement; knowledge of German not required; 0905-0955 MTWThF; FolH 205)
Representative literary works from the modern period and their relationship to other literatures.
- **3610. GERMAN AUTHORS OR TOPICS IN TRANSLATION: BISMARCK'S GERMANY.** (4 cr [cr does not count toward German major]; limited to 30 students; may be used in fulfillment of Route II, Part B of BA foreign language requirement; knowledge of German not required; 1115-1205 MTWThF; FolH 105) Weiss
Study in depth of authors or topics from various periods in German literature.
- 5371. THE RADIO PLAY AS LITERARY FORM.** (4 cr; prereq 3104, 3105, 3 addnl Ger lit courses or equiv; 0905-0955 MTWThF; FolH 208) Weiss
Radio plays by such authors as Dürrenmatt, Frisch, Eich, Jens, Böll, Grass, or others; unique features dictated by the medium. Taught in German.

Greek—See Classics

Hebrew—See Near and Middle Eastern Studies

History (Hist)

FIRST TERM

- 1001. INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES.** (4 cr, §1001H, §3001; not open to jrs, srs; 0905-0955 MTWThF; BlegH 105) Thayer
Development of Western Europe to 1715.
- 1003. INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES.** (4 cr, §1003H, §3003; not open to jrs, srs; 1010-1100 MTWThF; BlegH 210)
1870 to recent times.
- 1053. ANCIENT CIVILIZATION.** (4 cr, §3053; 0905-0955 MTWThF; BlegH 260) J Evans
Roman civilization to 305 A.D.
- 1302. AMERICAN HISTORY.** (4 cr, §1302H; 1115-1205 MTWThF; BlegH 230) Berman
Modern America from 1880 to present.
- 1401. SURVEY OF LATIN AMERICAN HISTORY: COLONIAL PERIOD TO 1800.** (4 cr, §3401; 1115-1205 MTWThF; BlegH 105) Schwartz
The pre-Hispanic and colonial period to 1800 with emphasis on social, cultural, and economic aspects.
- 3001. INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES.** (4 cr, §1001, §1001H; 0905-0955 MTWThF; BlegH 105) Thayer
See 1001.
- 3003. INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES.** (4 cr, §1003, §1003H; 1010-1100 MTWThF; BlegH 210) Rudolph
See 1003.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

3053. ANCIENT CIVILIZATION. (4 cr, §1053; 0905-0955 MTWThF; BlegH 260) J Evans
See 1053.

3401. SURVEY OF LATIN AMERICAN HISTORY: COLONIAL PERIOD TO 1800. (4 cr, §1401; 1115-1205 MTWThF; BlegH 105) Schwartz
See 1401.

3468. PEOPLE'S REPUBLIC OF CHINA: THE COMMUNIST REVOLUTION, 1900 TO PRESENT. (4 cr, §5468; 1010-1100 MTWThF; BlegH 260) Farmer
Introduction of Marxism to China, rise of the Communist Party and the development of a rural guerilla movement. The career of Mao Tse-tung and the developments in the People's Republic: The Great Leap, Cultural Revolution, Gang of Four.

3822. UNITED STATES IN THE 20TH CENTURY: 1917-1945. (4 cr; 0905-0955 MTWThF; AndH 350) Berman
Political, social, cultural, economic and diplomatic trends in the United States during the Jazz Age, the Great Depression, the New Deal and the war against Fascism.

3883. HISTORY OF AMERICAN FOREIGN RELATIONS. (4 cr; 0905-0955 MTWThF; BlegH 210) Brauer
American foreign relations during the Cold War, 1941 to present.

3970. DIRECTED STUDIES. (1-15 cr; prereq #)
Guided individual reading or study. Open to qualified students for 1 or more quarters.

3990. DIRECTED RESEARCH. (1-15 cr; prereq #)
Qualified students, with consent of instructor, work on a tutorial basis.

5231. MODERN FRANCE FROM 1848 TO DEGAULLE. (4 cr; 0800-0850 MTWThF; BlegH 105) Munholland
A survey of French society and political life from the Revolution of 1848 to contemporary France.

5264. MODERN RUSSIA: 18TH CENTURY BACKGROUND. (4 cr; 1010-1100 MTWThF; BlegH 340) Stavrou
Foundation of the Russian empire, modernization and expansion under Peter the Great and Catherine the Great. The question of Russia's Europeanization.

5285. DIPLOMATIC HISTORY OF EUROPE, 1871-1918. (4 cr; 1115-1205 MTWThF) Kieft
The Bismarck alliance system; the Eastern Question; overseas imperialism; World War I.

5468. PEOPLE'S REPUBLIC OF CHINA: THE COMMUNIST REVOLUTION, 1900 TO PRESENT. (4 cr, §3468; 1010-1100 MTWThF; BlegH 260) Farmer
See 3468.

5970. DIRECTED STUDIES. (1-15 cr; prereq #)
Qualified senior and graduate students may register for work on tutorial basis. Guided individual reading or study.

5990. DIRECTED RESEARCH. (1-15 cr; prereq #)
Qualified senior and graduate students may register for work on tutorial basis.

SECOND TERM

1002. INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES. (4 cr, §1002H, §3002; not open to jrs, srs; 0905-0955 MTWThF; BlegH 105) Noonan
Revolution, liberalism, and nationalism to 1870.

1051. ANCIENT CIVILIZATION. (4 cr, §3051; 0905-0955 MTWThF; BlegH 115) Kelly
Near East to 500 B.C.

1101. INTRODUCTION TO MEDIEVAL AND RENAISSANCE HISTORY. (4 cr, §3101, not open to jrs and srs; 0800-0850 MTWThF; BlegH 210) Bachrach
The early Middle Ages, decline of Rome, barbarian kingdoms, Carolingian empire.

1301. AMERICAN HISTORY. (4 cr, §1301H; 0905-0955 MTWThF; AndH 250) Menard
Colonial era and early national period from the Revolution through Civil War and Reconstruction.

Courses preceded by • have limited enrollment and must be reserved.

1432. INTRODUCTION TO HISTORY OF AFRICA: 1500-1880. (4 cr, §3432; 0800-0850 MTWThF; BlegH 115) Isaacman
Slave trade, Islamic revolutions, and European expansion.

3002. INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES. (4 cr, §1002; §1002H; 0905-0955 MTWThF; BlegH 105) Noonan
See 1002.

3051. ANCIENT CIVILIZATION. (4 cr, §1051; 0905-0955 MTWThF; BlegH 115) Kelly
See 1051.

3101. INTRODUCTION TO MEDIEVAL AND RENAISSANCE HISTORY. (4 cr, §1101; 0800-0850 MTWThF; BlegH 210) Bachrach
See 1101.

3432. INTRODUCTION TO HISTORY OF AFRICA: 1500-1800. (4 cr, §1432; 0800-0850 MTWThF; BlegH 115) Isaacman
See 1432.

3823. UNITED STATES IN THE 20TH CENTURY: 1945 TO PRESENT. (4 cr; 1115-1205 MTWThF; BlegH 135) Spear
American society since World War II: the origins of the Cold War; the Great Red Scare; the politics and culture of the Eisenhower Era; conflict and confrontation in the 1960s; Watergate and the uncertainties of the 1970s.

3845. AMERICAN ECONOMIC HISTORY, 1870 TO THE PRESENT. (4 cr; 10:10-11:00 MTWThF) Green
Farm problems in the 19th century. Rise of big business and finance capitalism. The 1920s economy and the great depression. Corporate capitalism, government policies and modern society.

3955. INTRODUCTION TO WRITING HISTORY. (4 cr, prereq two courses in history or #; 0905-1100 MW; BlegH 360) Metcalf
Introductory practical course in writing history. Faculty guidance is provided in sections limited to 15 students. Offers experience in use of documents and different kinds of historical writing. Students read and discuss material representative of contrasting historical perspectives.

3970. DIRECTED STUDIES. (1-15 cr, prereq #)
See First Term.

3990. DIRECTED RESEARCH. (1-15 cr, prereq #)
See First Term.

● **5381. MINNESOTA HISTORY WORKSHOP: Topics in Minnesota History—July 20-31.** (5 cr; first time repeaters register for 5970, sec 2; limited to 100 students, must be reserved at 1425 University Ave SE)
This all-day, two-week workshop offers elementary and secondary teachers content information, teaching resources, and an introduction to the collections of the Minnesota Historical Society. This year's workshop focuses on two topics. *The Frontier Myth in Minnesota* explores both the historical impact of the idea of the frontier in Minnesota, and our modern day preconceptions of the past. *Urban History: The City as Artifact* examines cultural values and ideas that form and change the built environment. The workshop is held at the Minnesota Historical Society in St. Paul. See Special Programs section.

5474. JAPAN AND THE SECOND WORLD WAR. (4 cr; 1115-1205 MTWThF; BlegH 105) Marshall
From the origins of war in China through the Pearl Harbor decision, the conquest of Southeast Asia, defeat in the Pacific, the impact of the Atomic bomb, the American occupation and the creation of a U.S.-Japan alliance.

5970. DIRECTED STUDIES. (1-15 cr, prereq #)
See First Term.

Sec 2, 5 cr, must be reserved at 1425 University Ave SE
For students who are repeating Hist 5381, Minnesota History Workshop. See Special Programs section.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

5990. DIRECTED RESEARCH. (1-15 cr, prereq #)
See First Term.

Humanities (Hum)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

FIRST TERM

● **1001. HUMANITIES IN THE MODERN WORLD I.** (5 cr, §3001, §Rhet 1301; limited to 77 students; 0800-0955 TTh; ForH 155) Leppert

Eighteenth-century Europe. Old Regime through French Revolution and Napoleon; new science, Enlightenment, cult of sensibility; rococo, neo-classicism, incipient romanticism. Integrative study of works by creative figures such as Pope, Voltaire, Rousseau, Diderot, Goethe, Watteau, Boucher, Hogarth, David, Goya, Mozart, Haydn.

● **1002. HUMANITIES IN THE MODERN WORLD II.** (5 cr, §3002, §Rhet 1302; limited to 77 students; 0800-0955 MW; ForH 155) Frank

Romanticism, liberalism, socialism; industrial revolution, materialism, cult of the individual and some counterstatements; realism, naturalism. Selected works by creative persons such as Wordsworth, Byron, Adam Smith, Bentham, Marx, Mill, Stendhal, Flaubert, Ibsen, Dostoevsky, Delacroix, Courbet, Daumier, Beethoven, Berlioz, Liszt.

● **3006. THE CREATIVE IMAGINATION IN THE 20TH CENTURY.** (5 cr; limited to 77 students; 1010-1205 MW; ForH 120) Cox

To examine certain aspects of creativity in the 20th century through a study of major works of painters, sculptors, musicians, and writers such as Marcel Duchamp, Pablo Picasso, John Cage, and Andre Gide. The choice of artists will vary.

● **3301. A TIME TO LAUGH: A STUDY OF THE COMIC SPIRIT.** (5 cr, limited to 80 students; 1010-1205 TTh; ForH 120) Thomas

Interdisciplinary survey of comedy through time and across world cultures in literature, drama, folk ritual and tale, social convention, language, sport, film.

SECOND TERM

● **1011. EUROPEAN HERITAGE: GREECE.** (5 cr, §3011, §Rhet 3321; limited to 77 students; 1115-1205 MTWTh; ForH 285) Ames

Greek civilization; literary and artistic works that have influenced modern Western culture. Epic and lyric poetry, drama, architecture, sculpture, philosophy, religion; Homer, Hesiod, Aeschylus, Sophocles, Euripides, Aristophanes, Plato, Aristotle.

● **1101. THE LIFE OF THE MIND: INTRODUCTION TO METHODS IN THE HUMANITIES.** (5 cr; limited to 35 students; 0800-0850 MTWTh; ForH 115) Hershbell

Ways of reading and appreciating poetry, sculpture, history, philosophy, painting, rhetoric, music, and film. Works by creative persons such as Stevens, Einstein, Henry Moore, Bach, Lincoln, Plato, Genet, Euclid, Joyce, and Fellini.

● **3001. HUMANITIES IN THE MODERN WORLD.** (5 cr, §1001, §Rhet 1301; limited to 77 students; 1010-1100 MTWTh, ForH 115) Roshwald

See 1001 First Term.

● **3003. HUMANITIES IN THE MODERN WORLD III.** (5 cr, §1003, §Rhet 1303; limited to 80 students; 0905-0955 MTWTh, ForH 285) Tapp

Impact of science, especially evolution theory, on religious and humanistic thought; roots of existentialism; disorientation in modern culture; impressionism. Integrative study of works by creative figures such as Kierkegaard, Darwin, Nietzsche, Chekhov, Joyce, Mann, Manet, Monet, Renoir, Degas, Wagner, Debussy, Mahler.

Courses preceded by ● have limited enrollment and must be reserved.

Interdepartmental Study (ID)

●3110. **INTERPLAY '81: THE WORLD BETWEEN THE WARS—June 15-July 2.** (4 cr; sections limited to 40 students; reservations in Johnston Hall 12. Students enroll in one section each week, choosing one from each of the three study areas. All students attend core panels on Monday, June 15, 0830-1000 in Bell Museum Auditorium; Friday, June 26, 0830-1000, and Thursday, July 2, 1015-1145 in Willey Hall 125.) Chambers.

See Special Programs and Workshops section.

1. ARTS

American Studies—American Movies Between the Wars. May

- Sec 1, 0830-1000 TWThF, June 16-20, FraH 102
- Sec 11, 0830-1000 MTWTh, June 22-25, FraH 102
- Sec 21, 0830-1000 MTWTh, June 29-July 2, FraH 102

Music—Jazz in Three Cities: Establishment of American Music. Buckner

- Sec 2, 0830-1000 TWThF, June 16-20, AndH 210
- Sec 12, 0830-1000 MTWTh, June 22-25, AndH 210
- Sec 22, 0830-1000 MTWTh, June 29-July 2, AndH 210

Theatre Arts—Bread and Circuses: Politics and Plays. Congdon

- Sec 3, 0830-1000 TWThF, June 16-20, BlegH 404
- Sec 13, 0830-1000 MTWTh, June 22-25, BlegH 404
- Sec 23, 0830-1000 MTWTh, June 29-July 2, BlegH 404

2. HUMANITIES

Anthropology—The Idea of Culture in American Thought. Penn

- Sec 4, 0830-1000 TWThF, June 16-20, VinH 313
- Sec 14, 0830-1000 MTWTh, June 22-25, VinH 313
- Sec 24, 0830-1000 MTWTh, June 29-July 2, VinH 313

History—Is There a Glorious Future? The United States 1919-1939. Noble

- Sec 5, 0830-1000 TWThF, June 16-20, Law 65
- Sec 15, 0830-1000 MTWTh, June 22-25, Law 65
- Sec 25, 0830-1000 MTWTh, June 29-July 2, Law 65

Philosophy—Philosophy in Literature: Beautiful and Damned. Eaton

- Sec 6, 0830-1000 TWThF, June 16-20, VinH 203
- Sec 16, 0830-1000 MTWTh, June 22-25, VinH 203
- Sec 26, 0830-1000 MTWTh, June 29-July 2, VinH 203

3. SOCIAL AND NATURAL SCIENCES

History of Science and Technology—Physicists in New Worlds. Stuewer

- Sec 7, 0830-1000 TWThF, June 16-20, Ph 236A
- Sec 17, 0830-1000 MTWTh, June 22-25, Ph 236A
- Sec 27, 0830-1000 MTWTh, June 29-July 2, Ph 236A

Political Science—The Totalitarian Temptation. Ball

- Sec 8, 0830-1000 TWThF, June 16-20, Law 55
- Sec 18, 0830-1000 MTWTh, June 22-25, Law 55
- Sec 28, 0830-1000 MTWTh, June 29-July 2, Law 55

Psychology—The Freudian Viewpoint. Tellegen

- Sec 9, 0830-1000 TWThF, June 16-20, WuH 130
- Sec 19, 0830-1000 MTWTh, June 22-25, WuH 130
- Sec 29, 0830-1000 MTWTh, June 29-July 2, WuH 130

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

There will be mail registration for ID 3110, Interplay '81: For further information and registration materials, please contact the Summer Session Office, 135 Johnston Hall, 101 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455; (612) 373-2925.

Independent study is available through registration in ID 3970 for 3 to 15 credits. Similar independent study courses may be taken for 1 to 5 credits through registration in Literature and Fine Arts (LFA), Natural Science (NSci), or Social Science (SSci) 3970 (to arrange projects, consult the Office for Special Learning Opportunities, B18 Johnston Hall, 373-7550), or for varying credit through registration in departmental courses 3970 or 5970. LFA, NSci, and SSci 3970 descriptions are the same as that of ID 3970 except for credit offering.

3970. DIRECTED STUDIES. (3-15 cr; *prereq consent of Office for Special Learning Opportunities*) Individual projects, readings, and research in areas that cross departmental lines.

Indic—See South Asian Studies

Italian—See French and Italian

Jewish Studies—See Near and Middle Eastern Studies

Journalism and Mass Communication (Jour)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses"). Departmental consent for courses marked with a delta (Δ) must be obtained in 102 Murphy Hall.

FIRST TERM

1001. INTRODUCTION TO MASS COMMUNICATIONS. (2 cr; English composition or communication recommended; 0800-0850 MTWThF; PH 150) Ettema

Nature, functions, and responsibilities of communication media and agencies from professional point of view. News, opinion, entertainment, and persuasion functions; specialized communication; aspects of advertising.

1005. VISUAL COMMUNICATION. (3 cr; *prereq 3rd-qr fr*; 1010-1100 MTWThF; ForH 55) Foushee
Functions of visual communication in news and advertising for print and electronic media. Evaluation and criticism of current typography, photography. Lectures (CCTV), recitations; projects, critiques.

3121. PUBLIC AFFAIRS REPORTING. (4 cr; *prereq major status in Journalism, 1101, 3776, 40 wpm typing skill, Δ , Comp 1027 where required by sequence; 1010-1205 MWF; MurH 212*) Ismach
Reporting and editing news of courts and municipal, county, state, and federal administrative and legislative agencies.

Courses preceded by \bullet have limited enrollment and must be reserved.

3155. PUBLICATIONS EDITING. (4 cr; prereq 3121, Δ ; 0800-0955 MTWThF; MurH 206) Dicken-Garcia

Selection and editing of news-editorial content of newspapers, brochures, magazines. Newspaper makeup, magazine format. Press association teletype service. Laboratory.

5141. OPINION WRITING IN AMERICA. (4 cr; prereq sr, journalism major, Δ ; 1115-1310 MWTh; MurH 207) Emery

Oral and written analysis of major political, economic, and social developments. Persuasive communication in newspapers and magazines; columnists; commentators.

5221. PUBLICATION GRAPHICS. (4 cr; prereq 3121 or 3231 or 8 cr in 3xxx- or 5xxx-level courses in art and design; 0900-0955 MTWThF; MurH 320) Wilson

Processes in graphic communication. Technique and production of illustration. Significant graphic arts developments.

5402. FILM PRODUCTION. (5 cr; prereq 3401 and 1101 or 3486, Spch 3201, Δ ; 1010-1100 MTWThF; RarigC 624) Ettema

Directed projects in planning, shooting, and editing silent and sound film. Creative production problems. Lecture, laboratory work, and field experience.

5501. COMMUNICATION AND PUBLIC OPINION I. (4 cr, §Soc 5355; prereq 15 cr in social science depts; 1010-1100 MTWThF; MurH 308) Carter

Theories of communication process and of persuasion and attitude change. Functions of interpersonal and mediated communication in diffusion of information and in opinion formation.

5601. HISTORY OF JOURNALISM. (4 cr; 1115-1205 MTWThF; MurH 308) Dicken-Garcia

Development of American newspapers and periodicals from beginnings in Europe to present day; rise of radio and television; relation of communications developments to political, economic, and social trends.

5721. MASS MEDIA IN A DYNAMIC SOCIETY. (4 cr; prereq 1201 or 3121 or journalism major...# for others; 0905-0955 MTWThF; MurH 311) Ismach

Economic, political, and social determinants of character and content of mass communications. Patterns of operation, effect on content, and relative social utility. Theory of mass society.

5970. ADVANCED PROJECTS IN JOURNALISM. (1-4 cr [may be repeated for max 8 cr]; prereq major status in journalism, B avg, #, Δ) Staff

8970. ADVANCED PROJECTS IN MASS COMMUNICATION. (4 cr [may be repeated for a maximum of 8 cr]; prereq grad major or minor in mass communication; #) Staff

Individual research.

SECOND TERM

● **1101. REPORTING.** (5 cr; limited to 16 students; prereq C or better in 1001 and 1005 or grad status; type 25 wpm, and Δ ; 0800-0955 MTWThF; MurH 210)

Study and practice in fact gathering and journalistic writing. Problems in judgment and handling of news and news features.

1201. PRINCIPLES OF ADVERTISING. (4 cr; 1001 recommended for journalism majors; 1010-1100 MTWThF; MurH 308)

Theory, principles, and functions of advertising; its role in economic, social, and marketing structure. Newspapers, magazines, radio, television as advertising media.

3173. MAGAZINE WRITING. (4 cr; prereq 3121, Δ ; 1010-1100 MTWThF; MurH 207) Hage

Writing feature articles for general, class, and trade publications; market free-lance methods.

5182. SUPERVISION OF SCHOOL PUBLICATIONS. (4 cr; for those who plan to advise high school or college newspapers, yearbooks, magazines; prereq 1011 or 3121; 1010-1100 MTWThF; MurH 311)

Editorial content, staff organization, editing, typography, makeup, business management.

5251. PSYCHOLOGY OF ADVERTISING. (4 cr, §Psy 5751; prereq Psy 1001; 0905-0955 MTWThF; MurH 308) Jones

Psychological principles, research techniques, and applications in advertising and selling. Consumer attitudes and behavior. Psychological mechanisms upon which effectiveness of advertisements and commercials depends.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

5261. ADVERTISING: MEDIA ANALYSIS. (4 cr; prereq 2.50 avg in 1001, 1005, 1201...Comp 1027 where required by sequence...Mktg 3000, type 25 wpm, Δ; 1115-1205 MTWThF; MurH 308) Jones 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.

5549. PUBLIC RELATIONS. (4 cr; prereq 15 cr in social science depts...# for nonmajors; 1115-1205 MTWThF; MurH 311) Lindsay History and development of public relations practices and principles. Processes and applications in a variety of institutional settings. Critique of public relations in contemporary society.

5970. ADVANCED PROJECTS IN JOURNALISM. (1-4 cr [may be repeated for max 8 cr]; prereq major status in journalism; B avg, #, Δ) Staff

8970. ADVANCED PROJECTS IN MASS COMMUNICATIONS. (4 cr [may be repeated for a maximum of 8 cr]; prereq grad major or minor in mass communication; #) Staff
See First Term.

Latin—See Classics

Library School (Lib)¹

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

FIRST TERM

● **5101. INTRODUCTION TO LIBRARY AND INFORMATION SERVICES.** (4 cr; limited to 40 students; 0905-1100 MTWTh; VH 6) Olson
Librarianship as a profession; development of libraries as social agencies; principles of library administration and management.

5301. READING, LISTENING, AND VIEWING GUIDANCE FOR YOUTH IN LIBRARIES. (3 cr; prereq 5101, 5221, 5401, 5601; 1220-1415 MW; WaLib 339) Olson
Philosophy and objectives of library service in schools and children's departments; guidance techniques; planning library programs. Review of relevant research related to reading, viewing, and listening, and survey of professional literature from various fields pertinent to understanding children and adolescents.

● **5401. ORGANIZATION OF INFORMATION I.** (3 cr; limited to 40 students; 1220-1415 MTWTh; VinH 6)
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.

8223. GENERAL BIBLIOGRAPHY. (4 cr; prereq 5101, 5221, 5401, 5601 or #; 1115-1310 TTh; WaLib 339) Maack
Major national and trade bibliographies with emphasis on those of the United States, Great Britain, France, Germany, and Russia; their use in selection and acquisition of print and nonprint materials and in the preparation of bibliographies.

8503. SEMINAR: LIBRARY PERSONNEL PROBLEMS. (3 cr; prereq #; 0905-1110 TTh; WaLib 339) D'Elia
Advanced study of library personnel problems selected according to the interests of students; includes such topics as staff development, participatory management, staff evaluation, unionization.

8703. EVALUATION OF LIBRARY SERVICES. (3 cr; prereq 8701, 8702 or #; 0905-1100 MW; WaLib 339) D'Elia
Application of research methods to the problems of evaluation of library services.

¹ The Library School is a professional school that offers only graduate degrees and courses. Courses numbered 8000 and above are open only to graduate students and to librarians who hold a fifth-year degree in library science. Courses numbered at the 5000 level are open to anyone who has been admitted to the Graduate School or to any undergraduate in the College of Liberal Arts or the College of Education. A student who does not fall in one of the above categories must have registration for any library science course approved by an adviser in the Library School office, 419 Walter Library. Courses preceded by ● have limited enrollment and must be reserved.

8950. SELECTED TOPICS IN LIBRARY SCIENCE: INTERNATIONAL AND COMPARATIVE LIBRARIANSHIP. (3 cr; prereq #: 1430-1625 T; WaLib 339) Maack

8970. INDEPENDENT STUDY. (Cr ar; prereq #) Staff

8990. LIBRARY RESEARCH. (Cr ar; prereq #) Staff

Graduate students under Plan B may register for at least 4 credits in library research with the approval of the professor who will guide the research project.

SECOND TERM

● **5221. RECORDS OF KNOWLEDGE.** (4 cr; limited to 40 students; 0905-1100 MTWTh; VinH 313) 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.

● **5601. LIBRARY APPLICATIONS OF INFORMATION SCIENCE AND TECHNOLOGY.** (3 cr; limited to 24 students; 1220-1415 MW; VinH 6) Crickman

Introduction to computers and related information technology with reference to the relationship of bibliographic storage and retrieval to systems considerations. Development of retrieval algorithms and their performance evaluation. Information measures and models in information science.

Lab 1. 1220-1415 TTh, WaLib 450

Lab 2. 1515-1715 TTh, WaLib 450

8103. PUBLIC LIBRARIES. (4 cr; prereq 5101, 5221, 5401 or #: 1325-1520 MW; WaLib 339) McClaskey

Development of public library services with emphasis on the growth of cooperative library systems and interrelationships with all types of libraries; social change and problem solving as related to research, literature, organization, administration, and legal factors.

● **8225. ONLINE BIBLIOGRAPHIC SEARCHING.** (3 cr; limited to 18 students; prereq 8224, 8302, 8402 or #: 0800-1100 MW; WaLib 339) Crickman

Examination of bibliographic queries with reference to online retrieval of relevant literature. Exploration of techniques in query analysis, data base and search system selection, and search strategy. Instruction and hands-on experience with online retrieval systems; evaluation and administration of search services.

Lab 1. 1115-1415 MW, WaLib 450.

Lab 2. 1700-2000 MW, WaLib 450.

8233. HISTORY OF CHILDREN'S LITERATURE. (4 cr; prereq 5101, 5221, 5401, 5601 or #: 1325-1520 TTh; WaLib 339) McClaskey

Introduction to the history and study of children's literature in relation to social history, with special reference to current application for library services.

● **8402. ORGANIZATION OF INFORMATION II.** (4 cr; limited to 25 students; prereq 5101, 5221, 5401 or #: 0905-1100 TTh; WaLib 339) Simonton

Advanced study of 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.

8970. INDEPENDENT STUDY. (Cr ar; prereq #) Staff

8990. LIBRARY RESEARCH. (Cr ar; prereq #) Staff

See First Term.

Linguistics (Ling)

FIRST TERM

3001. INTRODUCTION TO LINGUISTICS. (5 cr. §5001, §3005; 1010-1205 MWF, 1010-1100 TTh; FolH 209, 201) Kac

Survey of phonetics, phonology, morphology, syntax, semantics, and historical-comparative linguistics; language learning and the psychology of language; linguistic universals; language in society.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

3005. LINGUISTICS FOR SECOND LANGUAGE TEACHERS. (4 cr, §3001, §5001; JonesH 4) Downing

Linguistics and its relevance to second language teaching.

3301. PHONETICS. (5 cr, §5003, §5301; prereq 3001 or ¶3001 or #; 1325-1520 MTWThF; FolH 107) Gundel

Physiology and acoustics of speech sounds; practice and drill in production and perception. Meets with 5003 and 5301.

5001. INTRODUCTION TO LINGUISTICS. (5 cr, §3001, §3005; prereq grad standing or #; 1010-1205 MWF, 1010-1100 TTh; FolH 209, 201) Kac

Meets with 3001.

5003. APPLIED PHONETICS. (5 cr, §3301, §5301; not open to linguistics majors; prereq 5001 or ¶5001 or #; 1325-1520 MTWThF; FolH 107) Gundel

Primarily for teachers of English as a second language. Meets with 3301 and 5301.

5301. PHONETICS. (5 cr, §3301, §5003; prereq 3001 or 5001 or ¶5001 or #; 1325-1520 MTWThF; FolH 107) Gundel

See 3301. Meets with 3301 and 5003.

SECOND TERM

5721. ENGLISH AS A SECOND LANGUAGE: METHODS. (4 cr; prereq 3001 or 5001 or #; 1010-1205 MWF; FolH 104) Downing

Linguistics applied to teaching English as a second language.

Music (Mus)

(See also Music Education under College of Education)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

FIRST TERM

1001. FUNDAMENTALS OF MUSIC. (4 cr; for non-music majors)

Basic musical symbols, vocabulary, rhythm, design, scale structures, intervals, chords. Development of basic piano skills; playing simple accompaniments.

Sec 1, 0905-0955 MTWThF, WuH 320, Anderson

Sec 2, 1010-1100 MTWThF, WuH 320, Anderson

● **1160. VOICE: CLASS LESSONS.** (2 cr; limit of 6 cr; 1325-1415 MTWThF; MusEd 103) Ware
Fundamentals of vocal production: posture, respiration, phonation, articulation.

1507. SURVEY OF MELODIC AND HARMONIC PROCEDURES. (3 cr; prereq #; 0800-0850 MTWThF; WuH 7) Gross

Principles of melodic and harmonic structure.

1517. EAR-TRAINING AND SIGHT-SINGING. (3 cr; prereq #; 0905-0955 MTWThF; WuH 7) Gross
Development of aural skills with concentration on sight-singing, interval recognition, melodic and harmonic dictation, and vocal improvisation.

● **3791. INTRODUCTION TO ELECTRONIC MUSIC.** (4 cr; limited to 25 students; prereq 4 cr in music or #; 1010-1205 TWTh; ScH 103) Ultan

Musical literature to which electronic materials contribute. Listening, discussions, and readings. Exercises in use of equipment.

3970. DIRECTED STUDIES. (1-15 cr; prereq #, Δ; hrs ar; ScH 104) Staff

Independent research and study under faculty guidance. Subjects selected according to strengths and interests of individual students.

Courses preceded by ● have limited enrollment and must be reserved.

5373. DICTION FOR SINGERS. (2 cr; prereq 12 cr of 1204 or #; 1220-1310 MTWThF; ScH 4) Weller International Phonetic Association alphabet; principles used in singing pronunciation of French.

5377. THE ADOLESCENT SINGING VOICE. (3 cr; prereq 3xxx clearance in voice for vocal majors or 6 cr of applied voice for non-vocal majors; 1115-1205 MTWThF; WuH 7) Jorgenson Principles of voice in teaching adolescent singers. Directed teaching, required readings, and study of relevant repertoire.

5384. CHORAL CONDUCTING. (4 cr; prereq #; 1010-1100 MTWThF; WuH 7) Lancaster Choral conducting—hand techniques, sound control, articulation, breath control, intonation, etc.

5601. HISTORY OF OPERA. (3 cr; prereq 9 cr in history of music, art, theatre, or European history from 1600, or #; 1325-1415 MTWThF; ScH 103) Sutton 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.

5608. LEITURGIA. (4 cr; prereq 1606 or #; 0905-0955 MTWThF; ScH 103) Riedel Liturgies from the Roman chant to the 20th century.

5711. AMERICAN POPULAR MUSIC. (4 cr; 0800-0850 MTWThF; ScH 103) Riedel History of popular music in the U.S. from the first half of the 19th century through 1970—the lyrics and music, composers, performers, bands. Its various types and forms. The contribution of black music to popular music in cakewalk, protest music, ragtime, jazz and rock. The impact of American popular music on popular music of the world. The impact of popular music on church music throughout the ages.

