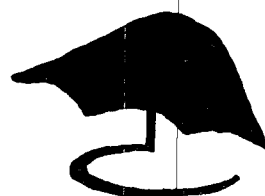
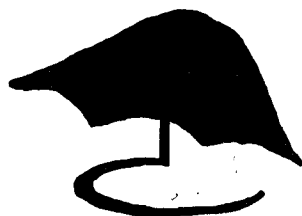


University of Minnesota Bulletin



Twin Cities Campus SUMMER SESSION 1991



Term I
June 11-July 16

Term II
July 18-August 21

Where to call for information

Summer Session Office 624-3555

Office hours are Monday through Friday, 8:00 a.m. to 4:30 p.m.

Beginning Monday, April 8, the office will stay open on all Mondays until 6:00 p.m.

If the number you need is not listed below or if you need personal assistance, please call the Summer Session office directly, or write: Summer Session, 135 Johnston Hall, University of Minnesota, 101 Pleasant Street S.E., Minneapolis, MN 55455.

University Information Service 625-5000

- Advisers
 - CLA summer-only students 625-2020
 - College of Education 625-6501
 - Extension and Summer Session Counseling 625-2500
- Admissions 625-2008
 - Adult Special, advanced standing, and international students 625-2008
 - Master of Business Administration Office 624-0006
 - New students for fall, 1991 624-0666
- Bookstores
 - Minnesota Book Center, East Bank 625-6000
 - Books Underground, St. Paul 624-9200
 - Smith Bookstore, West Bank 625-3000
- Certifications/Transcripts 625-5333
- College Offices
 - Agriculture, 277 Coffey Hall 624-3009
 - Architecture and Landscape Architecture, 110 Arch 624-7866
 - Biological Sciences, 223 Snyder Hall 624-9717
 - Dental Hygiene, 9-436 Moos Health Sciences Tower 625-9121
 - Education, 1425 University Ave. S.E. 625-6501
 - General College, 109 Appleby Hall 625-6663
 - Graduate School, 307 Johnston Hall 625-3014
 - Human Ecology, 32 McNeal Hall 624-1717
 - Liberal Arts
 - Regular students: College Office, 214 Johnston Hall 625-2020
 - High school students: 49 Johnston Hall 626-1666
 - Summer-only students: B-18 Johnston Hall 624-9585

- School of Management, 230 Management and Economics Building 625-0027
- Medical Technology, 15-170 Phillips-Wangensteen Building 625-9490
- Medicine, 14-106 Phillips-Wangensteen Bldg. 625-3220
- Military Science, 108 Armory Building 624-7300
- Mortuary Science, A-275 Mayo Memorial Bldg. 624-6464
- Natural Resources, 135 Nat Res Adm. 624-6768
- Nursing, 6-101 Health Sciences Unit F 624-9600
- Pharmacy, 5-130 Health Sciences Unit F 624-1900
- Physical and Occupational Therapy, 860 Mayo Memorial Building 626-4050
- Humphrey Institute of Public Affairs, 300 Hubert H. Humphrey Center 625-9505
- Public Health, A-302 Mayo Memorial Building 624-6669
- Institute of Technology, 105 Walter Library 624-2006
- University College, 317 Walter Library 624-2022
- Veterinary Medicine, 460 Veterinary Teaching Hospitals 624-4747
- Extension Classes Information 625-3333
- Financial Aid 624-1665
- Handicapped Services 624-4037
- Housing 624-2994
- Independent Study 624-0000
- Medical Services
 - Boynton Health Service 625-8400
 - Emergency Room, University Hospital (24 hour) 626-2700
- Parking Office 625-3337
- Recreational Sports 625-6800
- Student Accounts Receivable 625-8500
- Student Employment 624-8070
- Transcripts 625-5333
- Veteran's Information 625-8076

BULLETIN REQUESTS

- Graduate School 625-3014
- Extension Classes (Summer Evening classes) 624-2388
- Summer Session 624-3555
- Other College Bulletins 625-3030



Welcome to summer

The University of Minnesota-Twin Cities conducts the largest Summer Session in the nation.

Each summer students and visitors from throughout the world enjoy the advantages offered by the University's curriculum, faculty and facilities. Regular credit courses, normally taught during five or ten-week sessions, are augmented by the Itasca biology and forestry sessions, institutes, workshops, conferences, lectures, films, concerts on the mall, theatre productions on the Centennial Showboat, and recreational activities of all sorts. Summer Session offerings are also joined by evening extension classes and hundreds of special programs for a broad variety of audiences, giving the campus in summer a vibrancy unlike that found at any other time of year.

You can enjoy the campus in summer for many reasons—

- Make up credits
- Accelerate progress toward your degree
- Take courses which are difficult to schedule during the academic year
- Experience smaller classes
- Experience a more relaxed and informal atmosphere
- Find easier parking

The U of M in summer has something for you—

- If you're a continuing University student
- If you're a summer-only visiting student
- If you're an incoming Freshman
- If you're a professional who needs to keep up on developments in your field
- If you're a high school student (over twenty different academic programs)
- If you're an adult of any age who is interested in personal enrichment

Summer Session in 110th year

One hundred-ten years ago, in the summer of 1881, forty-two students came to the first Summer Session to study botany, chemistry, and geology.

Today, Summer Session brings over 1500 courses to more than 20,000 students on three campuses.

For many years summer courses were designed primarily for teachers. The land grant universities of the nation were established before there were high schools and at a time when those teaching at the elementary level had minimal training and experience. When Abraham Lincoln was inaugurated there was only one high school in Minnesota, and there were few more when the University was founded.

Thus, a major objective of the Summer Session in those early years was to help establish and improve the state's educational systems.

According to the Summer Session bulletin of 1909, the summer school was located in Minneapolis, "a delightful place of summer residence," and was organized in two units, the elementary and the college sections. The elementary section offered Minnesota teachers free courses leading to certification. The college section, also planned primarily for teachers, led to a college degree and charged tuition fees; teachers paid \$4 for the college courses, while others could enroll for \$9.

With the arrival in 1911 of George Edgar Vincent as third president of the University, a

greater commitment was initiated to extend the services of the University to as many Minnesotans as possible.

While President Vincent was instrumental in establishing Summer Session as well as the General Extension Division, it was Lotus D. Coffman, who directed Summer Session from 1916 to 1920 and was later university president, who gave formal shape to its organization.

Today's Summer Session is significantly different from that of the past. While teachers still make up an important part of summer enrollments, the largest number of students is represented by the College of Liberal Arts. The Summer Session provides a "fourth quarter" of sorts for students who currently attend the University; in fact, roughly two-thirds of those who attend Summer Session have been enrolled in the preceding academic year. But many others also take advantage of the educational opportunities offered by Summer Session, including those who attend other colleges and universities, those who wish to improve their job skills or simply take courses for enjoyment and personal fulfillment, and qualified high school students.

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Worth Noting

*Special Olympics
to be held in
Twin Cities
in 1991*



The Eighth International

Special Olympics Games for athletes with mental retardation will be the largest sporting event in the world held in 1991 and the largest international multi-sport ever held in Minnesota. Six thousand athletes representing nearly 90 nations around the world will come to Minneapolis/Saint Paul for a week of sports competition July 19-27, 1991.

The University of Minnesota will play a large part in putting on this world-class event as it will be the site of the track and field, aquatics, basketball, team handball, and rollerskating events, as well as home for 4,500 athletes in six of the University's dormitories. Students attending Summer Session have the unique opportunity to observe these free events taking place on campus and experience the thrill of international competition.

Important facts and dates...at a glance

For a 5-Week Course offered through the College of Liberal Arts:

(Other colleges may require professor or departmental signatures. Please call the department.)

The Last Day to:

	<u>Term I</u>	<u>Term II</u>
Register	First day of class	First day of class
Add or Change Section	June 17	July 24
Cancel Course (without transcript notation)	June 17	July 24
Change Grading System	June 17	July 24
Refund if Cancel by:		
100%	June 14	July 23
75%	June 18	July 25
50%	June 20	July 29

Pay Fees—Payment due date is listed on fee statement.

Student Services Fee—A student-set fee paid each summer term by all students registering for 3 or more credits. A listing of services provided by the Student Services Fee is available.

Hospitalization Insurance—is required by the University. If you are not covered by a hospitalization insurance policy, you will be required to purchase hospitalization insurance through the University. An additional \$41-\$124 will be included on your fee statement. See page 27.

Mail Registration—is available *only* to summer-only students in the College of Liberal Arts, and previous summer-only, M.Ed., and adult special students registering through the College of Education.

Tuition and Fees—are listed by college on pages 22-24.


MAY

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6 Advance registration for Term I and Term II begins for academic year students	7	8	9 Early Fall registration begins	10	11
12	13	14	15	16	17	18
19	20 Summer-only students begin registration; other registration continues	21	22	23	24	25
26	27	28	29	30	31	

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	Term I and Term II registration continues for academic year, and for summer-only students					8
9		11 Term I classes begin	12 \$10 late registration fee	13	14	15
16	17	18 \$20 late registration fee	19	20	21	22
23	24	25	26	27	28	29 / 30
Registration for Term II continues for academic year and for summer-only students						

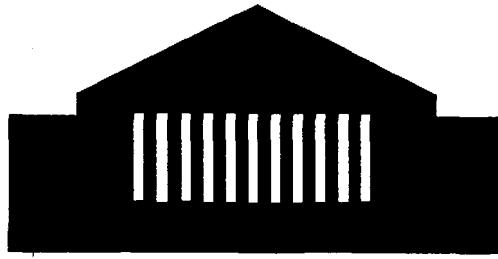
JUNE

JULY

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4  Holiday	5	6
7	8	9	10	11	12	13
14	15	16 Last class meeting of Term I	17	18 Term II classes begin	19 \$10 late registration fee	20
21	22	23	24	25	26 \$20 late registration fee	27
28	29	30	31			

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21 Last class meeting of Term II	22	23	24
25	26	27	28	29	30	31

AUGUST



Registration

INTRODUCTION

Summer session courses at the University of Minnesota, Twin Cities, are open to anyone who is a high school graduate (with or without college experience) and high school students who have completed the 10th or 11th grade and who are in the top 20% of their class.

For registration purposes, you are either an "academic year" student or a "summer-only" student. Procedures and policies vary slightly depending on the type of student you are.

- **Academic Year Students**—You are an academic year student if both of the following apply to you:

You have been officially admitted to any Twin Cities unit of the University and

You have registered in that unit during any fall, winter, or spring quarter. (If your admission is effective summer 1991, you will receive registration instructions from your college office.)

NOTE: If you have graduated from a Twin Cities unit of the University, you are, in most instances, considered an academic year student.

Follow the registration instructions for academic year students on pages 13-17.

- **Summer-only Students**—You are a summer-only student if any of the following apply to you:

You have never registered for any course in a degree program at the University of Minnesota.

You have registered at the University during previous summers but have not been admitted to a Twin Cities unit of the University.

You are a student at another campus of the University of Minnesota (Crookston, Duluth, Morris, or Waseca) or at another college or university.

You have been admitted to a Twin Cities college for fall 1991. (If your admission is effective summer 1991, you are considered an academic year student and will receive registration instructions from your college office.)

You are a high school student.

Follow the registration instructions for summer-only students on pages 9-12.

REGISTRATION SERVICES

Summer Session Office

135 Johnston Hall, Minneapolis
Monday-Friday 8 a.m.-4:30 p.m.
Mondays, 8 a.m.-6 p.m. beginning
April 8. 612/624-3555

For general information and help on all summer session concerns. Summer bulletins available.

Registration Center

202 Fraser Hall, Minneapolis
Monday 8 a.m.-6 p.m.; Tuesday-Friday 8-4; June 11, July 18 8-5:30

For turning in scholarships, registration materials, cancel-add materials, and obtaining fee statements.

Office of the Registrar

150/155 Williamson Hall
Monday 8 a.m.-6 p.m.; Tuesday-Friday 8-4; June 11, July 18 8-5:30
Transcript Service (155), 624-4115
For regular service for official transcripts (\$3 charge), rush service for official transcripts (\$6 charge), and for unofficial copies of student records (limit one copy per day).

Student Relations (150), 625-5333
For assistance with individual student record problems,

questions; registration services for students with mobility impairments; name and address changes; student loan deferments; turning in Application for Degree forms.

Certifications (155), 625-5333
For certification letters and Veterans certification.

St. Paul Admissions and Records
130 Coffey Hall, 624-3731
Monday 8 a.m.-6 p.m.
Tuesday-Friday 8-4

Registration Service
For turning in registration materials and cancel-add materials and obtaining fee statements (St. Paul colleges, College of Architecture

and Landscape Architecture, College of Education, and Graduate School only).

Student Contact Area
For registration services for students with disabilities. For assistance with individual student record problems and questions; for certifications; for turning in Application for Degree forms and address changes. For regular service for official transcripts (\$3 charge), rush service for official transcripts (\$6 charge), and for unofficial copies of students records (limit one copy per day).
For obtaining college bulletins.