8990x.* SPECIAL PROBLEMS. (2-12 cr; prereq 5841; hrs ar; ScH 104) Riedel, Ultan

Courses in Applied Music

Offerings in applied music are classified according to seven modes: elective (with or without credit), principal, major, secondary required, secondary elective, principal beyond requirement, major beyond requirement; and three levels: 1xxx (prefix 1), 3xxx (prefix 3), and graduate level (prefix 8). A student may not register for a course in applied music for credit until he or she has passed the required applied entrance examination. The examining committee will determine the mode(s) for which a student may register. Students should consult with the Department of Music, 106 Scott Hall, regarding the mode and level of applied music appropriate for fulfillment of specific requirements for their degree program. To register for 3xxx-level credit in applied music, the student must have completed 12 credits at the 1xxx level on the appropriate instrument and must pass a qualifying examination.

Courses in applied music carry 2 credits (minimum of 5 hours of private lessons) per summer term. Fees for non-music majors are based on individual lessons: \$96 for 0-2 credits. Music and music education majors at the x2xx, x3xx, or x4xx level are exempt from payment of these fees as are M.F.A. and D.M.A. students taking applied music at the 83xx level. Majors at the x5xx, x6xx, or x7xx level pay \$32 for 2 credits.

The music fees are treated as course fees; that is, they are applied *in addition to tuition for all students in each summer term.*

Courses preceded by • have limited enrollment and must be reserved.

COURSES IN APPLIED MUSIC (MusA)

Instrument	Elective	Principal	Major	Secondary Required	Secondary Elective	Principal Beyond Requirement	Major Beyond Requirement	Instructor
Fee	\$ 96	—	—	—	\$ 32	\$ 32	\$ 32	
Piano	1101	1201	1301	1401	1501	1601	1701	Weiser, McNab, Ivory, Braginsky
Harpsichord	1102	1202	1302	1402	1502	1602	1702	Burris
Organ	1103	1203	1303	1403	1503	1603	1703	Fleischer
Voice	1104	1204*	1304*	1404	1504	1604	1704	Ware, Coloton Weller, Wilson
Violin	1105	1205	1305	1405	1505	1605	1705	Kim, Adams, Thomson
Viola	1106	1206	1306	1406	1506	1606	1706	Ar
Cello	1107	1207	1307	1407	1507	1607	1707	Remenikova, Jamieson
Double Bass	1108	1208	1308	1408	1508	1608	1708	Ar
Flute	1109	1209	1309	1409	1509	1609	1709	Eagle
Oboe	1111	1211	1311	1411	1511	1611	1711	Angelucci, Holub
Clarinet	1112	1212	1312	1412	1512	1612	1712	Williams
Saxophone	1113	1213	1313	1413	1513	1613	1713	Williams
Bassoon	1114	1214	1314	1414	1514	1614	1714	Miller
French Horn	1115	1215	1315	1415	1515	1615	1715	Kammaing
Trumpet	1116	1216	1316	1416	1516	1616	1716	Baldwin, Hasselmann
Trombone	1117	1217	1317	1417	1517	1617	1717	Bonecutter
Baritone	1118	1218	1318	1418	1518	1618	1718	Ricketts
Tuba	1119	1219	1319	1419	1519	1619	1719	Tolbert
Percussion	1121	1221	1321	1421	1521	1621	1721	Fine
Harp	1122	1222	1322	1422	1522	1622	1722	Miller
Guitar	1123	1223	1323	1423	1523	1623	1723	McGuire
Accordion	1124				1524			Malmberg
Sitar	1125				1525			Ar
Piano	3101	3201	3301	3401	3501	3601	3701	Weiser, McNab, Ivory, Braginsky
Harpsichord	3102	3202	3302	3402	3502	3602	3702	Burris
Organ	3103	3203	3303	3403	3503	3603	3703	Fleischer
Voice	3104	3204*	3304*	3404	3504	3604	3704	Ware, Coloton Weller, Wilson

*1430-1520 Sch 108, TTh

COURSES IN APPLIED MUSIC (MusA)

Instrument	Elective	Principal	Major	Secondary Required	Secondary Elective	Principal Beyond Requirement	Major Beyond Requirement	Instructor
Fee	\$ 96	—	—	—	\$ 32	\$ 32	\$ 32	
Violin	3105	3205	3305	3405	3505	3605	3705	Kim, Adams, Thomson
Viola	3106	3206	3306	3406	3506	3606	3706	Ar
Cello	3107	3207	3307	3407	3507	3607	3707	Remenikova, Jamieson
Double Bass	3108	3208	3308	3408	3508	3608	3708	Ar
Flute	3109	3209	3309	3409	3509	3609	3709	Eagle
Oboe	3111	3211	3311	3411	3511	3611	3711	Angelucci, Holub
Clarinet	3112	3212	3312	3412	3512	3612	3712	Williams
Saxophone	3113	3213	3313	3413	3513	3613	3713	Williams
Bassoon	3114	3214	3314	3414	3514	3614	3714	Miller
French Horn	3115	3215	3315	3415	3515	3615	3715	Kamminga
Trumpet	3116	3216	3316	3416	3516	3616	3716	Baldwin, Hasselmann
Trombone	3117	3217	3317	3417	3517	3617	3717	Bonecutter
Baritone	3118	3218	3318	3418	3518	3618	3718	Ricketts
Tuba	3119	3219	3319	3419	3519	3619	3719	Tolbert
Percussion	3121	3221	3321	3421	3521	3621	3721	Fine
Harp	3122	3222	3322	3422	3522	3622	3722	Miller
Guitar	3123	3223	3323	3423	3523	3623	3723	McGuire
Accordion	3124				3524			Malmberg
Sitar	3125				3525			Ar
Piano	8101	8201	8301	8401	8501	8601	8701	Weiser, McNab, Ivory, Braginsky
Harpichord	8102	8202	8302	8402	8502	8602	8702	Burris
Organ	8103	8203	8303	8403	8503	8603	8703	Fleischer
Voice	8104	8204*	8304*	8404	8504	8604	8704	Ware, Coloton Weller, Wilson
Violin	8105	8205	8305	8405	8505	8605	8705	Kim, Adams, Thomson
Viola	8106	8206	8306	8406	8506	8606	8706	Ar
Cello	8107	8207	8307	8407	8507	8607	8707	Remenikova, Jamieson
Double Bass	8108	8208	8308	8408	8508	8608	8708	Ar
Flute	8109	8209	8309	8409	8509	8609	8709	Eagle
Oboe	8111	8211	8311	8411	8511	8611	8711	Angelucci, Holub

*1430-1520 Sch 108, TTh

COURSES IN APPLIED MUSIC (MusA)

Instrument	Elective	Principal	Major	Secondary Required	Secondary Elective	Principal Beyond Requirement	Major Beyond Requirement	Instructor
Fee	\$ 96	—	—	—	\$ 32	\$ 32	\$ 32	
Clarinet	8112	8212	8312	8412	8512	8612	8712	Williams
Saxophone	8113	8213	8313	8413	8513	8613	8713	Williams
Bassoon	8114	8214	8314	8414	8514	8614	8714	Miller
French Horn	8115	8215	8315	8415	8515	8615	8715	Kamminga
Trumpet	8116	8216	8316	8416	8516	8616	8716	Baldwin, Hasselmann
Trombone	8117	8217	8317	8417	8517	8617	8717	Bonecutler
Baritone	8118	8218	8318	8418	8518	8618	8718	Ricketts
Tuba	8119	8219	8319	8419	8519	8619	8719	Tolbert
Percussion	8121	8221	8321	8421	8521	8621	8721	Fine
Harp	8122	8222	8322	8422	8522	8622	8722	Miller
Guitar	8123	8223	8323	8423	8523	8623	8723	McGuire
Accordion	8124				8524			Malmberg
Sitar	8125				8525			Ar

SECOND TERM

1001. FUNDAMENTALS OF MUSIC. (4 cr; for non-music majors)

See First Term.

Sec 1, 0905-0955 MTWThF, WuH 320, Baldwin

Sec 2, 1010-1100 MTWThF, WuH 320, Baldwin

1508. SURVEY OF MELODIC AND HARMONIC PROCEDURES. (3 cr; prereq #: 0800-0850 MTWThF; WuH 7) Fetter

See 1507 First Term.

1518. EAR-TRAINING AND SIGHT-SINGING. (3 cr; prereq #: 0905-0955 MTWThF; WuH 7) Fetter

See 1517 First Term.

1804. WORLD MUSIC. (4 cr; 1325-1415 MTWThF; ScH 4) Kagan

Music in universal perspective. Traits distinguishing styles and cultural factors that influence musical creativity. Music of different cultures compared to examine forms and traits, to develop listening abilities and an understanding of human musical expressions.

3970. DIRECTED STUDIES. (1-15 cr; prereq #, Δ ; hrs ar; ScH 104) Staff

See First Term.

5950. TOPICS IN MUSIC—THE SYMPHONY IN THE 18TH AND 19TH CENTURIES. (4 cr; prereq 3503, 1606 or #: 1010-1100 MTWThF; ScH 103) Jackson

A survey of major stylistic developments in the symphony and related genres (overture and symphonic poem), c. 1740-1860; readings from primary sources.

8990x.* SPECIAL PROBLEMS. (2-12 cr; prereq 5841; hrs ar; ScH 104) Cardamone-Jackson, Fetter

Courses in Applied Music

See First Term.

COURSES IN APPLIED MUSIC (MusA)

Instrument	Elective	Principal	Major	Secondary Required	Secondary Elective	Principal Beyond Requirement	Major Beyond Requirement	Instructor
Fee	\$ 96	—	—	—	\$ 32	\$ 32	\$ 32	
Piano	1101	1201	1301	1401	1501	1601	1701	Freed Braginsky
Harpsichord	1102	1202	1302	1402	1502	1602	1702	Ar
Organ	1103	1203	1303	1403	1503	1603	1703	Fleischer
Voice	1104	1204*	1304*	1404	1504	1604	1704	Ware, Coloton, Weller, Wilson, Wittich
Violin	1105	1205	1305	1405	1505	1605	1705	Kim, Adams
Viola	1106	1206	1306	1406	1506	1606	1706	Ar
Cello	1107	1207	1307	1407	1507	1607	1707	Remenikova, Jamieson
Double Bass	1108	1208	1308	1408	1508	1608	1708	Ar
Flute	1109	1209	1309	1409	1509	1609	1709	Eagle
Oboe	1111	1211	1311	1411	1511	1611	1711	Angelucci, Holub
Clarinet	1112	1212	1312	1412	1512	1612	1712	Anderson, Williams
Saxophone	1113	1213	1313	1413	1513	1613	1713	Anderson, Williams
Bassoon	1114	1214	1314	1414	1514	1614	1714	Miller
French Horn	1115	1215	1315	1415	1515	1615	1715	Ar
Trumpet	1116	1216	1316	1416	1516	1616	1716	Hasselmann
Trombone	1117	1217	1317	1417	1517	1617	1717	Ar
Baritone	1118	1218	1318	1418	1518	1618	1718	Ricketts
Tuba	1119	1219	1319	1419	1519	1619	1719	Tolbert
Percussion	1121	1221	1321	1421	1521	1621	1721	Fine
Harp	1122	1222	1322	1422	1522	1622	1722	Miller
Guitar	1123	1223	1323	1423	1523	1623	1723	McGuire, Van
Accordion	1124				1524			Malmberg
Sitar	1125				1525			Ar
Piano	3101	3201	3301	3401	3501	3601	3701	Freed, Braginsky
Harpsichord	3102	3202	3302	3402	3502	3602	3702	Ar
Organ	3103	3203	3303	3403	3503	3603	3703	Fleischer
Voice	3104	3204*	3304*	3404	3504	3604	3704	Ware, Coloton, Weller, Wilson
Violin	3105	3205	3305	3405	3505	3605	3705	Kim, Adams
Viola	3106	3206	3306	3406	3506	3606	3706	Ar

*1430-1520 Sch 108, TTh

COURSES IN APPLIED MUSIC (MusA)

Instrument	Elective	Principal	Major	Secondary Required	Secondary Elective	Principal Beyond Requirement	Major Beyond Requirement	Instructor
	\$ 96	—	—	—	\$ 32	\$ 32	\$ 32	
Cello	3107	3207	3307	3407	3507	3607	3707	Remenikova, Jamieson
Double Bass	3108	3208	3308	3408	3508	3608	3708	Ar
Flute	3109	3209	3309	3409	3509	3609	3709	Eagle, Zeitlin
Oboe	3111	3211	3311	3411	3511	3611	3711	Angelucci, Holub
Clarinet	3112	3212	3312	3412	3512	3612	3712	Anderson, Williams
Saxophone	3113	3213	3313	3413	3513	3613	3713	Anderson, Williams
Bassoon	3114	3214	3314	3414	3514	3614	3714	Miller
French Horn	3115	3215	3315	3415	3515	3615	3715	Ar
Trumpet	3116	3216	3316	3416	3516	3616	3716	Hasselmann
Trombone	3117	3217	3317	3417	3517	3617	3717	Ar
Baritone	3118	3218	3318	3418	3518	3618	3718	Ricketts
Tuba	3119	3219	3319	3419	3519	3619	3719	Tolbert
Percussion	3121	3221	3321	3421	3521	3621	3721	Fine
Harp	3122	3222	3322	3422	3522	3622	3722	Miller
Guitar	3123	3223	3323	3423	3523	3623	3723	McGuire, Van
Accordion	3124				3524			Malmberg
Sitar	3125				3525			Ar
Piano	8101	8201	8301	8401	8501	8601	8701	McNab, Ivory, Braginsky
Harpsichord	8102	8202	8302	8402	8502	8602	8702	Burris
Organ	8103	8203	8303	8403	8503	8603	8703	Fleischer
Voice	8104	8204*	8304*	8404	8504	8604	8704	Ware, Coloton, Weller, Robinson, Wilson
Violin	8105	8205	8305	8405	8505	8605	8705	Kim, Adams
Viola	8106	8206	8306	8406	8506	8606	8706	Ar
Cello	8107	8207	8307	8407	8507	8607	8707	Remenikova, Jamieson
Double Bass	8108	8208	8308	8408	8508	8608	8708	Ar
Flute	8109	8209	8309	8409	8509	8609	8709	Eagle, Zeitlin
Oboe	8111	8211	8311	8411	8511	8611	8711	Angelucci, Holub
Clarinet	8112	8212	8312	8412	8512	8612	8712	Anderson, Williams,
Saxophone	8113	8213	8313	8413	8513	8613	8713	Anderson, Williams,
Bassoon	8114	8214	8314	8414	8514	8614	8714	Miller

*1430-1520 Sch 108, TTh

COURSES IN APPLIED MUSIC (MusA)

Instrument	Elective	Principal	Major	Secondary Required	Secondary Elective	Principal Beyond Requirement	Major Beyond Requirement	Instructor
Fee	\$96	—	—	—	\$ 32	\$ 32	\$32	
French Horn	8115	8215	8315	8415	8515	8615	8715	Ar
Trumpet	8116	8216	8316	8416	8516	8616	8716	Hasselmann
Trombone	8117	8217	8317	8417	8517	8617	8717	Ar
Baritone	8118	8218	8318	8418	8518	8618	8718	Ricketts
Tuba	8119	8219	8319	8419	8519	8619	8719	Tolbert
Percussion	8121	8221	8321	8421	8521	8621	8721	Fine
Harp	8122	8222	8322	8422	8522	8622	8722	Miller
Guitar	8123	8223	8323	8423	8523	8623	8723	McGuire, Van
Accordion	8124				8524			Malmberg
Sitar	8125				8525			Ar

Near and Middle Eastern Studies

See also *Religious Studies 1036*.

Ancient Near Eastern and Jewish Studies (ANEJ)

FIRST TERM

5970. DIRECTED STUDIES. (1-4 cr; prereq #)
Guided individual reading or study.

SECOND TERM

5970. DIRECTED STUDIES. (1-4 cr; prereq #)
See First Term.

Hebrew (Hebr)

FIRST TERM

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 materials, teaching techniques. Seminars with instructor and staff on problems of language teaching.

5970. DIRECTED READINGS. (Cr ar; for advanced students wishing to work on special problems; prereq 3013 or #)

FIRST AND SECOND TERMS: TEN-WEEK COURSE

A concentrated program of study in which undergraduate and graduate students may earn 15 credit hours, the equivalent of a full year's sequence in language. Students must register in both terms of the summer session and may not enroll in other summer courses.

1101-1102-1103. BEGINNING HEBREW ("ULPAN"). (15 cr for both terms)

Sec 5, 0800-1100 MTWThF, KoltH S132: Paradise, Reisman, Sharon
Specially designed summer program combining language study with learning experiences in Israeli culture and group activities that stimulate active use of the language. Introduction to speaking, reading, and listening comprehension of modern Hebrew. May serve as a basis for biblical study.

SECOND TERM

3980. DIRECTED INSTRUCTION. (1-5 cr; prereq #)
See First Term.

5970. DIRECTED READINGS. (Cr ar; for advanced students wishing to work on special problems; prereq 3013 or #)

Jewish Studies (JwSt)

FIRST TERM

3126. MODERN JUDAISM. (4 cr; 0905-0955 MTWThF; FolH 209) Zahavy
Jewish theology, religion, and ideology in the 19th and 20th centuries. The holocaust. Contemporary theology and practice: the rabbi, synagogue, talmudic academy, average Jew. American Judaism: orthodox, conservative, reform. Zionism in Europe and America. Hasidism.

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

5910. JEWISH MATERIAL CULTURE. (4 cr; prereq upper division or grad student; 1010-1100 MTWThF; FolH 209) Chiat

A seminar designed to prepare students to do field research for a project to document the material culture of early Jewish settlers in rural Minnesota. Focus will be on aspects of American Jewish history and methodological procedures.

5970. DIRECTED STUDIES. (1-4 cr; prereq #)

Guided individual reading or study.

SECOND TERM

5970. DIRECTED STUDIES. (1-4 cr; prereq #)

See First Term.

Middle Eastern and Islamic Studies

Arabic (Arab)

FIRST AND SECOND TERMS: TEN-WEEK COURSE

A concentrated program of study in which undergraduate and graduate students may earn 15 credit hours, the equivalent of a full year's sequence in language. Students must register in both terms of the summer session and may not enroll in other summer courses.

1101-1102-1103. BEGINNING ARABIC. (15 cr for both terms)

Fundamentals of Arabic, based on audio/lingual method; aural comprehension, pronunciation, practical reading knowledge, and basic grammar.

Sec 5, 0800-1100 MTWThF; KoltH S135, Busool

Middle Eastern Studies (MidE)

SECOND TERM

1036. THE RELIGION OF ISLAM. (4 cr, §RelS 1036; 0905-0955 MTWThF; FolH 201) Farah

The rise of Islam in historical context; the role of Muhammad, Koran, traditions; fundamentals and observances of the faith; sectarian movements; the spread of Islam into Asia and Africa; Baha'i and Black Muslim components; reformist movements and change.

Personal Orientation (PO)

See also *Rhetoric 1147, Efficient Reading.*

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

FIRST TERM

● **1001. HOW TO STUDY.** (2 cr [does not count toward BA degree]; limited to 30 students; 0800-0850 MTWThF; Jones 2)

Practical assistance in developing efficient study habits, organizing materials, preparing for examinations, and improving speed and comprehension of reading.

Courses preceded by ● have limited enrollment and must be reserved.

SECOND TERM

● **1001. HOW TO STUDY.** (2 cr [does not count toward BA degree]; limited to 30 students; 0800-0850 MTWThF; Jones 2)
See First Term.

Philosophy (Phil)

FIRST TERM

1001. LOGIC. (5 cr; 0905-0955 MTWThF; ForH 60) Savage
Application of formal techniques for evaluating arguments.

1002. INTRODUCTION TO PHILOSOPHY. (5 cr; 1010-1100 MTWThF; ForH 60) Eaton
Problems, principal methods and schools of philosophy; historical and contemporary views.

3001. GENERAL HISTORY OF WESTERN PHILOSOPHY. (5 cr; 1010-1100 MTWThF; ForH 70) Dahl
Greek philosophy, pre-Socratics, Socrates, Plato, Aristotle.

3234. PHILOSOPHY OF FEMINISM. (4 cr; prereq #: 0905-0955 MTWThF; ForH 170) Scheman
An examination in the light of emerging feminist criticism of theories in ethics, political and social philosophy, metaphysics, epistemology, philosophy of mind, or aesthetics. (One or two fields will be chosen each time the course is offered.)

3302. MORAL PROBLEMS OF CONTEMPORARY SOCIETY. (5 cr; 1115-1205 MTWThF; ForH 285) Mason
Selected problems of current interest.

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

5105. THEORY OF KNOWLEDGE. (4 cr; prereq 1001 or 3201 or #: 1115-1205 MTWThF; ForH 115) Dolan
Problems and concepts involved in the explanation and justification of claims to knowledge.

5970. DIRECTED STUDIES. (1-5 cr; prereq #) Staff

8970. DIRECTED STUDY AND RESEARCH. (1-5 cr; prereq passed written prelim exam for the PhD in philosophy) Staff

SECOND TERM

1001. LOGIC. (5 cr; 0905-0955 MTWThF; ForH 120) Hanson
See First Term.

1003. ETHICS. (5 cr; 1115-1205 MTWThF; ForH 349) Dolan
Problems that arise when human beings attempt to think systematically about conduct and value.

3003. GENERAL HISTORY OF WESTERN PHILOSOPHY. (5 cr; 1010-1100 MTWThF; ForH 175) Lewis
Modern philosophy from Descartes through Hume.

3304. LAW AND MORALITY. (5 cr; 1115-1205 MTWThF; ForH 175) Sartorius
Study of issues related to our notions of human personhood, legal and moral rights, and self-respect through the use of leading court decisions and philosophical essays. Likely topics: privacy, legal paternalism, morals enforcement, abortion, punishment, civil disobedience.

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

5970. DIRECTED STUDIES. (1-5 cr; prereq #) Staff

8970. DIRECTED STUDY AND RESEARCH. (1-5 cr; prereq passed written prelim exam for the PhD in philosophy) Staff

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

Political Science (Pol)

FIRST TERM

1001. AMERICAN GOVERNMENT AND POLITICS. (5 cr; 0800-0955 TWTh; AndH 330) Shaw
Principles, organization, processes, functions of government, and the interplay of political forces in the United States. Attention throughout to current issues.

1027. URBAN POLITICS. (4 cr; 1010-1100 MTWThF; BlegH 255) Nimitz
Urban politics and issues facing American cities. Political conflicts over economic and social problems.

1051. INTRODUCTION TO POLITICAL ANALYSIS. (5 cr; 1010-1205 TWTh; AndH 250) Fogelman
Formation of political communities, political participation, policy making, compliance, legitimacy, political development, types of political systems. Empirical and normative problems. Comparisons among major countries.

3310. TOPICS IN AMERICAN POLITICS—THE ENERGY CONNECTION: THE AMERICAN PUBLIC AND ENERGY POLITICS. (4 cr; 0905-0955 MTWThF; BlegH) Eyestone
A comprehensive look at the interaction among energy companies, public opinion and citizen protest groups, and national, state and local government levels in the United States.

3331. MINNESOTA GOVERNMENT AND POLITICS. (4 cr; 1001 recommended; 1115-1205 MTWThF; BlegH 250) Backstrom
The Minnesota political system; demographic and cultural setting, political and governmental processes, contemporary policies.

3766. POLITICAL PSYCHOLOGY. (4 cr; prereq 1001 or #: 1115-1205 MTWThF; BlegH 130) Sullivan
Personality and political behavior; democratic and authoritarian personality; political style and political ideology.

3825. INTERNATIONAL POLITICS. (4 cr; prereq 1025 or 1026 or 8 cr in pol sci or #: 0800-0850 MTWThF; BlegH 250) Job
Analysis of selected issues in contemporary international relations such as limitation of arms races, settlement of conflicts, regulation of the oceans, creation of a new international economic order.

5441. WESTERN EUROPEAN GOVERNMENT AND POLITICS. (5 cr; prereq 1051 or 12 cr in social science or #: 0905-1100 TWTh; AndH 230) Shively
Political institutions in their social settings; power and responsibility; governmental stability; political decision making, government and economic order.

5669. RECENT POLITICAL THOUGHT. (4 cr; prereq 1051 or 9 cr in social science or #: 1115-1205 MTWThF; BlegH 255) Ball
Main currents from Marx to present; socialist, anarchist, liberal, and conservative thought; problems such as alienation and political obligation.

SECOND TERM

1001. AMERICAN GOVERNMENT AND POLITICS. (5 cr; 0800-0955 TWTh; AndH 330) Flanigan
See First Term.

1025. WORLD POLITICS. (4 cr, 0905-0955 MTWThF; BlegH 10) Duvall
Contemporary international relations; forms of state interaction; problems of conflict and cooperation.

3306. THE AMERICAN PRESIDENCY. (4 cr; prereq 1001 or #: 0905-0955 MTWThF; AndH 230) Simon
The office and individual presidents; organizational characteristics of the Executive Office and individual qualities of decision making; relationships with Congress, the bureaucracy, parties, interest groups, media, and public opinion.

3810. TOPICS IN INTERNATIONAL POLITICS: ARMS REGULATION. (4 cr; 1010-1100 MTWThF; BlegH) Hopmann
Analysis of negotiation for arms control and disarmament with particular attention devoted to the SALT I and SALT II negotiations and the agreements which resulted from them.

Courses preceded by ● have limited enrollment and must be reserved.

5455. LATIN AMERICAN GOVERNMENT AND POLITICS. (5 cr; prereq 1051, or #; 0800-0955 TWTh; BlegH 205) Wynia

Latin American political heritage, political processes, contemporary public policy issues; problems of social, economic, and political change in selected countries.

5741. POLITICAL BEHAVIOR OF WOMEN. (4 cr; prereq 1001 or 1051 or #; 1010-1100 MTWThF; BlegH 135) Gray

Women as political actors. Mass political behavior, women's political movements, women in political parties and elective office, the status of women in different societies.

Psychology (Psy)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

FIRST TERM

1001. GENERAL PSYCHOLOGY. (5 cr; 0800-0955 MTWThF; NH 45)

Introduction to study of human behavior. Prerequisite for all advanced courses in psychology.

● **1004. INTRODUCTORY LABORATORY PSYCHOLOGY.** (4 cr; each section limited to 24 students; prereq soph, 1001 or 11001)

Experiments illustrating contemporary subject matter such as sensory psychology, psychophysics, perception, motivation, verbal behavior, animal and human learning, problem solving, and psychological measurement.

Sec 1, 0905-1205 MF, 0905-1100 W, E1H 150

Sec 2, 1325-1625 MF, 1325-1520 W, E1H 150

Sec 3, 0905-1205 MF, 0905-1100 W, E1H 160

3010. INTRODUCTION TO APPLIED PSYCHOLOGY. (4 cr; prereq 1001; 1010-1100 MTWThF; AH 150) Brown

History and survey of the fields of applied psychology with special emphasis on research issues and problems, and applications of laboratory research.

3011. INTRODUCTION TO PSYCHOLOGY OF LEARNING. (4 cr; prereq 1001, 1005 or Biol 1107 or #; 1115-1205 MTWThF; E1H N119) Peterson

Basic methods in study of learning. Fundamental concepts and principles governing the learning process.

3101. INTRODUCTION TO PERSONALITY. (4 cr, \$5101; prereq 1001; 0905-0955 MTWThF; Arch 50)

Concepts of personality, personality theory, empirical research in the field of personality, personality assessment.

3201. INTRODUCTION TO SOCIAL PSYCHOLOGY. (4 cr; prereq 1001; 1325-1415 MTWThF; E1H N119) Berscheid

Theories and research in social psychology. Effects upon the individual's attitudes and behavior of other persons, mass communications, and group membership.

3604. INTRODUCTION TO ABNORMAL PSYCHOLOGY. (4 cr, \$5604-5605; prereq 1001; 1115-1205 MTWThF; AH 150) Kendall

Surveys the field of abnormal psychology. Etiologies of behavioral disorders; available treatment.

3801. INTRODUCTION TO MEASUREMENT AND STATISTICAL METHODS. (4 cr; prereq 1001 or equiv; 1010-1100 MTWThF; BlegH 10)

Quantification as it pertains to research problems in psychology. Descriptive and inferential statistics, including hypothesis testing and some nonparametric statistics. Examples from various areas of psychology.

3970. DIRECTED STUDIES. (1-8 cr; prereq #; hrs ar) Lofquist

Independent study or small seminars; designed to permit students to pursue their interests through special reading or study.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

3990H. HONORS COURSE: PROJECT IN PSYCHOLOGY. (1-8 cr; prereq sr, #; hrs ar) Lofquist
Individual library study or empirical investigation.

5014. PSYCHOLOGY OF HUMAN LEARNING AND MEMORY. (4 cr; prereq 1005 or 3011 or 3051 or #, except students in honors sequences, grads; 0905-0955 MTWThF; EItH N119) Fox
Processes and principles in human learning and memory. Feedback, instruction and learning, individual differences in learning, cognitive processes in learning and retention, theories of human memory.

8519. PRACTICUM IN REHABILITATION COUNSELING. (3 cr; prereq 5803 or #; hrs ar)
Counseling experience with physically and emotionally disabled clients in approved public and private rehabilitation agencies.

8520. FIELDWORK IN APPLIED PSYCHOLOGY. (1-6 cr; prereq #; hrs ar)

8560. INTERNSHIP IN COUNSELING PSYCHOLOGY. (1-6 cr; prereq #; hrs ar)

8614. PROFESSIONAL METHODS IN CLINICAL PSYCHOLOGY I: ASSESSMENT. (2 cr; prereq student in clinical psychology program, 1CIPsy 8206 or #; hrs ar)
Theory and practice in clinical application of assessment techniques. Observation, administration, scoring, and interpretation is the focus of the laboratory experience.

8620. CLERKSHIP IN CLINICAL PSYCHOLOGY. (Cr ar; prereq #; hrs ar)
Field experience in professional work in clinical settings.

8630. PRACTICUM IN CLINICAL CHILD PSYCHOLOGY. (3 cr; prereq #; hrs ar)
Supervised experience in psychodiagnostic work with emotionally disturbed children and their families.

8670. INTERNSHIP IN CLINICAL PSYCHOLOGY. (2-4 cr; prereq PhD candidate in clinical psychology program and consent of director of clinical psychology training program; hrs ar)

8980. DIRECTED TEACHING: PSYCHOLOGY. (1-6 cr; prereq #) Lofquist

8990.* RESEARCH PROBLEMS. (1-6 cr; hrs ar) Lofquist

SECOND TERM

1001. GENERAL PSYCHOLOGY. (5 cr; 0800-0955 MTWThF; NH 45)
See First Term.

● **1005. INTRODUCTORY LABORATORY PSYCHOLOGY.** (4 cr; each section limited to 24 students; prereq soph, 1004)
See 1004 First Term.

Sec 1, 0905-1205 MF, 0905-1100 W, EItH 50

Sec 2, 1325-1625 MF, 0905-1100 W, EItH 60

Sec 3, 0905-1205 MF, 0905-1100 W, EItH 60

3031. SENSATION AND PERCEPTION. (4 cr; prereq 1001, 1004; 0905-0955 MTWThF; EItH N119)
Psychological, biological, and physical aspects of sensory experience in humans and animals. Major emphasis on vision and hearing.

361. INTRODUCTION TO PHYSIOLOGICAL PSYCHOLOGY. (4 cr, §5061; prereq 1001, 1005 or Biol 1011 or #; 1115-1205 MTWThF; EItH N119) Roberts
Survey of neural mechanisms of motivation, emotion, sleep-wakefulness cycle, learning, and communication in animals and humans.

3617. INTRODUCTION TO CLINICAL PSYCHOLOGY. (4 cr; prereq 3604, 3801 or 5604; 1325-1415 MTWThF; WuH 230) Kendall
Survey of historical developments and contemporary issues. Focuses upon relevant research and clinical trends in psychological assessment methods and prevention and intervention strategies.

3970. DIRECTED STUDIES. (1-8 cr; prereq #; hrs ar) Lofquist
See First Term.

3990H. HONORS COURSE: PROJECT IN PSYCHOLOGY. (1-8 cr; prereq sr, #; hrs ar) Lofquist
See First Term.

Courses preceded by ● have limited enrollment and must be reserved.

5011. THEORIES OF LEARNING AND COGNITION. (4 cr; prereq 3011, except for students in honors sequence and grad students; 1010-1100 MTWThF; EItH N119) Peterson
Major theories of learning and contemporary theories of information processing and cognition.