Student Accounts Receivable
20 Fraser Hall, 625-8500
107 Coffey Hall
Monday-Friday 8-3:30

For obtaining refunds, obtaining fee payment verifications, receiving assistance with student billing problems, questions. Picture ID required for service.

Bursar's Office
145 Williamson Hall, East Bank
Anderson Hall ground level, West Bank
107 Coffey Hall, St. Paul
Monday-Friday 8-3:30

For paying tuition and fees, cashing refund vouchers and checks (student ID card and bottom half of fee statement necessary for check cashing; \$50 limit per day; \$.25 charge per check; \$15 charge for returned check), purchasing deposit cards and student ID card authorizations.

ID Card Office
248 Williamson Hall
Monday-Friday 8-4;
June 11, July 18 8-5:30

For obtaining new student ID cards (summer-only students are not issued student ID cards: your course confirmation form is your proof of enrollment); lost ID cards turned in.

Information Center
first floor concourse,
Williamson Hall
Monday-Friday 7:45-4:30;
June 11, July 18 8-5:30

For obtaining college bulletins, maps, campus bus information (routes 13 and 52 only), and miscellaneous publications and information.

Scenes of Northrop Plaza and Mall...the heart of the Twin Cities (East Bank) campus



The Twin Cities campus is dotted with green and grassy places to enjoy lunchtime volleyball, study under a shady tree, or to meet and picnic with your friends over the noon hour.



Northrop Auditorium dominates the north end of the Mall...the heart of the Minneapolis campus. Northrop Plaza is the scene of daily noontime concerts, and the umbrellaed tables and chairs provide a comfortable place to eat and study.



Moore by Four entertains at a concert on the Northrop Plaza



Graduation, with its colorful pageantry, takes place every spring in Northrop Auditorium. The graduates parade from Coffman Memorial Union at the south end of the Mall to Northrop where the ceremonies take place.

Registration Checklist



A Registration Check List—

Run through the check list below before you go to your registration center. You will be able to avoid frustrating delays by following these hints:

- ✓ **Are your Course Request forms filled out completely?** Fill out a separate form for each term. (Forms are found in the back of this bulletin.) Use the guide on page 138. List alternate courses in case your first choices are not available. Obtain college office approval (department office in I.T.) if required.
- ✓ **Do you need to complete a Summer-only form?** If you are a summer-only student (see page 141), be sure to complete this form and have it approved, if necessary, before you go to the registration center (Summer-only forms are found in the back of this bulletin).
- ✓ **Can you register by mail?** Summer-only students in the College of Liberal Arts or in the College of Education, see pages 10-11. M.Ed. and adult special students in the College of Education see page 14.
- ✓ **Do you know the name and policy number of your hospitalization insurance company or HMO?** Unless you provide this information on the Student Hospitalization Insurance Form (page 143) when you register, you will automatically be charged for University-sponsored hospitalization insurance if you take 3 or more credits per summer term. See Health Service and Hospitalization Charges, page 27, for more information.
- ✓ **Have you filled out a Student Immunization Form?** State law requires all students born after December 31, 1956 to provide documentation of immunization for measles, mumps, rubella, tetanus, and diphtheria the first time they register for more than one class. The documentation form is available at your registration center or at the Boynton Health Service information desk. Students who fail to provide the required information will have holds placed on their records and cannot register for classes. See page 27 for details.
- ✓ **Have you checked the Section Status Report?** Check the report (posted outside of 101 Fraser Hall, B18 and 16 Johnston Hall, 4 Mechanical Engineering, 170 Anderson Hall, and 130 Coffey Hall) to see if space is available in limited enrollment (R) courses. Remember: The Section Status Report lists only limited enrollment courses. If you use it exclusively to plan your program, you may overlook courses that have no limit on enrollment.
- ✓ **Do you need any Registration Override Permits?** Is there a # or Δ or □ in the prerequisite statement of your course? (All symbols used in prerequisite statements are defined on page 46.) Are you trying to register in a closed course? You must have signed Registration Override Permits; handwritten notes will not be accepted.
- ✓ **Do you have any holds you need to clear?** You will not be able to register if you have any holds on your record. Clear your holds as soon as possible. See page 18 for more information.
- ✓ **Are you considering an intensive language course?** Intensive language courses, a special program offered through summer session, are ideal for students who want a full-time commitment to language learning. These courses (usually a three-course concurrent registration sequence) typically require 15 hours a week in class and 30-40 hours of study outside of class. Working, even part time, or taking other courses during the 10 weeks of the language program is not recommended. At the end of the course, the student has gained the equivalent of 3 quarters of study. See special programs on page 30.
- ✓ **Are you interested in special programs for high school students?** Information on special programs is on page 30 and information on procedures for taking regular courses as a high school student is on page 12.
- ✓ **Are you a new international student?** You *must* go to the Office of International Education before you register. See page 17.
- ✓ **Are you taking Carlson School of Management courses?** Summer-only students should read the instructions on page 11. Academic year students see page 14.
- ✓ **Are you a CLA academic year student?** Read pages 13-14. CLA summer-only students should read page 10.
- ✓ **Are you a student in the Graduate School?** The instructions on pages 15-17 apply to you. **If you are a graduate student at another institution**, you may be interested in transient graduate student status. See page 12.
- ✓ **Can you register in the Senior Citizen Education Program?** Complete details are on page 18.
- ✓ **Are you registering for more than 10 credits per term?** Ten credits is considered a full program for either term. To register for more than 10 credits you must have college approval.

Registration Procedures

Registration for Summer-Only Students

OVERVIEW

In-person registration for both terms begins May 17. Registration by mail is possible for some students registering through the colleges of Liberal Arts and Education. (See pages 10-11 for more information.)

For most students, registration consists of two main parts:

- (1) a visit to a college office where your program will be approved and
- (2) a trip to a registration center where you will request a place in the courses you have chosen.

When you register for courses at the University as a summer-only student, you register through a particular college. Typically, the college through which you register is the one offering the course. (A number of general subject areas are also available through the College of Liberal Arts. See page 10.) Courses are listed in this book alphabetically by department. Above each department's listing are printed the address and telephone number of the department and the name of the college with which the department is affiliated.

When you go to a college office for approval of your program, your previous course work will be matched against

the level of the courses you wish to take—to help insure that the courses are right for you.

● *There are two colleges that do not require college approval for your program.* You do not need college approval if you register through the Institute of Technology. You also do not need college approval if you are registering through the College of Liberal Arts *unless you are a high school student.* (If you are a high school student you *must* get college approval.) You will, however, need to be quite careful in choosing your courses if college approval of your program is not required. Check the prerequisites for your courses thoroughly before you register. If you are a high school graduate who has been admitted to the College of Liberal Arts or the Institute of Technology for fall quarter, you are especially encouraged to check with a college adviser before registering to see how well your summer courses fit your intended major.

A trip to the registration center is the second part of the registration process. The steps below outline the complete process for you. At the registration center you will be given a fee statement which will contain the following charges:
tuition (tuition varies by college

—you pay the rate of the college through which you are registering)

the student services fee if you register for 3 or more credits
hospitalization insurance if you have no private coverage

Full information on tuition and fees is found on pages 22-24.

Remember: The policies in this bulletin apply to your registration. Read all information carefully to avoid potential problems. You will receive credit only for those courses in which you are properly registered. Likewise, **you must pay for every course for which you register unless you officially cancel.** (For information on course cancellation, see page 19.)

Steps in Registration—

- ☞ **Step 1**—Complete the registration check list on page 8.
- ☞ **Step 2**—Fill out a Summer-only form. Complete a Course Request form for each term using the guide on page 141. (Both forms are found in the back of this bulletin.) If required, take your completed forms to the college through which you will be registering for approval of your program. College offices are listed on the inside front cover. You must complete a Summer-only form even if you do not need college approval.

☞ **Step 3**—Take your Summer-only form and Course Request forms to a registration center—202 Fraser Hall for the colleges on the Minneapolis campus (150 Williamson Hall for students with mobility impairments) and 130 Coffey Hall for colleges on the St. Paul campus and the College of Education.

☞ **Step 4**—Pay your tuition and fees. See fee payment on pages 25-26.

Late Registration Fee

You must register by June 11 for first term or July 18 for second term to avoid a late registration fee. Students who register from June 12-17 for first term or July 19-24 for second term will be charged a \$10 late registration fee. Students who register on or after June 18 for first term or on or after July 25 for second term will be charged a \$20 late registration fee. Exception: If you take a course that begins after June 11 for first term or July 18 for second term, you may register for that course through the first day it meets without incurring a late registration fee. (CLA summer-only students must meet registration deadlines. See page 10.)

Registration Instructions for College of Liberal Arts Summer-Only Students

Before Registering—Read the instructions below. Also, make sure your limited courses (**R** before the course number) are open by checking the Section Status Report on either the ground floor or basement of Johnston Hall.

Registration Deadlines—CLA strictly enforces the following registration deadlines. Be sure to make any adjustments in your registration promptly. All changes must be made at the registration center in 202 Fraser Hall. (See the paragraphs on Change of Registration on page 19.)

The fifth day of the term (tenth day for seven- and ten-week courses) is the last day to:

register (instructor's signature needed after the third day of the term)

add a course or change sections of a course

(instructor's signature needed after the third day of the term)

change grading systems (to or from S-N grading)

cancel a course without transcript notation

Any course cancellation must be done through 202 Fraser Hall before the last day of the term.

Exceptions to these deadlines may be approved only by petition to the CLA scholastic committee. Such petitions are not routinely approved. If circumstances prevent you from meeting a deadline, you must contact B18 Johnston Hall before the deadline.

Program Approval—Registration for more than 10 credits per term requires approval of the scholastic committee (except for 15-credit, intensive-language sequences).

Registrations for *independent study, extra credit, directed study, directed research, and directed instruction* require the approval of the instructor, department, and college. Obtain a special permission slip for independent and directed study from the department, get approval of the instructor and department, and bring the form to 214 Johnston Hall for college approval.

Registrations in *8000-level courses* must be approved by the instructor, the director of graduate studies, and the Graduate School. Approval forms are available in 306 Johnston Hall.

5000-level courses are intended for juniors, seniors, and graduate students.

3000-level courses are intended for sophomores, juniors, and seniors. To prevent inappropriate registrations, sophomores should not register for 5000-level courses, nor freshmen for 3000- or 5000-level courses, without first consulting their college advising offices.



Mail Registration for College of Liberal Arts Summer-Only Students

As a summer-only student you can register by mail for College of Liberal Arts (CLA) courses—for both first and second term. Registration is also possible through CLA for courses in the following departments: Architecture, Astronomy, Biology, Botany, Chemistry, Child Psychology, Computer Science, Geology, Mathematics, Physical Education (activity courses only), Physics, Physiology, Public Affairs, and Public Health (3001 and 3004 only).

There are restrictions on mail registration. You *cannot* register by mail for:

courses that require a Registration Override Permit (e.g., courses where a # or Δ or □ appears in the prerequisite statement)
courses or workshops that have special registration instructions
8000-level courses

In-person registration is *required* if you are a high school student who has not yet graduated.

In-person registration is *recommended* if you are a high school graduate who has been admitted for fall quarter. You will find it helpful to check with a CLA adviser to see how well your summer courses fit in with your intended course of study.

In-person registration is also recommended for courses that fill up quickly. (Any course that has an **R** before the course number has limited enrollment.) In addition, the following courses often close before May 17 and are not available: ArtS 1701, Comp 3011, 3012, 3013, 3014, Engl 1005, 3008, Fren 1101, 1102, 1103, Ital 1101, 1102, 1103, Psy 1004, Span 1101, 1102, 1103, Spch 1313, 3411, 3451, and all PE activity courses.

To receive instructions and materials for CLA mail registration, send in the card in the back of this bulletin or call 612/624-3555. Completed materials must be returned between May 1 and May 31. Mail registrations are processed through the Summer Session Office. Processing begins May 17. **Remember: If you register by mail and decide later not to attend, you must officially cancel to avoid being charged for full tuition and fees.** See Change of Registration: When to Cancel Courses on page 19.

NOTE: Extension summer courses—listed in the *Extension Classes Bulletin*—have separate registration procedures. Call 612/625-3333 for information and a copy of that bulletin.

Mail Registration for College of Education

Previous summer-only students may register by mail for both first and second term.

There are restrictions on mail registration. You cannot register by mail for:

courses that require a Registration Override Permit (e.g., courses where a # or Δ or □ appears in the prerequisite statement)

courses or workshops that have special registration instructions

8000-level courses

In-person registration is recommended for courses that fill up quickly. (Any course that has an **R** before the course number has limited enrollment.) In addition, the following courses often close before May 17 and are not available: Elem 5316, 5318, 5350, EPsy 3131, and all PE activity courses.

To receive instructions and materials for mail registration, send in the card in the back of this bulletin or call 612/624-3555. Completed materials must be returned between April 25 and May 25. Processing of mail registrations will begin May 17 and is handled through the College of Education.

Remember: If you register and decide later not to attend, you must officially cancel to avoid being charged for full tuition and fees. Cancellation must be done in person. For information, call the Education Students Affairs Office registration clerk at 612/625-2342.