5045. THE PSYCHOLOGY OF MOTIVATION. (4 cr; prereq 3011 or # for undergrad students; 0800-0850 MTWThF; EItH N119) Overmier
Survey of classic and contemporary research and theory pertaining to motivation in animal and human behavior. Emphasis on the role of motivation in systematic accounts of behavior.

5202. ATTITUDES AND SOCIAL BEHAVIOR. (4 cr; prereq 1001, 3201, or #; 0905-0955 MTWThF; EItH N119) Borgida
Attitude theory, measurement and attitude change research in social psychology; focus on structure, function, and formation of attitudes, relationship between attitudes and various social behaviors, and examination of basic principles of attitude change.

5751. PSYCHOLOGY OF ADVERTISING. (4 cr, §Jour 5251; prereq 1001; 0905-0955 MTWThF; MurH 308) 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.

8519. PRACTICUM IN REHABILITATION COUNSELING. (3 cr; prereq 5803 or #; hrs ar)
See First Term.

8520. FIELDWORK IN APPLIED PSYCHOLOGY. (1-6 cr; prereq #; hrs ar)

8560. INTERNSHIP IN COUNSELING PSYCHOLOGY. (1-6 cr; prereq #; hrs ar)

8614. PROFESSIONAL METHODS IN CLINICAL PSYCHOLOGY I: ASSESSMENT. (2 cr; prereq student in clinical psychology program, †CIPsy 8206 or #; hrs ar)
See First Term.

8620. CLERKSHIP IN CLINICAL PSYCHOLOGY. (1-6 cr; prereq #; hrs ar)
See First Term.

8630. PRACTICUM IN CLINICAL CHILD PSYCHOLOGY. (3 cr; prereq #; hrs ar)
See First Term.

8670. INTERNSHIP IN CLINICAL PSYCHOLOGY. (2-4 cr; prereq PhD candidate in clinical psychology program and consent of director of clinical psychology training program; hrs ar)

8980. DIRECTED TEACHING: PSYCHOLOGY. (1-6 cr; prereq #) Lofquist

8990.* RESEARCH PROBLEMS. (1-6 cr; hrs ar) Lofquist

Public Affairs (PA)

FIRST TERM

3970. DIRECTED STUDIES. (1-15 cr; prereq #) Staff

5114. WORKSHOP ON MINNESOTA GOVERNMENT. (3 cr; 1325-1520 TWTh; BlegH 335) Warp, others
Background study through lecture, panel discussion, and seminar sessions of selected public policy issues that currently confront Minnesota's governmental units.

5319. INTERGOVERNMENTAL RELATIONS IN THE UNITED STATES. (4 cr; §Pol Sci 5319; prereq 6 cr in Social Science or #; 1010-1205 TWTh; BlegH 335) Jernberg
Examination and analysis of the evolution of intergovernmental relations in the United States and of special fiscal and administrative problems and issues that arise in the American Federal System.

5771. ADMINISTRATIVE INTERNSHIP. (3 cr; prereq Δ ; hrs ar) Warp
Fieldwork in an approved administrative agency under the joint supervision of an employee of the agency and a member of the faculty. Rotation through various assignments, solution of special problems, seminar discussion of experiences, and preparation of an internship report.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

8981. INDIVIDUAL READINGS, RESEARCH IN PUBLIC POLICY ANALYSIS, ADMINISTRATION. (Cr ar; prereq #)

SECOND TERM

3970. DIRECTED STUDIES. (1-15 cr; prereq #)

5115. WORKSHOP ON MINNESOTA GOVERNMENT. (3 cr; 1325-1520 TWTh; BlegH 335) Warp, others See 5114 First Term.

5781. ADMINISTRATIVE INTERNSHIP. (3 cr; prereq #; hrs ar) Warp See 5771 First Term.

8991. INDIVIDUAL READINGS, RESEARCH IN PUBLIC POLICY ANALYSIS, ADMINISTRATION. (Cr ar; prereq #)

SPECIAL TERM: AUGUST 24-SEPTEMBER 25

Econ 3101/5151. ELEMENTS OF ECONOMIC ANALYSIS. FIRM AND HOUSEHOLD. (3101; 4 cr; 5151, 3 cr; prereq Econ 1001, 1002, 1 qtr calculus, grad student or #)

Microeconomics with a public policy emphasis. Primarily for incoming graduate students in public affairs, but open to all. Course is a prerequisite to the school's core sequence in policy analysis.

Sec 3, 0905-0955 MTWThF, BlegH 415, Kudrle

Religious Studies (RelS)

FIRST TERM

5960. RELIGIOUS CONFLICTS IN MODERN LITERATURE. (4 cr; §Engl 5940; 0905-0955 MTWThF; LindH 215) O'Brien

The warfare of science with theology: bigotry, illumination and the popular mind as perceived by representative poets, essayists, dramatists and novelists since 1850 (e.g., Tennyson, T. H. Huxley, Shaw, Sinclair Lewis).

SECOND TERM

1036. THE RELIGION OF ISLAM. (4 cr; §MidE 1036; 0905-0955 MTWThF; FolH 201) Farah

The rise of Islam. The role of Muhammad, Koran, traditions; fundamentals and observances of the faith; sectarian movements; the spread of Islam into Asia and Africa; Baha'i and Black Muslim components; reformist movements and change.

5970. DIRECTED STUDIES. (3-5 cr; prereq Δ) Farah

Russian—See Slavic and East European Languages

Scandinavian (Scan)

FIRST TERM

5614. THE DRAMA OF IBSEN AND STRINDBERG. (4 cr; 0905-0955 M-F; LindH 320) Stockenström
The later plays viewed in the context of modern art and theatre with special emphasis on different methods of visualizing the landscape of the soul on stage.

SECOND TERM

3601. GREAT LITERARY WORKS OF SCANDINAVIA. (4 cr; 1010-1100 M-F; FolH 205) Mishler
Major literary works from the Viking Age to the present. Readings in English.

Courses preceded by • have limited enrollment and must be reserved.

Slavic and East European Languages

Russian (Russ)

FIRST TERM

5407. STORIES AND PLAYS OF ANTON CHEKHOV IN TRANSLATION. (4 cr; no knowledge of Russian required; 0800-0955 MWF; FolH 108) Polakiewicz
Prose works and major plays. An intrinsic approach.

FIRST AND SECOND TERMS: TEN-WEEK COURSE

A concentrated program of study permitting students to earn 15 hours of credit, the equivalent of a full year's sequence in language. Students must register in both terms of the summer session and may not enroll in other summer courses.

1101-1102-1103. BEGINNING INTENSIVE RUSSIAN. (15 cr for both terms)

Speaking, reading, and understanding Russian through acquisition of basic patterns of speech.
Sec 5, 0800-1100 MTWThF; KolH S136

Social Work (SW)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

FIRST TERM

● **1001. INTRODUCTION TO SOCIAL WELFARE AND COMMUNITY SERVICES.** (5 cr; limited to 50 students; 0915-1100 MTWTh; BlegH 5) Au Claire

A sampling of the fields of community-based social services, representative of societal responses to needs. Characteristics of such services reviewed historically, dynamically, and comparatively.

● **5201. THEORIES OF HUMAN GROWTH AND CHANGE: IMPLICATIONS FOR SOCIAL WORK.** (3 cr; limited to 30 students; §3004; open to entering social work grad students who have not completed a CSWE-accredited undergrad social work concentration; prereq # for undergrads; 0915-1100 TTh; BlegH 430) Battle

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. Cultural and social variables will be considered in terms of their impact on the development and learning.

8010. FIELD INSTRUCTION I. (4 cr or cr ar by # [max 12 cr required]; prereq #; hrs ar) Bracht

8020. FIELD INSTRUCTION II. (4 cr or cr ar by # [max 12 cr required]; prereq 8010; hrs ar) Bracht

● **8414. PRINCIPLES OF GROUP PSYCHOTHERAPY: APPLICATIONS IN SOCIAL WORK PRACTICE.** (3 cr; limited to 30 students; prereq 5414, 8401, or #; 1515-1700 MW; BlegH 115) Grossman
Analysis of a systemic framework for group psychotherapy with emphasis upon group structure, function and process as variables in the therapeutic process.

SECOND TERM

● **5101. CONTEMPORARY POLICY AND PROGRAMS IN SOCIAL WELFARE.** (3 cr; limited to 40 students; 3004; open to entering social work grad students who have not completed a CSWE-accredited undergrad social work concentration; prereq # for undergrads; 1515-1700 MW; BlegH 115) Hollister
Basic concepts and perspectives necessary for understanding and analyzing social welfare programs.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **5401. INTERVENTIVE METHODS IN SOCIAL WORK PRACTICE.** (3 cr; limited to 40 students; 3005; open to entering social work grad students who have not completed a CSWE-accredited undergrad social work concentration; prereq # for undergrads; 0915-1100 TTh; BlegH 255) Quam
Consideration of the nature, purpose and function of the social work profession, including special emphasis on the knowledge and value base of practice. Introduction to the use of the social work interview and the problem solving process.

8010. FIELD INSTRUCTION I. (4 cr or cr ar by #; prereq #; hrs ar) Bracht

8020. FIELD INSTRUCTION II. (4 cr or cr ar by #; prereq 8010; hrs ar) Bracht

● **8150. SPECIAL TOPICS IN SOCIAL POLICY: METHODS FOR INTERVENTION IN LARGER SYSTEMS.** (cr ar; limited to 40 students; 0915-1100 MW; BlegH 260) W Stewart

An introduction to the range of functions and roles social workers in administration, planning, program evaluation and community development play.

Sociology (Soc)

FIRST TERM

1001. INTRODUCTION TO SOCIOLOGY. (4 cr; 0905-0955 MTWThF; AndH 210) Delaney
A survey of the main fields of sociology and current social problems.

3102. SOCIOLOGY OF LAW AND SOCIAL CONTROL ORGANIZATIONS. (4 cr; prereq 1001 or equiv; 1010-1100 MTWThF; BlegH 120) K Fine

Societal reaction to deviance through law and its implementation by social control organizations such as schools, public and private welfare agencies, and criminal justice, juvenile justice, and mental health systems. Recommended to be taken prior to 3103.

3501. THE FAMILY SYSTEM. (4 cr; prereq 1001 or #; 1010-1100 MTWThF; RarigC 616) Johnson
The family in contemporary American society with attention to historical and cross-cultural comparisons; interrelationships with other social institutions, socialization, patterns of mate selection, life cycle processes, and processes and norms of human sexuality.

3551. WORLD POPULATION PROBLEMS. (4 cr; prereq 1001; 1115-1205 MTWThF) Kennedy
Population growth and natural resources, population dynamics, fertility and mortality in less developed nations, population forecasts, population policies to reduce fertility.

3801. SOCIOLOGICAL METHODS I: DESCRIPTIVE STATISTICS. (5 cr; prereq basic algebra or Math 0009; Lect 1115-1205 MTWThF, +2 1 hr labs to be ar first day of class) T Anderson
Descriptive statistics in analysis of sociological data, measures of central tendency, deviation, correlation and regression graphs, simple treatment of three and four variables, probability.

3811. COMPUTER USAGE FOR SOCIAL STATISTICS. (1 cr; S-N only; *3801 recommended; 1220-1310 TTh; BlegH 205) Gifford
Elementary computer usage in social statistics applications. Use of statistical program packages for analysis of sociological usages.

3970. DIRECTED STUDIES. (1-15 cr per qtr; prereq #)
Guided individual reading or study.

5111. SOCIOLOGY OF DEVIANT BEHAVIOR. (4 cr; prereq 3103 or #; 1010-1200 MTWThF) Lauderdale
The nature of deviant behavior, the social process associated with the careers of deviants, and the relationship of deviancy to problems of social control.

5201. INTRODUCTION TO SOCIAL PSYCHOLOGY. (4 cr [no cr for sociology majors]; prereq 8 cr in sociology, anthropology, psychology, political science or economics; 1220-1310 MTWThF) Staff
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.

Courses preceded by ● have limited enrollment and must be reserved.

5970. DIRECTED STUDIES. (1-15 cr per qtr; prereq #)

Guided individual reading or study.

8090. SUPERVISED: APPLIED INTERNSHIP. (1-4 cr; prereq #; 1700-1900 T) Reynolds

SECOND TERM

1001. INTRODUCTION TO SOCIOLOGY. (4 cr; II MTWThF; AndH 250) Bradley

See First Term.

3103. CRIMINOLOGY. (4 cr, §3101; prereq 1001 or equiv...3102 recommended; 1010-1100 MTWThF; BlegH 135) Kruttschnitt

General survey of field of criminology.

3405. INEQUALITY: INTRODUCTION TO STRATIFICATION. (4 cr; prereq 1001; 1220-1310 MTWThF) Staff

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 lifestyles.

3503. SEX, ROMANCE, AND RELATIONSHIPS. (4 cr; prereq 1001; 1010-1100 MTWThF; BlegH 235) Albert

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, sexual deviance in relation to sexual norms.

3803. SOCIOLOGICAL METHODS III: RESEARCH METHODS. (5 cr; prereq 3802 or equiv or #; Lect 1115-1205 MTWThF, + 2 1-hr labs to be on first day of class) T Anderson

Data collection methods; advantages and limitations of major methods when applied to specific types of problems.

3957. SOCIAL GERONTOLOGY: ELDERLY IN AMERICAN SOCIETY. (4 cr; prereq 1001 or #; 1325-1415 MTWThF; BlegH 215)

Situations and problems facing aging people in modern societies. Aspects of human aging from a sociological perspective.

3970. DIRECTED STUDIES. (1-15 cr per qtr; prereq #)

See First Term.

5524. SOCIOLOGY OF HUMAN SEXUALITY. (3 to 4 cr; prereq 8 cr in sociology or #) Reiss

Examination of human sexuality from a social perspective. How sexual preferences develop, trends in sexual relationships in various parts of our society, and social factors affecting sexual permissiveness.

—1, Lect 1115-1225 MTWThF, BlegH 210, 4 cr undergrads or grad students

—2, Lect 1115-1225 MTWThF, BlegH 210, 3 cr grad students only

5952. YOUTH IN MODERN SOCIETY. (4 cr, §SPFE 5125; prereq 3201 or 3401 or 3405 or 5201 or 5401 or 5953 or #; 0905-0955 M-F;*) S Clark

Youth in advanced societies; youth as a social entity; functions of youth in industrial societies; 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.

5970. DIRECTED STUDIES. (1-15 cr per qtr; prereq #)

See First Term.

8090. SUPERVISED: APPLIED INTERNSHIP. (1-4 cr; prereq #; 1700-1900 Th) Reynolds

South Asian Studies (SoAs)

FIRST TERM

3411. INTRODUCTION TO INDIAN PHILOSOPHY. (4 cr, §5411; 1115-1205 MTWThF; FolH 203) Junghare

Major concepts—principle schools of Indian philosophy; traditional and contemporary views.

*This course scheduled through SPFE.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

5411. INTRODUCTION TO INDIAN PHILOSOPHY. (4 cr, §3411; 1115-1205 MTWThF; FolH 203)
Junghare
See 3411.

Spanish and Portuguese

Spanish (Span)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

FIRST TERM

1101. BEGINNING SPANISH: ORAL APPROACH. (5 cr; each section limited to 30 students)
Emphasis on speaking and understanding Spanish; pronunciation; writing and reading skills; basic grammar; cultural aspects of language and civilizations of Spain and Spanish America.

Sec 1, 0800-0955 MTWThF, FolH 102

Sec 2, 0800-0955 MTWThF, Arch 30

● **1102. BEGINNING SPANISH: ORAL APPROACH.** (5 cr; limited to 30 students; prereq 1101 or 1 yr high school Spanish; 0905-1100 MTWThF; FolH 207)
See 1101.

● **1103. BEGINNING SPANISH: ORAL APPROACH.** (5 cr; limited to 30 students; prereq 1102 or 2 yrs high school Spanish; 0905-1100 MTWThF; LindH 340)
See 1101.

● **1104. INTERMEDIATE SPANISH, ORAL APPROACH: INTERPRETATION OF MODERN PROBLEMS.** (4 cr; limited to 30 students; prereq 1103 or 3 yrs high school Spanish; 0940-1105 MTWThF; LindH 305)

Continued emphasis on speaking and comprehension; development of reading and writing skills based on materials from Spain and Spanish American dealing with current issues. Grammar review; frequent compositions and oral presentation to build vocabulary.

3002. READING FOR SPEED AND COMPREHENSION. (3 cr; prereq 1105 or #; 1010-1100 MTWThF; FolH 103) Sullivan

Concentrated, individualized approach to sharpen reading skills, expand vocabulary, improve comprehension. Sight-reading drills, speed tests, word study, reading aloud. Variety of practical and literary materials at graded levels of difficulty.

3005. ORAL COMMUNICATION: SPEAKING AND LISTENING. (4 cr; prereq 1105 or equiv; 0905-0955 MTWThF; FolH 103) Mantini

Dialogues, group discussions, simulated situational conversations, interviews, skits, debates based on themes from sound and video tapes, records, speakers from Spain and Spanish America. Emphasis on fluency in speaking and understanding of oral expression.

● **3610. TOPICS: SPANISH, SPANISH-AMERICAN LITERATURE IN TRANSLATION.** (4 cr [cr does not count toward Spanish or Portuguese major but may be used toward Route II language requirement]; limited to 25 students; taught in English; 1010-1100 MTWThF; FolH 102) Jara

● **3614. DON QUIJOTE: A STUDY OF LOST ILLUSIONS.** (4 cr [cr does not count toward Spanish or Portuguese major but may be used toward Route II language requirement]; limited to 25 students; taught in English; 1115-1205 MTWThF; FolH 204) Jones

Study of the novel in many facets: the "madness" of its characters, the relation of their actions and attitudes to the theme of reality/illusion and to the society of their times.

5910. TOPICS IN SPANISH AND SPANISH-AMERICAN LITERATURE: SPANISH AMERICAN DRAMA (4 cr per qtr [12 cr max]; prereq 3104 or SpPt 3104 or Δ; 1220-1415 TTh, FolH 204) Vidal
Students are exposed to major issues or approaches of Spanish or Spanish American literature by treating important groups, movements, trends, issues, methods, genres. Specific approaches depend on topic and instructor.

Courses preceded by ● have limited enrollment and must be reserved.

5930. TOPICS IN HISPANIC LINGUISTICS. (4 cr; per qtr [12 cr max]; prereq 3104 or SpPt 3104 or Δ , 1220-1415 MW; FolH 204) Narvaez

Problems in Hispanic Linguistics; aspects of Luso-Brazilian language. A variety of linguistic approaches and methods.

5970. DIRECTED READINGS. (1-5 cr per qtr [15 cr max]; for MA and PhD candidates; prereq # and Δ ; hrs ar) Staff

To fill gaps in students' preparation, especially when courses in certain indispensable topics, figures, periods, or issues have not been offered. Readings in Spanish and/or Spanish-American areas.

8970. DIRECTED READINGS IN ROMANCE LANGUAGES. (Cr and hrs ar; mainly for PhD candidates) Staff

Authors and topics not otherwise offered. Weekly meetings based on student's research and analysis. Student and instructor agree on plan of reading or particular topics, figures, issues, etc. Readings in Spanish and/or Spanish-American areas.

FIRST AND SECOND TERMS: TEN-WEEK COURSE

A concentrated program of study permitting students to earn 15 hours of credit, the equivalent of a full year's sequence in language. Students must register in both terms of the summer session and may not enroll in other summer courses.

● **1101-1102-1103. BEGINNING SPANISH.** (15 cr for both terms; limited to 30 students)

See 1101 First Term.

Sec 5, 0800-0955 MTWThF, FolH 107

Sec 6, 0800-0955 MTWThF, KolH S137

SECOND TERM

● **1101. BEGINNING SPANISH: ORAL APPROACH.** (5 cr; limited to 30 students; 0800-0955 MTWThF; FolH 104)

See First Term.

● **1102. BEGINNING SPANISH: ORAL APPROACH.** (5 cr; limited to 30 students; prereq 1101 or 1 yr high school Spanish; 0905-1100 MTWThF, FolH 102)

See 1101 First Term.

● **1103. BEGINNING SPANISH: ORAL APPROACH.** (5 cr; limited to 30 students; prereq 1102 or 2 yrs high school Spanish; 0905-1100 MTWThF; LindH 325)

See 1101 First Term.

● **1104. INTERMEDIATE SPANISH, ORAL APPROACH: INTERPRETATION OF MODERN PROBLEMS.** (4 cr; limited to 30 students; prereq 1103 or 3 yrs high school Spanish; 0940-1105 MTWThF; LindH 320)

Continued emphasis on speaking and comprehension; development of reading and writing skills based on materials from Spain and Spanish American dealing with current issues. Grammar review; frequent compositions and oral presentation to build vocabulary.

● **1105. INTERMEDIATE SPANISH, ORAL APPROACH: DISCUSSIONS OF MODERN LITERATURE AND THE PRESS.** (4 cr; limited to 25 students; prereq 1104 or 4 yrs high school Spanish; 0940-1105 MTWThF; Arch 20)

See 1104.

3003. SPANISH ADVANCED GRAMMAR WORKSHOP. (3 cr; prereq 1005 or equiv; 1010-1100 MTWF; FolH 304) Rodriguez

General class study and practice of difficult language structure, patterns and usage. Directed study and practice to correct individual problem areas. Emphasis on accuracy in oral and written expression.

● **3610. TOPICS: SPANISH, SPANISH-AMERICAN LITERATURE IN TRANSLATION: To be Announced.** (4 cr [cr does not count toward Spanish or Portuguese major but may be used toward Route II language requirement]; limited to 25 students; taught in English; 1115-1205 MTWThF; FolH 304) Chejne

Hispanic and/or Latin American groups of writers; universal themes, literary motifs, relationships between literature and other disciplines.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

5015. METHODS OF TRANSLATION. (4 cr; prereq 10 cr from 3001—3005 series or #; 1220-1415 MW; FolH 103) Sousa

Meaning, use, and theories of translation. Techniques and problems of translation from Spanish and Portuguese to English and vice versa. Translation patterns, use of special vocabularies and other adjuncts needed to understand both languages. Practical vocabulary and usage for various fields of work.

5910. TOPICS IN SPANISH AND SPANISH-AMERICAN LITERATURE: To be Announced. (4 cr per qtr [12 cr max]; prereq 3104 or SpPt 3104 or Δ ; 1220-1415 TTh; FolH 103) Spadaccini

Students are exposed to major issues or approaches of Spanish or Spanish American literature by treating important groups, movements, trends, issues, methods, genres. Specific approaches depend on topic and instructor.

5970. DIRECTED READINGS. (1-5 cr per qtr [15 cr max]; for MA and PhD candidates; prereq # and Δ ; hrs ar) Staff

See First Term.

8970. DIRECTED READINGS IN ROMANCE LANGUAGES. (Cr and hrs ar) Staff

See First Term.

Speech-Communication (Spch)

See also Rhetoric 1222.

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

For special department offerings see the Small Group Communication Workshop in the Special Programs section.

FIRST TERM

● **1101. FUNDAMENTALS OF SPEECH COMMUNICATION; ORAL COMMUNICATION.** (4 cr; each section limited to 24 students)

Study and application of essential elements in oral communication. Criticism and response to oral discourse. Individual speaking.

Sec 1, 0800-0850 MTWThF, FolH 306

Sec 2, 1010-1100 MTWThF, FolH 306

1102. FUNDAMENTALS OF SPEECH COMMUNICATION: COMMUNICATION PROCESS. (4 cr; 0905-0955 MTWThF; FolH 406) Petronio

Variables in intrapersonal, interpersonal, and group communication.

3401. THEORIES OF INTERPERSONAL COMMUNICATION. (4 cr; prereq 1102 or #, Psy 1001; 1115-1205 MTWThF; FolH 406) Bantz

Theories of interpersonal communication and their usefulness for particular purposes.

3431. THE ROLE OF PERSUASION IN THE MODERN WORLD. (4 cr; soph standing rec; 1010-1100 MTWThF; FolH 406) Cashman

Persuasion in interpersonal, organizational, intercultural, and intercultural relationships. Contemporary persuasion, with occasional historical segments.

3601. APPROACHES TO PUBLIC DISCOURSE. (4 cr; prereq 1101; 0800-0850 MTWThF, FolH 308) Scott

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.

● **3605. PUBLIC SPEAKING.** (4 cr; prereq 1101; 0905-0955 MTWThF; FolH 306) Scott

Public speeches; directed practice. Public speaking in contemporary life.

Courses preceded by ● have limited enrollment and must be reserved.

3970. DIRECTED STUDIES. (Cr ar [cr does not count toward speech-communication major]; prereq at least one course in speech-communication, #, Δ)

Individual study projects in speech-communication. Consultation with an instructor who agrees to supervise the project is required.

3980. DIRECTED INSTRUCTION. (1-4 cr per qtr [max 8 cr...cr does not count toward speech-communication major]; S-N only; prereq #, Δ)

Students work with an instructor in planning and teaching an undergraduate course.

5261. THE COMMUNICATIVE PROCESSES OF TELEVISION. (4 cr; prereq 3211 or #; 0905-0955 MTWThF; FolH 305) Bantz

Television as a system of communicative processes; the organizational processes of televised communicators, television content as a link between communicators and viewers, and how viewers use television.

5402. PROBLEMS IN INTERPERSONAL COMMUNICATION. (4 cr; prereq 3401 or #; 0800-0850 MTWThF; FolH 406) Cashman

Factors that contribute to misunderstanding, disagreement, and cessation of contact in dyads.

● **5411. SMALL GROUP COMMUNICATION.** (4 cr; limited to 30 students; A-N only; prereq 3641 or #; 1220-1310 MTWThF; FolH 406) Bormann

Communication within the small, task-oriented group. Group cohesiveness, leadership, role structure, information processing, decision making.

● **5414. AUTHORITY AND POWER IN TASK-ORIENTED COMMUNICATION—June 16-28.** (4 cr; limited to 60 students; S-N only; prereq 3641 or #; 1615-1815 June 16-19; 22-26; 0900-1730 June 20, 21, 27, 28; FolH 306, 307, 308) Shapiro

Authority and power in task-oriented groups. Tavistock-type small group, intergroup, and large group laboratory experiences. Verbal and nonverbal processes that operate in and among groups to facilitate or inhibit effective leadership and followership. See Special Programs section.

5421. QUANTITATIVE RESEARCH IN COMMUNICATION. (4 cr; prereq 3401 or 5403 or #; 1115-1205 MTWThF, FolH 306) Petronio

Experimental and descriptive research; design and procedures; individual projects.

5970. READINGS IN SPEECH. (Cr ar; prereq 9 cr in 3xxx-5xxx-level speech courses, #, Δ)

Directed reading and preparation of reports on selected subjects.

8411. SEMINAR: SMALL GROUP COMMUNICATION. (3 cr; prereq 1101, 5411; 1325-1520 TTh; FolH 406) Bormann

Research problems and methods.

8990. RESEARCH. (Cr ar)

Open to graduate students engaged in research on special problems.

SECOND TERM

● **1101. FUNDAMENTALS OF SPEECH COMMUNICATION: ORAL COMMUNICATION.** (4 cr; limited to 24 students; 0800-0850 MTWThF; FolH 306)

See First Term.

● **3201. INTRODUCTION TO BROADCASTING PRODUCTION.** (4 cr; limited to 24 students; 1115-1205 MTWThF; RarigC 610) Bart

Basic practice and theory. Projects in performance, scripting, and studio production.

3204. TELEVISION PRODUCTION. (4 cr; limited to 24 students; 1325-1415 MTWThF; RarigC 610) Bart

Advanced experience in producing and directing through a variety of in-studio projects.

3211. DETERMINANTS OF BROADCAST PROGRAMMING. (4 cr; 0905-0955 MTWThF; FolH 305) Browne

Historical development and contemporary aspects of broadcast programming. Roles of governmental, industrial, and public organizations in influencing programming decisions. "Problem" areas in programming.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

3615. ARGUMENTATION. (4 cr; prereq 1101 or 1101H or #: 1010-1100 MTWThF; FolH 306) Jensen
Role of reasoned discourse in social and governmental affairs. Logical methods of persuasion.

● **3641. DISCUSSION AND CONFERENCE METHODS.** (4 cr; limited to 30 students; prereq 1101 or 1101H or #: 0800-0850 MTWThF; FolH 406) Jensen
Cooperative thinking in task-oriented groups. Planning, preparing for, participating in, and leading private and public meetings.

3970. DIRECTED STUDIES. (Cr ar [cr does not count toward speech-communication major]; prereq at least one course in speech-communication, #, Δ)
See First Term.

3980. DIRECTED INSTRUCTION. (1-4 cr per qtr [max 8 cr...cr does not count toward speech-communication major]; S-N only; prereq #, Δ)
See First Term.

5231. COMPARATIVE BROADCAST SYSTEMS. (4 cr; prereq 3211 or #: 1115-1310 MW; FolH 305) Browne
Historical, sociological, and political aspects of systems of broadcasting throughout the world—American, Canadian, British, French, German, Soviet, others. Regulation, impact on political, social, and economic development.

5451. INTERCULTURAL SPEECH-COMMUNICATION. (4 cr; prereq 3401, Anth 1002 or another course in cultural anthropology or #: 1010-1100 MTWThF; FolH 406) Howell
Successful interpersonal communication across cultures. Linguistic and nonverbal variables. Emphasis on North American abroad, communication with host nationals.

5970. READINGS IN SPEECH. (Cr ar; prereq 9 cr in 3xxx-5xxx-level speech courses, #, Δ)
See First Term.

8431. SEMINAR IN PERSUASION. (3 cr; prereq 5431; 1325-1520 TTh; FolH 307) Howell
Literature of persuasion, methods in study of persuasion.

8990. RESEARCH. (Cr ar)
See First Term.

Statistics (Stat)

FIRST TERM

1051. INTRODUCTION TO IDEAS OF STATISTICS. (4 cr; prereq high school higher algebra; 0905-0955 MTWThF and 1010-1100 WF; VinH 2)
Presentation and analysis of data. Probabilistic models for inference. Inference and decision procedures. Emphasis on concepts rather than computation.

5121. THEORY OF STATISTICS. (4 cr, §5131-5132-5133; prereq Math 1231 or 1331 or 1621; 1010-1100 TTh, 1115-1205 MTWThF; VinH 20)
Univariate and multivariate distributions, law of large numbers, sampling, likelihood methods, estimation and hypothesis testing.

SECOND TERM

3091. INTRODUCTION TO PROBABILITY AND STATISTICS. (4 cr, §5121 §5131; prereq differential and integral calculus; 0905-0955 MTWThF, 1010-1100 WF; VinH 20)
Elementary probability and probability distributions, sampling and elements of statistical inference. Treatment is more mathematical than 1051.

5122. THEORY OF STATISTICS. (4 cr, §5131-5132-5133; prereq 5121; 1010-1100 TTh, 1115-1205 MTWThF; VinH 2)
Confidence intervals, testing hypotheses, regression, analysis of variance and covariance, distribution-free methods.

Courses preceded by ● have limited enrollment and must be reserved.

Studio Arts—See Arts, Studio

Theatre Arts (Th)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

FIRST TERM

● **1321. BEGINNING ACTING: CREATIVE APPROACH.** (4 cr; prereq 1101, 1504 or §1504 and 3rd-
qtr fr or above; 0800-0955 MTWThF; RarigC 90) Berry
Beginning Stanislavskian technique and improvisational exercises leading to elementary scene study.

1326. BEGINNING ACTING: TECHNIQUE. (4 cr; prereq 1321; 1010-1205 MTWThF; RarigC 10)
Moulton

Fundamentals of body movement, rhythms, and acting technique. Individual and group performances.

1502. MAKE-UP FOR THE ACTOR. (2 cr; prereq 1504; clean shaven face; 1325-1520 MTWTh;
RarigC 64) Crellin

Theory and practice in the art of stage make-up.

1504. ELEMENTS OF TECHNICAL THEATRE. (4 cr; prereq 1101 or §1101; 1220-1310 MTWTh,
1115-1310 F; RarigC 275; lab ar) Brockman, Crellin

The practice of the arts and crafts of the theatre: scenery construction and painting, stage operation,
theatre lighting, costuming.

3321. ADVANCED ACTING: CHARACTERIZATION. (4 cr; prereq 1326; 1010-1205 MTWThF;
RarigC 20) McIntyre

Presentation of scenes from plays with emphasis on characterization.

● **3326. THEATRE DANCE.** (2 cr; prereq 1326; 0905-0955 MTWThF; RarigC 10) Moulton
Dance techniques for actors; practice and performance of dances in the theatre.

3412H. HONORS COURSE: TUTORIAL SEMINAR IN THEATRE ARTS. (0-3 [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)

3513. TECHNICAL THEATRE PRODUCTION I. (4 cr; prereq 1504; 1010-1205 MTWTh; RarigC 275;
lab ar) Brockman, Josal

Theory and practice of design and execution of stage scenery and properties.

3801. ORAL INTERPRETATION OF FICTION. (4 cr; prereq 1504 or 1804 or Spch 1101; 1325-1520
MTWTh; RarigC 90) Congdon

Selected short stories. Solo and group readings.

3980. DIRECTED INSTRUCTION. (1-3 cr per qtr [8 cr max]; prereq completion of course in which
teaching will be done and Δ) Staff

5100. THEATRE PRACTICUM. (2-6 cr; prereq written permission, #, Δ, consent of theatre practicum
committee) Josal, others

Arranged individual creative projects in production of a play, meeting approval of faculty committee in
one or more of these areas: playwriting, directing, acting, and design.

5110. THEATRE PERFORMANCE. (1 cr; [9 cr max]; prereq written permission; S-N only) Adey, others
Participation in the rehearsals and performances of a major University Theatre production.

5186. AMERICAN THEATRE. (4 cr; prereq sr or grad theatre major or #; 1325-1520 MTWTh; RarigC
75) Wolfe

The theatre as an aspect of American culture from 1752 to present.

5711. STAGE DIRECTION. (4 cr, §3708, 3711; prereq 1321; sr and grad students only; 1010-1205
MTWTh; RarigC 210) Adey

Theory of direction: concept and analysis. Exercises in blocking and production of short scenes.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

5718. THEATRE MANAGEMENT AND PROMOTION. (4 cr; prereq 1504, sr or grad or #; 1325-1520 MTWTh; RarigC 275) Neely

Theory and practice in ticket office procedures, house management, publicity, and promotion; special problems in college, community, children's and professional theatre.

5802. ORAL INTERPRETATION OF POETRY. (4 cr; prereq 1504, 3801 or grad student; 1325-1520 MTWTh; RarigC 20) Fredricks

Lyric poems. Solo and group readings.

5950. TOPICS IN THEATRE: THE ARTS AND TECHNIQUES OF READING LITERATURE ALOUD. (2 cr; prereq #; 1220-1310 MTWTh; RarigC 20) Fredricks

Primarily for those who have no previous training in oral performance. Material would cover stories, essays, poems, plays.

5970. DIRECTED READINGS. (2-6 cr; prereq 9 cr in theatre, # and Δ) Staff

Directed reading and preparation of reports on selected subjects.

8980. DIRECTED INSTRUCTION. (1-3 cr) Staff

Teaching experience in an area in which the student does not hold a teaching assistantship but in which he or she may be required to teach as a professional. Limited to students qualified by course work in the area to be taught.

8990. RESEARCH. (Cr ar; prereq # and Δ) Staff

Open to graduate students engaged in research on special problems.

SPECIAL TERMS: ONE-WEEK WORKSHOPS (July 20-24)

5950. TOPICS IN THEATRE. (1-5 cr per qtr [max 12 cr]; prereq # and Δ)

Selected topics.

Sec 1, Workshop: Acting/Directing Styles, 2 cr, 0800-1205 MTWThF, RarigC 210, Adey

Sec 2, Workshop: Audition Techniques, 2 cr, 0800-1205 MTWThF, RarigC 190, McIntyre

Sec 3, Workshop: Stage Fight Choreography, 2 cr, 1325-1730 MTWThF, RarigC 10, Berry

Sec 4, Workshop: Black Theatre, 2 cr, 1325-1730 MTWThF, RarigC 20, Wolfe

Sec 5, Workshop: Collective Creativity; Art, Dance, Theatre and Music, 2 cr, 1600-1730, 1830-2000, MTWThF, RarigC 90, Moulton

Urban Studies (Urbs)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

FIRST TERM

3900. INTERNSHIP. (1-6 cr per qtr [12 cr max]; prereq jr or sr and Δ ; 1730-1930 M; BA 130) Staff
A weekly seminar integrating the internship experience with the academic program. Should be taken during or immediately after the internship.

SECOND TERM

3900. INTERNSHIP. (1-6 cr per qtr [12 cr max]; prereq jr or sr and Δ ; 1730-1930 M; BA 130) Staff
See First Term.

Courses preceded by • have limited enrollment and must be reserved.

Women's Studies (WoSt)

Courses with limited enrollment must be reserved in 12 Johnston Hall (see instructions under "Reserved Courses").

FIRST TERM

● **1005. INTRODUCTION TO WOMEN'S STUDIES.** (4 cr; limited to 40 students; 0905-0955 MTWThF; ForH 349) Staff

An introduction to women's studies as a discipline; a brief history of feminism; an overview of issues related to the current and rapidly changing role and status of women. (No prereq)

● **3502. WOMEN AND THE ARTS.** (4 cr; limited to 40 students; 1010-1100 MTWThF; ForH 349) Staff
Women as artists, with consideration of several art forms, the historical conditions shaping women's creativity, and the question of "female imagery" in women's artistic expression.

SECOND TERM

● **3501. WOMEN AND LITERATURE.** (4 cr; limited to 40 students; 1010-1100 MTWThF; ForH 349) Staff

An examination of women's creative and critical writing, focused primarily on 19th and 20th century British and American authors and the impact of modern feminism on their work.

● **3910. TOPICS: THE CONTEMPORARY WOMEN'S MOVEMENT.** (4 cr; limited to 40 students; 0905-0955 MTWThF; ForH 349) Staff

An exploration of the origins, politics and development of the Women's Movement in the U.S., with reference to contemporary issues and the growth of women's culture.

Military Science

The Army Reserve Officer's Training Corps (ROTC) summer program offers University students three ways to qualify for ROTC through an accelerated program: entry into the basic course (compress 4 years into 3); entry into the advanced course (compress 4 years into 2); an alternative to the 2-year basic camp that permits students to remain in the Twin Cities during the summer (compress 4 years into 2). No military obligation is incurred through participation in any of the summer programs. Eligible students who enroll in the advanced course receive \$100 per month beginning the next academic year. For information, call 373-2212.

Military Science (Mil)

Courses with limited enrollment must be reserved in 108 Armory (see instructions under "Reserved Courses").

FIRST TERM

● **1014. WORLD MILITARY HISTORY.** (5 cr, §1011, §1012, §1013, §Hist 1951, §1952, §1953, §1954; limited to 50 students; prereq Δ ; 0800-0955 MTWThF; Armory 116A)

Basic concepts of military history. Principles of war, military definitions, and relationship of geography, economics, diplomacy, and technology to military history — from antiquity to present.

SECOND TERM

● **1024. FOUNDATIONS OF NATIONAL POWER.** (5 cr; limited to 50 students; prereq Δ ; 0800-0955 MTWThF; Armory 116A)

Introduction to contemporary international relations; basic factors involved in a nation's capacity for developing power; varying levels of military force available to implement policy.

Courses preceded by ● have limited enrollment and must be reserved.

Institute of Technology

SCHOOL OF ARCHITECTURE AND LANDSCAPE ARCHITECTURE

Architecture (Arch)

All courses must be reserved in 5 Lind Hall (see instructions under "Reserved Courses").

FIRST TERM

1021. HISTORY OF ENVIRONMENTAL DEVELOPMENT: ARCHITECTURE AND LANDSCAPE ARCHITECTURE. (4 cr, §LA 1021; 0800-0955 MWF; Arch 25) Winterowd
Introduction to the philosophy and principles of architecture and landscape architecture as an art; survey of environmental history from the ancient periods through the medieval age.

5056. MODERN ARCHITECTURE. (4 cr; reserved course; prereq 1021 or #; 1010-1205 MWF; Arch 35) Ohlhausen
History of architecture in America and Europe from the late 19th century until World War II.

5950. TOPICS IN ARCHITECTURE: ARCHITECTURAL PRESENTATION: MEDIA. (2 cr, prereq 3093 or #; 1325-1625 T; Arch 10) Ermanis
Advanced architectural presentation techniques, methods, and media.

FIRST AND SECOND TERMS: TEN-WEEK COURSES

● **3082-3083. ARCHITECTURAL DESIGN I.** (6 cr; limited enrollment; prereq 3081; register for both terms at beginning of first term; 1325-1730 MWF; Arch 210) Rockcastle
Basic exercises in composition of line, form, proportion, color, and texture. Elements of architectural design. Architectural drawing. Model making.

● **3092-3093. ARCHITECTURAL DESIGN II.** (6 cr; limited enrollment; prereq 3091; register for both terms at beginning of first term; 1325-1730 MWF; Arch 210) Rockcastle
Architectural problems with emphasis on development of structure as an integral part of design; site planning.

● **5111. ARCHITECTURAL DESIGN III.** (6 cr; limited enrollment; prereq 3093, 3064-3065 or ¶, CE 3600-3601-3602 or ¶; register for both terms at beginning of first term; 1325-1730 MWF; Arch 210) Rapson
Advanced architectural problems of complex requirements, involving thorough study and detailed solution; electrical and mechanical equipment and structure as an integral part of design; research techniques. Individual effort and group collaboration.

● **5112. ARCHITECTURAL DESIGN III.** (6 cr; limited enrollment; prereq 5111; register for both terms at beginning of first term; 1325-1730 MWF; Arch 210) Rapson
See 5111.

● **5113. ARCHITECTURAL DESIGN III.** (6 cr; limited enrollment; prereq 5112; register for both terms at beginning of first term; 1325-1730 MWF; Arch 210) Rapson
See 5111.

● **5121. ARCHITECTURAL DESIGN IV.** (9 cr; limited enrollment; prereq 5113, CE 3062; register for both terms at beginning of first term; 1325-1730 MWF; Arch 210) Rapson
Building design and development in the urban context. Individual and collaborative effort; urban problems; reporting on and preparation of large-scale proposals.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **5122. ARCHITECTURAL DESIGN IV.** (9 cr; limited enrollment; prereq 5121; register for both terms at beginning of first term; 1325-1730 MWF; Arch 210) Rapson
See 5121.

SECOND TERM

1022. HISTORY OF ENVIRONMENTAL DEVELOPMENT: ARCHITECTURE AND LANDSCAPE ARCHITECTURE. (4 cr; §LA 1022; 0800-0955 MWF; Arch 25) Winterowd

Continuation of Arch 1021 from the Renaissance through the modern eras; focuses on forces and individuals that shaped the form of architecture and landscape architecture in the 19th and 20th centuries in America and Europe.

5950. TOPICS IN ARCHITECTURE: ARCHITECTURAL PRESENTATION: MEDIA. (2 cr, prereq; 3093 or #; 1325-1625 T; Arch 10) Ermanis

Advanced architectural presentation techniques, methods, and media.

SCHOOL OF CHEMISTRY

Chemistry (Chem)

Courses with limited enrollment must be reserved in 5 Lind Hall by IT students and in 12 Johnston Hall by other students unless otherwise indicated (see instructions under "Reserved Courses").

A \$20.00 deposit card is necessary for all laboratory courses.

FIRST TERM

● **1001. CHEMICAL PRINCIPLES AND COVALENT SYSTEMS.** If interested in taking BioChem, see BioChem 1301; (5 cr, 1001-1002†, §1003, §1004, §1005, §1008, §1014, §1031, 1032; primarily for forestry and nursing students; a terminal course; limited enrollment, reserved in JohH 12; prereq 2 yrs high school mathematics...high school chemistry recommended; lect 0800-0910 MTWThF, SciCB 375; rec 1220-1310 MWF; lab 1325-1625 MWF, SmithH 315) Staff

Principles of chemical change, structural concepts of nuclei, atoms, molecules; laws governing dynamic behavior of matter; equilibrium concepts, especially those relevant to living systems; applications of principles with emphasis on organic and biological species.

● **1004. GENERAL PRINCIPLES OF CHEMISTRY.** (5 cr, §1001, §1002, §1003, 1004-1005†, §1008, §1014, §1031, §1032; limited enrollment, reserved in CofH 130 for Ag, For, HE...LindH 5 for IT...JohH 12 for other students; primarily for non-chemistry majors; prereq placement index of Y or predicted mathematics GPA 1.90 on ACT, Math 0009 or college course in algebra...4 yrs high school mathematics...high school chemistry and physics recommended; lect 0800-0910 MTWThF, SciCB 325; rec 1220-1310 MWF; lab 1325-1415 MWF, SmithH ar)

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.

● **1006. PRINCIPLES OF SOLUTION CHEMISTRY.** (4 cr; limited enrollment, reserved in CofH 130 for Ag, For, HE...LindH 5 for IT...JohH 12 for other students; prereq 1005 or 1032; lect 0905-0955 MTWThF, SciCB 175; lab 1220-1625 MWF, SmithH ar)

Lecture and laboratory work is related to chemistry of selected cations and anions. Detection methods include spectrophotometric and potentiometric as well as chromatographic procedures. Included in the program of metal ion studies are systematics; acid-base principles; influence on the environment; importance in biological systems; formation and stereochemistry of complexes.

● **3100. QUANTITATIVE ANALYSIS.** (3 cr, 3100-3101†; limited enrollment; for non-chemistry majors; prereq 1005; 1220-1415 MWF; Owre 2-210)

(Lecture) Modern quantitative methods of analysis.

Courses preceded by ● have limited enrollment and must be reserved.

● **3101. QUANTITATIVE ANALYSIS.** (2 cr, 3100-3101†; limited enrollment; for non-chemistry majors; prereq 3100 or †3100; 0800-1100 MTWThF; SmithH 310)
(Laboratory) Modern quantitative methods of analysis including elementary physicochemical procedures.

● **3301. ELEMENTARY ORGANIC CHEMISTRY.** (4 cr; limited enrollment; for non-chemistry majors; prereq 1005 or 1032 or equiv; 0800-0955 MTWTh; SmithH 100)
Important classes of organic compounds, both aliphatic and aromatic, and heterocyclic compounds.

● **3305. ELEMENTARY ORGANIC CHEMISTRY LABORATORY.** (2 cr; limited enrollment; prereq 3301 or †3301; lect 1010-1100 T, SmithH 100; lab 1010-1415 WTh, SmithH 349, KoltH 365)
See 3301.

● **3499. SENIOR THESIS.** (Cr ar; must be reserved in LindH 5; prereq #, 4th yr)
Written final senior thesis report.

3970. DIRECTED STUDY. (Cr ar; prereq #; SmithH 225)
On- or off-campus learning experiences, individually arranged between a student and faculty member, in areas not covered by regular courses.

● **5520. ELEMENTARY PHYSICAL CHEMISTRY.** (3 cr; limited enrollment, reserved in LindH 5; prereq 1 yr college chemistry, Phys 1291 and 1295 or †Phys 1291 and †1295 or 1106 with #, Math 3211; 0800-0955 MWF; SmithH 225)
Brief general survey. Chemical thermodynamics.

8990. RESEARCH IN CHEMISTRY. (Cr and hrs ar; prereq Δ)

8991. SPECIAL TOPICS. (Cr and hrs ar; prereq Δ)

SECOND TERM

● **1002. CHEMICAL PRINCIPLES AND COVALENT SYSTEMS.** (5 cr, 1001-1002†, §1004, §1005, §1014, §1031, §1032; primarily for forestry and nursing students; a terminal course; limited enrollment, reserved in JohH 12; prereq 2 yrs high school mathematics...high school chemistry recommended; lect 0800-0910 MTWThF, SciCB 375; rec 1115-1205 MWF; lab 1325-1625 MWF, SmithH ar)
See 1001 First Term.

● **1003. PHYSICAL WORLD, CHEMISTRY.** (5 cr; § any other college chemistry courses; this is a terminal course; a similar course but without lab is offered as 1008; limited enrollment, reserved in JohH 12; prereq 1 yr high school algebra...high school chem recommended; lect 0900-1000 MTWThF, SciCB 125; rec 1325-1415 F, SmithH 225; lab 1325-1625 MW, SmithH ar)
Fundamental concepts of chemical bonding, structure of matter, and forces in the physical world. Scientific methods and principles contribute to understanding of the environment and problems faced in improving it. Labs to illustrate.

● **1005. GENERAL PRINCIPLES OF CHEMISTRY.** (5 cr, 1004-1005†, §1014, §1032; limited enrollment, reserved in CofH 130 for Ag, For, HE...LindH 5 for IT...JohH 12 for other students; primarily for non-chemistry majors; prereq 1004, placement index of Y or predicted mathematics GPA 1.90 on ACT, Math 0009 or college course in algebra...4 yrs high school mathematics...high school chemistry and physics recommended; lect 0800-0910 MTWThF, SciCB 325; rec 1220-1310 MWF; lab 1325-1625 MWF)
See 1004 First Term.

● **1008. PHYSICAL WORLD, CHEMISTRY.** (4 cr; § any other college chemistry courses; limited enrollment, reserved in JohH 12; prereq 1 yr high school algebra...high school chem recommended; lect 0900-1000 MTWThF, SciCB 175; rec 1325-1415 F, SmithH 225)
See 1003 Second Term. No lab.

● **3302. ELEMENTARY ORGANIC CHEMISTRY.** (4 cr; limited enrollment; prereq 3301 or equiv; 0800-0955 MTWTh; SmithH 100)
See 3301 First Term.

● **3306. ELEMENTARY ORGANIC CHEMISTRY LABORATORY.** (2 cr; limited enrollment; prereq 3302 or †3302; lect 1010-1100 T, SmithH 100; lab 1010-1415 WTh, SmithH 349)
See 3301 First Term.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **3499. SENIOR THESIS.** (Cr ar; must be reserved in LindH 5; prereq #, 4th yr)

See First Term.

3970. DIRECTED STUDY. (Cr ar; prereq #)

See First Term.

● **5126. MODERN ANALYTICAL CHEMISTRY.** (4 cr; limited enrollment, reserved in LindH 5; primarily for chemical engineering majors; prereq 3332 and 3335; lect 1220-1415 TTh, KoltH S138; lab 0800-1205 MTWTh, KoltH 297, 299)

Strategies and techniques for solving modern analytical problems. The use of modern instruments in analysis.

● **5133. CHEMICAL INSTRUMENTATION AND ANALYSIS.** (5 cr, §5126; limited enrollment, reserved in LindH 5; prereq 1133, 5534; lect 1220-1415 TTh, KoltH S138; lab 0800-1205 MTWThF, KoltH 297, 299)

An introduction to the methodology and practices of solving analytical problems. Application of modern instrumental techniques to analysis.

● **5521. ELEMENTARY PHYSICAL CHEMISTRY.** (3 cr; limited enrollment, reserved in LindH 5; prereq 1 yr college chemistry, Phys 1291 and 1295 or ¶Phys 1291 and ¶1295 or 1106 with #, Math 3211; 0800-0955 MWF; SmithH 225)

See 5520 First Term.

8990. RESEARCH IN CHEMISTRY. (Cr and hrs ar; prereq Δ)

8992. SPECIAL TOPICS. (Cr and hrs ar; prereq Δ)

COMPUTER SCIENCE (CSci)

All courses must be reserved in 5 Lind Hall (see instructions under "Reserved Courses").

FIRST TERM

3101. A FORTRAN INTRODUCTION TO COMPUTER PROGRAMMING. (4 cr; intended for non-CSci majors; 1115-1310 MT, 1115-1205 W; Arch 5) Ibarra

FORTRAN computer language with extensions; applications; programming techniques. Brings students to advanced-level competence in FORTRAN programming. Integral nonscheduled laboratory.

3104. INTRODUCTION TO PROGRAMMING AND PROBLEM SOLVING. (4 cr; prereq Math 1231 or Math 1331 or Math 1621 or #; intended for CSci majors; 0905-0955 MTWThF; Arch 10) Hevner
Problem-solving techniques, stepwise refinement, modularization. Algorithms, introduction to evaluation criteria, representation of algorithms, flow charts, metalanguages. The PASCAL language. Elements of programming styles, program checking. Documentation.

3400. DISCRETE STRUCTURES OF COMPUTER SCIENCE. (4 cr; prereq Math 1231 or 1331 or #; 1010-1205 MW, 1115-1205 Th; Arch 55) Berzins
Sets and multisets. Proof techniques. Propositional calculus. Combinatorics. Algorithms. Computability and unsolvability. Graphs. Trees.

5101. STRUCTURE AND PROGRAMMING OF SOFTWARE SYSTEMS I. (4 cr; §3107, prereq 1101 or 3101 or 3104 or equiv or #; informal lab; 0905-0955 MTWThF; Arch 55) Frankowski
Organization and logical structure of computer systems. Representation of programs and data. Topics: Number systems, primitive computer systems, programming in machine language. Extensions to more sophisticated systems, assembly language, sequencing, decision making, arithmetic, logical operations, character manipulation, iteration, subroutines, data description.

5121. INTRODUCTION TO DATA STRUCTURES. (4 cr; prereq 3106 and 3400 or # informal lab; 1010-1100 MTWThF; Arch 50) Bruell

Basic concepts of data and their representation. Sequential and linked representation. Arrays, stacks and queues. Chains, circular lists and doubly linked lists. Dynamic storage management. Garbage collection and storage compaction. Generalized lists. Strings. Binary trees and trees. Tree traversal. Graphs. Activity networks.

Courses preceded by ● have limited enrollment and must be reserved.

SECOND TERM

3105. FUNDAMENTALS OF ALGORITHMS AND LANGUAGE I. (4 cr; Math 1211, CSci 3104 or 3101 or #; informal lab; 1010-1205 MT, 1115-1205 W; Arch 10) Maly

Non-numeric application areas of computer science; system processors and processes; basic information structures and their relation to algorithm complexities; non-numeric programming languages—SNOBOL; test processing recursion as an algorithm development technique and its implementation in a programming language; introduction to artificial intelligence.

5107. COMPUTER GRAPHICS I. (4 cr; prereq 3107 or 5101, and 5121 or #; 1010-1100 MTWThF; Arch 50) Giloi

Introduction. Definition of interactive computer graphics, its goals and its problems. A model system. Data structures for computer graphics, picture structure and transformations. Perspective views of three-dimensional objects. Structures of graphical programming languages. Interaction handling.

SCHOOL OF EARTH SCIENCES

Geology and Geophysics (Geo)

All courses must be reserved in 5 Lind Hall unless otherwise indicated (see instructions under "Reserved Courses").

FIRST TERM

● **1001. PHYSICAL GEOLOGY.** (5 cr; limited to 52 students, reserved in LindH 5 for IT and JohH 12 for others; lect 0905-0955 MTWThF; PillsH 110)

Introduction to scientific method and nature of the earth. Main features of the physical world and processes that have formed them.

Lab 1, 1010-1205 MWF, ForH 180

Lab 2, 1325-1520 MWF, ForH 180

3099. PROBLEMS IN GEOLOGY AND GEOPHYSICS. (1-6 cr; prereq § and Δ)

Individual research or problem selected on the basis of individual interests and background.

● **5051. PHYSICAL GEOLOGY FOR TEACHERS.** (4 cr, §1001, §1111; limited to 8 students, reserved in LindH 5 for IT and JohH 12 for others; only for students holding degrees in education; prereq 1 term college chemistry or physics; lect 0905-0955 MTWThF, seminar 1220-1310 TTh; PillsH 110)

Scientific methods and nature of the earth. Main features of the physical world and of the processes that have formed them.

Lab 1, 1010-1205 MWF, ForH 180

Lab 2, 1325-1520 MWF, ForH 180

5110. FIELD GEOLOGY. (9 cr; limited to students majoring in geology, geophysics or geoengineering; prereq 3103 and #)

Measurement of stratigraphic sections. Fossils and igneous, sedimentary, and metamorphic rocks. Geological surveying on aerial photographs and topographic maps. Preparation of geologic maps and cross sections. Structural and geomorphic features and geologic setting of mineral deposits. Course to be held in Gunnison, Colorado.

SECOND TERM

● **5110. FIELD GEOLOGY.** (9 cr; limited to students majoring in geology, geophysics or geoengineering; prereq 3103 and #)

See First Term.

Courses preceded by ● have limited enrollment and must be reserved.

COLLEGE OF ENGINEERING

Aerospace Engineering and Mechanics (AEM)

All courses must be reserved in 5 Lind Hall (see instructions under "Reserved Courses").

FIRST TERM

1015. STATICS. (4 cr, §1011; prereq Phys 1271, Math 1231; 0800-0955 MWF, 0905-0955 TTh; Arch 40)

Vector algebra. Principles of statics. Application of equations of equilibrium to analysis of simple structures and machines. Statically determinate beams. Cables. Nature and influence of friction.

3036. DYNAMICS. (4 cr; prereq 1011 or 1015, *Math 3221; 1010-1205 MWF, 1010-1100 TTh; Arch 40)

Review of particle dynamics. Mechanical systems and the rigid-body model. Equilibrium. Kinematics and dynamics of plane systems. Technical applications.

● **5001. AEROSPACE ENGINEERING WORKSHOP FOR ELEMENTARY AND SECONDARY TEACHERS—July 6-17.** (4 cr; enrollment limited to 30 students; 1:00-5:30 MTWThF; Mech E 108) Kaldahl, Aerospace Engineering and Mechanics faculty

Lectures, film reviews, construction and demonstration of classroom aids, involvement with the NASA spacemobile, flight experience, and field trips cover such topics as satellites and probes, model rocketry including a launch, astronaut in space, principles of flight, conventional aircraft, space age education tools. Visits to local aerospace facility and to major aerospace installation in the country. (Subject to availability of airlift). See Special Programs section.

8800. SELECTED TOPICS IN MECHANICS AND MATERIALS. (1-4 cr per qtr; prereq #)
Topics of current interest.

FIRST AND SECOND TERMS: TEN-WEEK COURSES

5840. INDUSTRIAL ASSIGNMENT. (2 cr; prereq regis in engineering intern program)
Engineering intern industrial laboratory. A formal technical report, covering the work during the industrial assignment, is required.

5841. INDUSTRIAL ASSIGNMENT. (2 cr; prereq regis in engineering intern program)

5842. INDUSTRIAL ASSIGNMENT. (2 cr; prereq regis in engineering intern program)

SECOND TERM

3016. DEFORMABLE BODY MECHANICS. (4 cr; prereq 1011 or 1015, *Math 3221; 1010-1205 MWF, 1010-1100 TTh; Arch 40)

Principles of statics; equilibrium conditions. Uniaxial loading and deformation. Stress and strain at a point. Material behavior; linear elasticity. Torsion. Bending of beams of symmetrical section.

8810. SELECTED TOPICS IN FLUID MECHANICS. (1-4 cr per qtr; prereq #)
Topics of current interest.

Chemical Engineering and Materials Science

Chemical Engineering (ChEn)

Courses so designated must be reserved in 5 Lind Hall (see instructions under "Reserved Courses").

FIRST TERM

5902, 5903, 5904, 5905. SPECIAL PROBLEMS. (Cr ar; reserved course)

8901-8902-8903. RESEARCH. (Cr ar)

Courses preceded by ● have limited enrollment and must be reserved.

SECOND TERM

5902, 5903, 5904, 5905. **SPECIAL PROBLEMS.** (Cr ar; reserved course)

8901-8902-8903. **RESEARCH.** (Cr ar)

Metallurgy/Materials Science (MatS)

Courses so designated must be reserved in 5 Lind Hall (see instructions under "Reserved Courses").

FIRST TERM

● **3400. MECHANICAL PROPERTIES OF MATERIALS.** (4 cr; reserved course; prereq 2nd-year IT student)

Structure and properties of metals, alloys, and polymers; heat treatment; alloy selection and metal processing.

Sec 1, 0800-0955 MWF, AmundH 240, Gerberich

Sec 2, 0800-0955 MWF, MinMet 116, Siverten

● **5011. INTRODUCTION TO SCIENCE OF MATERIALS.** (4 cr; reserved course; prereq 3rd-year IT student; 0800-0955 MWF; MinMet 116) Toth

Introduction to the relationships between atomic structure and physical properties of metals, semiconductors, glasses, polymers, ceramics, and composites.

5481, 5482, 5483. **SPECIAL PROBLEMS.** (Cr ar; reserved course; prereq sr)

8480, 8481, 8482. **SELECTED TOPICS: MATERIALS SCIENCE, ENGINEERING.** (Cr ar)

SECOND TERM

5481,5482,5483. **SPECIAL PROBLEMS.** (Cr ar; reserved course; prereq sr)

8480,8481,8482. **SELECTED TOPICS: MATERIALS SCIENCE, ENGINEERING.** (Cr ar)

Electrical Engineering (EE)

Courses with limited enrollment must be reserved in 5 Lind Hall (see instructions under "Reserved Courses").

FIRST TERM

● **1510. ELEMENTS OF ELECTRICAL ENGINEERING.** (5 cr; each section limited to 14 students; prereq and at least C-grades in Math 3211, 3221, Phys 1291 or Phys 1291; 0800-0955 MTWThF; MechE 202)

Physical principles underlying the modeling of circuit elements. Two- and three-terminal resistive elements. Kirchhoff's laws. Simple resistive circuits. Linearity in circuits. Storage elements. First- and second-order circuits.

Lab 1, 1010-1310 TTh, ElectE 121

Lab 2, 1220-1520 WF, ElectE 121

FIRST AND SECOND TERMS: TEN-WEEK COURSES

● **3000. CIRCUITS.** (4 cr; each section limited to 14 students; not for EE majors; prereq Phys 1291, Math 3221 or Math 3221; lect 0800-0850 MWF; Arch 40)

Linear passive circuits; natural and forced response. Steady-state AC analysis; resonance.

Lab 1, 0800-0955 T, ElectE 121

Lab 2, 0800-0955 Th, ElectE 121

Lab 3, 1220-1415 M, ElectE 118

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **3001. ELECTRONICS.** (4 cr; each section limited to 14 students; not for EE majors; prereq 3010 or 3000 or ¶3000; lect 0905-0955 MWF; Arch 35)
Network theorems; two-ports, active device models; vacuum diodes, semiconductors, amplifiers, non-linear devices; logic circuits.

Lab 1, 0800-0955 T, ElectE 118

Lab 2, 0800-0955 Th, ElectE 118

Lab 3, 1010-1205 M, ElectE 118

● **3010. CIRCUITS, SIGNALS, AND SYSTEMS I.** (4 cr; limited enrollment; prereq and at least C-grade in 1510; 1115-1205 MWF, 1325-1520 M; Arch 50)

Modeling of lumped-parameter networks. Sinusoidal steady-state analysis. Two-port networks.

● **3012. CIRCUITS, SIGNALS, AND SYSTEMS III.** (4 cr; limited enrollment; prereq 3011; 0905-0955 MTWF; MechE 221)

Continuous, discrete-time systems. Feedback: stability, applications.

● **3050. ELECTRONICS I.** (4 cr; limited enrollment; prereq 3010 or ¶3010; 0800-0850 MWF, 1325-1520 W, Arch 250)

Elementary semiconductor physics; physical description of pn junction diodes, bipolar junction transistors.

● **3052. ELECTRONICS III.** (4 cr; limited enrollment; prereq 3051, 3012 or ¶3012; 1010-1100 MTWF; Arch 35)

Elementary amplifiers at high frequencies; feedback amplifiers, oscillators; differential and operational amplifiers.

● **3100. ELECTROMAGNETIC FIELDS I.** (4 cr; limited enrollment; prereq and at least C-grades in Phys 1291, Math 3231 or ¶Math 3231 with #; 1010-1100 MWF, 1010-1205 Th; MechE 22)

Electrostatic, magnetostatic, and electromagnetic field theory based on fundamental experimental laws, including properties of dielectric and magnetic materials.

● **3400. JUNIOR ELECTRICAL ENGINEERING LABORATORY.** (3 cr; each section limited to 14 students; prereq 3010, 3050 or ¶3010 and 3050)

Lab 1, 0800-1205 T, ElectE 19

Lab 2, 1220-1625 Th, ElectE 19

● **3402. JUNIOR ELECTRICAL ENGINEERING LABORATORY.** (2 cr; each section limited to 14 students; prereq 3012, 3052, or ¶3012 and 3052)

Lab 1, 1220-1625 T, ElectE 21

Lab 2, 0800-1205 Th, ElectE 21

Lab 3, 1220-1625 Th, ElectE 21

● **3476. INDUSTRIAL ASSIGNMENT I.** (2 cr; prereq regis in engineering intern program)

Industrial work assignment in engineering intern program. Grade based on formal written report covering the quarter's work assignment.

● **3477. INDUSTRIAL ASSIGNMENT II.** (2 cr; prereq 3476)

See 3476.