Note: Extension summer courses—listed in the *Extension Classes Bulletin*—have separate registration procedures. Call 612/625-3333 for information and a copy of that bulletin.



Like St. Paul, Minneapolis is a rivertown. Here, where the Mississippi runs between the East Bank and the West Bank on the Minneapolis campus, rowers have an early morning practice.

Registration Instructions for Carlson School of Management Courses

SUMMER-ONLY STUDENTS

Summer-only Students with 90 or More Credits—You may register for open 3000- and 5000-level Carlson School of Management courses if you have completed or have in progress 90 or more quarter credits (60 or more semester credits) and can provide a current transcript which shows a cumulative grade point average of 2.8 or higher. Plan to register as a summer-only student through the college in which you will be taking the majority of your summer credits. (Tuition rates vary according to the college of registration—see page 22 for tuition rates.) If you register as a summer-only student in the Carlson School, you will need to complete a Carlson School Summer-only form in 290 Humphrey Center *in addition* to the Summer-only form in this bulletin. If you register as a summer-only student through another college, you must still meet the credit and grade point average requirements listed above. Registration Override Permits for 3000- and 5000-level Carlson School courses are issued only in 290 Humphrey Center.

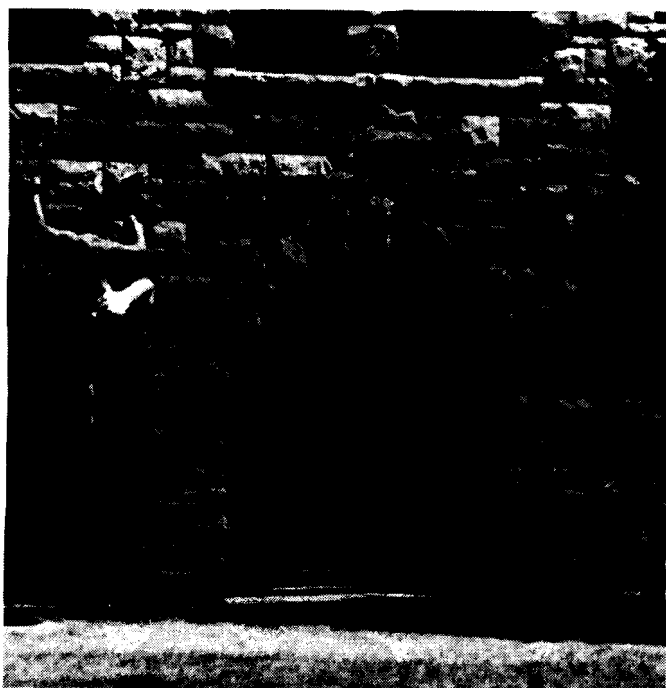
Summer-only Students with Fewer than 90 Credits—If you have fewer than 90 quarter credits (60 semester credits),

you can register for 1000-level Carlson School of Management courses through either the Carlson School or the College of Liberal Arts. (If you register through the College of Liberal Arts, you must obtain a Registration Override Permit in 290 Humphrey Center or B18 Johnston Hall for every 1000-level Carlson School course you take.) There are no grade point average requirements for registration in 1000-level courses; you must, however, meet all prerequisite requirements.

ACCOUNTING COURSES

Accounting 1050 is available to all students who have completed 40 or more credits. Accounting 3101 and 3201 have replaced Accounting 3160 and 3255 respectively for general management students. You may submit an accounting request form in 290 Humphrey Center to obtain permission to register for Accounting 3101 and 3201, and all other 3000- and 5000-level accounting courses; you must attach a current transcript which shows 90 credits completed and a GPA of 2.8 or higher.

Rock climber practicing on Pillsbury Hall.



Graduate School Registration

Transient Graduate Student Status

If you are currently enrolled in an accredited U.S. graduate school, you may want to consider transient graduate student status at the University of Minnesota during the summer. Your decision will depend, in large part, on the requirements of your home school and the level of the course you want to take.

Transient status is necessary if your home school requires your work appear on a transcript as a *graduate school course*. You will also need transient status if you plan to register for any 8000-level course. In both cases you should register through the Graduate School and would pay Graduate School tuition rates.

Check first with your home institution to see if your proposed registration (both the level of the course and the course content) will be acceptable in your graduate program. Then apply for transient status by filling out Graduate School form 57. (Write for the form to the Graduate School, 307 Johnston Hall, University of Minnesota, 101 Pleasant Street S.E., Minneapolis, MN 55455.) Be sure to allow at least 3 weeks for the approval process. No application fee or supporting materials are required. Permission to register as a transient student, if granted,

will be for one summer (both terms) or one academic quarter and will not extend beyond that single summer or quarter.

If you decide you do not need transient status, you may register for 1000-, 3000-, and 5000-level courses by registering as a summer-only

student through the college offering the course. For more information on the application process, call (612) 624-3555.

High School Students

High school students have several opportunities open to them during the summer to take advantage of courses and programs offered by the University of Minnesota. Special programs are available exclusively for high school students. (See page 30 for special programs.)

Many regular summer session courses are also open to high school students. In either case, you can earn college credits that can be used later at the University or at most other colleges and universities.

Regular Summer Session Courses—To qualify for summer-only admission to regular summer session courses, you must have completed the 10th or 11th grade and be in the top 20% of your class. You will be required to present an official copy of your high school transcript, demonstrating a strong academic background and appropriate preparation for the course(s) selected. You are also encouraged to present, whenever possible, a letter of recommendation from a high school teacher or counselor. This letter of recommendation is *required* if your transcript does not indicate your high school rank.

To apply for approval of your program, take your transcript and letter(s) to one of the college offices listed on the inside front cover. If you want to take *introductory* (1000-level) courses in the Institute of Technology, the College of Biological Sciences, or the College of Liberal Arts, go to 49 Johnston Hall. For *advanced* courses in the College of Biological Sciences or the Institute of Technology, or *any* course in the colleges of Agriculture, Human Resources, Natural Resources, or the General College, go to the office of the college offering the course. When you have received college approval, you may register by following the instructions for summer-only students on pages 9-11.

Post-Secondary Enrollment Options Act (PSEO)—The state options act which allows high school juniors and seniors to attend college tuition-free is not in effect during the summer. You may want, however, to take a regular summer course or enroll in one of the special programs for high school students in order to discover whether you want to take advantage of the options act next fall. You are responsible for tuition during the summer, although financial aid is available for the special programs.

High school students who have advising questions related to summer course choice, transfer of credits, and/or utilization of PSEO for the upcoming year should talk to an adviser in the Advanced High School Student Services Office. If you are interested in taking University of Minnesota courses fall quarter 1991, contact this office long before the beginning of your high school year so that you can work out the details involved in using college credits toward your high school graduation. Call 612/626-1666 for an appointment with an academic adviser or write to the Advanced High School Student Services Office at 107 Armory Building, 15 Church Street S.E., Minneapolis, MN 55455.

Registration for Academic Year Students

OVERVIEW

Registering for courses in the summer is just like registering for courses in fall, winter, or spring quarters. It is true that there is no queue for summer, and registration, therefore, is on a first come, first served basis. But it usually isn't necessary to register on the first or second day. Don't wait in long lines unless you are trying for high-demand courses that close immediately. (Courses that often close on the first day of registration are ArtS 1701, Comp 3014, EPsy 3131, Span 1101, 1102, 1103, as well as all Engineering courses.) You must, however, complete registration before the start of either term so you receive full benefit from the short terms.

You may register for both terms during May and June. (Registration for academic year students begins on May 6.) Because you can register for fall quarter during May or early June, you can plan your program more carefully. If those special or necessary courses need to be adjusted, you can register for or cancel/add summer courses during early fall registration. In fact, you may register for *both* summer and fall during your spot in the fall queue.

Remember: The policies in this bulletin apply to your registration. Read all information carefully to avoid potential problems. You will receive credit only for those courses in which you are properly registered. Likewise, you must pay for every course for which you register unless you officially cancel. (See page 19 for information on cancel/adding.)

Steps in Registration—

Step 1—Complete the registration check list on page 8.

Step 2—Take your Course Request forms (see page 138) and this bulletin to your registration center.

Step 3—Pay your tuition and fees.

Late Registration Fee—You must register by June 11 for first term or July 18 for second term to avoid a late registration fee. Students who register from June 12-17 for first term or July 19-24 for second term will be charged a \$10 late registration fee. Students who register on or after June 18 for first term or on or after July 25 for second term will be charged a \$20 late registration fee. Exception: If you take a course that begins after June 11 for first term or July 18 for second term, you may register for that course through the first day it meets without incurring a late registration fee. (CLA students must meet registration deadlines. See below.)

Registration Instructions for College of Liberal Arts Academic Year Students

Before Registering—Read the instructions below. Also, make sure your limited courses (**R** before the course number) are open by checking the Section Status Report on either the ground floor or basement of Johnston Hall. Honors students should check the honors course listings in 115 Johnston Hall.

College of Liberal Arts (CLA) holds—including adviser

signature and scholastic holds—are waived for the summer session. Other holds are enforced.

Registration Deadlines—CLA strictly enforces the following registration deadlines. Be sure to make any adjustments in your registration promptly. All changes must be made at the registration center in 202 Fraser Hall. (See the paragraphs on Change of Registration on page 19.)

The fifth day of the term (tenth day for seven- and ten-week courses) is the last day to:

- register (instructor's signature needed after the third day of the term)
- add a course or change sections of a course (instructor's signature needed after the third day of the term)
- change grading systems (to or from S-N grading)
- cancel a course without transcript notation

Any course cancellation must be done through 202 Fraser Hall before the last day of the term.

Exceptions to these deadlines may be approved only by petition to the CLA scholastic committee. Such petitions are not routinely approved. If circumstances prevent you from meeting a deadline, you must contact your college advising office *before* the deadline.

Program Approval—

Registration for more than 10 credits per term requires approval of the scholastic committee (except for 15-credit, intensive-language sequences).

Registrations for *independent study*, *extra credit*, *directed study*, *directed research*, and *directed instruction* require the approval of the instructor, department, and college. Obtain a special permission slip for independent and directed study from the department, get approval of the instructor and department, and bring the form to 214 Johnston Hall for college approval.

Registrations in 8000-level courses must be approved by the instructor, the director of graduate studies, and the Graduate School. Approval forms are available in 306 Johnston Hall.

5000-level courses are intended for juniors, seniors, and graduate students. 3000-level courses are intended for sophomores, juniors, and seniors. To prevent inappropriate registrations, sophomores should not register for 5000-level courses, nor freshmen for 3000- or 5000-level courses, without first consulting their college advising offices.

Courses not listed in the *CLA Bulletin* may not be applicable towards a CLA degree. Consult your college advising office before registering for courses not listed in the *CLA Bulletin*.

S-N Registration—Changes to or from S-N registration may be made through the fifth day of the term (tenth day for seven- and ten-week courses). Follow the cancel/add procedures outlined on page 19.

The number of S-N credits that can be applied to a CLA degree is limited. See the *CLA Bulletin* for details. Courses in departmental majors may be taken S-N only if the department has approved such a policy. Otherwise, S-N registration is allowed in all courses listed in the *CLA Bulletin*.

Ask in your college office about restrictions on the use of S-N credits in premedicine, pre dentistry, pre pharmacy, and all interdepartmental programs (such as American Studies, International Relations, and Urban Studies). If you are in a preprofessional program, you should follow the requirements of the college that you plan to enter.

Mail Registration for College of Education Students

Previous M.Ed. and adult special students may register by mail for both first and second term.

There are restrictions on mail registration. You cannot register by mail for:

- courses that require a *Registration Override Permit* (e.g., courses where a # or Δ or □ appears in the prerequisite statement)
- courses or workshops that have special registration instructions
- 8000-level courses

In-person registration is recommended for courses that fill up quickly. (Any course that has an R before the course number has limited enrollment.) In addition, the following courses often close before May 17 and are not available: Elem 5316, 5318, 5350, EPsy 3131, and all PE activity courses.

To receive instructions and materials for mail registration,

send in the card in the back of this bulletin or call 612/624-3555. Completed materials must be returned between April 25 and May 25.

Remember: If you register and decide later not to attend, you must officially cancel to avoid being charged for full tuition and fees. Cancellation must be done in person. For information, call the Education Students Affairs Office registration clerk at 612/625-2342.

Registration Instructions for Carlson School of Management Courses

ACADEMIC YEAR STUDENTS

Carlson School of Management Majors—

Students enrolled in Carlson School undergraduate degree programs may register for 3000- and 5000-level Carlson School courses.

Degree-seeking Students in Approved Units—

If you are a student in an approved unit with 90 or more credits and your GPA is 2.8 or higher, you may register for all 3000- and 5000-level general management courses (excluding practicum, honors, and special sections). You may register for these courses by going directly to your registration center. Your college office can provide you with a detailed list of general management courses.

Approved units include the following major programs: College of Agriculture—agricultural business, food science, animal and plant systems (environmental horticulture emphasis) nutrition; College of Education—business studies, business and marketing education, recreation, park, and leisure studies; College of Human Ecology—all majors; College of Liberal Arts—

journalism (professional track), international relations, (commerce and political economy tracks), urban studies; College of Natural Resources—fisheries and wildlife, forest resources (management and administration emphasis), forest products marketing, production management, urban forestry; Institute of Technology—actuarial science, computer science, mechanical engineering (EIP and IE emphasis). BIS and ICP majors should consult their program offices for information.