5051. LOGIC DESIGN AND MICROPROCESSORS. (4 cr; limited enrollment; prereq 3051 or #; 1115-1205 MW, 1115-1310 F; MechE 302)

Switching algebra, design of combinational logic networks, Karnaugh maps. Flip-flops, counters and shift registers. Microprocessor architecture, programming, and input-output devices.

5052. LOGIC DESIGN AND MICROPROCESSOR LABORATORY. (1 cr; each section limited to 12 students; prereq ¶5051)

Lab 1, 1325-1520 M, ElectE 210

Lab 2, 1325-1520 W, ElectE 210

● **5100. ELECTROMAGNETIC FIELDS III.** (4 cr; limited enrollment; prereq 3101; 0800-0850 MTWF; Arch 10)

Plane-wave propagation, transmission lines, antennas, and other topics.

Courses preceded by ● have limited enrollment and must be reserved.

● **5101. ELECTROMAGNETIC FIELDS LABORATORY.** (1 cr; each section limited to 12 students; prereq 3401, 5100 or 5100)

Lab 1, 1220-1625 alt T, ElectE 216

Lab 2, 0800-1205 alt Th, ElectE 216

Lab 3, 1220-1625 alt Th, ElectE 216

● **5478. INDUSTRIAL ASSIGNMENT III.** (2 cr; prereq 3477, regis in intern program)

Industrial work assignment in engineering intern program. Grade based on student's formal written report covering his quarter's work assignment.

● **5479. INDUSTRIAL ASSIGNMENT IV.** (2 cr; prereq 5478)

See 5478.

Mechanical Engineering

Industrial Engineering/Operations Research (IEOR)

Courses with limited enrollment must be reserved in 5 Lind Hall (see instructions under "Reserved Courses").

FIRST TERM

● **5030. QUALITY CONTROL AND RELIABILITY.** (4 cr; limited to 30 students; prereq 5000, Math 1231, ME 3900; lect 1010-1205 TWThF; MechE 212) White

History of quality control, quality policies and objectives, economics of quality, design for system effectiveness, reliability and maintainability, statistical aids to reliability, quality specifications, inspection, acceptance sampling, vendor relations, process control, motivation for quality, quality assurance, and quality control engineering.

FIRST AND SECOND TERMS: TEN-WEEK COURSES

● **5040. INTRODUCTION TO OPERATIONS RESEARCH.** (4 cr; limited to 30 students; prereq 5000, Math 1231; lect 0800-0955 TTh; MechE 302) White, Arora

Linear programming, algebra and geometry of linear models, simplex method, sensitivity testing, and duality; network models, network algorithms, and dynamic models.

SECOND TERM

● **5000. INTRODUCTION TO INDUSTRIAL ENGINEERING ANALYSIS.** (4 cr; limited to 30 students; prereq Math 1231; 1220-1415 TWThF; Arch 40) Arora

Scientific management, mathematical models, methods engineering, work measurement, worker satisfaction and participation, wage payment plans, break-even analysis, incremental costs, the time value of money and the present value concept; cost quality and inventory control; production scheduling, plant locations, and layout; linear programming, PERT, and the systems approach to management problems.

Mechanical Engineering (ME)

Courses with limited enrollment must be reserved in 5 Lind Hall (see instructions under "Reserved Courses").

FIRST TERM

● **3201. MECHANICAL ENGINEERING SYSTEMS ANALYSIS.** (4 cr; limited to 45 students; prereq Math 3221; 1220-1415 TWThF; MechE 202) Frohrib

Modeling and analytic description of mechanical systems. Properties of linear models with emphasis on automatic computation solution. Necessary background includes differential equations.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **3205. ENGINEERING SYSTEMS DESIGN.** (4 cr; limited to 45 students; prereq engineering system dynamics and kinematics [3201, 3203]; 1220-1415 TWThF; MechE 212) Kleinhenz
Application of fundamental concepts to the design of typical mechanical components. Engineering approach to the analysis and synthesis of machines and systems. Specification of materials in engineering design. Optimum design criteria.

● **3301. THERMODYNAMICS.** (4 cr; limited to 45 students; prereq introductory thermodynamics and basic calculus, Chem 1014 or Phys 1281, Math 3221 or equiv; 1010-1205 TWThF; MechE 108) Scott
Properties, equations of state, processes, and cycles for various thermodynamic systems. Development of first and second laws of thermodynamics, correlating heat, work, and mass transfer. Equilibrium irreversibility and mixtures.

● **5460. INTERNAL COMBUSTION ENGINES.** (4 cr; limited to 30 students; prereq 3301 or equiv; 1010-1205 TWThF; MechE 321) Murphy
Principles of power production, fuel consumption, and emissions of gasoline and diesel engines; fuel-air cycle analysis, combustion flames, knock phenomena, air flow and volumetric efficiency, mixture requirements, ignition requirements, and performance.

FIRST AND SECOND TERMS: TEN-WEEK COURSES

● **3740. INDUSTRIAL ASSIGNMENT.** (2 cr per qtr [may be repeated for cr]; prereq regis in engineering intern program) Springer
Engineering intern industry laboratory assignment (work quarter). Grade based on formal written report covering the industrial work assignment.

Sec 1, junior intern students only

Sec 2, senior intern students only

SECOND TERM

● **3303. APPLIED THERMODYNAMICS.** (4 cr; limited to 30 students; prereq 3301; 1010-1205 TWThF; MechE 202) Murphy

Application of laws of thermodynamics to chemically reacting systems and engineering systems. Vapor cycles, gas engine cycles, propulsion systems, refrigeration, and air-water vapor mixtures.

● **5260. ENGINEERING MATERIALS AND PROCESSING.** (4 cr; prereq Phys 1291, Chem 1004, and 1st-yr calculus; 1325-1415 MTWThF; MechE 102) Raley

Introduction to materials and processing including physical and metallurgical properties, consolidation, etc. Material processing including machining, welding, and deformation processes.

Lab 1, 1430-1625 TTh, MechE 70. Limited to 18 students

Lab 2, 1430-1625 MW, MechE 70. Limited to 18 students

● **5342. HEAT TRANSFER.** (4 cr; limited to 30 students; prereq Math 3221, CE 3400 or equiv; 1220-1415 TWThF; MechE 202) Scott

Steady and unsteady conduction of heat. Convection heat transfer in boundary layer and duct flows; forced and free convection; condensation and boiling; heat exchangers. Heat transfer by thermal radiation; radiative properties of black bodies and real surfaces.

SCHOOL OF MATHEMATICS

Mathematics (Math)

Courses with limited enrollment must be reserved in 5 Lind Hall or 12 Johnston Hall unless otherwise indicated (see instructions under "Reserved Courses").

FIRST TERM

● **0009. INTERMEDIATE ALGEBRA.** (No cr; limited enrollment, reserved in JohH 12; prereq 1 yr. high school algebra)

Covers high school higher algebra.

Sec 1, 0800-0955 MTWThF, VinH 209

Sec 2, 1010-1205 MTWThF, VinH 209

Courses preceded by ● have limited enrollment and must be reserved.

● **1005. FOUNDATIONS OF ARITHMETIC.** (3 cr [not available for CLA cr]; limited enrollment, reserved in JohH 12; prereq 0006 and 1 yr high school geometry or equiv: 1010-1100 MTWThF; Ph 157) Miracle Logical and axiomatic basis of the rules for arithmetical operations with integers, rational numbers, and real irrational numbers as necessary background for teaching arithmetic in elementary school. History of the subject and its role in our culture and civilization.

● **1008. TRIGONOMETRY.** (4 cr [available for cr if taken before 1201]; limited enrollment, reserved in JohH 12; prereq plane geometry and high school higher algebra or grade of C or better in 0009...¶1111 allowed; 1115-1205 WF, 1010-1100 MTWThF; VH 113) Analytic trigonometry, identities, equations, and properties of Trig functions; right and oblique triangles.

● **1111. COLLEGE ALGEBRA AND ANALYTIC GEOMETRY.** (5 cr, §1201; limited enrollment, reserved in JohH 12; prereq plane geometry and 2 yrs high school algebra or plane geometry and grade of C or better in 0009) Functions and graphs, quadratic equations, progressions, inequalities, complex numbers, theory of equations, permutations and combinations, probability, systems of equations, determinants, graphing of linear and quadratic equations, conics in standard position, logarithms.

Sec 1, 0800-0955 MTWThF, VinH 311
Sec 2, 1010-1100 MTWThF, VinH 311

● **1131. FINITE MATHEMATICS.** (5 cr; limited enrollment, reserved in JohH 12; prereq grade of C or better in 0009 or plane geometry and 2 yrs of high school algebra; 1010-1205 MTWThF; VH 1) Stenberg (For students in the social sciences, behavioral sciences, and pre-business administration.) Elementary computer programming, logical analysis, probability and stochastic models, Markov chains, linear systems and programming, matrix operations, and applications.

● **1142. SHORT CALCULUS.** (5 cr, §1211; limited enrollment, reserved in JohH 12; prereq 3½ yrs of high school math or grade of C or better in 1111 or 1131 or 1201 or math placement score) Derivatives, integrals, differential equations, maxima and minima, partial differentiation, applications.

Sec 1, 0800-0955 MTWThF, VinH 20
Sec 2, 1010-1205 MTWThF, Ph 210

● **1201. PRE-CALCULUS.** (5 cr, §1111; limited enrollment; prereq 0009 or 4 yrs of high school math including trigonometry) (For students who need a quick review of high school higher algebra and trigonometry before taking a calculus sequence.) Inequalities, analytical geometry, complex numbers, binomial theorem, mathematical induction, functions and graphs, and trigonometric, exponential, and logarithmic functions.

Sec 1, 0800-0955 MTWThF, VinH 113
Sec 2, 1010-1205 MTWThF, VinH 364

● **1211. CALCULUS I.** (5 cr, §1142, §1311; limited enrollment; prereq grade of C or better in 1201 or 1008 or 1111 or 4 yrs of high school math including trigonometry) Analytic geometry and calculus of one variable, applications. Infinite series and sequences.

Sec 1, 0800-0955 MTWThF, Arch 313
Sec 2, 1010-1205 MTWThF, Arch 313

● **1221. CALCULUS II.** (5 cr, §1321; limited enrollment; prereq grade of C or better in 1211 or equiv) See 1211.

Sec 1, 0800-0955 MTWThF, VinH 16
Sec 2, 1010-1205 MTWThF, VinH 16

● **1231. CALCULUS III.** (5 cr, §1331; limited enrollment; prereq grade of C or better in 1221 or equiv) See 1211.

Sec 1, 0800-0955 MTWThF, Ph 210
Sec 2, 1010-1205 MTWThF, Ph 131

● **3142. INTRODUCTION TO LINEAR ALGEBRA.** (4 cr, §3221, §3511, §5242; limited enrollment, reserved in JohH 12; prereq 2 qtrs calculus; 0905-0955 MTWThF, 1010-1100 TTh; VinH 206) Vectors, systems of linear equations, matrices, determinants, eigenvalues, applications. Techniques and some proofs of theorems.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **3211. MULTIVARIABLE CALCULUS IV.** (5 cr, §3521; limited enrollment; prereq grade of C or better in 1231 or equiv) Partial differentiation, chain rule, implicit functions, applications. Multiple integrals in two and three dimensions.

Sec 1, 0800-0955 MTWThF, VinH 211

Sec 2, 1010-1205 MTWThF, VinH 211

● **3221. INTRODUCTION TO LINEAR ALGEBRA AND LINEAR DIFFERENTIAL EQUATIONS.** (5 cr, §3066, §3142, §3511; limited enrollment, reserved in LindH 5; prereq grade of C or better in 1231 or equiv; 1010-1205 MTWThF; Exp 193)

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.

● **3231. VECTOR ANALYSIS.** (4 cr, §5601-5602; limited enrollment, reserved in LindH 5; prereq grade of C or better in 3211 or equiv; 0905-0955 MTWThF; 1010-1100 MWF; VinH 207)

Scalar and vector products, derivatives, geometry of space curves, del operator, line and surface integrals, divergence and Stokes' theorem, transformation of coordinates, dyadics, applications. Mostly a technique course, intended mainly for students whose interests are not theoretical but who wish to learn the relevant mathematical facts and methods.

● **5209. THEORY OF NUMBERS.** (4 cr; limited enrollment, reserved in JohH 12; prereq 3211 or equiv; 1115-1205 MTWThF, 1220-1310 WF; VinH 206)

Elementary properties of integers; prime and composite numbers; Euclid's algorithms; congruences; theorems of Fermat and Wilson; primitive roots; indices; Diophantine equations.

● **5242. LINEAR ALGEBRA WITH APPLICATIONS.** (4 cr, 5282, §5232-5233, §5262, §5282; limited enrollment; prereq 3221 or 3142 or 3511 or equiv; 1010-1100 WF, 1115-1205 MTWThF; VinH 213)

Systems of linear equations, finite dimensional linear spaces, bases, linear transformations, matrices, determinants, eigenvalues, reduction to canonical forms, quadratic and bilinear forms, applications.

● **5457. METHODS OF APPLIED MATHEMATICS.** (4 cr; limited enrollment, reserved in LindH 5; prereq 3211 and 3221 or 3211 and 3066 or equiv; 1010-1100 TTh; 0905-0955 MTWThF; VinH 213)

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.

● **5601. ADVANCED CALCULUS.** (4 cr; limited enrollment; prereq 3211 or equiv; 0905-0955 MTWThF; 1010-1100 TTh; VinH 301)

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.

● **5679. PROBABILITY.** (4 cr, §5681; limited enrollment; prereq 3211 or equiv or #; 1010-1100 WF; 1115-1205 MTWThF; VinH 301)

Elementary principles of probability, total and compound probability, expectation, repeated trials. Other possible topics: Stirling's formula, the probability integral, geometrical probability, probability of causes, Bayes' theorem, errors of observation, principle of least squares.

SECOND TERM

● **0009. INTERMEDIATE ALGEBRA.** (No cr; limited enrollment, reserved in JohH 12; prereq 1 yr high school algebra; 1010-1205 MTWThF; VinH 1)

See First Term.

● **1006. FOUNDATIONS OF ARITHMETIC.** (3 cr; limited enrollment, reserved in JohH 12; prereq 1005; 1010-1100 MTWThF; VinH 206)

Includes topics from the following: definitions of rational and irrational numbers, definitions of addition, subtraction, multiplication, and division of fractions; methods for operations on rational and real numbers; the real number line and inequalities; topics from geometry and congruences.

● **1008. TRIGONOMETRY.** (4 cr; [available for cr if taken before 1201]; limited enrollment, reserved in JohH 12; prereq plane geometry and high school higher algebra or grade of C or better in 0009... (1111 allowed))

See First Term.

Sec 1, 0905-0955 MTWThF; 1010-1100 TTh, VinH 213

Sec 2, 1010-1100 WF, 1115-1205 MTWThF, VinH 213

Courses preceded by ● have limited enrollment and must be reserved.

● **1111. COLLEGE ALGEBRA AND ANALYTIC GEOMETRY.** (5 cr, §1201; limited enrollment, reserved in JohH 12; prereq plane geometry and 2 yrs high school algebra or plane geometry and grade of C or better in 0009)
See First Term.

Sec 1, 0800-0955 MTWThF, VinH 1

Sec 2, 1010-1205 MTWThF, Ph 210

● **1142. SHORT CALCULUS.** (5 cr, §1211; limited enrollment, reserved in JohH 12; prereq 3½ yrs high school math or grade of C or better in 1111 or 1131 or 1201)
See First Term.

Sec 1, 0800-0955 MTWThF, VinH 209

Sec 2, 1010-1205 MTWThF, AndH 350

● **1201. PRE-CALCULUS.** (5 cr, §1111; limited enrollment; prereq 0009 or 4 yrs high school math including trigonometry)
See First Term.

Sec 1, 0800-0955 MTWThF, VinH 311

Sec 2, 1010-1205 MTWThF, VinH 311

● **1211. CALCULUS I.** (5 cr, §1142, §1311; limited enrollment; prereq grade of C or better in 1201 or 1008 and 1111 or 4 yrs high school math including trigonometry)
See First Term.

Sec 1, 0800-0955 MTWThF, VinH 211

Sec 2, 1010-1205 MTWThF, VinH 211

● **1221. CALCULUS II.** (5 cr, §1321; limited enrollment; prereq grade of C or better in 1211 or equiv)
See 1211 First Term.

Sec 1, 0800-0955 MTWThF, Ph 210

Sec 2, 1010-1205 MTWThF, Ph 131

● **1231. CALCULUS III.** (5 cr, §1331; limited enrollment; prereq grade of C or better in 1221 or equiv)
See 1211 First Term.

Sec 1, 0800-0955 MTWThF, VinH 16

Sec 2, 1010-1205 MTWThF, VinH 16

● **3211. MULTIVARIABLE CALCULUS IV.** (5 cr, §3521; limited enrollment; prereq grade of C or better in 1231 or equiv)
See First Term.

Sec 1, 0800-0955 MTWThF, VinH 2

Sec 2, 1010-1205 MTWThF, Arch 10

● **3221. INTRODUCTION TO LINEAR ALGEBRA AND LINEAR DIFFERENTIAL EQUATIONS.** (5 cr, §3066, §3142, §3511; limited enrollment, reserved in LindH 5; prereq grade of C or better in 1231 or equiv)
See First Term.

Sec 1, 0800-0955 MTWThF, Arch 40

Sec 2, 1010-1205 MTWThF, Arch 55

● **3231. VECTOR ANALYSIS.** (4 cr, §5601-5602; limited enrollment, reserved in LindH 5; prereq grade of C or better in 3211 or equiv: 1010-1100 MTWThF, 1115-1205 MWF; VinH 207)
See First Term.

● **5243. LINEAR ALGEBRA WITH APPLICATIONS.** (4 cr, §5283-5284; limited enrollment; prereq 5242; 1115-1205 MTWThF, 1010-1100 WF; VinH 209) Eagon
See 5242 First Term.

● **5458. METHODS OF APPLIED MATHEMATICS.** (4 cr; limited enrollment, reserved in LindH 5; prereq 5457, or equiv: 1010-1100 TTh, 1115-1205 MTWThF; VinH 308) Meyers
See 5457 First Term.

Courses preceded by ● have limited enrollment and must be reserved.

Course Descriptions

● **5602. ADVANCED CALCULUS.** (4 cr; limited enrollment; prereq 5601; 1010-1100 TTh, 0905-0955 MTWThF; VinH 203)

Line and surface integrals; Stokes' theorem; convergence of infinite series; orthogonal functions; uniform convergence; integration and differentiation of series.

SCHOOL OF PHYSICS AND ASTRONOMY

Astronomy (Ast)

FIRST TERM

1011. DESCRIPTIVE ASTRONOMY. (4 cr, §1021; 0905-1100 MWF; Ph 166)

Survey of the sun, moon, planets, and stars; description of the galaxy and universe to which the sun belongs. Nonmathematical.

● **1015. DESCRIPTIVE ASTRONOMY LAB.** (1 cr; S-N only; limited to 20 students; prereq 1011; 4 lab hrs per wk; minimum one night observation required)

Sec 1, 1325-1520 MW, Ph 450, min 1 night obs req.

Sec 2, 0905-1100 TTh, Ph 450, min 1 night obs req.

SECOND TERM

1011. DESCRIPTIVE ASTRONOMY. (4 cr, §1021; 0905-1100 MWF; Ph 166)

See First Term.

● **1015. DESCRIPTIVE ASTRONOMY LAB.** (1 cr; S-N only; limited to 20 students; prereq 1011; 4 lab hrs per wk; minimum one night observation required)

Sec 1, 1325-1520 MW, Ph 450, min 1 night obs req.

Sec 2, 0905-1100 TTh, Ph 450, min 1 night obs req.

Physics (Phys)

Courses with limited enrollment must be reserved in 5 Lind Hall by IT students and in 12 Johnston Hall by others (see instructions under "Reserved Courses").

FIRST TERM

1031. INTRODUCTORY PHYSICS: MEASUREMENT AND APPLICATIONS. (4 cr; primarily for students interested in topics useful in various technical areas; prereq high school algebra and plane geometry; 0800-0850 MTWThF, 0905-0955 MWF; Ph 170)

Demonstration lectures, problem sessions on topics in physics. Applications of physics. Electricity and magnetism, electrical circuits, feedback and control, waves, light, optical instruments.

● **1035. INTRODUCTORY PHYSICS LABORATORY.** (1 cr; S-N only; limited to 96 students; prereq 1031 or §1031)

Laboratory experiments offered in conjunction with 1031. Lab section assigned first 2 days of class.

FIRST AND SECOND TERMS: TEN-WEEK COURSES

1271. GENERAL PHYSICS. (4 cr; prereq Math 1221 or §Math 1221 or Math 1321 or §Math 1321 or Math 1621 or §Math 1621; may be taken with or without lab 1275; 0800-0850 MTWThF; Ph 166)
Calculus-level general physics course. Mechanics.

● **1275. PHYSICS LABORATORY.** (1 cr; S-N only; limited to 64 students; prereq 1271 or §1271; 2 lab hrs per wk ar)

Laboratory exercises in mechanics. Lab section assigned first two days of class.

Courses preceded by ● have limited enrollment and must be reserved.

1281. GENERAL PHYSICS. (4 cr; prereq 1271, Math 1231 or ¶Math 1231 or Math 1331 or ¶Math 1331 or Math 1621 or ¶Math 1621; may be taken with or without lab 1285; 1010-1100 MTWThF; Ph 170)
Calculus-level general physics course. Heat and electricity.

● **1285. PHYSICS LABORATORY.** (1 cr; S-N only; limited to 64 students; prereq 1281 or ¶1281; 2 lab hrs per wk ar)

Laboratory exercises in heat and electricity. Lab section assigned first two days of class.

1291. GENERAL PHYSICS. (4 cr; prereq 1281; may be taken with or without lab 1295; 1010-1100 MTWThF; Ph 150)

Calculus-level general physics course. Magnetism and optics.

● **1295. PHYSICS LABORATORY.** (1 cr; S-N only; limited to 64 students; prereq 1291 or ¶1291; 2 lab hrs per wk ar)

Laboratory exercises in magnetism and optics. Lab section assigned first two days of class.

SECOND TERM

1032. INTRODUCTORY PHYSICS: MEASUREMENT AND APPLICATION. (4 cr; primarily for students interested in topics useful in various technical areas; prereq 1031; 0800-0850 MTWThF, 0905-0955 MWF; Ph 170)

Demonstration lectures, problem sessions on topics in physics. Applications of physics. Mechanics, fluids and gases, heat, random processes, atoms and spectra, nuclei, radioactivity.

● **1036. INTRODUCTORY PHYSICS LAB.** (1 cr; S-N only; limited to 96 students; prereq 1032 or ¶1032)

Laboratory experiments offered in conjunction with 1032. Lab section assigned first 2 days of class.

University College

University College offers three degree programs and one nondegree program designed to promote flexible learning experiences.

Since 1930, the Inter-College Program (213 Temporary North of Appleby) has allowed students to design a 190 credit intercollegiate or interdisciplinary program suited to their individual objectives. It has no fixed curriculum and the student may draw upon the entire University for courses to prepare a degree contract leading to either a B.A. or B.S. degree. An applicant for admission should be at least a third-quarter sophomore who has completed at least 1 full quarter, or its equivalent, at the University of Minnesota.

University Without Walls (201 Wesbrook Hall) serves the self-directed adult learner who wishes to combine liberal education and career goals in an individualized degree program. The UWW staff assists students in designing degree programs incorporating a variety of learning experiences, and in locating University and other appropriate resources to carry out their programs.

The University Scholars Program (317 Walter Library) allows a student and faculty adviser the freedom to construct a baccalaureate degree program based on individually tailored educational goals and learning experiences. To be eligible, a student should have completed 2 years of college work and must be nominated by a faculty sponsor who agrees to serve as the student's adviser in the program, supervising and assessing the student's work.

University College makes available to students regularly enrolled in any undergraduate college of the University an opportunity for intercollegiate independent study. A student may earn from 3 to 15 degree credits registering for independent study projects through UC 3075. The student designs his or her own project and works with an appropriate faculty member who supervises and evaluates the project.

University College also sponsors two experimental programs on the Twin Cities Campus—an early childhood education program and INTERnships for Career CHANGE—and one at Duluth—a cross college writing program. Information about any of the above programs or current pilot programs may be obtained at 317 Walter Library.

University College (UC)

FIRST TERM

- 3075. **INDEPENDENT STUDY.** (Cr ar; prereq Δ)
- 3200. **INTRODUCTORY PERIOD.** (Cr ar; S-N only; prereq UWW student, Δ)
- 3201. **DIRECTED STUDIES.** (Cr ar; S-N only; prereq UWW student, Δ)
- 3401. **DIRECTED STUDIES.** (Cr ar; prereq University Scholars student, Δ)
- 5201. **DOSSIER EXAMINATION.** (Cr ar; S-N only; prereq UWW student, submission of dossier)

SECOND TERM

- 3075. **INDEPENDENT STUDY.** (Cr ar; prereq Δ)
- 3200. **INTRODUCTORY PERIOD.** (Cr ar; S-N only; prereq UWW student, Δ)
- 3201. **DIRECTED STUDIES.** (Cr ar; S-N only; prereq UWW student, Δ)
- 3401. **DIRECTED STUDIES.** (Cr ar; prereq University Scholars student, Δ)
- 5201. **DOSSIER EXAMINATION.** (Cr ar; S-N only; prereq UWW student, submission of dossier)

Courses preceded by ● have limited enrollment and must be reserved.

College of Veterinary Medicine

(All classes scheduled by arrangement)

College of Veterinary Medicine (CVM)

FIRST TERM

5760. CLINICS. (8 cr; prereq #: 0800-1630 MTWThF; VetH) Staff
Laboratories for the application of principles and techniques of medicine, surgery, obstetrics, radiology, pathology, clinical pathology, parasitology, pharmacology, physiology, and public health to the diagnosis, prognosis, treatment, prevention, and eradication of disease in domestic animals.

SECOND TERM

5760. CLINICS. (8 cr; prereq #: 0800-1630 MTWThF; VetH) Staff
See First Term

Large Animal Clinical Sciences (LACS)

FIRST TERM

5180. INTRODUCTION TO HERD HEALTH AND DAIRY HERD HEALTH MANAGEMENT. (2.5 cr; prereq regis vet med, 4th year or grad student or #; AnScVM 135) D Johnson
Herd health management, general epidemiology, disease surveillance and economics of farming. Dairy cattle genetics and breeding, reproduction, applied nutrition, housing, preventive medicine programs, and management practices.

5680. PROBLEMS IN VETERINARY EPIDEMIOLOGY AND PUBLIC HEALTH. (Cr ar; prereq 5650 or equiv or #) Anderson, Diesch, Pullen, Robinson
Individual study arranged with faculty member.

SECOND TERM

5364. EQUINE LAMENESS. (2 cr; prereq regis vet med, 4th year, 5352 or #; VetS 141) Booth
All major musculoskeletal diseases affecting the horse that contribute to lameness.

5572. REPRODUCTIVE PATTERNS AND INFERTILITY IN THE DOG AND CAT. (1 cr; prereq 5570, regis vet med, 4th year or grad student or #) S Johnston
Lectures on normal reproduction and breeding management, approach to male and female infertility and artificial insemination in the dog and cat.

5680. PROBLEMS IN VETERINARY EPIDEMIOLOGY AND PUBLIC HEALTH. (Cr ar; prereq 5650 or equiv or #) Anderson, Diesch, Pullen, Robinson
See First Term.

Small Animal Clinical Sciences (SACS)

FIRST TERM

8197.* ADVANCED DERMATOLOGIC CLINICS. (4 cr; prereq grad student or #) McKeever
In-depth clinical study of dermatologic disease states, diagnosis and therapy in animals.

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

8198.* PROBLEMS IN VETERINARY COMPARATIVE DERMATOLOGY. (Cr ar; prereq grad student or #) McKeever
Individual study involving a research study of a selected dermatologic problem.

8391. ADVANCED SMALL ANIMAL SURGERY. (Cr ar; prereq 5350 or equiv, #) Wallace, Lipowitz, Caywood
Surgery of the various systems in small animals with preoperative and postoperative evaluation and treatment.

8490. ADVANCED VETERINARY RADIOLOGY. (Cr ar; prereq 5450 or equiv, #) Jessen, Hanlon, Feeney, G Johnston
Radiological diagnostic procedures and interpretation as applied to veterinary medicine.

SECOND TERM

5352. ABDOMINAL AND THORACIC SURGERY OF SMALL ANIMALS. (2 cr; prereq #; 1300-1450 M; AnScVM 125)
Lectures on the pathophysiology, diagnosis, and surgical-medical management of selected diseases of abdominal and thoracic viscera.

8197.* ADVANCED DERMATOLOGIC CLINICS. (4 cr; prereq grad student or #) McKeever
See First Term.

8198.* PROBLEMS IN VETERINARY COMPARATIVE DERMATOLOGY. (Cr ar; prereq grad student or #) McKeever
See First Term.

8391. ADVANCED SMALL ANIMAL SURGERY. (Cr ar; prereq 5350 or equiv, #) Wallace, Lipowitz, Caywood
See First Term.

8490. ADVANCED VETERINARY RADIOLOGY. (Cr ar; prereq 5450 or equiv, #) Jessen, Hanlon, Feeney, G Johnston
See First Term.

Veterinary Biology (VB)

FIRST TERM

5149.* TOPICS OF ORGANOLGY. (1-5 cr [may be repeated for cr]; prereq 8110 or equiv, #) Staff
Lecture and laboratory presentation of selected organ systems of domestic and laboratory animals.

8112-8113-8114. RESEARCH PROPOSITIONS IN MORPHOLOGY. (2 cr per qtr; prereq #) Staff
Each student defines an unsolved morphologic problem, hypothesizes a solution, and proposes an experimental approach to test the hypothesis. Written and oral presentation of proposition are evaluated by departmental graduate faculty.

8134-8135. COMPARATIVE VETERINARY NEUROLOGY. (4 cr per qtr; prereq 5100, #) Fletcher
Correlated studies of the central nervous system of domestic animals. Emphasis on relating neuroanatomy to neurophysiology.

8136. EXPERIMENTAL COMPARATIVE VETERINARY NEUROLOGY. (3 cr; prereq 8135, #) Fletcher
Principles, methods, and laboratory exercises in investigating the central nervous system of domestic animals.

8150. RESEARCH PROBLEMS IN VETERINARY ANATOMY. (1-5 cr; prereq #) Czarnecki
Individual research projects under staff direction in selected areas of veterinary anatomy. Topics and species determined by consultation. Project may be a specialized aspect of a thesis problem or an independent problem of mutual interest to graduate student and adviser.

Courses preceded by • have limited enrollment and must be reserved.

8349. RESEARCH IN PHYSIOLOGY. (Cr ar, §AnSc 8830; prereq #) Staff
Individual research under faculty direction. Topics to be determined by consultation; may be a specialized aspect of a thesis problem or an independent problem of mutual interest to graduate student and adviser.

8448. PROBLEMS IN VETERINARY PHARMACOLOGY. (Cr ar; prereq 5401 or equiv, #) Staff

SECOND TERM

5149.* TOPICS OF ORGANOLOGY. (1-5 cr [may be repeated for cr]; prereq 8110 or equiv, #) Staff
See First Term.

8112-8113-8114. RESEARCH PROPOSITIONS IN MORPHOLOGY. (2 cr per qtr; prereq #) Staff
See First Term.

8134-8135. COMPARATIVE VETERINARY NEUROLOGY. (4 cr per qtr; prereq 5100, #) Fletcher
See First Term.

8136. EXPERIMENTAL COMPARATIVE VETERINARY NEUROLOGY. (3 cr; prereq 8135, #) Fletcher
See First Term.

8150. RESEARCH PROBLEMS IN VETERINARY ANATOMY. (1-5 cr; prereq #) Czarnecki
See First Term.

8349. RESEARCH IN PHYSIOLOGY. (Cr ar, §AnSc 8830; prereq #) Staff
See First Term.

8448. PROBLEMS IN VETERINARY PHARMACOLOGY. (Cr ar; prereq 5401 or equiv, #) Staff

Veterinary Pathobiology (VPB)

FIRST TERM

5521. SURGICAL PATHOLOGY. (3 cr; prereq #) Barnes, staff
Preparation and interpretation of surgical and necropsy specimens.

5522. DIAGNOSTIC PATHOLOGY. (5 cr; prereq #) Barnes, staff
History, necropsy lesions, laboratory results, and histopathology in the diagnosis of animal diseases.