Other Academic Year

Students—Any non-Carlson School of Management student with 90 or more credits and a cumulative GPA of 2.8 or higher may register for open 3000- and 5000-level Carlson School courses by bringing a current transcript to 290 Humphrey Center.

more...

**Academic year
Carlson School of
Management
...continued**

**ACCOUNTING
COURSES**

Accounting 1050 is available to all students who have completed 40 or more credits. Accounting 3001 is available to all Carlson School students and select majors outside the Carlson School. Students with a declared finance emphasis can register for Accounting 3101 and 3201 and do not need an override. (Accounting 3101 and 3201 have replaced Accounting 3160 and 3255 respectively for general management students.) Non-accounting majors may submit an accounting request form in 290 Humphrey Center to obtain permission to register for Accounting 3101 and 3201, and all other 3000- and 5000-level accounting courses; non-Carlson School students must attach a current transcript which shows 90 credits completed and a GPA of 2.8 or higher.

New Students—If you are registering for the first time in the Graduate School, obtain your registration materials in 309 Johnston Hall.

Previously Registered Students—You must follow these steps to clear any Graduate School holds:

MAST PROG

Take signed master's program to 316 Johnston Hall.

DOCT PROG

Take signed doctoral program to 316 Johnston Hall.

SPEC PROG

Take signed specialist program to 316 Johnston Hall.

THES TITLE

Take signed thesis title to 316 Johnston Hall.

BACH DEGREE

Take official bachelor's transcript showing degree awarded to 316 Johnston Hall.

GPA

Take letter releasing hold from major field director of graduate studies to 316 Johnston Hall.

INCOMPLETE

Take letter releasing hold from major field director of graduate studies to 316 Johnston Hall.

**Graduate School
Registration Instructions**

DEAN'S HOLD

Go to 316 Johnston Hall for instructions.

Inactive Students—If you have not registered in the Graduate School at least once in the last two years, you must be readmitted before you will be allowed to register. Contact the Graduate School Admissions Office, 306 Johnston Hall (625-8060).

Maximum Credits—The maximum credit load for each summer term is 11.

Grading Option—Two grading systems, A-B-C-D-F and S-N, are used in the Graduate School. You must designate your grading option for each course at registration. (However, if either A-F only or S-N only is printed after the prerequisite statement for a course, you *must* register for that grading system.) Any change to your designated grading option, including to or from auditor status, must be made at your registration center using a Course Request form signed by your adviser. Please note the deadlines stated below.

Registration Deadlines—The fifth day of the term (tenth day for seven- and ten-week courses) is the last day to:

- register,
- add a course or change sections of a course,
- change grading option, including changing to or from audit status, and
- cancel a course without a W appearing on your record.

All changes in registration require your adviser's signature. Cancellations after the third week of the term require your instructor's signature as well. Courses may be cancelled *before* the last day of the term. No registration changes are permitted after the last day of instruction.

These registration deadlines are strictly enforced.

(Remember, registration changes are not effective until you take a complete Course Request form to your registration center.) Exceptions will be considered only by written request to the Graduate School. Such requests *will not* be routinely approved. If circumstances will prevent you from meeting the above deadlines, contact the Graduate School *before* the deadline.

NOTE: These deadlines in no way change the current policy regarding assessment of late registration fees (you must register by the first day of each term—by June 11 for first term and by July 18 for the second term—to avoid such a fee); nor do they affect the University's refund policies.

Graduate School...continued

Thesis Credits—If you first registered in the Graduate School prior to fall 1983 and you meet the criteria outlined in Dean Robert Holt's October 16, 1989 memo, you are not required to register for thesis credits.

All other students are required to register for thesis credits before receiving a Plan A master's or a professional master of engineering degree (at least 16 credits of 8777 required) or a Ph. D., Ed. D., or D.M.A. degree (at least 36 credits of 8888 required). Doctoral candidates who first registered in the Graduate School prior to fall 1983, but were readmitted fall 1990 or later, are required to register for thesis credits but may have their requirements reduced by prior Doctoral Candidate registrations. Contact 316 Johnston Hall (625-3490) if you have questions regarding thesis credit requirements.

You must register for all thesis credits under your major field course designator. (Note that any earlier thesis credit registrations under the designator GRAD will remain on your transcript and will still count toward your Graduate School degree requirements.) In most cases, your course designator will match that of the department in which you take your major field courses. Some major fields will share a single designator, while new designators have been created for interdisciplinary graduate programs. Consult the course listings for the proper designator and current call numbers.

If you have any questions about registering for thesis credits, including which course designator to use, contact your director of graduate studies or

the Graduate School, 316 Johnston Hall (625-3490).

Student Status—Student status is a special registration category for students who are required to register but who are not enrolled in courses. This student status category is a no-credit, no-grade registration, which does not count towards the Graduate School residency requirement and which does not satisfy requirements for financial aid. Tuition is equivalent to one credit charged at the Graduate School rate. For student status, register for GRAD 0000. For the current call number, see this course listing under the designator GRAD.

Residency Requirements—If you first registered in the Graduate School prior to fall 1984, and you meet the criteria outlined in Dean Holt's October 16, 1989 memo, you do not have a residency requirement. Contact 316 Johnston Hall (625-3490) if you have questions regarding this exemption.

If you first registered in the Graduate School fall 1984 or later, or if you were readmitted to the Graduate School fall 1990 or later, you are required to complete a residency requirement of 4 quarters full-time registration for the master's degree, 6 quarters full-time registration for the specialist certificate, or 9 quarters full-time registration for the doctorate. Full-time registration during the academic year is defined as 7 or more credits per quarter. For

complete residency requirements, see the *Graduate School Bulletin*.

All credits taken in the Graduate School may be used to fulfill the residency requirement. Students registering during the summer will accumulate $\frac{1}{10}$ of a quarter's residency for each credit taken up to a maximum of $\frac{1}{2}$ quarter's residency for each summer term.

Tuition Benefits for Graduate Assistants

—In the summer, graduate assistants who hold 25% time appointments or more in at least one summer term (i.e., either first term or second term) may receive tuition benefits equal to twice the percentage of the appointment in one or both summer terms. (Some restrictions apply if you are only registering for thesis credits.) These benefits are for tuition only and do not cover the student services fee or course fees.

REMEMBER: Tuition benefits do not appear automatically on the registration system for the summer terms. You must obtain the proper forms from your work department and stop by the Graduate Assistant Office (GAO), 416 Johnston Hall, preferably *before* you register, in order to receive your tuition benefit. If you have a regular percentage appointment, obtain a copy of your payroll document (PAF) and a Tuition Benefit Information Form filled out by your department. If you have an hourly or miscellaneous percentage appointment, obtain in addition to the PAF and the Tuition Benefit Information Form a letter from your work department informing the GAO of the number of hours you are

expected to work during the summer.

More information on tuition benefit eligibility and procedures is available from your department or the GAO, 416 Johnston Hall, 626-1310.

Doctoral Oral Examinations

—You must schedule your preliminary and final oral exams at least one week in advance. You may schedule your exams by going to 316 Johnston Hall or by calling 625-5367 for a preliminary exam or 625-5833 for a final oral exam. These exams should not be scheduled from the beginning of the second term of summer session to the beginning of fall quarter unless members of the assigned committee can be assembled without substitution. If you are not active (registered in the Graduate School at least once in the last two years), you may not schedule your examination. Contact the Graduate School Admissions Office, 306 Johnston Hall (625-8060), regarding readmission.

Graduation—Graduate School degrees are awarded monthly. To graduate at the end of any given month you must:

- submit your *Application for Degree form* in 150 Williamson Hall or 130 Coffey Hall on or before the first workday of the month. When you submit your application, you must also pay your graduation fee.
- complete all other requirements by the last workday of the month.

Graduating before the end of the quarter may affect your eligibility for student loans, housing, etc. Check with the appropriate office if you have questions of eligibility.

Plan A master's, professional master of engineering, and doctoral students receive an Application for Degree form plus detailed graduation instructions when they register their thesis or project titles in the Graduate School, 316 Johnston Hall. Plan B and specialist Students receive Application for Degree forms and graduation instructions when they pick up their Final Examination Report forms from the Graduate School, 316 Johnston Hall. Students must be active (registered in the Graduate School at least once in the last two years) and have approved program or thesis title forms on file at the Graduate School before Application for Degree and other graduation forms can be released. ■

New International Students



If you hold a non-immigrant visa of any type, have been formally admitted to the University of Minnesota, and are registering for the first time, three holds have been placed on your record: AI (Immigration Service document check), ME (health clearance), and AZ (English proficiency). Please read the paragraphs below carefully.

NOTE: If you are registering for classes but you have *not* been formally admitted to the University of Minnesota, you may register directly. The following information does not pertain to you.

Document Check and General Information (AI Hold)—Go to the Office of International Education (OIE), 20 Nicholson Hall. You will be asked to provide evidence of your immigration status. You must bring your passport and immigration service documents (I-94 form, pages 3-4 of your I-20AB, and/or IAP-66). Sponsored students must also provide documentation of their financial support. If you are a permanent resident, you must present documented evidence of your status.

Health Clearance (ME Hold)—If you are not a citizen of the United States and if you are registering for the first time at the University, you must have a health clearance in order to register. You will be provided with a health clearance form once you have taken a tuberculin skin test or have shown proof that you have been tested within the

last year and are free of tuberculosis. You should report to the information desk at Boynton Health Service, 410 Church Street, Minneapolis, several days before you plan to register. You will need to return 48 hours after you have taken the tuberculin test to have the test read and to obtain your health clearance form.

Tuberculin tests for international students often indicate that students have been exposed to tuberculosis (positive test) but not necessarily that they have contracted the disease. If your test is positive, you will be allowed to register; however, you will be required to have a chest x-ray and to return for the results.

Mandatory Health/Hospitalization Insurance—All international students must carry hospitalization insurance for themselves and their dependents. Insurance coverage must be continuous from the date of arrival in the U.S. through the final date of departure from the U.S. This means that international students must show proof of insurance coverage even if they are registered for less than

6 credits or are away from campus for the summer or an academic quarter. See Health Service and Hospitalization Charges, page 27.

English Proficiency (AZ Hold)—If you have not provided enough information about your English proficiency, an AZ hold may be placed on your record. This hold can be removed only by the Minnesota English Center (MEC), 102 Klaeber Court. To find out if you have an AZ hold, check with the MEC directly or ask at OIE during your document check. An AZ hold needs to be removed by the MEC even if English is your native language or you scored 550 or higher on your TOEFL exam. If English is not your first language and you achieved less than 550 on the TOEFL exam, or if the TOEFL exam was waived at the time of your admission, you may be required to take the Minnesota English Language Proficiency test. Register for this test at the MEC office as soon as possible because results are not available for 7 to 10 days. You will be required to pay a \$25 testing fee during your visit there. Information on the English Proficiency clearance procedure will be available at the OIE International Student Orientation program. You will be given information about requirements for English classes during your visit to the MEC. You can also call the MEC office, 624-1503, for more information.

General Information for all students...

AUDITING COURSES

Most colleges permit auditing in their courses. As an auditor, you enroll in, pay tuition and fees for, and attend classes but do not complete assignments or take examinations. You receive no credit for the course, but it will be placed on your transcript with the symbol V (Visitor) to indicate your special registration status. Although you do not receive credit, the credit value for the course counts in determining the credit total for the student services fee.

Colleges may have additional requirements for you to meet before you register as an auditor. It may be necessary to have approval from your instructor and/or special scholastic committees.

Colleges generally do not allow you to repeat an audited course for credit. For further information, check with the college offering the course.

To register as an auditor once you have received any necessary approval, list the course on your Course Request form and place a V in the grading option column for that course.

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. For more information, check with your college office or call or visit a Student Relations staff member in the Office of the Registrar, 150 Williamson Hall (625-5333) or 130 Coffey Hall (624-3731).

THE FIRST WEEK OF CLASS

Mandatory Attendance—You must attend the first class meeting of every course in which you are registered, unless you obtain approval for your intended absence before the first meeting. Without this prior approval, you may lose your place in class to another student. If you wish to remain in a course from which you have been absent the first day without prior approval, contact your instructor as soon as possible. Instructors have the right to deny you admission if the course is full. You must *officially cancel* any course to which you are denied admission.

Gaining Admission to a Closed Course—You should first go to the department offering the course, where you may be put on a waiting list or be referred to the instructor for permission to register. Attend the first class meeting if you are on a waiting list or need the instructor's permission, to see if more students will be admitted. To register in a closed course you must have a signed Registration Override Permit from the instructor.

Senior Citizen Education Program—If you are 62 or older and a Minnesota resident, you may audit

courses free of charge or take courses for credit at \$6 per credit whenever space is available after the first day of class. (The Section Status Reports, located outside of 101 Fraser Hall, B18 and 16 Johnston, 4 Mechanical Engineering, 170 Anderson Hall, and 130 Coffey Hall, can tell you if a course with limited enrollment—**R** before the course number—is open or closed. If a course is not on the report, it has no limit on enrollment.) Under this plan, you will not pay the student services fee, but must pay any required laboratory or materials fees.