5524. PATHOLOGY OF SPONTANEOUS DISEASES OF POULTRY. (3 cr; prereq #) Walser
Gross and microscopic pathology of spontaneous diseases of chickens, turkeys, and game birds.

8530. ONCOLOGY. (4 cr; prereq #) Hayden
Spontaneous and induced avian and mammalian neoplasms with emphasis on diagnosis.

8531. VETERINARY NECROPSIES. (1-5 cr; prereq 5503 or equiv) O'Leary, staff
Necropsy techniques, examination of tissue sections, and preparation of records.

8533. PROBLEMS: PATHOLOGY. (Cr ar; prereq #) Johnson, staff

8534. PROBLEMS: CLINICAL PATHOLOGY. (Cr ar; prereq #) Perman, Stevens

8648. PROBLEMS IN VETERINARY PARASITOLOGY. (Cr ar; prereq 5602 or equiv, #) Bemrick, Schlotthauer, Stromberg

8720. ADVANCED VETERINARY MICROBIOLOGY. (Cr ar; prereq #) Staff
Special topics, techniques, collateral reading, and conferences.

8721. ADVANCED POULTRY DISEASES. (Cr ar; prereq 5704, #) Halvorson, Newman
Investigation of infectious disease problems of poultry.

8725. CELL CULTURE TECHNIQUES. (2 cr; prereq 5703 or equiv, #) Shope
Laboratory exercises and discussions on culture of vertebrate cells; proper preparation of all materials necessary for handling cell cultures; establishment of primary cell cultures by various techniques and maintenance of cells as monolayers or in suspension. Animal viruses used for plaque assays, neutralization tests, limited fluorescent antibody techniques and microtitration. Laboratory work in student's specific area of interest.

Courses preceded by • have limited enrollment and must be reserved.

Course Descriptions

SECOND TERM

5521. SURGICAL PATHOLOGY. (3 cr; prereq #) Barnes, staff
See First Term.

5522. DIAGNOSTIC PATHOLOGY. (5 cr; prereq #) Barnes
See First Term.

5524. PATHOLOGY OF SPONTANEOUS DISEASE OF POULTRY. (3 cr; prereq #) Walser
See First Term.

5709. PREVENTIVE AVIAN MEDICINE. (1 cr; prereq Regis Vet Med, 4th Year or grad student or #; 1500-1600 M; AnScVM 125) Newman
Preventive avian disease programs and management practices. Visits to poultry and aviary establishments.

8531. VETERINARY NECROPSIES. (1-5 cr; prereq 5503 or equiv) O'Leary, staff
See First Term.

8533. PROBLEMS: PATHOLOGY. (Cr ar; prereq #) Johnson, staff

8534. PROBLEMS: CLINICAL PATHOLOGY. (Cr ar; prereq #) Perman, Stevens

8648. PROBLEMS IN VETERINARY PARASITOLOGY. (Cr ar; prereq 5602 or equiv, #) Bemrick, Schlotthauer, Stromberg

8720. ADVANCED VETERINARY MICROBIOLOGY. (Cr ar; prereq #) Staff
See First Term.

8721. ADVANCED POULTRY DISEASES. (Cr ar; prereq 5704, #) Newman, Halvorson
See First Term.

University of Minnesota, Duluth

The Duluth campus is an exciting location for summer study. Situated on a 247-acre site overlooking Lake Superior, the campus enjoys pleasant summer temperatures, allowing the student to study and relax in comfort.

UMD, located near the center of Duluth, is but a short drive from parks, golf courses, swimming beaches, the famous Skyline Drive, Duluth's new Arena-Auditorium, the Lake Superior Marine Museum, the St. Louis County Heritage and Arts Center, Glensheen, Duluth International Harbor, and the Spirit Mountain recreation area.

The many lakes in the deeply forested Arrowhead region and the North Shore and Circle Route drives are popular for overnight or weekend camping and fishing trips.

The UMD summer session social calendar is planned to fit the recreational needs of both the individual student and entire family. Bridge and golf lessons, family swimming, concerts, lectures, theatrical productions, group discussions, dances, harbor and historical tours, films, a steak cookout, sailing on Lake Superior, and a wilderness canoe trip are a few of the sponsored activities.

More than 300 courses are scheduled for the summer terms at the undergraduate and graduate levels. Students may earn credits for 73 majors to apply toward the degrees of associate in arts, associate in vocational teacher education, associate of office administration, associate in science in dental hygiene, bachelor of arts, bachelor of science, bachelor of applied arts, bachelor of applied science, bachelor of accounting, bachelor of business administration, bachelor of music, bachelor of fine arts, and bachelor of social development degrees, and for 17 areas of concentration for the master of arts, master of science, master of business administration, master of industrial safety, master of social work, and master of education degrees, and the specialist certificate in educational administration.

A separate Summer Session bulletin, including all courses offered on the Duluth campus, is available. For a copy of this bulletin and for more detailed information, write: UMD Summer Session, 403 Administration Building, University of Minnesota, Duluth, Minnesota 55812.

GRADUATE PROGRAM

The Graduate School on the Duluth campus offers a master of arts degree with majors in art, education (elementary-secondary), education (emphasis art), education (emphasis music), educational administration, educational psychology (counseling), English, history, and communicative disorders. These studies provide advanced work for teachers or for those interested in earning a general degree in the discipline. Students may complete all course work at Duluth.

Master of science degree programs are offered in biology, chemistry (analytical, inorganic, organic, physical, or biochemistry), geology, and physics. These programs are designed for teachers and for those planning additional graduate study or careers in industry. The specialist certificate in educational administration may be obtained with emphasis in elementary, secondary, or general school administration. Also offered are a master of social work program

with emphasis on social development and a master of business administration program.

The graduate programs are under the jurisdiction of the dean of the Graduate School and are similar to parallel programs on the Twin Cities campus. A complete description of graduate requirements and courses is available in the current *University of Minnesota, Duluth, General Bulletin*, which may be obtained by writing to the UMD News Service, 305 Administration Building, University of Minnesota, Duluth, Minnesota 55812.

Students who have not already applied for admission to the Graduate School and who contemplate a program of graduate studies at Duluth may request information and application forms from the Graduate School Office, 431 Administration Building, University of Minnesota, Duluth, Minnesota 55812. *Applicants should specify their proposed major field when requesting application forms.*

Applications for summer 1981 admission must be submitted *complete in every detail*—two official transcripts of all college work and the credentials examination fee, test results, references, and other required information—by May 15 for first term and June 15 for second term. Students who wish to become candidates for the master's degree or the specialist certificate or who wish to receive graduate credit for their course work must apply for admission to the Graduate School. A credentials examination fee of \$15 will be required. Applicants who have a bachelor's degree or a professional degree from the University of Minnesota, or who will receive one before beginning graduate studies, pay only \$5 rather than the full \$15. (The reduced fee is not applicable to those who have earned degrees through Continuing Education and Extension.) Residents of the United States must submit the fee by personal check or money order; foreign applicants must submit the fee by certified bank check. All checks should be made payable to the University of Minnesota. The fee will not be refunded.

Candidates for advanced degrees must have registered and paid fees for a minimum of 3 academic quarters or the equivalent in summer terms (normally six 5-week summer terms). The transfer of up to 40 percent of the degree course work from Continuing Education and Extension at the University of Minnesota, adult special, and summer special status, in any desired combination. The number of credits and the courses accepted for transfer are determined by each department of the Graduate School. Students are advised to consult the graduate director in the department to which they wish to transfer such credits.

Students admitted to graduate programs on another campus of the University may take courses at UMD and transfer these courses to their programs; however, they should consult with their advisers beforehand concerning the specific courses to be transferred.

Students who hold bachelor's degrees who are not interested in earning graduate credit may register with the Registrar's Office as summer-only students or may apply for admission to their undergraduate college as special students. These students, if they subsequently decide to apply for admission to the Graduate School, may petition to transfer their work as special students to their graduate records. Only courses of graduate character taught by members of the graduate faculty may be transferred.

Only courses numbered 5000 or above carry graduate credit. Graduate credit is available only to those students who are officially registered in the Graduate School.

Readmission, Change of Major, or Change of Degree Objective—Persons who have withdrawn from (not attended) the Graduate School for 2 consecutive years or more and who wish to request readmission, and those currently enrolled who intend to change their major field or degree objective from that originally approved by the Graduate School, should request a copy of the Change of Status form (GS No. 72) from the Graduate School Office, 431 Administration Building, University of Minnesota, Duluth, Minnesota 55812. Individuals who have completed graduate degree programs at the University of Minnesota must also apply for readmission if they plan to pursue further graduate work. The application deadlines identified below apply in both of these cases.

Transient Graduate Student—Students currently engaged in graduate programs at another recognized graduate school who wish to enroll for 1 or 2 terms of summer session work in the Graduate School of the University of Minnesota, and who intend thereafter to return to the graduate school in which they are carrying forward their studies for a degree, may be admitted as transient graduate students. Such students will not be required to submit a full transcript of credits but must ask the dean of their graduate school to complete two copies of UMD Form 218 and return them to the Graduate School Office, 431 Administration Building, University of Minnesota, Duluth, Minnesota 55812, prior to registration. Under no circumstances will students be permitted to register for more than 1 summer session (2 terms) under transient status. Persons originally registering as transient graduate students who wish to apply for regular admission must follow the directions outlined above.

Master's Degree in Art

A graduate major emphasizing studio work is offered leading to the master of arts degree in art. The program is designed to accommodate individuals interested in either teaching or practicing art. Both art history and art education are available as related fields. Inquiries concerning the specific program should be directed to: Department of Art, 317 Humanities Building, University of Minnesota, Duluth, Minnesota 55812.

Master's Degree in Biology

The Department of Biology offers graduate work in biology under either a Plan A or Plan B program. Under Plan A, students take advanced course work in a specific area of biology and complete an independent research project culminating in a thesis. Plan B is designed for students interested in a broader range of biological subjects and therefore entails considerably more course work than that required for Plan A. Although a thesis is not required for the Plan B program, one or more projects or papers must be completed. Certain graduate courses and the opportunity to pursue graduate research are offered during the summer. Further details may be obtained from: Director of Graduate Study, Department of Biology, 225 Life Science Building, University of Minnesota, Duluth, Minnesota 55812.

Master of Business Administration Degree Program

The master of business administration (M.B.A.) degree program is offered by the Graduate School through the School of Business and Economics on the Duluth campus. It is primarily an evening program.

The program requires 45 credits of course work exclusive of prerequisite courses in underlying disciplines and tool areas necessary for graduate study in the field of management. Recent graduates of recognized business schools generally meet the prerequisites and move directly into the 45-credit program of graduate work. Individuals who do not have an undergraduate background in business administration or those who completed programs some years ago usually will be required to complete prerequisite course work in selected areas. Prerequisite course work may be taken prior to admission to the M.B.A. program or may be completed after formal admission to the program. In general, students are not allowed to pursue graduate course work until all prerequisite courses have been completed.

The 45 credits of course work include 27 credits of M.B.A. core courses, 9 credits of electives, and 9 credits of research project related courses (Research Methodology and Management Research).

To be considered for admission to the M.B.A. program, an applicant must have a bachelor's degree from a recognized college or university, must submit results of the Graduate Management Admission Test (GMAT), and must file an application with the Graduate School, 431 Administration Building, University of Minnesota, Duluth, Minnesota 55812.

For further information about the M.B.A. program, contact: Director of M.B.A. Program, 109 Social Science Building, University of Minnesota, Duluth, Minnesota 55812; telephone (218) 726-7282.

Master's Degree in Chemistry

Programs in chemistry are offered under both Plan A and Plan B. For Plan A, thesis research is available in analytical, inorganic, organic, or physical chemistry and biochemistry. For Plan B, 44 credits in approved courses and Plan B projects completed in three courses are required.

The programs are suited for students who wish to go on for further study; for those who plan to teach chemistry in liberal arts colleges, junior colleges, and state colleges; and for those who desire advanced training for a career in industry. Summer work on the Duluth campus during both terms will involve the research phase of the M.S. degree.

Master's Degree in Communicative Disorders

A graduate major under Plan B is offered leading to the master of arts degree in communicative disorders. Summer session offerings are designed to integrate academic, research, and clinical endeavors. Correspondence may be addressed to the Department of Communicative Disorders, 5 Home Economics Building, University of Minnesota, Duluth, Minnesota 55812.

Master's Degree in Education

The M.A. program in education, open to elementary and secondary teachers, offers majors in the following areas: education; education (emphasis art); education (emphasis music).

The work in related fields may include areas such as educational administration, psychological foundations, psychological applications, special education, physical education, industrial education, health education, home economics education, as well as other subjects that are ordinarily taught in the schools.

Inquiries should be addressed to: W. C. Gemeinhardt, Director of Graduate Study, Education, Bohannon Hall, University of Minnesota, Duluth, Minnesota 55812.

Master's Degree in Educational Administration

Courses that may be applied to a master of arts degree in educational administration are available during both terms of the summer session. Applicants must have a strong academic background with reasonable breadth of subject matter interest. Inquiries should be addressed to: Director of Graduate Study in Educational Administration, Bohannon Hall, University of Minnesota, Duluth, Minnesota 55812.

Specialist Program in Educational Administration

Advanced graduate programs leading to the specialist certificate in school administration are available for elementary and secondary school principals and superintendents. Several courses, workshops, and seminars in related fields will be offered this summer. An announcement describing these programs will be sent upon request to: Director of Graduate Study in Educational Administration, College of Education, Bohannon Hall, University of Minnesota, Duluth, Minnesota 55812.

Master's Degree in Educational Psychology

A master's degree program in guidance and counseling is available on the Duluth campus. Courses in psychological foundations and psychological applications as well as other required related courses will be offered during both summer terms.

Certain courses in this program have limited enrollments or require special arrangements. Therefore, interested individuals should consult with their advisers prior to registration. In addition, course descriptions and prerequisites should be studied carefully. Inquiries should be addressed to: Director of Counselor Training, Department of Psychology, 326 Bohannon Hall, University of Minnesota, Duluth, Minnesota 55812.

Master's Degree in English

Two programs lead to a master of arts degree in English. One offers a broad study of literature, and the second emphasizes preparation for teaching in the

junior or senior high school or the 2-year college. The master's program is also suitable for students preparing for doctoral studies. Courses carrying graduate credit are offered in all academic quarters and in both summer terms. Courses not listed in the *UMD Summer Session Bulletin* may be taken through independent study. Requirements for the degree can be completed in 5 or 6 regular terms or in 3 or 4 summers. Inquiries concerning details of the program should be directed to: Department of English, 420 Humanities Building, University of Minnesota, Duluth, Minnesota 55812.

Master's Degree in Geology

The M.S. degree in geology is offered under Plan A and Plan B. These programs are designed for those wishing to prepare for professional employment, for further graduate study leading to the Ph.D. degree, or for teaching geology at the junior college or college level. Although no graduate-level courses for the master's degree program, other than field camp and research, will be offered in geology during the summer session, students interested in beginning their course work in the fall are reminded that the application deadline is August 1. Details concerning prerequisites for the M.S. degree in geology may be obtained from: Director of Graduate Study, Department of Geology, 229 Mathematics-Geology Building, University of Minnesota, Duluth, Minnesota 55812.

Master's Degree in History

The master's degree in history is awarded upon fulfillment of either of two alternative programs—Plan A (with thesis) or Plan B (without thesis) program. The programs are designed for students who are preparing for doctoral study, preparing for employment with local or regional historical societies, planning to teach history in secondary schools and junior colleges, or planning to enter public service.

Requirements may be completed (by the full-time student) in 1 academic year or in equivalent summer sessions. Inquiries should be addressed to: Director of Graduate Study, Department of History, 265 A. B. Anderson Hall, University of Minnesota, Duluth, Minnesota 55812.

Master's Degree in Physics

A graduate major under Plan A, requiring a research thesis, is offered in physics. Current departmental research interests include atmospheric physics, atomic and molecular physics, numerical modeling, hydrodynamics, optics, remote sensing, solid-state physics, theoretical particle physics, and resonance Raman spectroscopy. Summer work on the Duluth campus involves the research phase of the degree work.

SOCIAL DEVELOPMENT PROGRAM

The School of Social Development prepares students for careers in social development at regional and national levels, and in social work as administrators,

planners, supervisors and direct service personnel. The M.S.W. degree requires 90 credits; an advanced 60-credit program is also available. Students may be admitted in September or December. Part-time study is also available. Emphasis is upon social change and individualized programs for each student. For specific information, contact: School of Social Development, 295 Marshall W. Alworth Hall, University of Minnesota, Duluth, MN 55812.

MASTER OF EDUCATION DEGREE

This University of Minnesota, Duluth, professional graduate program for educational personnel does not require a core of courses, that is, a fixed number of courses in a specific area. Student programs are tailored to meet identified professional needs. Credits may be earned for the degree in various subjects, methods, curricula, educational technologies, and learning experiences. Credit packages may focus on classroom experimentation, instructional materials development, in-service leadership, field research projects, and intensive learning experiences. Educators may concentrate in a subject matter area if they choose.

Educators are expected to develop competency in those areas that are representative of master teaching.

Admission decisions take into account a candidate's record of scholastic achievement; ability to benefit from graduate study as indicated by a measure of aptitude such as the Miller Analogies Test; potential for professional growth as evaluated by supervisors, colleagues, and UMD faculty; and competency as a teacher and a leader as identified by supervisors and colleagues.

This program is designed to help satisfy the in-service needs of school systems and other agencies conducting educational programs as well as the continuing education needs of instructors and instructional planners.

Inquiries should be addressed to: A. D. Hendrickson, Director, Master of Education Degree Program, Bohannon Hall, University of Minnesota, Duluth, Minnesota 55812.

MASTER OF INDUSTRIAL SAFETY DEGREE PROGRAM

This degree program is designed to prepare qualified personnel for safety supervisory and management positions in business, government, and industry. Candidates must complete a program of 45 quarter credits at the graduate level and must maintain an overall graduate grade point average of 3.00 or better. The minimum residence requirement for the degree is the equivalent of 3 academic quarters. In addition, an industrial internship or field research project is required. For more information write to: Office of Admissions, 101 Administration Building, University of Minnesota, Duluth, Minnesota 55812.

SIXTH YEAR CERTIFICATION PROGRAM IN EDUCATIONAL ADMINISTRATION

A sixth year program in educational administration, leading to licensure of elementary school principals, secondary school principals, and superintendents,

is available. This program is not a Graduate School program and does not lead to a graduate degree, but does provide training for licensure by the state of Minnesota. The program is administered through the College of Education at UMD. Inquiries should be addressed to: Director, Sixth Year Certification Program in Educational Administration, College of Education, 125 Bohannon Hall, University of Minnesota, Duluth, Minnesota 55812.

SPECIAL EDUCATION

During the Summer Session coursework is offered which is applicable to licensure requirements in mental retardation (TMR), learning disabilities (LD), and emotional disturbance (ED). For more information contact: Department of Special Education, Bohannon 209, University of Minnesota, Duluth, Minnesota 55812. (218) 726-7191; 7192.

SUMMER THEATRE

The UMD Summer Repertory Theatre provides a concentrated experience in all aspects of theatre. Rehearsal, production and performance activities occupy participants six days each week beginning the first week of June through the middle of August. Four shows are prepared for the 40 performances which will rotate in repertory, and will play to over 12,000 people during the summer. All performances are in the Marshall Performing Arts Center. Sixteen to 20 credit hours in theatre are offered through program participation. Entry into the program is by competitive audition in March. Scholarships are available to selected experienced actors and technicians.

CONTINUING EDUCATION AND EXTENSION PROGRAMS

A number of noncredit, short-term programs will be offered on the UMD campus through the Duluth Continuing Education and Extension Center during the summer session. For information and a brochure describing the offerings contact: Director of Continuing Education and Extension, 403 Administration Building, University of Minnesota, Duluth, Minnesota 55812.

Accommodations should be secured by participants through the Housing Office at UMD.

University of Minnesota, Morris

The University of Minnesota, Morris, is located in west central Minnesota, near some of the state's finest resort and fishing areas. Morris, a community of 5,600, offers many recreational facilities including tennis courts, a swimming beach, a nine-hole golf course, and a lighted baseball park located in a 25-acre municipal recreation area.

The UMM campus occupies 45 acres on the eastern side of Morris. The cultural activities and recreational facilities of the community are available to students, and the University also has a variety of recreational facilities and cultural activities geared toward summer students.

During the summer session UMM offers a variety of liberal arts courses in the humanities, the social sciences, business/economics, mathematics, and science that can be taken for personal enrichment, to meet general education requirements, to meet requirements for certain majors, and to prepare for or improve skills for professional careers in business, the human services, or teaching.

A separate Summer Session bulletin describing UMM summer procedures and course offerings is available from: UMM Summer Session, 226 Community Services Building, University of Minnesota, Morris, Minnesota 56267; telephone (612) 589-2211.

LIBERAL ARTS CURRICULUM

As a 4-year liberal arts college of the University of Minnesota, UMM shares in the instruction, research, and service objectives of the entire University system. Students may complete one of three degree programs at Morris:

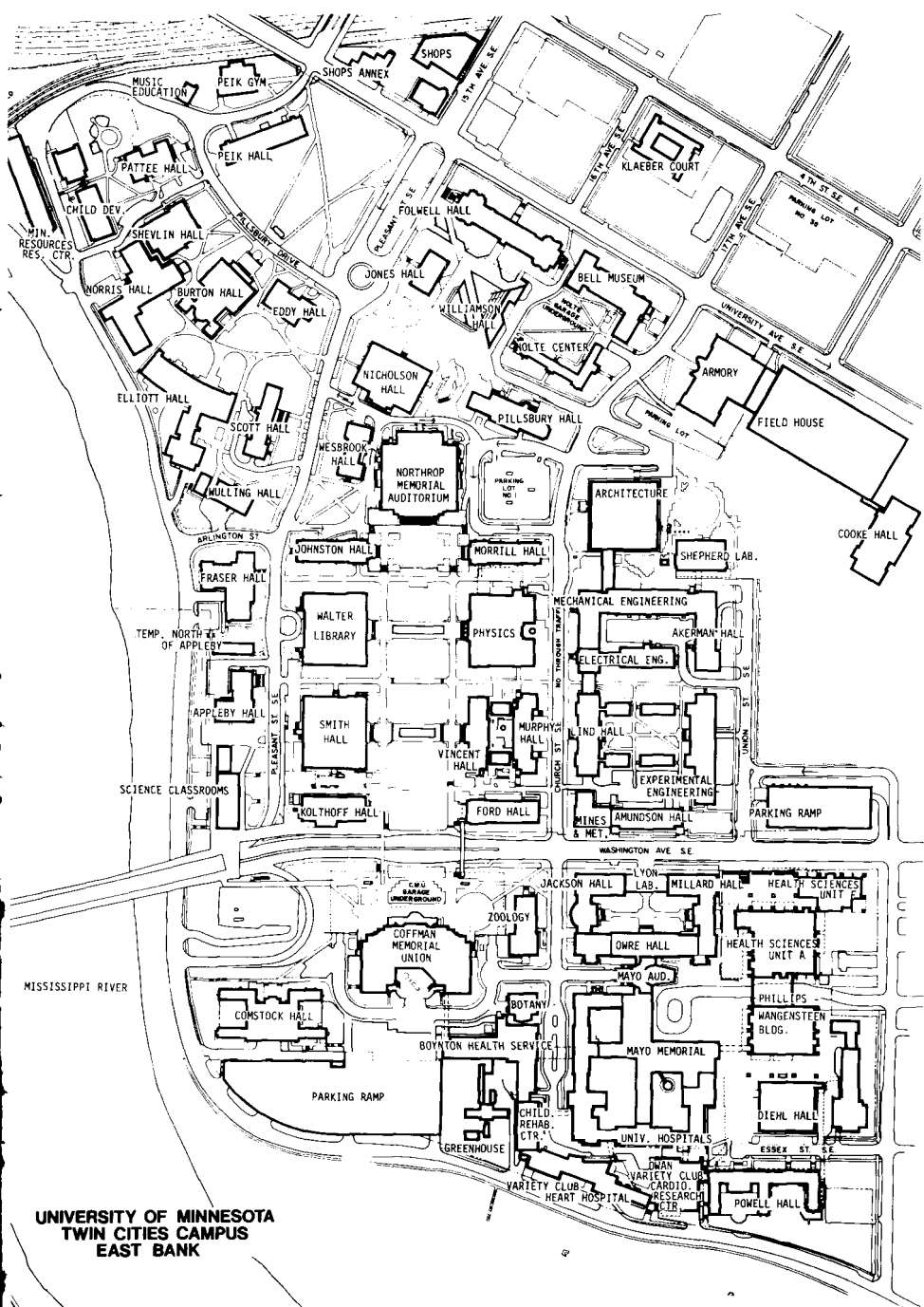
1. A 4-year curriculum in liberal education leading to the bachelor of arts degree.
2. A 4-year curriculum that combines liberal education with teacher preparation and leads to the bachelor of arts degree and licensure as an elementary or secondary school teacher.
3. A 1-, 2-, 3-, or 4-year curriculum in liberal education that meets the preprofessional liberal arts requirements of the professional schools of the University of Minnesota or of other institutions.

Maps and Building Abbreviations

MINNEAPOLIS

East Bank

- AkerH, Akerman Hall
 Annex, Music Annex (321½ 14th Ave SE)
 ApH, Appleby Hall
 Arch, Architecture Building
 Armory, Armory Building
 BFAB, Bierman Field Athletic Building
 Bo, Botany Building
 BoG, Botany Greenhouse
 BoynHS, Boynton Health Service
 BuH, Burton Hall
 ChDev, Child Development Building
 CenH, Centennial Hall
 CookeH, Cooke Hall
 ChEng, Chemical Engineering Building
 ChRC, Children's Rehabilitation Center
 CMU, Coffman Memorial Union
 ComH, Comstock Hall
 DiehlH, Diehl Hall
 DVCCRC, Dwan Variety Club Cardiovascular
 Research Center (formerly Health Sciences
 Unit K-E)
 ECDO, Education Career Development Office
 (1425 University Ave SE)
 EconRes, Economics Research Building
 EdH, Eddy Hall
 EdHAn, Eddy Hall Annex
 ElectE, Electrical Engineering Building
 EliH, Elliott Hall
 ExpE, Experimental Engineering Building
 FieldHse, University Field House
 FolH, Folwell Hall
 ForH, Ford Hall
 FraH, Fraser Hall
 FronH, Frontier Hall
 HL, St. Anthony Falls Hydraulic Laboratory
 (Mississippi River at 3rd Ave SE)
 HolB, Holman Building
 HSUnitA, Health Sciences Unit A
 HSUnitF, Health Sciences Unit F
 Jach, Jackson Hall
 JOAd, Jackson-Owre Addition
 JohH, Johnston Hall
 JonesH, Jones Hall
 KlaCt, Klaeber Court
 KolthH, Kolthoff Hall (Smith Hall Annex)
 LindH, Lind Hall (formerly Main Engineering)
 LinL, Linac Laboratory
 LyonL, Lyon Laboratories
 MasonH, Masonic Memorial Hospital
 Mayo, Mayo Memorial Building
 MDH, Minnesota Department of Health
 MechE, Mechanical Engineering Building
 MinMet, Mines and Metallurgy Building
 MirdH, Millard Hall
 MMA, Mayo Memorial Auditorium
 MNH, Bell Museum of Natural History
 MorH, Morrill Hall
 MRRC, Mineral Resources Research Center
 MUHi, Marshall-University High School
 (1313 5th St. SE)
 MurH, Murphy Hall
 MusEd, Music Education
 NCCE, Nolte Center for Continuing Education
 NichH, Nicholson Hall
 NMA, Northrop Memorial Auditorium
 NorrisH, Norris Hall (formerly Norris
 Gymnasium for Women)
 OwreH, Owre Hall
 PB, Poucher Building
 PeikG, Peik Hall Gymnasium
 PeikH, Peik Hall
 Ph, Tate Laboratory of Physics
 PiH, Pioneer Hall
 PillsH, Pillsbury Hall
 PoH, Powell Hall
 PolDB, Police Department Building
 Pt, Pattee Hall
 PWB, Phillips-Wangensteen Building
 (formerly Health Sciences Unit B-C)
 RampA, Parking Ramp (Washington Ave at
 Union St)
 RampB, Parking Ramp (South of Coffman
 Union)
 SaH, Sanford Hall
 Sch, Scott Hall
 SciCB, Science Classroom Building
 ShAn, Shops Annex
 ShH, Shevlin Hall
 SmithH, Smith Hall
 SpSci, Space Science Center
 Stad, Stadium
 TerH, Territorial Hall
 TNCE, Temporary, North Court of Engineering
 TNM, Temporary, North of Appleby
 (formerly Mines)
 TSCE, Temporary, South Court of Engineering
 VCHH, Variety Club Heart Hospital
 VFWCRC, VFW Cancer Research Center
 VinH, Vincent Hall
 WaLib, Walter Library
 WeH, Wesbrook Hall
 WmsA, Williams Arena
 WmsonH, Williamson Hall
 WuH, Wulling Hall
 Z, Zoology Building



**UNIVERSITY OF MINNESOTA
TWIN CITIES CAMPUS
EAST BANK**

West Bank

AndH, Anderson Hall
ArtB, Art Building

BA, Business Administration Building
BlegH, Blegen Hall

Law, Law School

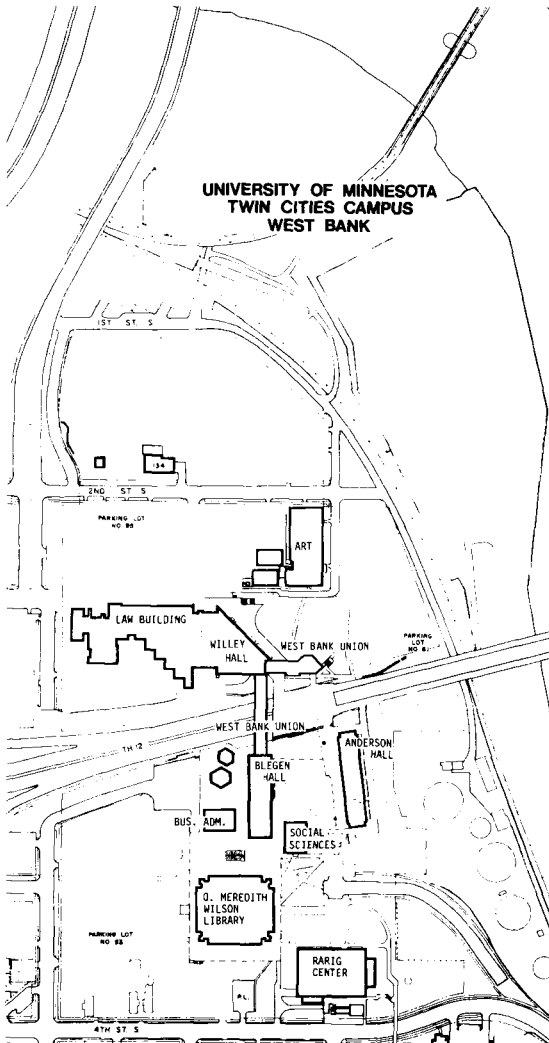
MdbH, Middlebrook Hall

OMWL, O. Meredith Wilson Library

RarigC, Rarig Center

SBkSt, Smith Bookstore
SocSci, Social Sciences Building

WilleyH, Willey Hall



ST. PAUL

ABLMS, Andrew Boss Laboratory
(Meat Science)
AdmServ, Administrative Services Building
(2610 University Ave)
AgEng, Agricultural Engineering Building
AgLib, Agriculture Library
Agr, Agronomy Building
AgrSH, Agronomy Seed House

BaH, Bailey Hall
BB, Bull Barn
BCB, Beef Cattle Barn
BeH, Berry House (1304 Cleveland Ave N)
BFH, Botany Field House
BioSci, Biological Sciences Center

CI, Crop Improvement Building
CISS, Crop Improvement Seed Stocks Building
ClaOff, Classroom-Office Building
CoffH, Coffey Hall
CrRes, Crops Research Building

DCB, Dairy Cattle Barn
DinC, Dining Center

EntFW, Entomology, Fisheries, and Wildlife
Building

FCFH, Farm Crops Field House
FP, Forest Products Building
FScN, Food Science and Nutrition

GrnH, Green Hall
GorL, Gortner Laboratory of Biochemistry
Gym, Gymnasium

HB, Horse Barn
HckrH, Haecker Hall
HodsonH, Hodson Hall
HortS, Horticultural Sciences Building (new)
HS, Health Service Building

LsPav, Livestock Pavilion

McNH, McNeal Hall
MS, Machinery Shop

NCFor, North Central Forest Experiment
Station
NorH, North Hall
NWGH, Northwest Greenhouses

PalmC, Palmer Classroom Building
PavAn, Pavilion Annex
PetH, Peters Hall
PG, Poultry Group
PlSci, Plant Sciences Building
PM, Post-Mortem
PPFL, Plant Pathology Field Laboratory

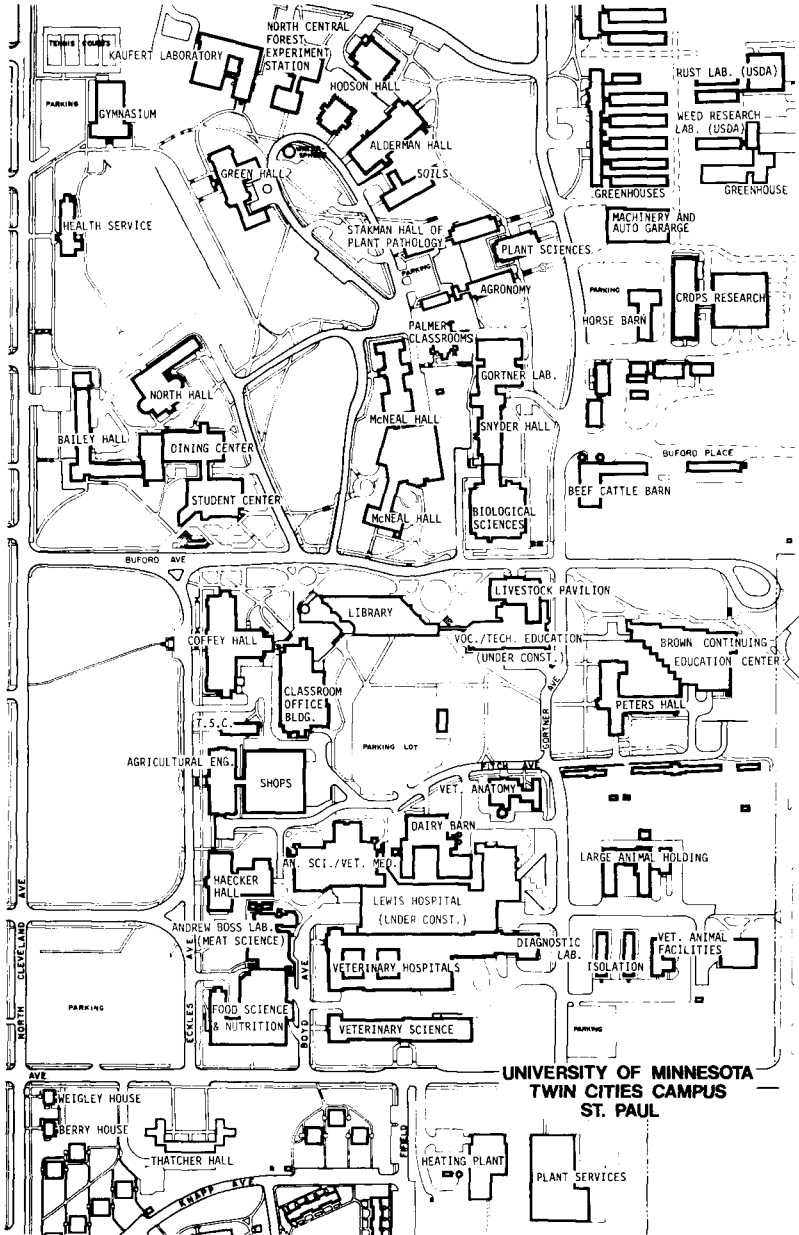
RustL, Rust Laboratory (USDA)

SB, Swine Barn
ShB, Sheep Barn
SheepR, Sheep Research
SnH, Snyder Hall
So, Soils Building
StakH, Stakman Hall of Plant Pathology
StCen, Student Center

TH, Thatcher Hall
TSC, Temporary. South of Coffey Hall

VB, Veterinary Barn
VetA, Veterinary Anatomy Building
VetDL, Veterinary Diagnostic Laboratories
VetH, Veterinary Hospitals
VetIB, Veterinary Isolation Building
VetS, Veterinary Science Building

WeiH, Weigley House
WRL, Weed Research Laboratory



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Equal Opportunity

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, creed, color, sex, national origin, or handicap. In adhering to this policy, the University abides by the requirements of Title IX of the Education Amendments of 1972, by Sections 503 and 504 of the Rehabilitation Act of 1973, and by other applicable statutes and regulations relating to equality of opportunity.