Registration for the Senior Citizen Education Program is on the second day of class (June 12 for first term and July 19 for second term). Attend the first day of class, however, to see if space is available and to receive information about class procedures. To register, go to 202 Fraser Hall (150 Williamson Hall for those with mobility impairments) or 130 Coffey Hall with your registration forms and identification to verify age and Minnesota residency. Call 625-5333 for more information.

CHANGE OF REGISTRATION

General Guidelines—Use a Course Request form to make all changes in your registration, including cancellations. Changes in registration are not official until you take a completed Course Request form to your registration center. See *When to Cancel Courses*, below, for information on cancellation of courses.

Subject to certain limitations, you may add or cancel courses or may change grading systems. Course cancellations are generally allowed without college permission during the first week of the term. (For first term, the first week of classes ends on Monday, June 17. For second term, the first week of classes ends on Wednesday, July 24.) Cancellation of a course after the first week of the term, for 5-week courses, will result in a W on your record. A 7- or 10-week course may be cancelled without a W on your record through the tenth day of the term. (Note: If you cancel *all* courses during the first week of the term, no Ws will appear on your transcript; however, a notation of your cancellation *will* appear.)

Many colleges require special approval for cancellations after the end of the first week. Check with your college office for complete cancel/add policies.

When to Cancel Courses—You must pay for every course for which you register unless you officially cancel. If you decide before the term begins not to attend, cancel before the first day of class. If you stop attending class for any reason, cancel immediately. Cancellations are effective the day you *officially* cancel (by taking a completed Course Request form to your registration center), not on the date you stopped attending class. Remember: Cancellations must be made in person at your registration center; cancellations by mail are not allowed. If you fail to cancel any course for which you have registered but not paid, you will receive billing statements for your tuition and fees, including a \$10 late payment fee. Unless you make full payment, a hold will be placed on your record.

Tuition Charges and Refunds for Course Additions and Cancellations—Full tuition is charged on a per-credit basis for all changes in registration that increase your credit load. No additional tuition is charged when any course addition is balanced at the *same time* by a course cancellation equal to the number of credits being added. Refunds are issued on a per-credit basis according to

the refund rate that applies to the date of cancellation. (For more information on refunds, see page 26.)

How to Change Your Registration—To change your course load or grading system, you should:

1. Fill out a Course Request form. Use the extra form in this book or obtain a form from your college office or registration center. Check the box indicating cancel/add and note the number of credits you will have after this change. If you are cancelling *all* courses, check the appropriate box.
2. Obtain instructor, adviser, and/or college office approval if required.
3. Turn in your Course Request form at your registration center, where you will receive a revised fee statement. Remember, each fee statement you receive has its own due date. Later fee statements do not extend the due dates on earlier fee statements.

GRADING POLICIES AND OPTIONS

There are two grading systems at the University of Minnesota—Twin Cities: A-B-C-D-F and S-N. The S represents satisfactory work based on standards announced by the instructor and may vary from course to course. The N stands for no credit and is assigned when minimum course standards are not met (i.e., when the student does not earn an S).

I (Incomplete) is assigned when, in the instructor's opinion, there is a reasonable expectation that the student can complete successfully any missed work in the course. An I that is not made up by the end of the student's next summer term or quarter becomes either an F or N, depending on the grading system under which the course was taken.

If either A-F only (for A-B-C-D-F) or S-N only is printed after the prerequisite statement for a course, you *must* register for that grading system. (Leave the grade option column blank on your Course Request form.) If no grading system is listed, you may usually register for either A-F or S-N grading by marking your choice on your Course Request form. Colleges may restrict the use of S-N grading because of degree requirements. There may also be a limit on the number of credits per term which may be taken S-N. Check with your college office for complete information.

You may change your designated grading option

General information for all students...con't.

through the first week of classes for 5-week courses (Monday, June 17 for first term; Wednesday, July 24 for second term) and through the second week of classes for 7- and 10-week courses (Monday, June 24). For short term courses, check with your college office for deadlines. To change your grading option, bring a completed Course Request form to your registration center (202 Fraser Hall or 130 Coffey Hall).

FINAL EXAMS

Final exams are scheduled during the regular meeting time of the course, usually on the last day of the course. If you miss the final exam in a course, you will receive a grade of I only when there is a reasonable expectation that you can successfully complete the work of the course. Instructors should announce both course requirements and make-up policies on the first day of class.

Make-up exams are given according to the policies of the college offering the course. Instructors generally provide make-up examinations for students who have acceptable excuses (e.g., verifiable medical difficulties) for missing the final. To avoid any misunderstanding, contact your instructor *In advance* if you must miss an exam.

RECEIVING YOUR GRADES

Grades will be mailed to you at the address on your Course Request form approximately 2-3 weeks after the end of each term. If you will be moving or will not be on campus through the summer, you should submit an address change to 150 Williamson Hall or 130 Coffey Hall. Most instructors will accept a self-addressed, stamped postcard which they will return to you once grades have been assigned. Grades are also available on both your transcript and unofficial record approximately 2-3 weeks after the end of the course. See Transcripts, page 24, for more information.

GRADUATION

For graduation first term, undergraduates in most colleges and students in professional programs (e.g., MEd) must submit an Application for Degree form to the Student Relations Unit, 150 Williamson Hall (130 Coffey Hall for St. Paul students) by June 6. For graduation second term, the Application for Degree form is due July 17. Your application *must* include a \$25 graduation fee (check or money order only). If you miss the deadline for a term, you will not be able to graduate until the next term or quarter. There is no commencement ceremony during the summer; students planning to graduate during the summer may attend commencement in June or December.

Graduate school degrees are awarded monthly. For application deadlines, see the Graduate School registration instructions on pages 16-17.

Teacher Institute faculty for 1991

The University of Minnesota is a leader in recognizing the need for multicultural-based curriculum. The professors teaching in this year's institute were chosen specifically because their research reaches deep within these subjects. See page 28 for details on the 1991 Summer Institute for Teachers: *The American Mosaic*.

SUBMITTING GRADES

Grades are due in the Office of the Registrar (150 Williamson Hall or 130 Coffey Hall) within 72 hours after the exam or last class meeting. Grades for first term are due by 8:30 a.m. on July 22; grades for second term are due by 8:30 a.m. on August 26. Messenger service is provided in Minneapolis. Departments should call 625-3030 when grades are ready. *Do not send grades by mail.*

Jacquelyn Zita (not shown) is an associate professor in the Department of Women's Studies. She is currently working on a book about the social construction of gender, sexuality and the body. In her research she addresses women's issues across disciplines, including history, philosophy, sociology, and literature.

Charles Sugnet is an associate professor in the Department of English and director of the College in the Schools literature program which provides University literature courses to gifted high school students. His current research interest includes African literature and decolonization. He also writes about books and cultures for magazines such as: *Transition*, *The Village Voice*, *In These Times*, *D'art*, *The Nation*, and *The Utne Reader*.



John Wright is an associate professor in the departments of Afro-American and African Studies and English. He is a well-known scholar on the Harlem Renaissance and is the principal scholar for "A Stronger Soul within a Finer Frame: Portraying African-American in the Black Renaissance," a nationally touring exhibit. His current research includes African-American literary, cultural, and intellectual history and he is pursuing it this year as a research Fellow at Harvard University, W.E.B. DuBois Institute and as Scholar-in-Residence at the Schomburg Center in Harlem.



Obioma Nnaemeka is an assistant professor of French and Women's Studies at the College of Wooster, Wooster, Ohio. She has studied French and African Studies at the University of Minnesota, the University of Nigeria, and the Universite de Grenoble. She is currently working on two books projects, *Chinua Achebe: Speeches and Interviews (1960-1990)* and *Marginality: Speech, Writing and the Black Woman Writer*. She is organizing the first international conference on "Women in Africa and the African Diaspora: Bridges Across Activism and the Academy" to be held in Nigeria, West Africa, in June, 1992.



Carol Miller is an associate professor in General College at the University of Minnesota and is the Chair of the American Indian Studies Department. She teaches a variety of writing and literature courses. Her research interests include literature by American Indian woman and the academic success of students of color.



1991 TUITION AND FEES¹

Tuition for Undergraduate Colleges, Departmental Masters, Graduate School, Public Health, Law—For the units listed below, rates in the summer are the same for both residents and nonresidents of Minnesota. All rates are per-credit and are tied to the college through which you are registering. If there are both lower division and upper division rates listed for a college, *academic year students* pay lower division rates through the term in which they register for their 90th credit. *Summer-only and adult special students* pay upper division rates.

Students registering in:	Academic Year Students	Summer- Only Students
Agriculture, College of		
Lower Division	\$ 56.00	\$ 72.50
Upper Division	72.50	72.50
Departmental Masters	76.50	76.50
Architecture and Landscape Architecture, College of		
Lower Division	56.00	70.00
Upper Division	70.00	70.00
Biological Sciences, College of	72.50	72.50
Dental Hygiene		
Certificate Program	56.00	76.50
Baccalaureate Program	76.50	76.50
Education, College of		
Lower Division	56.00	70.00
Upper Division	70.00	70.00
Departmental Masters	76.50	76.50
General College		
Lower Division	56.00	58.50
Upper Division	58.50	58.50
Graduate School	128.00	128.00
Human Ecology, College of		
Lower Division	56.00	72.50
Upper Division	72.50	72.50
Law School	191.00	191.00
Liberal Arts, College of		
Lower Division	56.00	58.50
Upper Division	58.50	58.50
Management, Carlson School of	64.50	64.50
Mortuary Science, Department of	76.50	76.50
Natural Resources, College of		
Lower Division	56.00	72.50
Upper Division	72.50	72.50
Nurse Anesthetist (Medical School)		
	84.50	84.50
Public Health, School of	76.50	76.50
Technology, Institute of		
Lower Division	56.00	70.00
Upper Division	70.00	70.00

University College		
Lower Division	56.00	58.50
Upper Division	58.50	58.50

Tuition for Other Professional Programs and Schools—The schools and programs listed below have both resident and nonresident rates. Summer-only students pay the same rate as academic year students. Rates are per credit unless otherwise noted.

Students registering in:	Resident	Nonresident
Dentistry, School of		
per-credit	\$ 188.00	\$ 282.00
term (12 or more credits)	2252.50	3378.50
M.B.A. program (Graduate School)		
day program	163.00	255.50
evening program	163.00	163.00
Medical School		
1-5 credits	689.50	1378.50
6-10 credits	1378.50	2756.50
11-15 credits	2067.50	4134.50
16 or more credits	2756.50	5512.50
Medical Technology, Program in	76.50	191.00
Nursing, School of	76.50	153.00
Occupational Therapy, Physical Therapy, Programs in	76.50	191.00
Pharmacy, College of		
Bachelor of Science	76.00	152.00
Pharm.D. Program	81.50	162.50
B.S. seniors	34.50	62.00
Veterinary Medicine		
per-credit	174.00	261.00
term (12 or more credits)	2084.50	3126.50

¹Tuition and fees are subject to final approval by the Board of Regents and may change without notice.

Late Fees, Due Dates—Late fees are assessed for both late registration and late payment.

Late Registration—No registration will be accepted after June 11 (first term) or July 18 (second term) without payment of the late registration fee, as follows:

June 12-17 or July 19-24	\$10
Thereafter	\$20

Exception: If you take a course that begins after June 11 for first term or July 18 for second term, you may register for that course through the first day it meets without incurring a late registration fee.

Late Payment—A fee of \$10 is charged if tuition and fees are paid after the due date. See Fee Payment, pages 25-26, for more information or call Student Accounts Receivable at (612) 625-8500.

Student Services Fee—If you register for 3 or more credits in a term, you must pay a \$59.02 student services fee for that term in addition to tuition. Students who register for 3 or more

credits in a course of 7- to 10-week length will be assessed the student services fee for *both* terms.

The student services fee is generally waived for courses held outside the 9-county metro area (Hennepin, Ramsey, Dakota, Washington, Anoka, Carver, Wright, Scott, and Chisago). If your course is held on another campus of the University, however, you pay the student services fee of that campus. A special rate is assessed for the Itasca Biology Program and the Itasca Forestry Session.

The student services fee supports a number of organizations and services available to summer students including: 3 student unions; the student newspaper *Minnesota Daily*; Boynton Health Service prepaid outpatient health care; sports facilities; and music and dance events. (See the section on services and cultural opportunities for more information on these summer activities.)

Minnesota Public Interest Research Group—MPIRG is a non-profit, nonpartisan, student-run organization funded by an optional fee of \$1.25 per term. A statewide advocacy group, MPIRG gives students the opportunity to speak out on public issues and work for social change. The fee supports a professional staff for lobbying, litigation, organizing, and research. You may decline to pay the fee prior to registration by initialing the MPIRG section on the Course Request form or may obtain a refund at a location and date that will be announced in the student newspaper *Minnesota Daily*.