Inquiries regarding compliance may be directed to Lillian H. Williams, Director, Office of Equal Opportunity and Affirmative Action, 419 Morrill Hall, 100 Church Street S.E., University of Minnesota, Minneapolis, Minnesota 55455, (612) 373-7969, or to the Director of the Office of Civil Rights, Department of Education, Washington, D.C. 20202, or to the Director of the Office of Federal Contract Compliance Programs, Department of Labor, Washington, D.C. 20210.

Access to Student Educational Records

In accordance with regents' policy on access to student records, information about a student generally may not be released to a third party without the student's permission. The policy also permits students to review their educational records and to challenge the contents of those records.

Some student information—name, address, telephone number, dates of attendance, college and class, major, adviser, and degrees earned—is considered public or directory information. To prevent release of such information outside the University while in attendance at the University, a student must notify the records office on his or her campus.

Students are notified annually of their right to review their educational records. The regents' policy, including a directory of student records, is available for review at the information booth in Williamson Hall, Twin Cities campus/Minneapolis, and at records offices on other campuses of the University. Questions may be directed to the Office of the Coordinator of Student Support Services, 260E Williamson Hall, (612) 373-2106.

COLLEGE OF EDUCATION STUDENTS ONLY

THIS SUMMER YOU MAY REGISTER BY MAIL. TO REQUEST REGISTRATION MATERIALS, PLEASE COMPLETE AND RETURN THE CARD AT THE BACK OF THIS BULLETIN. IF YOU INTEND TO REGISTER BY MAIL, PLEASE ACT PROMPTLY; ALL REGISTRATION MATERIALS MUST BE RECEIVED BY THE COLLEGE OF EDUCATION BY MAY 28 IN ORDER TO BE PROCESSED IN TIME FOR THE BEGINNING OF THE SUMMER SESSION.

HOW TO REGISTER

5 EASY STEPS...

1. Request registration materials.
2. Complete the forms you receive.
3. Mail completed forms to the College of Education. Registration forms must be received between May 1 and May 28.
4. Pay fees after you receive your fee statement in the mail. June 16 is the last day for payment without incurring a late fee.
5. Go to the first meeting of your classes without further contact with any administrative office.

If you decide not to attend a class for which you are registered, you must contact the Education Career Development Office, 1425 University Avenue S.E., Minneapolis, Minnesota 55455; telephone (612) 373-2257.

REQUEST FOR REGISTRATION MATERIALS COLLEGE OF EDUCATION

Name _____

Address _____

City _____ State _____ Zip _____

FROM _____

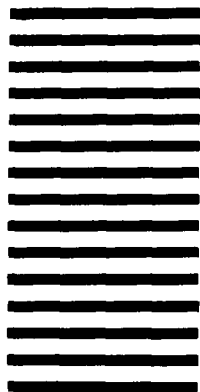


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Summer Session
8102 Johnston Hall
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Minneapolis, MN 55455





University of Minnesota Bulletin

*Lake Itasca
Biology Session*

Summer 1981

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Lake Itasca Biology Session

First Term June 14-July 18

Second Term July 19-August 22

General Information

Sponsored by the Summer Session at the Lake Itasca Forestry and Biological Station, the Biology Session is a joint enterprise of various departments of the College of Biological Sciences, the College of Agriculture, and the College of Forestry. By agreement, the University of Wisconsin and the University of North Dakota participate in making policy for and planning the Biology Session through membership on the advisory committee.

The Lake Itasca Forestry and Biological Station is located on the east shore of Lake Itasca in Itasca State Park — just a mile from the headwaters of the Mississippi River in northwestern Minnesota.

RESEARCH AND ACADEMIC OPPORTUNITIES

THE ITASCA HABITATS

Itasca Park — an ecological area of national renown — embraces 50 square miles of forests traversed by a fine system of roads and trails. Within this area are located many lakes of different types, providing unusual field opportunities for work in limnology, phycology, aquatic insects, and fungi, as well as related fields. The forests of the park are unique. Here the northern coniferous and deciduous types of the central hardwood region meet. In addition, the many bog areas provide a wide variety of plant communities for study. Itasca's forests have been protected for over a half century, and many have never been cut. Here, truly, is an excellent array of virgin timber stands and communities developing into climax types.

Forty miles to the west a dramatic break from the forests to the prairies occurs where true prairie associations can be found on the bed of ancient Lake Agassiz. To the north lie the Red Lakes and immense expanses of northern bog types.

This meeting of the three great plant regions of the eastern United States provides opportunities for study not only of varied ecosystems but also of a singular range of fauna and flora with southern, northern, and western origins. Opportunities to observe birds closely during June and July are particularly outstanding. An abundance of interesting animals, such as nesting bald eagles, breeding loons, beaver, raccoons, and deer, affords many striking behavioral and ecological problems for study.

INDEPENDENT INVESTIGATORS

Qualified investigators may pursue research in various fields of terrestrial and freshwater biology during any season. Interested persons should contact David M. Bosanko, Resident Biologist, University of Minnesota Forestry and Biological Station, Lake Itasca Post Office, Minnesota 56460.

COURSE WORK AND RESEARCH

The variety of courses available in both terms I and II allows students an opportunity to choose an entire summer of either intensive work in a particular field of interest or a sampling of several types of field experiences.

Graduate and undergraduate students in biology will find an excellent field laboratory for both research and course work. Graduate students may devote themselves exclusively to research problem work.

Students in forestry, plant pathology, soils, and fisheries and wildlife management will find course work closely related to their field as well as a broad spectrum of essential background courses in botany, ecology, entomology, and zoology.

For teachers of biology in high schools and colleges, the session offers opportunity for advanced study through course work or independent research.

Advanced students and research workers needing laboratory space and special equipment should make prior arrangements with David M. Bosanko, Resident Biologist, University of Minnesota Forestry and Biological Station, Lake Itasca Post Office, Minnesota 56460.

INSTRUCTIONAL FACILITIES

Eleven well-equipped laboratories are located in six buildings. Much of the instruction takes place in the field, where many varied habitats are within walking distance of the station.

A fine herbarium of the region and collections of insects, bird skins, and small mammal skins are available for study. Four complete sets of aerial photos of the park area, made in 1938, 1951, 1959, and 1966, are maintained at the station along with stereoscopic equipment.

The station equipment includes necessary compound and dissecting microscopes, collecting apparatus, various types of nets, boats, and other accessories for instruction and research.

The library is stocked with important journals and books basic to fieldwork and offers ample room for study. Other journals and books are available from the University Libraries.

ADMISSION AND REGISTRATION INFORMATION

ADMISSION

Courses are open to all qualified graduate and undergraduate students who have completed the usual preliminary course work in biological subjects. General rules for admission of undergraduates to the summer session apply to the Biology Session. Students are advised to review these regulations in the general *Summer Session Bulletin*.

Summer-Only Students—Students with previous college work who wish to attend the summer session only may do so without filing an application for admission to the University, provided they are in good standing and are not degree candidates.

Graduate Students—Any student who holds a bachelor's degree and plans to use credits earned in summer session toward a graduate degree or expects to receive graduate credit for such work should apply for admission directly to the Graduate School. The application must be submitted complete in every detail — one official transcript from each college attended, the credentials examination fee (if required), and any required test results — at least four weeks prior to the opening of the summer term in which the student expects to register (Friday, May 15, 1981, for first term; Monday, June 15, 1981, for second term).

A student currently enrolled in a graduate program at another accredited college or university in the United States may request permission to register in the Graduate School of the University of Minnesota as a transient graduate student by completing Graduate School form 57. No credentials examination fee or supporting materials are required for the transient student form. Permission to register as a transient student will be granted, to the applicant who qualifies, for one summer session (terms I and/or II) or one academic-year quarter, and will not extend beyond that single session or quarter.

Requests for Graduate School application forms, including transient student forms, and all correspondence related to Graduate School admission should be directed to the Graduate School, 307 Johnston Hall, 101 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

SCHOLARSHIPS

The following awards are available for qualified students:

Alexander P. Anderson and Lydia Anderson Fellowships, at \$350 each, are available only to persons holding a degree from the University of Minnesota. For information and applications write to the Graduate School Fellowship Office, 422 Johnston Hall, 101 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

Caroline M. Crosby Memorial Fellowship in Botany provides for tuition, room and board, travel, and miscellaneous expenses up to \$400. Open only to students majoring in botany at the University of Minnesota. For information and applications write to the Graduate School, University of Minnesota, Minneapolis, Minnesota 55455.

Malvin and Josephine Herz Foundation Fellowship is offered to encourage an outstanding student in ornithological research. For information and applications write to the Chairman, Field Biology Program, 349 Bell Museum of Natural History, 10 Church Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

Fishery and Wildlife Management Spring and Summer Scholarships are provided by the Minnehaha Chapter, Izaak Walton League, Question Club of Minneapolis, the James R. Beer Memorial Scholarship of the Minnesota Student Chapter of the Wildlife Society, and the Harriet Parmelee Memorial Scholarship. For information and applications write to the Chairman, Field Biology Program, 349 Bell Museum of Natural History, 10 Church Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

ITASCA RESEARCH STIPENDS

A number of research stipends of several hundred dollars each will be available April 15, 1981 for graduate students or qualified persons other than faculty. Almost any scientific study relating to field biology will be considered, provided that the research is carried out at the Lake Itasca Forestry and Biological Station. Expenditures may include transportation costs, supplies, and other research costs but not salaries for assistants.

Applications will be judged competitively on the basis of the scientific merit of proposals and the qualifications of the applicants. Applicants from within and outside the University will be given equal consideration. Applications, including documentation of academic background and training, a description of proposed research, a realistic budget projection, and a supporting letter (preferably from the student's adviser), should be sent directly to David F. Parmelee, Chairman, Field Biology Program, 349 Bell Museum of Natural History, 10 Church Street S.E., University of Minnesota, Minneapolis, Minnesota 55455. Early applications will be reviewed April 1, 1981.

STUDENT LOAN INFORMATION

Students who are enrolled in a University of Minnesota degree or certificate program during the year may obtain a Guaranteed Student Loan to help pay for the costs of their Itasca sessions. The necessary forms may be obtained from the Office of Student Financial Aid in 210 Fraser Hall in Minneapolis or 199 Coffey Hall in St. Paul. *Visiting students who are regularly enrolled in other institutions should arrange for student loans through their home institutions.* These students should expect a delay in receipt of their loans, because a lending institution generally will release a check only after the student has completed registration and his or her enrollment is certified by the Office of Admissions and Records.

EMPLOYMENT OPPORTUNITIES

A very limited number of jobs (kitchen, library, office, shops, etc.) are available to undergraduate and graduate students on a competitive basis. If you are interested, you should request an application form from the chairman of the Field Biology Program.

RESERVATIONS

Since both the housing facilities and the enrollment size of each class are limited, early application for reservations is recommended. To apply, you should complete both the

Request for Reservation form and the Summer Information Sheet found on the last pages of this bulletin and mail them to David F. Parmelee, Chairman, Field Biology Program, 349 Bell Museum of Natural History, 10 Church Street S. E., University of Minnesota, Minneapolis, Minnesota 55455. *These two forms must be accompanied by a recent transcript of your academic record, a listing of courses in which you are currently enrolled, a deposit of \$40 for one term or \$80 for two terms, and a letter of evaluation from your adviser or supervisor.* The deposit will be applied toward the tuition charged at the time of registration or will be returned to you if space is not available.

Assignments to classes will be verified no later than April 10 for early applicants. They will be determined on the basis of need, date of application, completion of prerequisites for the courses desired, your scholastic record, and letters of recommendation. Late applications will be accepted up to the day of registration (June 14 for first term and July 19 for second term), since openings occur from time to time even in those classes that usually close early.

REGISTRATION

All courses offered at the station must be reserved. Students reserve courses by mailing in the Request for Reservation and the Summer Information Sheet at the end of this bulletin. Once these forms are received, students will be notified of acceptance and class reservation cards will be held for them until they arrive for registration.

Class reservation cards may be picked up at 130 Coffey Hall in St. Paul during regular summer session registration periods. After they have picked up their cards, Twin Cities students should complete their registration at the Registration Center on the Twin Cities campus (either 202 Fraser Hall in Minneapolis or 130 Coffey Hall in St. Paul).

Out-of-town students can complete registration at the station on June 14 for first term or on July 19 for second term. The necessary cards will be held with the reservation until these students arrive for registration.

Students may register each term for 10 credits or less. A maximum load may include one 10-credit course, or two 5-credit courses, or one 5-credit course and a research problem (1 to 5 credits). Students enrolling for both summer terms are advised to register for no more than three 5-credit courses. Ornithology courses require a great deal of time, so students should plan accordingly.

CHANGES IN REGISTRATION

Students accepted into the program who wish to enter courses that have filled early should place their names on the official waiting list by contacting the field biology chairman. In the event of cancellations, students on the waiting list will be accommodated first.

Changes in registration must be approved by the chairman and are strongly discouraged after registration day (June 14, first term; July 19, second term).

CANCELLATION

Because late cancellations often create vacancies in classes that earlier could have been filled by persons wishing to attend the Biology Session, students who must cancel should do so as early as possible. All cancellations must be approved by the Field Biology Program chairman. Cancellation for any reason should be reported immediately to the chairman by phone (612-373-1292), followed by a statement in writing. Students should also consult with their instructors before cancelling, if the term has already begun.

TUITION, FEES, AND OTHER COSTS

ACADEMIC FEES

The following fees are payable each 5-week term by every regular registrant on or before June 14 or July 19.¹

	5 credits	10 credits
Tuition	\$97.50	\$195.00
Student Services Fee	18.00	18.00
Laboratory Fee	<u>8.50</u>	<u>8.50</u>
	\$124.00	\$221.50

A \$40 deposit for each term is required of all persons requesting reservations for course work during the Biology Session. This fee will be returned if written notice of cancellation is *postmarked* before May 1 for the first term or June 10 for the second term. When registration is completed, the \$40 or \$80 deposit will be applied to the tuition fee.

Persons registering at the University of Minnesota for the first time must pay a \$6 record service fee.

Independent investigators may use the facilities at the station and pay a research fee based on facilities, equipment, and services required; the minimum charge is \$2.50 per week.

LATE FEES

Tuition and fees are payable at the time of registration: on or before June 14 for first term or July 19 for second term. Late fees will be charged as follows:

June 15-19 or July 20-24	\$6
June 22-26 or July 27-31	\$10
Thereafter	\$20

No registration will be accepted after June 14 or July 19 without the approval of the chairman of the Field Biology Program and payment of the late fee.

ROOM AND BOARD COSTS

There is a service charge of \$25 per term for dormitory facilities. A charge of \$185 for board is payable to the Itasca Dining Club, which is run on an actual cost basis. These fees are payable at the beginning of each term.

TRANSPORTATION COSTS

University vehicles are available for class field trips. Students using them will be charged a fee to cover actual costs. Costs usually range from less than \$1 to \$30. Courses that commonly utilize University vehicles for long or frequent field trips are: Biol 5950 Sect I, Bot 5801, 5805, 5815; EBB 3800, 5814, 5815, 5834, 8800; FW 5456; PIPa 5102; Soil 5532.

¹The tuition and fees stated above were charged in the 1980 session. Final determination of tuition for the 1981 session had not been made at the time this bulletin was printed.

LIVING ARRANGEMENTS

TRANSPORTATION

Students depending on public transportation to travel to the Itasca station may take a bus to either Park Rapids, 24 miles from campus, or to Bemidji, 42 miles from campus. Republic Airlines offers daily service between the Twin Cities and Bemidji. Students will be met upon arrival if they make *prior arrangements* with the chairman. Students needing to make such arrangements should contact David Parmelee, 349 Bell Museum of Natural History, 10 Church Street S.E., University of Minnesota, Minneapolis, Minnesota 55455; telephone (612) 373-1292. State Highway 200 and U.S. Highway 71 provide easy access by car into the park.

CABINS

There are ten cabins for men, each accommodating eight students, and eight cabins for women, each accommodating six students. Women's cabins are equipped with toilets and wash basins. A central bathhouse with laundry facilities is located near each of these groups of cabins.

FAMILY ACCOMMODATIONS

Students who wish to bring their spouses and children may find accommodations off campus in one of the many resorts in the vicinity. A list of addresses of these facilities will be furnished upon request. The station maintains a tent and trailer camp area with a modern bathhouse and outlets for water and electricity but no outdoor cooking facility. Registered students and their spouses and children have top priority for use of the campground. The weekly charge is \$5. Interested students should apply well in advance of the session; those whose spouses or children will be accompanying them should notify the chairman.

ACCOMMODATIONS FOR VISITORS

There are no overnight facilities at the station for accommodating guests of students. Students expecting guests must make arrangements for their housing off campus. Meals for guests can be arranged at the Itasca Dining Club if meal tickets are purchased in advance. Students are responsible for the conduct of their guests and should inform them of park regulations.

MEALS

The Itasca Dining Club, a cooperative formed each year by the students and managed for them by the chairman, serves meals in an attractive dining hall located on the lakeshore. The well-balanced meals are carefully planned and prepared by experienced cooks.

PERSONAL NEEDS

Students must provide their own pillows, bed linen, towels, and blankets. Since the nights are often cool, it is suggested that students bring two or three wool blankets. Essential personal equipment includes serviceable clothing (especially shoes or boots for fieldwork), a warm jacket, rain gear, a swimming suit, a flashlight, notebooks, pocket field manuals, a portable typewriter, and the equipment necessary for individual work in the field or laboratory.

BOOKS

A branch of the University Bookstores is maintained at the station to make books and student supplies readily available. All texts should be purchased at Itasca.

HEALTH SERVICE

A registered nurse will be on duty at the station infirmary. Only those students who have paid the student services fee have infirmary privileges. Those not paying the student services fee should make arrangements for treatment at Park Rapids or Bemidji. Everyone living at the station is required to have hospitalization coverage, whether obtained through or outside the University. See the 1981 *Summer Session Bulletin* for information about charges for University-sponsored hospital coverage. (Single coverage only is available through the University.)

Students will be furnished medical care and up to 15 days of hospitalization at the nearest medical facility in case of emergency illness or accident and on approval of the chairman. These benefits do not include such items as physical examinations, treatment of chronic conditions, or payment for drugs.

MAIL

Mail for students should be addressed to: University of Minnesota Forestry and Biological Station, Lake Itasca Post Office, Minnesota 56460.

RECREATION

Recreational opportunities in the park, such as swimming, fishing, canoeing, and hiking, are excellent. Volleyball, softball, soccer, and horseshoe equipment is available at the station. Evening social events may be planned by the students. Weekly evening lectures by staff members or visiting scientists, and occasional films on field biology will be scheduled. Guests on the campus should check with the chairman before using recreational equipment and engaging in recreational activities.

RULES OF CAMP

Rules of camp are kept at a minimum. Students are expected to keep their own quarters clean and orderly. Students may bring their own cars, but garages and repair services are not provided. Weekend absences and extended field trips must be reported in advance. Domestic pets are not allowed at the station.

Off campus and within park boundaries Minnesota State Park regulations govern. The state park entry sticker must be purchased for private cars at the park entrance.

Staff and Faculty

ADMINISTRATIVE STAFF

Office

David F. Parmelee, Chairman
Diane M. Berube, Principal Secretary

Building and Grounds

Daniel Traun, Resident Manager

Research

David M. Bosanko, Resident Biologist

Library

Rose Mary Schaefer, Librarian

Dining Club

Sherry Bromley, Chef

Infirmary

To be announced.

SUMMER FACULTY

John Alcock, Professor, Department of Zoology, Arizona State University, Tempe, is an ethologist interested in the evolution of the reproductive behavior of insects, especially the solitary bees and wasps. (EBB 5815)

David Allan, Associate Professor, University of Maryland, is interested in predator-prey relationships in streams and running water; life cycles of aquatic insects; and the adaptive significance of life history of variation in zooplankton. (EBB 8800)

Franklin H. Barnwell, Associate Professor, University of Minnesota, carries out research on the role of biological rhythms in the adaptation of animals and plants to environmental cycles. (EBB 3800)

Richard J. Elzinga, Professor, Kansas State University, is interested in the interrelationships between mites and insects. Recent studies have dealt with holdfast structures enabling certain uropodan mites to be phoretic on army ants. (Ent 5020)

Douglas Gill, Associate Professor, University of Maryland, is interested in ecological dynamics and evolution of populations, especially amphibian; competition among *Acazia*-dwelling ants; population dynamics of Trypanosomiasis; and altitudinal gradients in developmental ecology. (EBB 8800)

David Inouye, Assistant Professor, University of Maryland, is interested in the population biology of long-lived plants; plant-ant interaction; and pollination and foraging in bumblebee communities. (EBB 8800)

Frances C. James, Associate Professor, Florida State University, is an ecologist interested in habitat relationships of birds, bird behavior, and geographic variation in morphology. (Biol 5950, sec 1)

Robert O. Megard, Associate Professor, University of Minnesota, is primarily interested in the ecology of planktonic algae, particularly in photosynthesis and other processes that regulate the density of natural populations. (EBB 5812)

Patrice A. Morrow, Associate Professor, University of Minnesota, studies plant-insect interactions and is especially interested in the role of herbivorous insects in determining plant community structure. (EBB 3800)

Thomas G. Nimlos, Professor, University of Montana, is conducting research in the development of Montana soils. (Soils 5532)

Oscar T. Owre, Maytag Professor of Ornithology, University of Miami, is working with the ecology of birds of southern Florida; he is particularly interested in the introduced species and the biology of "introduction". (EBB 5834)

David F. Parmelee, Professor and Chairman of the Field Biology Program, University of Minnesota, specializes in the distribution, ecology, and behavior of arctic and antarctic birds.

Lois A. Pfister, Assistant Professor, University of Oklahoma, is interested in the morphology and ecology of freshwater dinoflagellates, with emphases on sexual reproduction and amoeboid, phagocytic stages in dinoflagellates in *Die Susswasserflora*. (Bot 5811)

Robert S. Rogers, Postdoctoral Instructor, Purdue University, is interested in a wide range of topics, including mechanisms of coexistence and competition in higher plants; community processes and organization in woodland systems; modeling interaction of plant populations along environmental gradients; interaction of soil microbiota and plant establishment; and vegetation history and mapping. (EBB 5814)

Michael R. Ross, Assistant Professor, University of Massachusetts, is interested in the reproductive behavior and mating systems of cyprinoid fishes and how they relate to the population dynamics of these taxa. (FW 5456)

Donald L. Rubbelke, Instructor, St. John's University, is currently interested in developing and applying new methods in biological photography. (Biol 5950 sec 2)

Elwin L. Stewart, Associate Professor, University of Minnesota, has specialized in the taxonomy and ecology of true and false truffles (hypogeous Ascomycotina and Basidiomycotina). His current research also includes studies on epigeous mycorrhizal fungi. (PIPa 5102)

Donald R. Strong, Jr., Associate Professor, Florida State University, is widely interested in community and population biology, and conducts field work on insect-plant associations with the marsh grass *Spartina* and with tropical monocots. (EBB 8800)

John W. Thomson, Professor, University of Wisconsin, specializes in research on taxonomy and ecology of lichens of North America and the Arctic, and also teaches higher plant taxonomy. He has published in the field of higher plant taxonomy as well as in lichenology. *Lichens of the Arctic Slope of Alaska* was published in 1980. (Bot 5801)

Dale Vitt, Professor, University of Alberta, has research interests in the taxonomy and populational variation of mosses, the ecology of wetlands, and moss phytogeography of arctic and subantarctic areas. He is presently working on Australian species and on reclassification of the Musci. (Bot 5815)

Daniel E. Wujek, Professor, Central Michigan University, conducts research on many aspects of aquatic botany. These include algal taxonomy, morphology, and ecology with special reference to Chrysophcean, Tetrasporalean, and diatom taxa as well as aquatic vascular plants, with emphasis on the Cyperaceae. (Bot 5805)

GUEST LECTURERS

Michael Carey, Assistant Professor, University of Scranton. (EBB 5815, Term I)

Patrice A. Morrow, Associate Professor, University of Minnesota. (EBB 8800, Term II)

Jean Stout, Research Associate, Michigan State University. (EBB 8800, Term II)

G. David Tilman, Associate Professor, University of Minnesota. (EBB 8800, Term II)

Jonathan K. Waage, Associate Professor, Brown University. (EBB 5815, Term I)

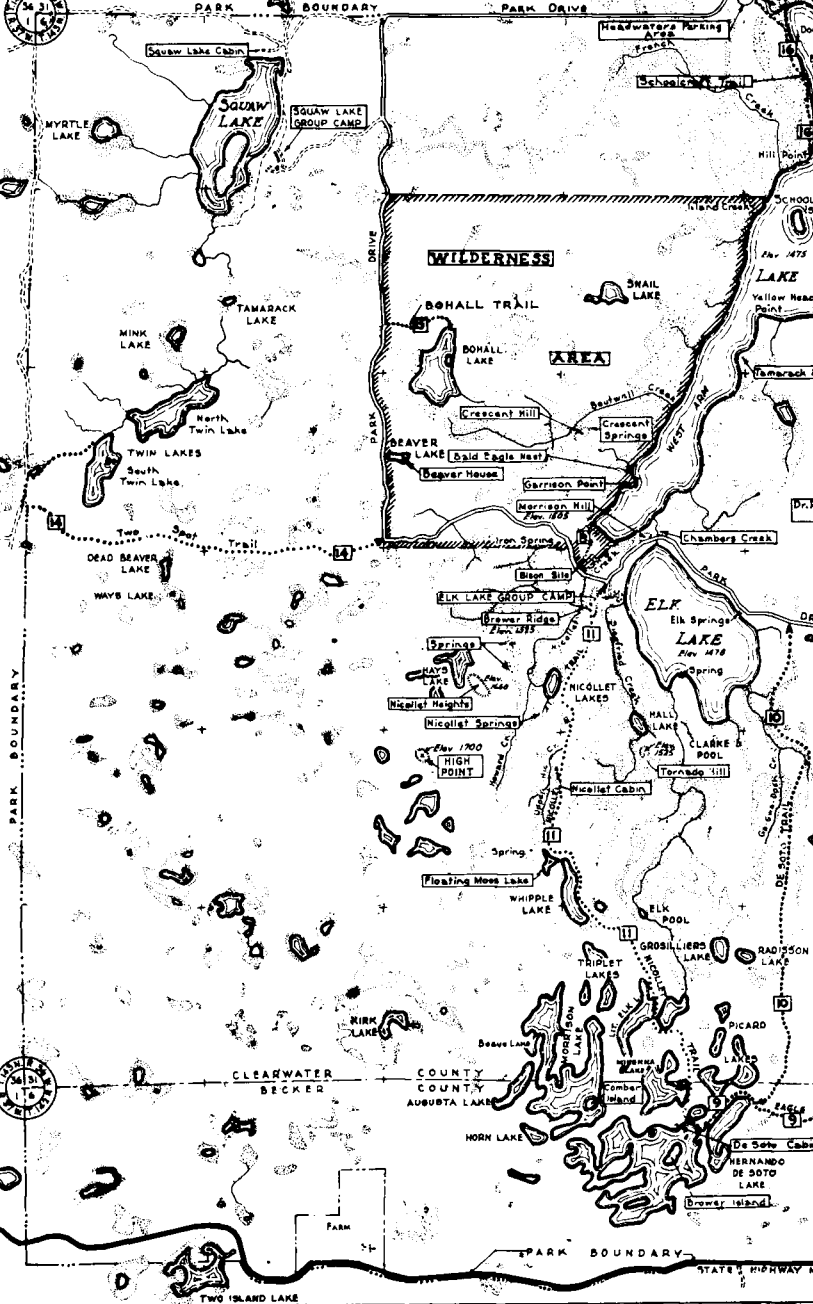


To Bagley & Mansfield
(State H-Way 31)



A B C D E F

A B C D E F



MISSISSIPPI RIVER HEADWATERS

Headwaters Parking Area

Schepeler Trail

Mill Point

SCHOOLCREEK LAKE

Yellow Head Point

Tamarack Pt.