COURSE FEES¹

All fees are per term unless otherwise indicated. Students taking the following courses will pay course fees as follows:

COMPOSITION AND COMMUNICATION

\$192²—0011

ECOLOGY AND BEHAVIORAL BIOLOGY

\$15—5014, 5016, 5132, 5134 Transportation Fee

FIELD STUDIES HEALTH SERVICE FEE

\$27 per summer term—Required of students on University field studies such as anthropology, geology, etc. (covers outpatient medical care for emergency illness at nearest facility on approval of the person in charge of the group. Eligible charges which are not collectible from a students' insurance carrier will be paid by Boynton Health Service up to a maximum of \$100 per visit).

FOREST PRODUCTS

\$50—ForP 3300 Wood Industries Tour

GENERAL COLLEGE

\$192²—0401, 0402, 0419, 0611, 0615, 0616, 0617, 0618, 0621, 0623, 0625, 0631, 0641, 0643. Preparatory Mathematics and Composition

ITASCA BIOLOGICAL STATION

\$10—Laboratory Fee

\$ 5 per week minimum—Research fee (Researchers must also pay the laboratory fee)

LANDSCAPE ARCHITECTURE

\$35—5073, 5107

MATHEMATICS

\$213²—1008

\$266²—1111, 1201

MUSIC, APPLIED

Courses in applied music carry 2 credits (minimum of 5 hours of private lessons) per summer term.

Music majors who have passed the entrance exam: \$0 per 2 credits

M.M. and D.M.A. students at the 83xx level: \$0 per 2 credits.

Majors taking extra credits (beyond requirement) or taking lessons on a second instrument: \$40 per 2 credits

Non-majors, elective credit: \$100 (0-2 credits)

PLANT BIOLOGY

\$10—1009 Transportation Fee

RHETORIC

\$30—1101, 1104, 1151, 3562 (Microcomputer Lab Card—computer-assisted instruction sections only)

SOIL SCIENCE

\$6—3220 Field Course

\$19—3520, 5510 Transportation Fee

STATISTICS

\$30—3012, 5021, 5161, 5162, 5163, 5301, 5302 (Microcomputer Lab Card may be required/)

STUDIO ARTS³

Materials fees:

\$ 5—1101, 1102, 1404, 5190

\$20—1702, 3720

\$25—1701, 3710, 5710, 5790

\$30—3430, 5430

\$35—1510, 1520, 1530, 1540

\$40—3510, 3520, 3530, 3540, 3550, 5510, 5520, 5530, 5540, 5550, 5590, 8360

\$45—3306, 5360

\$56—3830

\$60—1301, 1302, 1802, 1811, 1812, 3301, 3302, 3303, 3304, 3305, 3307, 5310, 5320, 5330, 5340, 5350,

5370, 5390, 8310, 8320, 8330, 8340, 8350, 8370

\$66—5830, 5890

\$70—3810

\$80—5810, 5821

\$91—3820

\$106—5820

\$225—8810

Arranged (amount adjusted to individual needs of students or particular class project)—3420, 3970, 3980, 5420, 5970, all other 8000-level courses

¹Fees are subject to change without notice.

²In lieu of tuition

³Materials fees—assessed at the time of registration. Arranged fees are collected by department. Materials fees for ceramic and sculpture courses also cover rental of a Studio Arts locker and include a \$10 deposit that is refundable at the end of the course. Check with your instructor for details.

SPECIAL FEES¹**DEPOSIT CARDS**

\$30—Chemistry cards.

\$ 5—Art cards.

Deposit cards may be purchased from the bursar. Materials, breakage, or equipment use will be charged against the card; any balance will be refunded at the end of the course.

CREDIT BY SPECIAL EXAMINATION

\$30—Check with your college office for further information.

DIPLOMA, OVERSEAS MAILING

\$5—for sending a diploma *air mail* to address outside the United States, Canada, or Mexico (Fee optional)

DIPLOMA REPLACEMENT FEE

\$15

FACILITY FEES

Student registered in the following courses must pay the amount indicated to the appropriate facility operator for the use of the facility and/or equipment.

\$15—PE 1048, 1148

\$18—PE 1034

\$23—PE 1035

\$25—PE 1205

\$60—AnSc 1601

\$75—PE 1057, 1157, 1257

GRADUATION FEE (each degree)

\$25—includes diploma

INTERNATIONAL STUDENT AID FEE

\$2 per term required of all students who hold nonimmigrant visas. Nonrefundable.

MINNESOTA PUBLIC INTEREST RESEARCH GROUP (MPIRG)

\$1.25 (refusable/refundable)—assessed with student services fee.

MUSIC PRACTICE ROOMS

Rooms with upright or grand piano, harp, harpsichord, organ, or percussion as well as rooms with no instrument will be available for rental by the term. Check in 100 Ferguson Hall for rental information and rates.

PHYSICAL EDUCATION RENTAL CARDS

\$1 per day; \$15 per one or both summer terms for towel and locker at University Recreation Center, Norris Hall.

SPEECH AND HEARING CLINIC

U of M students, staff, and faculty are not charged for clinical services provided in the Speech and Hearing Clinic.

¹Fees are subject to change without notice.

TRANSCRIPTS

There are two types of service for *official* transcripts: regular service and rush service. (Official transcripts are certified and signed by the University Registrar.) Regular service is available for \$3 a copy. Processing time for regular service is 2-3 workdays; after processing, your copies will be mailed to the places you have specified. Rush service on your official transcript requests is available for \$6 a copy (\$9 a copy beginning July 1, 1991). Rush service guarantees your transcript will be issued to you in person or put in the mail on the same day it

is requested. You must have a picture ID (student ID card, driver's license, state ID card, or passport) to receive over-the-counter rush service.

Official transcripts can be requested by mail. Requests can also be dropped off at the locations below. No phone requests will be accepted. Requests should include your full name, your student ID number (Social security number for summer-only students), University of Minnesota—Twin Cities college through which you registered, dates of enrollment, and complete address(es) to send the transcript(s) to. Students who take courses in Minneapolis units should send their requests to the Certifications Unit, 155 Williamson Hall, 231 Pillsbury Drive Southeast, Minneapolis, Minnesota 55455. Students who take courses in St. Paul units should send their requests to the Office of Admissions and Records, 130 Coffey Hall, 1420 Eckles Avenue, St. Paul, Minnesota 55108. *If your last registration in Extension was spring 1989 or earlier, you must request your Extension record at the Certifications Unit in Minneapolis.* Your request must include a check or money order payable to the University of Minnesota for \$3 or \$6 (\$9 a copy beginning July 1, 1991) per transcript or the same amount in transcript vouchers from the Bursar.

You may pick up an *unofficial* copy of your record by presenting your student ID card at the transcript window in 155 Williamson Hall or at 130 Coffey Hall. There is no charge for an unofficial copy of your record; there is, however, a limit of one copy per day.

FINANCIAL AID

Eligibility for summer 1991 financial aid is based on your 1990-91 ACT Family Financial Statement (FFS). If you have not previously submitted an FFS for 1990-91, you must submit one to ACT by May 1, 1991, to be eligible for summer aid. Only applicants in the Minnesota Part-Time Student Grant Program are exceptions (see below for more information).

In addition to the FFS, you must submit a Summer Financial Aid Application if you are interested in Minnesota State Grant, PELL Grant, or College Work-Study (CWS). These applications will be available in 210 Fraser Hall from March 25-June 30. For information on these programs or other financial aid procedures, including procedures for student loans, you may visit or write the Office of Student Financial Aid, 210 Fraser Hall, 106 Pleasant Street S.E., Minneapolis, MN 55455 or 197 Coffey Hall, 1420 Eckles Avenue, St. Paul, MN 55108. You may also call (612) 624-1665.

NOTE: If, for any reason, you do not receive financial aid, you are still responsible for paying your tuition and fees.

Scholarship and Grant Programs

Minnesota Part-Time Student Grant—These grants are available to undergraduates enrolled for 5 credits or less for the entire summer in day school, Extension classes, Continuing Education for Women, Independent Study (correspondence), or the Split Rock Arts Program. You must complete a separate application available from Continuing Education and Extension (CEE) Counseling, 314 Nolte Center, 315 Pillsbury Drive S.E., Minneapolis, MN 55455 (612/625-4334). Eligibility requirements are: U.S. citizen or permanent resident, Minnesota resident, no prior bachelor's degree, enrollment in undergraduate courses applicable to a degree or certificate program, maintenance of satisfactory academic progress, and demonstration of financial need. Awards

can be used for tuition, fees, books, supplies, transportation, and child care. Contact CEE Counseling for more information.

Pell Grant—You will be considered for a Pell Grant if you are an undergraduate admitted to a University of Minnesota degree or certificate program who did not attend one or more quarters of the 1990-91 school year, or who took fewer than 12 credits in one or more quarters in 1990-91. You must register for at least 6 credits during the summer to qualify. Checks are disbursed in the summer. Students must turn in their Student Aid Reports (SARs) by their last day of enrollment or June 30, 1991, whichever is earlier. Completion of the 1990-91 FFS or the Application for Federal Student Aid, and the Summer Financial Aid Application are required.

Minnesota State Scholarship and Grant—If eligible, you should already have received an award notification from the Minnesota Higher Education Coordinating Board during the academic year. You are eligible if you are an undergraduate who did not attend one or more quarters of the 1990-91 school year, or who took less than 12 credits in one or more quarters in 1990-91. You must register for at least 6 credits during the summer to be eligible for a state grant. Students will be notified when checks are available. Completion of the 1990-91 FFS and the Summer Financial Aid Application are required.

Summer Employment Opportunities

You are eligible for summer employment if you were registered for at least 6 undergraduate or 3 graduate credits in a degree program during spring quarter and are returning to school in the fall, or are registered for a minimum number of credits during the summer.

After completing a student employment application, you will be screened for positions and referred to a maximum of two jobs per day. Final hiring decisions are made by employing departments. In addition to regular on-campus jobs, other special employment programs are available. Opportunities are available in College Work-Study (CWS), Urban Corps (funded through CWS), on- and off-campus community service (also funded through CWS), temporary, intern, and trainee programs.

To apply for CWS, you must submit a separate Summer Financial Aid Application to the Office of Student Financial Aid in addition to the FFS. Applications are available from the Office of Student Financial Aid. CWS funds are need-based and are awarded for as long as funds are available. There are, however, specific requirements regarding eligibility for CWS during the summer months. For more information, contact the Student Employment Center, 120 Fraser Hall, (612) 624-8070.

Student Temporary Services provides a wide variety of temporary jobs if you are seeking temporary work. The Student Temporary Microcomputer Service (STMS) refers you to temporary word processing jobs if you are certified in Word Perfect or Microsoft Word. STMS also offers training for word processing jobs if you need certification. For more information, call (612) 624-5554.

The Job Location and Development Program helps students find off-campus employment related to career goals and academic interests. Paid job opportunities with community agencies are available in its Community Service Programs. In addition, a large number of off-campus employers list part-time and temporary vacancies with the Student Employment Center. Call (612) 624-4814 for more information about off-campus positions.

Summer Loan Programs

To be considered for summer 1991 loans, your financial aid file must be complete by July 13, 1991. If you already received one Stafford Student Loan for 1990-91, you may be eligible for a second summer Stafford loan. SLS, PLUS, SELF, HEAL, Law Access Loan, and Law Student Loan programs are also available for summer 1991. All loans require at least half-time registration in a degree or certificate program. Complete information on specific eligibility criteria and other terms of these private lender loans is available in the *Student Loans Brochure* included with your 1990-91 financial aid packet. Forms for these loans are available at 210 Fraser Hall and 197 Coffey Hall. You can also call the financial aid office, (612) 624-1665, to request forms by mail.

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. Check with the Human Resources Development Division for limitations.

FEE PAYMENT

Paying Your Fees—You must pay all tuition and fees in full by the due date on your billing statement. There is no installment payment plan for the summer session. A \$10 late payment fee is assessed for each term if your bill is not paid by the due date. For all questions about fee payment, call Student Accounts receivable, (612) 625-8500.

NOTE: A new tuition billing system may be implemented prior to summer registration. Under this new system, fee statements will no longer carry due dates. Instead, a billing statement will be mailed to you at your local address *after the start of each term.* (Be sure to list your current local address on your Course Request forms.) You will have a minimum of two weeks from the date of the billing statement until tuition and fees are due. Exact billing and due dates for first and second term were not available when this Bulletin was published. Complete information will be available when you register.

When to Pay—Your tuition due dates for first and second terms will be available when you register. For more information, call Student Accounts Receivable, (612) 625-8500.

Where to Pay—Pay your tuition and fees at the Bursar's Office (145 Williamson Hall on the east bank, 101 Anderson Hall on the west bank in Minneapolis, or the Cashier's Office in 107 Coffey Hall in St. Paul). Your fee statement (or billing statement) and a check or money order may also be dropped in any of the fee deposit boxes on campus: in the Fraser and Coffey Hall registration centers; both concourses of Williamson Hall; Anderson Hall; Coffman Union Service Center; and all dorms. Payments are picked up at 8 a.m. and are credited to the previous day. The receipted fee statement may be picked up after five workdays at the east bank Bursar's Office, 145 Williamson Hall, in Minneapolis or at the Cashier's Office in 107 Coffey Hall in St. Paul. Your receipted fee statement will be mailed to you if you enclose a self-addressed, stamped envelope.