DR. KODAK

Chambers Creek

DR. KODAK

DR. KODAK

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MAP LEGEND

- High Type
- All Weather Intermediate Type
- Maintained Gravel Road
- Not Maintained Dirt Road
- Foot Trails
- Trail Number
- All Weather Gravel Road

TRAILS

SELF GUIDING NATURE TRAILS

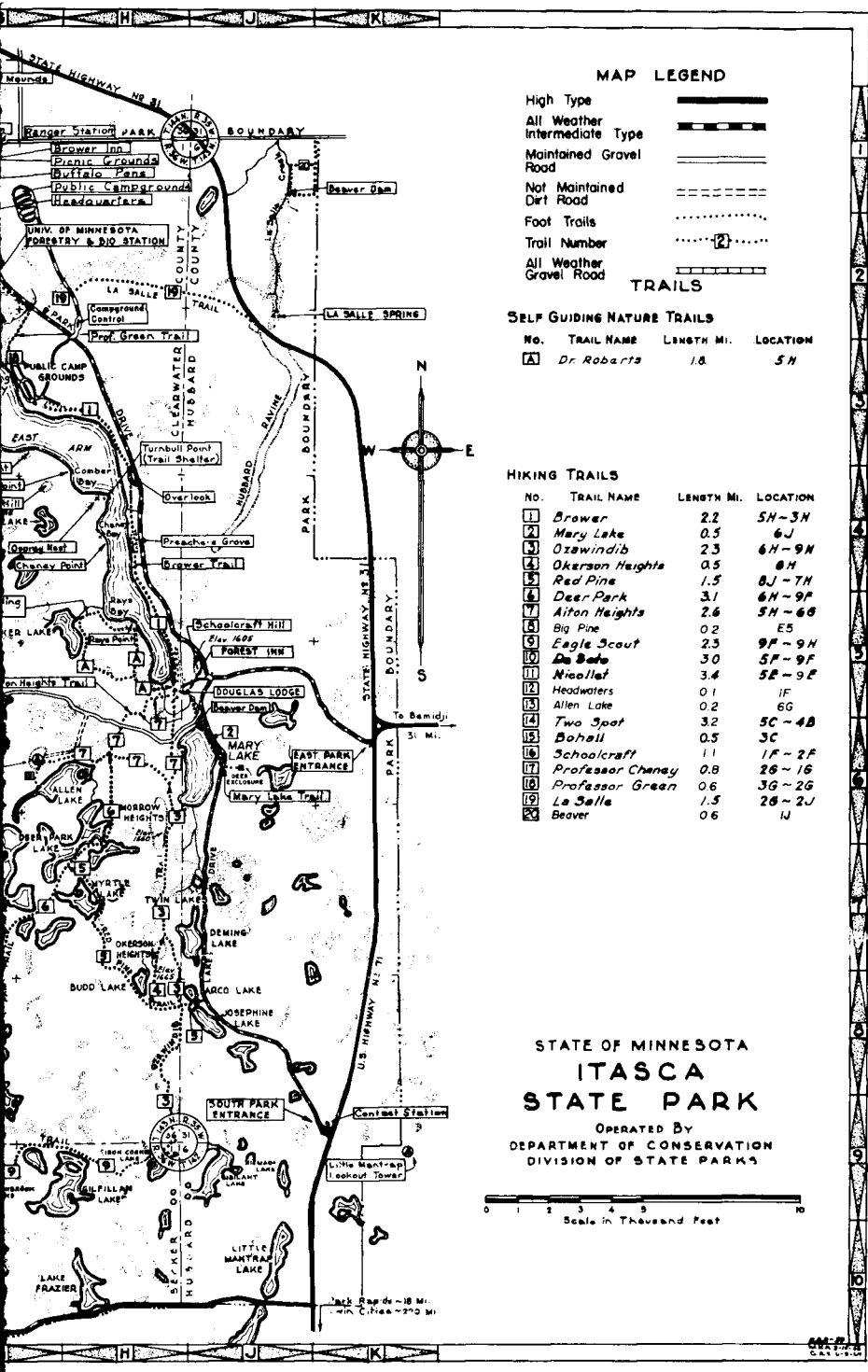
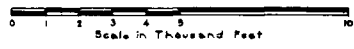
NO.	TRAIL NAME	LENGTH MI.	LOCATION
A	Dr Roberts	1.8	5H

HIKING TRAILS

NO.	TRAIL NAME	LENGTH MI.	LOCATION
1	Brower	2.2	5H-3H
2	Mary Lake	0.5	6J
3	Ozawindib	2.3	6H-9H
4	Okerson Heights	0.5	8H
5	Red Pine	1.5	8J-7H
6	Deer Park	3.1	6H-9F
7	Aiton Heights	2.6	5H-6G
8	Big Pine	0.2	E5
9	Eagle Scout	2.3	9F-9H
10	De Bevo	3.0	5F-9F
11	Nicolet	3.4	5F-9F
12	Headwaters	0.1	IF
13	Allen Lake	0.2	6G
14	Two Spot	3.2	5C-4B
15	Boholl	0.5	3C
16	Schoolcraft	1.1	1F-2F
17	Professor Cheney	0.8	2F-1F
18	Professor Green	0.6	3G-2G
19	La Salle	1.5	2B-2J
20	Beaver	0.6	J

STATE OF MINNESOTA ITASCA STATE PARK

OPERATED BY
DEPARTMENT OF CONSERVATION
DIVISION OF STATE PARKS



Courses of Instruction

¶ Means "concurrent registration."

Means "consent of instructor is required."¹

△ Means "consent of department is required."

Classes begin at 8:00 a.m. and continue all day.

BIOLOGY (Biol)

5870. ITASCA SEMINAR. (Cr ar; prereq #) Staff

Topic selected and scheduled by interested staff members and students during registration.

5890. RESEARCH PROBLEMS AT ITASCA IN ECOLOGY AND BEHAVIORAL BIOLOGY; OR ENTOMOLOGY, FISHERIES, AND WILDLIFE; OR PLANT PATHOLOGY; OR SOIL SCIENCE. (Cr ar; prereq #) Staff

Undergraduate and graduate students may develop a short-term research project in any departmental area listed above during one or both terms.

5950. SPECIAL TOPICS IN BIOLOGY. (5 cr; section 1 limited to 15 students, prereq course in ornithology; section 2 limited to 20 students, prereq course in beginning biology; WS I term)

Sec 1, Advanced Ornithology, James

The emphasis will be on field research projects on special topics such as the relationship between functional morphology and ecology, habitat selection and distribution, microclimate and behavior. Lectures, seminars, preparation and presentation of research reports, exercises in the statistical analysis of field data.

Sec 2, Field Biology Photography, Rubelke

Introduction to general photographic principles as they are applied in photography of natural subjects. Course emphasis on mastery of field techniques applicable to photography of living plants and animals in natural habitats. Lecture and laboratory sessions; field assignments designed to confront students with a diversity of problems to test mastery of theory and techniques. Student must supply own 35mm camera with lenses and/or attachments for closeup and telephoto photography.

BOTANY (Bot)

5801. PLAINS BOREAL FLORA. (5 cr; limited to 20 students; prereq course in taxonomy; MTh; I term) Thomson

Survey of the summer flowering plants and ferns of the state with particular reference to local flora. Identification by technical keys; important plant families; field recognition of common species; habitat preferences; collecting methods; literature; taxonomic methods.

5805. AQUATIC FLOWERING PLANTS. (5 cr; limited to 20 students; prereq course in taxonomy; TF; II term) Wujek

The higher plants of aquatic and marsh habitats. Identification and collection; association of species; relations to the habitat; adaptive morphology and food value to wildlife.

5811. FRESHWATER ALGAE. (5 cr; limited to 20 students; prereq 10 cr botany, biology or zoology; TF; I term) Pfister

The developmental morphology and taxonomy of freshwater algae as related to ecology. Identification of field collections by technical keys, collecting and analytical methods, and utilization of information for recognizing distribution patterns.

¹For consent of EBB 8800 instructors, address inquiries to the Chairman, Field Biology Program, 349 Bell Museum of Natural History, 10 Church Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

- 5815. BRYOPHYTES.** (5 cr; limited to 20 students; prereq 10 cr biology or #; MTh; II term) Vitt
Field and laboratory study of the mosses and liverworts of Minnesota with emphasis on their local ecology and taxonomy.
- 5890. RESEARCH PROBLEMS.** (1-5 cr per qtr, prereq #, Δ /explanation needed if used.)
Individual research for undergraduates and graduates.

ECOLOGY AND BEHAVIORAL BIOLOGY (EBB)

- 3800. FIELD PROBLEMS IN ECOLOGY AND BEHAVIOR.** (10 cr; limited to 20 students; prereq two courses in biology; hrs ar; I term) Barnwell, Morrow
The theory of natural selection will be used as the basis for developing questions about the ecology and behavior of living organisms. Numerous group and individual field projects dealing with a diversity of plants and animals from the Itasca region, using experimental and comparative methods. Intended for undergraduates with little or no previous experience in field biology.
- 5812. AQUATIC ECOLOGY.** (5 cr; limited to 20 students; prereq 15 cr biology, 5 cr chemistry; WS; II term) Megard
General limnology of lakes with emphasis on the biology of lakes in the Itasca region as related to their physical and chemical stratification in summer. Team projects in field research. Emphasis on plankton ecology and water chemistry.
- 5814. COMMUNITY STRUCTURE AND FUNCTIONING.** (5 cr; limited to 20 students; prereq course in ecology; TF; II term) Rogers
Communities represented in Itasca Park and vicinity and their dynamic relationships. Relationships of local communities to the flora and fauna of Minnesota as a whole. Use of modern methods of community analysis and measurement.
- 5815. FIELD ETHOLOGY.** (10 cr; limited to 20 students; prereq course in behavior . . . course in statistics recommended; hrs ar; I term) Alcock
Field course emphasizing the methods of studying behavior of wild animals. Quantitative techniques; sound recording, motion picture photography, sound tape and film analysis, capturing and marking techniques. An individual research project and term paper on the social behavior of one species is required. Individual projects require considerable outside time. Guest lecturers: Michael Carey, University of Scranton, Jonathan K. Waage, Brown University.
- 5834. FIELD ORNITHOLOGY.** (5 cr; limited to 15 students; prereq Biol 1106 or equiv; TF; I term) Owre
Emphasis on the breeding season, biology, and behavioral ecology of birds in the Itasca Park region. Field trips are taken to a variety of habitats to learn bird identification and observe and practice techniques for conducting field studies. Laboratory sessions investigate family distinctions and species identification. Individual field projects.
- 8800. ADVANCED FIELD ECOLOGY.** (10 cr; limited to 24 students; prereq admission to a grad program and #; hrs ar; II term) Strong (coordinator), Allan, Gill, and Inouye
The formulation and testing of ecological theory under field conditions. Group and individual research projects, lectures, seminars, and student presentations on topics such as coevolution, life history strategies, behavioral strategies, resource allocation, and community structure. Guest lecturers: Patrice A. Morrow, G. David Tilman, University of Minnesota, and Jean Stout, Michigan State University.

ENTOMOLOGY (Ent)

- 5020. FIELD ENTOMOLOGY.** (5 cr; limited to 15 students; prereq introductory biology; MTh; I term) Elzinga
Insect fauna in various natural habitats of the park and surrounding areas. Field trips, collection and identification of insects, and studies of general morphology, life histories, and habitats of local species.

FISHERIES (FW)

5456. FIELD ECOLOGY OF FISHES. (5 cr; limited to 15 students; prereq EBB 3004; MTh; II term)

Ross

Ecological studies, observation and identification of fishes in their natural habitat including life histories, reproduction, behavior, food habits, interrelationships with other fishes, and general habitat requirements. Collection methods in streams and lakes.

PLANT PATHOLOGY (PIPa)

5102. FIELD MYCOLOGY. (5 cr; limited to 15 students; prereq 6 cr botany; MTh; II term) Stewart

Survey of the major groups of fungi including slime molds, with emphasis on field collecting, identification, life history, and the impact on human affairs. Modern taxonomic concepts evaluated in laboratory sessions.

SOIL SCIENCE (Soil)

5532. SOILS AND THE ECOSYSTEM. (5 cr; limited to 20 students; prepreq course in ecology; WS; II term) Nimlos

Functional and structural aspects of soils as a compound of the ecosystem. Interrelationships of soil and vegetation of the landscape.

PROPOSED COURSE PROGRAMS

To help students make the most effective use of the academic resources of the Biology Session, the following program of annual and projected courses is presented. Changes in the projected schedule may be made to take advantage of especially competent staff members or to meet enrollment needs.

Annual Course Offerings

Bot 5801, 5805, 5811

EBB 5812, 5814, 5815, 5834

Ent 5020

PIPa 5102

Proposed Courses for 1982

Biol 5950. Field Biology Photography at Itasca

Bot 5821. Lichens

Bot 5960. Special Topics: Biology of the Ferns

EBB 3800. Field Problems in Ecology and Behavior

EBB 5820. Wetland Ecology

EBB 8800. Advanced Field Ecology

FW 5456. Field Ecology of Fishes

SPRING TERM

A number of courses are offered at the Forestry and Biological Station during spring quarter. Most of these courses commence on the Twin Cities campus and move to Itasca on or about May 1 for a 5-week period of intensive field work during an attractive time of year. Interested persons should contact the Chairman of the Field Biology Program, 349 Bell Museum of Natural History, 10 Church Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

Proposed Courses for 1981 Spring Term

EBB 5817. Vertebrate Ecology (5 cr)

EBB 5834. Field Ornithology (5 cr)

One additional field course (5 cr) to be developed



Recent Research Publications

- BAKER, A. L. and A. J. BROOK. Optical density profiles as an aid to the study of microstratified phytoplankton populations in lakes. *Archiv fur Hydrobiol.* 69(2):214-233. 1971.
- BENTON, A. H., O. R. LARSON and B. A. VENHUIZEN. Siphonaptera from Itasca State Park region. *J. Minn. Acad. Sci.*, 37:91-92. 1971.
- FISHBECK, D. W. and J. C. UNDERHILL. Distribution of stripe polymorphism in wood frogs, *Rana sylvatica* LeConte, from Minnesota. *Copeia*, 2:253-259. 1971.
- GOOD, R. E. and N. F. GOOD. Vegetation of a Minnesota prairie and a comparison of methods. *Amer. Midl. Nat.*, 85(1):228-231. 1971.
- GORHAM, E. and R. H. HOFSTETTER. The penetration of bog peats and lake sediments by tritium from atmospheric fallout. *Ecology*, 52:898-902. 1971.
- HEDEEN, STANLEY E. Growth of the tadpoles of the mink frog, *Rana septentrionalis*. *Herpetologica*, 27(2):160-165. 1971.
- MEYER, RICHARD L. The life history and systematic position of *Derepyxis* (Chrysophyceae). *J. Phycol.*, 7:66. 1971.
- MEYER, R. L. and A. J. BROOK. Freshwater algae from Itasca State Park, Minnesota. IV. Cyanophyta, Rhodophyta, Chloromonodophyceae, and Cryptophyceae. *Nova Hedwigia*, 22:649-658. 1971.
- PARMELEE, DAVID F. Nesting of ring-billed gulls on Leech Lake, Cass County, Minnesota. *Loon*, 43(3):72-74. 1971.
- SHAFFER, ELLEN. Incidence of trematode infection of snails in a small Minnesota lake. *J. Minn. Acad. Sci.*, 37(1):27-30. 1971.
- SHAY, C. T. The Itasca bison kill site: an ecological analysis. *Minnesota Historical Society*. 1971.
- THIERET, JOHN W. Observations on some aquatic plants in northwestern Minnesota. *The Michigan Botanist*, 10:117-124. 1971.
- UTTER, J. M., E. A. LEFEBVRE and J. S. GREENLAW. A technique for sampling blood from small passerines. *Auk*, 88(1):169-171. 1971.
- MORLEY, T. Deciduous trees of Minnesota, a winter key. *J. Minn. Acad. Sci.*, 38:27-36. 1972.
- PARMELEE, DAVID F. and RICHARD J. OEHLenschLAGER. Connecticut warbler nest in Hubbard County, Minnesota. *Loon*, 44(1):5-6. 1972.
- SCHMID, WILLIAM D. Nocturnalism and variance in ambient water vapor pressure. *Physiol. Zool.*, 45(4):302-309. 1972.
- TARAPCHAK, STEVE. Studies on xanthophyceae of the Red Lakes wetlands, Minnesota. *Nova Hedwigia*, 23:1-45. 1972.
- WEAVER, MARGARET G. and ROBERT L. SHAFFER. Higher fungi of Minnesota. II. *J. Minn. Acad. Sci.*, 38:46-52. 1972.
- BROWN, ERNEST B. III. Changes in patterns of seasonal growth of *Microtus pennsylvanicus*. *Ecology*, 54(5):1103-1110. 1973.
- ORING, LEWIS W. and M. L. KNUDSON. Monogamy and polyandry in the spotted sandpiper. *Living Bird*, 12:59-73. 1973.
- ROLLINS, LOUISE A. Poriferan fauna of a Minnesota pond. *J. Minn. Acad. Sci.*, 38(2):83-85. 1973.
- WIGGINS, GLENN B. A contribution to the biology of caddis flies (Trichoptera) in temporary pools. *Royal Ontario Museum, Life Sciences Contribution #88*. 1973.
- BOERNKE, W. E. Natural variations in hepatic and kidney arginase activities in Minnesota anuran amphibians. *Comp. Biochem. Physiol.*, 47B:201-207. 1974.
- MCINTYRE, JUDITH W. Territorial affinity of a common loon. *Bird Banding*. 1974.
- PARMELEE, DAVID F. The nest of the northern parula. *Living Bird*, 12:197-199. 1974.
- SCHLICHTING, H. E., JR. Ejection of microalgae into the air via bursting bubbles. *J. Allergy and Clinical Immunology*, 53(3):185-188. 1974.
- SCHLICHTING, H. E., JR. Periodicity and seasonality of airborne algae and protozoa. In *Phenology and Seasonality Modeling. Ecological Studies*, 8:407-413. 1974.
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- SCHLICHTING, H. E., JR., G. N. PRENDEVILLE and M. D. GUIRY. *New techniques for biological monitoring of water quality. Biocontrol Techniques*, 1(1):1-3. 1974.
- WALSBY, A. E. and A. R. KLEMER. The role of gas vacuoles in the microstratification of a population of *Oscillatoria agardhii* var. *isothrix* in Deming Lake, Minnesota. *Arch. Hydrobiol.*, 74(3):375-392. 1974.
- WHITESIDE, M. C. Chydorid (Cladocera) ecology: seasonal patterns and abundance of populations in Elk Lake, Minnesota. *Ecology*, 55(3):538-550. 1974.
- BAKKE, EUGENE B. A field water balance study of gray squirrels (*Sciurus carolinensis*) and red squirrels (*Tamiasciurus hudsonicus*). *Comp. Biochem. Physiol.*, 51A:759-768. 1975.
- BAKKE, EUGENE B. Influence of collecting techniques on estimate of natural renal function in red squirrels. *Amer. Midl. Nat.*, 97(2):502-504. 1975.
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- GILBERTSON, D. E. and L. SCHMID. Free amino acids in the hemolymph of five species of pulmonate snails. *Comp. Biochem. Physiol.*, 51B:201-203. 1975.
- GILBERTSON, D. E. and R. WEDLUND. Studies on schistosome dermatitis ("swimmer's itch") in Minnesota. *J. Minn. Acad. Sci.*, 41:28-30. 1975.
- LARSON, O. R. and W. C. SCHARF. New helminth records from Minnesota mammals. *Proc. Helminthological Soc. Wash.*, 42(2):174-175. 1975.
- SCHLICHTING, H. E., JR. Some subaerial algae from Ireland. *Br. Phycol. J.*, 10:257-261. 1975.
- WHITESIDE, M. C. and J. B. WILLIAMS. A new sampling technique for aquatic ecologists. *Verh. Internat. Verein. Linnol.*, 19:1534-1539. 1975.

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- HEIDEMANN, MERLE KNUDSON and LEWIS W. ORING. Functional analysis of spotted sandpiper (*Actitis macularia*) song. Behaviour, 56 (1-3):182-193. 1976.
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- MCCOLL, J. G. and JOANNA BURGER. Chemical inputs by a colony of Franklin's gulls nesting in cattails. Amer. Midl. Nat., 96(2):270-280. 1976.
- MCINTYRE, JUDITH W. Toe-banding of common loon chicks. Bird-Banding, 48(3):272. 1976.
- MCINTYRE, JUDY. The common loon: part I. Loon, 48(3):126-127. 1976.
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- STARK, DONNA M. Paleolimnology of Elk Lake, Itasca State Park, northwestern Minnesota. Arch. Hydrobiol., 50:208-274. 1976.
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- BOERNKE, WILLIAM E. A comparison of arginase maximum velocities from several poikilotherms and homeotherms. Comp. Biochem. Physiol., 36B:113-116. 1977.
- CHRISTIANSON, LEE. Winter movements of *Peromyscus* across a lake in northern Minnesota. J. of Mammalogy, 58(2):244. 1977.
- MCINTYRE, JUDY. The common loon: part II. Loon, 49(2):96-97. 1977.
- MCINTYRE, JUDY and J. MATHISEN. Artificial islands as nest sites for common loons. J. Wldl. Manage., 41(2):317-319. 1977.



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- STASIAK, RICHARD H. Morphology and variation in the Finescale Dace, *Chrosomus neogaeus*. *Copeia*, 4:771-774. 1977.
- WINTER, JIMMY D. Summer home range movements and habitat use by four largemouth bass in Mary Lake, Minnesota. *Trans. Amer. Fisheries Soc.*, 106(4):323-330. 1977.
- BOWERS, FRANK D. and JAMES PECK. The bryophyte flora of Fremont County, Iowa. *Iowa Bird Life* 48:18-20. 1978.
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- STASIAK, RICHARD H. Reproduction, age, and growth of the finescale dace, *Chrosomus neogaeus*, in Minnesota. *Trans. Am. Fish. Soc.*, 107(5):720-723. 1978.
- WHITESIDE, M. C., J. B. WILLIAMS and C. P. WHITE. Seasonal abundance and pattern of Chydorid (cladocera) in mud and vegetative habitats. *Ecology*, 59:1177-1188. 1978.
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- BOVEE, EUGENE C. Protozoa from acid-bog mosses and forest mosses of the Lake Itasca region. *University of Kansas Science Bulletin*, 51(21):615-629. 1979.
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- PARMELEE, DAVID F. Itasca Birds. *Loon* 52(2):51-58. 1980.

OCCASIONAL PAPERS

Field Biology Program occasional paper number one is *History of the Lake Itasca Biology Sessions* by A. C. Hodson (University of Minnesota, 1979). Dr. Hodson is a University of Minnesota emeritus professor and former head of the Department of Entomology, Fisheries, and Wildlife. Individuals or parties interested in obtaining complimentary copies should write to the Chairman, Field Biology Program, 349 Bell Museum of Natural History, 10 Church Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.



Graduate Student Theses

- HEDEEN, STANLEY E. The ecology and life history of the mink frog, *Rana septentrionalis* Baird. Ph.D. Thesis. 1970.
- NELSON, DARBY M. Ecology of the cisco, *Coregonus artedii*, in two Minnesota lakes. Ph.D. Thesis. 1970.
- ANTHONY, R. S. Mechanism of varve formation in Lake of the Clouds, Lake County, Minnesota. M.S. Thesis. 1971.
- BALL, I. J. Movements, habitat use, and behavior of wood duck (*Aix sponsa*) broods in north-central Minnesota as determined by radio tracking. M.S. Thesis. 1971.
- BLAND, R. D. The spatial distribution of desmids in certain northern Minnesota lakes. Ph.D. Thesis. 1971.
- BROWN, E. B. Some aspects of the ecology of the small, winter-active mammals of a field and adjacent woods in Itasca State Park, Minnesota. Ph.D. Thesis. 1971.
- GILMER, DAVID S. Home range and habitat use of breeding mallards (*Anas platyrhynchos*) and wood ducks (*Aix sponsa*) in north-central Minnesota as determined by radio tracking. Ph.D. Thesis. 1971.
- LANG, JEFFREY W. Overwintering of three species of snakes in northwestern Minnesota. M.S. Thesis, University of North Dakota. 1971.
- STARK, DONNA M. I. A paleolimnological study of Elk Lake in Itasca State Park, Clearwater County, Minnesota. Ph.D. Thesis. 1971.
- URBAN, RICHARD D. The psammon dynamics on bars and beaches of two small northwestern Minnesota streams. Ph.D. Thesis, University of North Dakota. 1971.
- BOERNKE, WILLIAM E. Adaptations of the amphibian ornithine-urea cycle enzyme, arginase. Ph.D. Thesis. 1972.
- BURGER, JOANNA. Breeding adaptations of Franklin's gull (*Larus pipixcan*) to a marsh habitat. Ph.D. Thesis. 1972.
- KNUDSON, MERLE L. Functional analysis of song in the spotted sandpiper, *Actitis macularia* (L.). M.S. Thesis, University of North Dakota. 1972.
- STASIAK, RICHARD H. The morphology and life history of the finescale dace, *Pfrittle neogaea*, in Itasca State Park, Minnesota. Ph.D. Thesis. 1972.
- SWAIN, PATRICIA C. An analysis of morphological differences among oaks in selected Minnesota stands of the *Quercus borealis-Q. ellipsoidalis*. M.S. Thesis. 1972.
- BAKER, ALAN L. Microstratification of phytoplankton in selected Minnesota lakes. Ph.D. Thesis. 1973.
- BAKKO, EUGENE. Comparative study of water balance of four sciurid rodents. Ph.D. Thesis. 1973.
- KLEMER, ANDREW R. Factors affecting the vertical distribution of a blue-green alga. Ph.D. Thesis. 1973.
- COINER, SUSAN T. Some aspects of the behavior and physiology of the chipmunk, *Tamias striatus*. M.S. Thesis. 1974.
- PIVORUN, EDWARD B. Studies on thermoregulation and metabolism of hibernating chipmunks. Ph.D. Thesis. 1974.
- HALL, RONALD J. Life history, drift, and production rate of the steam mayfly (*Tricorythodes athratus* McDunnough) in the headwaters of the Mississippi River. Ph.D. Thesis. 1975.
- HAMAS, MICHAEL J. Ecological and physiological adaptations for breeding in the belted kingfisher (*Megasceryle alcyon*). Ph.D. Thesis. 1975.
- MCINTYRE, JUDITH W. The breeding biology and behavior of the common loon in relation to man-altered environments. Ph.D. Thesis. 1975.
- WHITE, C. P. The Chydorid (cladocera) communities associated with the mud habitats of Lake Itasca, Minnesota. M.S. Thesis, University of Tennessee. 1975.
- AASENG, NORMAN EDWARD. The history, nature, and extent of the major logging operations in Itasca State Park (1901-1919). M.S. Thesis. 1976.
- BAKER, KATHLEEN KROMER. Taxonomy and ecology of *Aphanizomenon* in five Minnesota lakes. Ph.D. Thesis. 1976.
- RUBBELKE, DONALD L. Distribution and relative abundance of potential prey of spotted sandpipers (*Actitis macularia* L.) on Little Pelican Island, Leech Lake, Cass County, Minnesota. M.S. Thesis, University of North Dakota. 1976.
- WARNER, GLORIA M. Seasonal, habitat, and survival studies of viable fungi carried by migratory birds. Ph.D. Thesis. 1976.
- WINTER, J. D. Movements and behavior of largemouth bass (*Micropterus salmoides*) and steelhead (*Salmo gairdneri*) determined by radio telemetry. Ph.D. Thesis. 1976.
- COINER, SUSAN T. A comparison of seasonal patterns in epithelial sodium transport among three species of ranid frogs from different habitats. Ph.D. Thesis. 1977.
- DOOLITTLE, W. L. Qualitative differences in lake biota due to fish predation. M.S. Thesis, University of Tennessee. 1977.
- PEZALLA, VIRGINIA A. MOYLE. The behavioral ecology of a dragonfly, *Libellula pulchella*. Ph.D. Thesis. 1977.
- PITTINGER, C. A. A comparative analysis of littoral and limnetic microcrustacean communities of Lake Itasca, Minnesota. M.S. Thesis, University of Tennessee. 1978.
- WILLIAMS, J. B. Seasonal abundance, pattern, and some population parameters of the Chydoridae in Lake Itasca, Minnesota. Ph.D. Thesis, University of Tennessee. 1978.

Condensed Course Schedule¹

I TERM

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Bot 5801	Bot 5811	Biol 5950 sec 1	Bot 5801	Bot 5811	Biol 5950 sec 1
Ent 5020	EBB 5834	Biol 5950 sec 2	Ent 5020	EBB 5834	Biol 5950 sec 2

EBB 3800 and 5815 (10-credit courses) to be arranged

II TERM

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Bot 5815	Bot 5805	EBB 5812	Bot 5815	Bot 5805	EBB 5812
FW 5456	EBB 5814	Soil 5532	FW 5456	EBB 5814	Soil 5532
PIPa 5102			PIPa 5102		

EBB 8800 (10-credit course) to be arranged

¹Schedule only one course per day.

Request for Reservation—ITASCA BIOLOGY SESSION

Name _____ Date _____

Current Address _____

City _____ State _____ Zip _____

Telephone: Office _____ Home _____

Present Status: Grad, Adult Special, Freshman, Sophomore, Junior, Senior (circle one)

Status by Summer 1981: _____

University or College Now Attending: _____

If U of M, College in Which Last Enrolled _____ Year _____

TERM I

TERM II

Dept. _____ No. _____ Dept. _____ No. _____

Dept. _____ No. _____ Dept. _____ No. _____

(See condensed course schedule to avoid conflicts)

I wish a reservation in a:

STUDENT CABIN _____ CAMPGROUND SITE _____ RESORT _____ (check one)

Enclosed find a \$40 or \$80 deposit (check or money order payable to the University of Minnesota) to be credited to the tuition fee upon completion of registration. A letter of evaluation from my adviser or supervisor, the Summer Information Sheet, and a recent transcript of my academic record, including a listing of all courses being taken at present, are enclosed or will be sent directly (circle one).

IMPORTANT: Applications will not be reviewed until all items listed above are received. Please mail this form to:

Chairman, Field Biology Program
349 Bell Museum of Natural History
10 Church Street S.E.
University of Minnesota
Minneapolis, Minnesota 55455

SUMMER INFORMATION SHEET

Office of Admissions and Records

Name (Last, first, middle, maiden) _____ ID Number _____

Permanent Home Address (Number, city, county, state) _____

Summer Term: I ___ II ___ _____ Male ___ Female ___
Date of Birth: (Month, day, year) _____

Have you ever been registered in University of Minnesota day classes, including summer? Yes ___ No ___
When _____ Last College _____

Have you applied for admission or have you been admitted to the University of Minnesota? Yes ___ No ___
If yes, what college? _____

College of University of Minnesota in which you are now registering? _____

Social Security Number _____
Current Mailing Address (Number, city, state, zip) _____

Telephone Number _____

Mail to: Chairman/Field Biology Program/349 Bell Museum/10 Church Street S.E./University of Minnesota/Minneapolis, MN 55455

Note: This Summer Information Sheet must accompany your Request for Reservation.

Equal Opportunity Statement

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, creed, color, sex, national origin, or handicap. In adhering to this policy, the University abides by the requirements of Title IX of the Education Amendments of 1972, by Sections 503 and 504 of the Rehabilitation Act of 1973, and by other applicable statutes and regulations relating to equality of opportunity.

Inquiries regarding compliance may be directed to Lillian H. Williams, Director, Office of Equal Opportunity and Affirmative Action, 419 Morrill Hall, 100 Church Street S.E., University of Minnesota, Minneapolis, Minnesota 55455, (612) 373-7969, or to the Director of the Office of Civil Rights, Department of Education, Washington, D.C. 20202, or to the Director of the Office of Federal Contract Compliance Programs, Department of Labor, Washington, D.C. 20210.

Access to Student Educational Records

In accordance with regents' policy on access to student records, information about a student generally may not be released to a third party without the student's permission. The policy also permits students to review their educational records and to challenge the contents of those records.

Some student information — name, address, telephone number, dates of attendance, college and class, major, adviser, and degrees earned — is considered public or directory information. To prevent release of such information outside the University while in attendance at the University, a student must notify the records office on his or her campus.

Students are notified annually of their right to review their educational records. The regents' policy, including a directory of student records, is available for review at the information booth in Williamson Hall, Twin Cities campus/Minneapolis, and at records offices on other campuses of the University. Questions may be directed to the Office of the Coordinator of Student Support Services, 260E Williamson Hall, (612) 373-2106.