Mailing Your Payment—The fee statement (or billing statement) and a check or money order may be mailed to the Bursar's Office, PO Box 88, Minneapolis, MN 55440-0088. Write your student ID number on your check or money order and enclose all copies of

your fee statement. Do not remove the student copy before sending in payment but do remove the lower portion—your course confirmation form. Your mailed payment must arrive at the Bursar's Office by the due date or you will be billed for a \$10 late payment fee. If you want your receipted fee statement

returned to you by mail, you must enclose a self-addressed, stamped envelope. If you do not include this return envelope, you can pick up your receipted copy after five workdays at the Bursar's Office in Minneapolis (145 Williamson Hall).

Refund of Tuition and Fees—Refunds are issued on a per-credit basis according to the refund rate that applies to the effective date of cancellation. Cancellations are effective the day you *officially* cancel—by taking a completed Course Request form to your registration center—not on the date you stopped attending classes. If you stop attending class for any reason, cancel immediately. To receive a refund, you must cancel within the time periods outlined below.

<i>Length of Course</i>	<i>100% Refund</i>	<i>75% Refund</i>	<i>50% Refund</i>	<i>No Refund After</i>
1-2 weeks	day 1	day 2	day 3	3 days
3-4 weeks	days 1-2	days 3-4	days 5-6	6 days
5 weeks	days 1-4	days 5-6	days 7-8	8 days
6-10 weeks	1st week	2nd week	3rd week	3 weeks

NOTE: For 6-10 week courses, the first week of classes ends on Monday, June 17.

In a limited number of circumstances (e.g., active military duty, scholastic drop) retroactive cancellation may be possible. If retroactive cancellation is authorized within one calendar year after the end of the term, you may also be entitled to a tuition refund. Check with the Student Relations staff in 150 Williamson Hall (625-5333) or 130 Coffey Hall for details.

Health Care

HEALTH SERVICE AND HOSPITALIZATION CHARGES

General Information—All students who take 3 or more credits per summer term are assessed the student services fee. (Students who register for 3 or more credits in a course of 7-10 week length are assessed for *both* terms.) By paying the fee, you are eligible to receive most nonhospital medical services at Boynton Health Service at no cost and others are reduced cost. If you pay the student services fee for both terms, you are eligible for benefits until the first day of Welcome Week in the fall. If you do not pay the student services fee, you may purchase outpatient health coverage—through Boynton's Extended Coverage Plan—at the cashier's window, second floor, Boynton Health Service. Spouses of students may also buy the Extended Coverage Plan if both the student and the spouse are covered by University-sponsored hospitalization insurance. Students who do not pay the student services fee or purchase extended coverage (and spouses of students) may use the Health Service on a fee-for-service basis.

Boynton Health Service is open throughout the summer. Boynton hours are 8 a.m.-5 p.m. Monday through Friday. Prepaid medical care at Boynton includes general outpatient services, internal medicine, orthopedics, chest clinic, women's clinic, eye clinic, and laboratory procedures. Partial fees are charged for certain services, such as routine physical exams, annual dental exams, and some specialty care. Charges for mental health clinic visits, x-rays, and minor surgical procedures must be submitted by you to your hospitalization insurance company; your student services fee will cover the costs that your hospitalization insurance does not. Students without hospitalization insurance will be responsible for full payment of these charges. Full fees are charged for prescription drugs, eye glasses, and most dental care.

During the hours that Boynton is closed, medical care for emergencies is available in the emergency department of University Hospital. The cost for after-hours care in the emergency department is only partially covered by your prepaid health care. Specifically, Boynton will pay 50% of any eligible charges that cannot be collected from your insurance. You are responsible for the remainder of the bill or for the entire bill if you do not have insurance. Visits to other emergency rooms are *not* covered by the student services fee. Follow-up care after an emergency must be obtained at Boynton to be covered.

Hospitalization Insurance—The Board of Regents requires all students taking 3 or more credits per summer term to carry hospitalization insurance. **If you already have insurance, be sure to fill in the name of your insurance company and your policy**

number on the hospitalization insurance form on page xxx and bring the form with you when you register. Otherwise you will automatically be charged for University-sponsored hospitalization insurance.

International students must carry hospitalization insurance for themselves and their dependents. Insurance coverage must be continuous from the date of arrival in the U.S. through the final date of departure from the U.S.

If you are registered for only one summer term, you can, if you wish, purchase insurance covering both terms and the interim. In fact, even if you do not take any summer courses, you can purchase insurance for the summer as long as you were enrolled in the University-sponsored insurance program during spring quarter. It is important to maintain insurance coverage through the summer so you are protected in case of a summer accident or illness.

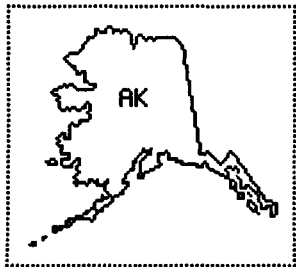
You may purchase University-sponsored hospitalization insurance when you register or at the cashier's window, second floor, Boynton Health Service. Insurance must be purchased before the end of the first week of classes for each term. The fees for coverage are: first term—\$41 (5-week coverage); second term, including interim—\$83 (9-week coverage); both terms—\$124 (14-week coverage). For an insurance brochure, or specific information concerning benefits or dependent insurance coverage, contact the Student Insurance Office at Boynton, room W228 (612/624-0627).

Immunization Clearance—State of Minnesota law requires all students born after December 31, 1956, to provide documentation of immunization for measles, mumps, rubella, tetanus, and diphtheria the first time they register for more than one class. This documentation must be entered on a Student Immunization Record form and must include the month and year each immunization was given. Forms are available at your registration center and at Boynton Health Service. Begin now to check your medical or high school immunization records. (The law allows for some exceptions based on documented medical or conscientious exemptions.) **All students are legally required to provide information on immunizations or exemptions; students who fail to provide the required information within 45 days of the start of the term cannot remain enrolled.**

Further Information—For detailed information about health coverage, contact the cashier's window, second floor, Boynton Health Service (612/624-1471) or see *Welcome to Boynton Health Service*, a brochure available at Boynton. General information and a copy of the brochure may be obtained by calling 612/625-8400.

**Special
Programs..**

**new and
noteworthy**



Summer Institute for Teachers

The American Mosaic: gender and cultural diversity

June 17-28, 1991

America is not a melting pot; it's a mosaic. The emphasis of the 1991 Summer Institute for Teachers will be on the presentation of significant writers and thinkers from the full spectrum of American culture. The institute offers a unique opportunity for educators to explore the creative contributions made to the American cultural mosaic by those traditionally underrepresented in high school curriculum. Participants in the institute will register for one of five courses. Courses will have a seminar format and will encourage individual and group research and discussion. Participants will explore and develop new resources, strategies, and ideas for culturally diverse curriculum in their classrooms. In addition to the courses, the institute will include luncheons, guest speakers, and group work sessions.

Courses offered in the 1991 Summer Institute for Teachers

Engl 5920 Multicultural Literature— Professor Charles Sugnet

This course will involve secondary school teachers in conversation about how best to present fiction from various cultures to American students.

Novels, produced both in the United States and abroad, that relate to American minority culture, will be studied, with texts chosen from such works as: Chinua Achebe, *Things Fall Apart* (African); Toni Morrison, *Sula* (African American); Louise Erdrich, *Love Medicine* (American Indian); Rudolfo Anaya, *Bless Me, Ultima* (Chicano); Maxine Hong Kingston, *The Woman Warrior* (Chinese-American); Jamaica Kincaid, *Annie John* (Caribbean); Bharati Mukherjee, *The Middle Man and Other Stories* ("new" American immigrants—India, Iran, Korea); and selected Hmong texts.

The instructor has taught at the high school level and will emphasize teaching approaches to these books. The course will be run as a collaborative workshop.

WoSt 5100 Gender and Culture— Professor Jacquelyn Zita

Many of us were trained to believe that "mankind's achievements" and "the great works of man" represented the human experience. We have entered a new era of multicultural and gender-sensitive scholarship, in which race, class, gender, ethnicity, and historical context have significance in how we look at the world, read its literature, understand social meaning, express our creativity, and experience our daily lives. In this course we will examine the primacy of gender—our cultural station as "social women" and "social men"—from a Women's Studies perspective. We will explore the social construction and imprinting of gendered meanings in a variety of media: literature, film, prime-time television, popular culture, music, and art. This course will be helpful for high school teachers who would like to understand some of the new theoretical developments in Women's Studies and create innovative ways to bring multicultural and gender-sensitive perspective into the high school classroom.

Afro/Engl 5597 Harlem Renaissance: African-American Art and Culture in the 1920s— Professor John Wright

If, as popular myth would have it, the 1920s was the decade of flappers, cabarets, and the Lost Generation, it was also the decade of the New Negro, the Jazz Age, and Marcus Garvey's Black Legions. Students in this seminar will examine the explosion of new urban black popular culture: blues and

Broadway shows, painting and sculpture, vernacular dance and black cinema, along with literature, figures like Duke Ellington, and the host of other writers and artists who celebrated and critiqued it all. This seminar is designed to integrate recent advances in humanities scholarship on the period, and to assist participants in developing new multicultural curricula. Participants will use the Archie Givens Sr. Collection in Wilson Library as primary resource.

Engl 5910 African and African-American Women Writers—Professor Obioma Nnaemeka

The works of African and African-American women writers will be examined within the framework of marginal and post-colonial literatures. Students will focus on the different ways in which women's respective environments and circumstances have conditioned their perceptions of issues affecting women. A sample of issues covered includes: colonization, Islam, marriage, polygamy, widowhood, motherhood, and violence against women. The problem of marginality itself will be discussed. Professor Nnaemeka has lived and worked within various cultures and brings an interesting and insightful perspective to the classroom.

Amin 5960/AmSt 5920 The Flowering Tree: Traditional and Contemporary American Indian Literature and Culture—Professor Carol Miller

This course will integrate the cultural and aesthetic qualities of texts such as *Black Elk Speaks*, *Night Flying Women* (Ignatia Broker), *Ojibway Ceremonies* (Basil Johnston), *The Way to Rainy Mountain* (Scott Momaday), *Storyteller* (Leslie Silko), and *Tracks* (Louise Erdrich) to illustrate the reflowering and connectedness of traditional Native expression within contemporary American Indian literature. These works will also serve as models for discussion of the opportunities and challenges multicultural curricula engender in the classroom, especially in terms of diverse—and often problematic—student response.

Cost

The cost of the program for students registering through the College of Liberal Arts will be \$350.00. Textbooks, some lunches and course materials will be provided at no additional cost. Students wishing to register through the College of Education or the Graduate School should call the Summer Session office (612-624-3555) for cost and additional information.

Honors Institute in Theatre

Twin Cities Campus
June 17-July 13, 1991

The Honors Institute in Theatre gives talented high school students with a lively interest in the theatre an opportunity to explore stage work, production and performance under the guidance of experienced University faculty. Students live and work together, confronting and solving practical theatre problems. Cost \$535.

Summer Honors College

Twin Cities Campus
June 10-27, 1991

Summer Honors College offers students the intellectual, cultural, and social environment of a university campus. Students live in a residence hall and study with some of the finest University faculty, selecting specially-designed courses from such areas as mathematics, English, studio arts, philosophy, architecture, physics, and humanities. Cost \$370.

Summer Scholars Program

University of Minnesota
Morris
July 7-19, 1991

Academically motivated high school students may select one of two interdisciplinary courses offered especially for them

Summer programs for high school scholars



Each summer, the University of Minnesota sponsors special programs for outstanding high school students—students who are especially interested in exploring challenging subjects within a college setting. This year, several summer residential programs are offered at various campuses.

What is best about these summer programs? The answers are as diverse as the students who attend. Former participants said they liked everything; the intellectual stimulation of the courses; the chance to live in a residence hall and experience college life; the opportunity to meet new friends; and the fun of getting to know the college professors.



on the Morris campus in western Minnesota. "Biotechnology and Human Reproduction: Tinkering with Nature" focuses on the biological, philosophical, and historic issues associated with genetic alteration. The other course, "Growing Up American," examines—through literature, history, and film—the experience of growing up in twentieth century America. Cost \$200.

Itasca Field Biology Enrichment Program

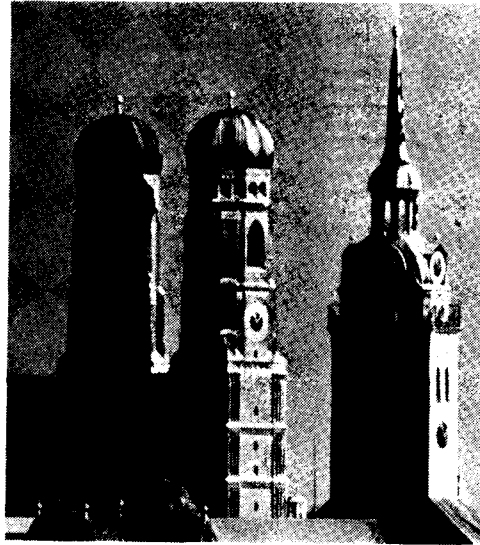
Lake Itasca Forestry and Biological Station,
University of Minnesota
June 15-29, 1991

This program offers unique "hands-on" education in a field setting, under the direction of University faculty. The program is held at the University's field station in beautiful Itasca State Park, where three great plant regions of the eastern United States meet at the headwaters of the Mississippi River. High school students with an interest in biology and ecology are introduced to a wide range of field experiences, including ornithology, animal behavior, glacial geology, prairie ecology, and such special topics as biophotography and telemetry. Cost \$565.

For more information about these special programs call or write:

Summer Session
135 Johnston Hall
101 Pleasant Street S.E.
Minneapolis, MN 55455
624-3555

Travel & Study



International Program in Toledo, Spain

This unique and intensive course in Spanish language and civilization, and Latin-American studies will be held June 15-July 27, 1991.

This program, organized by the Fundacion Jose Ortega y Gasset, is taught by teachers chosen from the permanent team of research staff at the Fundacion, all of whom are specialists in their academic field and in the field of teaching foreign students. Students in the program can earn up to 9 semester credits (9-14 quarter credits). Graduate students may receive credit by taking courses at the 5000 level.

Participants may select courses from the areas of Archeology and Anthropology, Art History, Economics, History, Spanish Cultural Heritage, Spanish and Latin-American Literature, Spanish Language, Linguistics, and Political Sciences (of Spain and Latin America).

Three field trips are included in the cost of the program:

- "The Route of Don Quixote"

- The city of Madrid
- The city of Segovia.

For further information on the intensive summer program, or for a registration form, please call (612/625-9898), or write: Office of Study Abroad
106 Nicholson Hall
University of Minnesota
216 Pillsbury Drive S.E.
Minneapolis, MN 55455.

The Student Project for Amity Among Nations (SPAN)

SPAN was founded after World War II to promote friendship and understanding among nations. It does this by training and sending undergraduate and graduate students from 19 Minnesota colleges and universities to countries around the globe each summer to undertake individual research which will allow them to better know the people of that country. Students apply a full year in advance and begin their academic preparation during

the academic year prior to their summer abroad.

Twelve credits are awarded at the completion of the research project.

For more information come to the Span office in 107 Nicholson Hall or call 626-1083.

Quincentennial Summer Program for Spanish Teachers

King Juan Carlos Fellowships

July 2-August 4, 1991
University of Madrid

A summer study program for teachers of Spanish instituted in 1988 by the Sociedad Estatal del Quinto Centenario, the executive branch of the Spanish National Commission of the Quincentennial of Columbus' Discovery of America (1492-1992), in collaboration with the Ortega y Gasset Foundation and the University of Minnesota.

The main purpose of the Quincentennial program is to familiarize teachers of Spanish in the U.S. with the social and cultural reality of contemporary Spain while at the same time providing them with the opportunity to improve their command of the Spanish language. The program emphasizes the development of curricular materials for secondary classroom use. An important aspect of the Quincentennial program is a substantial scholarship fund that allows for maximum participation of U.S. teachers of Spanish.

Quincentennial program courses are specifically designed for teachers of Spanish in the U.S. Teachers of grades K-12, foreign language education, ESL, bilingual education, as well as college instructors are eligible and encouraged to participate in the program.

Application deadline is April 15; early application is strongly encouraged. For a Quincentennial Summer Program and King Juan Carlos Fellowship application, please call (612) 626-7138, or write to:

Quincentennial Summer Program
The Global Campus
106 Nicholson Hall
216 Pillsbury Drive S.E.
University of Minnesota
Minneapolis, MN 55455

Summer language study

This summer, the University of Minnesota is offering several options for students, for high school teachers, and for others who would like to pursue language study. The study options available on campus include the regular-pace language courses, intensive courses in eleven separate languages, and courses particularly designed for high school teachers.

The ability to speak a language other than our own is fast becoming a necessary skill, one of the many tools for meeting the demands of a world in which a sensitive and greater understanding of international cultures is vital. The urgency of this need is a cardinal and challenging reason to study language this summer.

Another compelling reason for language study in the summer is the second language entrance standard and the revised graduate requirement being phased in by the College of Liberal Arts. While the entrance standard is not a requirement for admission to CLA, graduating students must have demonstrated proficiency in a second language equivalent to that usually gained in two years of college study.

Intensive language study in the summer is one of the options available. These classes usually are taught over the two terms of summer; each course is offered for up to 15 credits, or the equivalent of three quarters of study; the commitment usually requires three morning hours of class per day, with additional

hours of language laboratory, and the student cannot register for any other course during the summer. In 1991 the languages offered in the intensive format are: Chinese, French, German, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish, and Swedish.

Regular pace language courses will be available each term in French, German, and Spanish.

The 1991 Nankai Institute in Chinese language, an intensive language program in Chinese held at Nankai University, Tianjin, China, June 10 through August 20, 1991, offers courses in standard Chinese at second year, third year, and advanced levels. It also provides students with a rare opportunity to experience Chinese culture firsthand through contact with Chinese students.

Application must be made by February 22, 1991. There is an optional post-institute tour August 21-30 that includes visits to cities such as Xi'an, Nanjing, and Shanghai.

For information and application forms please telephone or write: Minnesota-Nankai Institute, East Asian Studies Department, 105 Folwell Hall, (612) 624-0386, or 624-0007.

College Reading (Rhetoric 1160/5160) will be offered this summer during day and evening classes. This course is of particular interest to teachers because it carries four graduate credits for recertification.

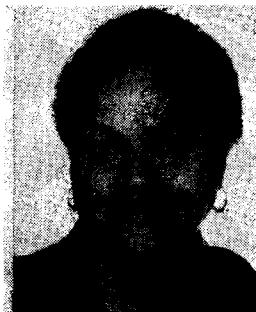
Special Courses in Cultural Diversity

The Department of Family Social Science and the School of Social Work are pleased to announce the jointly sponsored visits of Drs. Harriet Pipes McAdoo and John Lewis McAdoo, two of the nation's leading scholars on minority issues and families. These outstanding individuals will offer a unique opportunity for students to study and interact with them during first term.

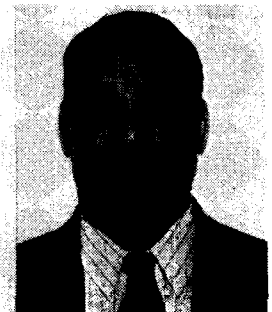
Dr. Harriet Pipes McAdoo will teach FSoS 5500, *Racial and Ethnic Minority Families*, a 4-credit course which offers an overview of family issues of various American racial and ethnic populations. It involves a study of research and case studies and individual projects to develop and enrich understanding of cultural diversity.

Dr. John Lewis McAdoo will teach SW 5601, *Ethno-cultural Concepts in Social Work Practice*, which studies the relation of ethnocultural concepts to development of social welfare

services and social work practice. It offers a critical examination of commonalities of principle and cross-ethnic issues and practices among the four major ethnic minority groups of color (American Indian, Asian, African-American, and Hispanic). This is a 3-credit course for graduate students, 4-credits for undergraduates.



Harriet Pipes McAdoo



John Lewis McAdoo

A sampling of courses that focus on multicultural diversity, ethnicity, and gender

ADULT AND TEACHER EDUCATION (AdEd)

5110 The Status, and Role of Women in American Society
(June 11-July 10)

AFRO-AMERICAN, AFRICAN STUDIES (Afro)

3002 Introduction to West African History
5597 Harlem Renaissance: African-American Art and
Culture in the 1920's. (Summer Institute for Teachers.
Also Engl 5597)

AMERICAN INDIAN STUDIES (Amin)

1771 Introduction to American Indian Studies

5960 The Flowering Tree: Traditional and Contemporary
American Indian Literature and Culture (Summer
Institute for Teachers. Also AmST 5920)

ANCIENT NEAR EASTERN AND JEWISH STUDIES (ANEJ)

3501 Ancient Israel: The Background of the Bible

ANTHROPOLOGY (Anth)

3261 Indian Culture and Society

CHICANO STUDIES (Chic)

3106 Introduction to Chicano Studies: Mexico and the
United States
3213 Chicano Music and Art

COMPARATIVE LITERATURE (CLit)

3979 Issues in Cultural Pluralism

EDUCATIONAL POLICY AND ADMINISTRATION (EdPA)

5142 Minorities in Higher Education
5209 Education in Future Social Systems

ENGLISH LANGUAGE AND LITERATURE (Engl)

1591 Literature of American Minorities
5910 African and African-American Women Writers
(Summer Institute for Teachers)
5920 Multicultural Literature (Summer Institute for
Teachers)

FAMILY SOCIAL SCIENCE (FSoS)

5500 Special Topics in Family Social Science: Racial and
Ethnic Minority Families

HISTORY (Hist)

1305 Cultural Pluralism in American History
5381 Minnesota History Workshop: Topics in Minnesota
History: *The Shores of Gitche Gummi*
(July 21-August 3)

HUMANITIES (Hum)

3176 Cinematic Discourse and Cultural Politics

JEWISH STUDIES (JwSt)

1034 Introduction to Judaism
3034 Introduction to Judaism

MIDDLE EASTERN STUDIES (MidE)

1536 The Religion of Islam
3505 Survey: The Middle East
5505 Survey: The Middle East

POLITICAL SCIENCE (Pol)

3739 Politics of Ethnic Communities

SOCIAL WORK (SW)

5010 Seminar: Special Topics
 Sec 1 Physical Abuse of Women (June 17-21)
 Sec 2 Social Work Practice with the Elderly
 (June 24-28)
 Sec 3 Issues and Interventions in Child Sexual
 Abuse (July 8-12)
5601 Ethno-Cultural Concepts in Social Work Practice

SOUTH ASIAN STUDIES (SoAS)

1504 Introduction to the Religions of South Asia
3413 Buddhism
3501 The Heritage of India
3607 Tradition and Modernity in Indian Culture
5413 Buddhism

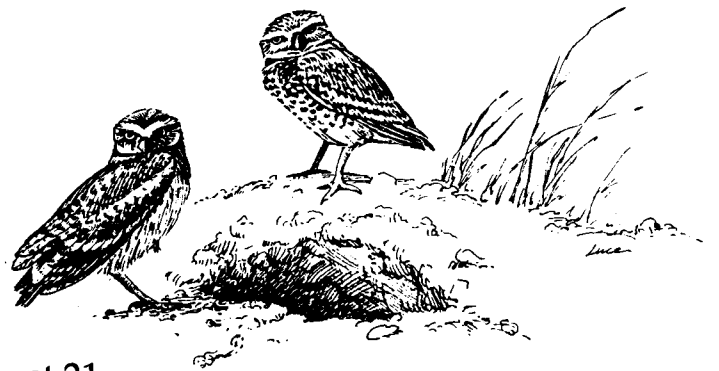
SPEECH-COMMUNICATION (Spch)

3451 Intercultural Communication: Theory and Practice
5404 Language, Culture, and Education

WOMEN'S STUDIES (WoSt)

1001 Introduction to Women's Studies
3303 Women and Literature
5100 Gender and Culture (Summer Institute for Teachers)
5103 Feminist Pedagogy

Lake Itasca field biology program



Term I: Tuesday, June 11-Tuesday, July 16
Term II: Thursday, July 18-Wednesday, August 21



The Itasca Habitats

Itasca State Park in northern Minnesota is an important and nationally recognized ecological area. Three great plant regions of the eastern United States meet to provide opportunities for study not only of varied ecosystems but also of a singular range of fauna and flora with southern, northern, and western origins. The park encloses 50 square miles of protected forests within which are many lakes and wetlands of different types, providing unusual field opportunities for work in limnology, phycology, aquatic insects, fungi, and in related fields.

These forests are unique. The northern coniferous and deciduous types of the central hardwood region meet here, and the many bog areas provide for study of a wide variety of plant communities. Itasca's forests have been protected for over a half-century, and many have never been cut, so that today there exists 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 types can be found on the bed of ancient Lake Agassiz. To the north lie the Red Lakes and immense expanses of northern bog.

Opportunities to observe birds during June and July are outstanding; of particular interest are nesting bald eagles and breeding loons. An abundance of interesting animals affords many striking behavioral and ecological problems for study. Fish and other aquatic life are plentiful and provide an excellent source for special studies.

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.

Admission

Courses are open to all qualified graduate and undergraduate students and others with continuing education objectives. The general rules for admission of graduate and undergraduate students to the summer session apply to the Itasca Biology Program. Please read the admission and registration instructions on page 6.

Course Work and Research

Undergraduate students will benefit from study of biological systems in this unique ecological laboratory where species and processes

are observed in their natural setting. The exposure to the variety of habitats and ecosystems available at Itasca, the opportunity to take courses and to study under the direction of senior faculty of the University of Minnesota and visiting faculty from other universities, and the opportunity to interact with undergraduate peers and with graduate students and researchers adds to the learning experience.

Graduate students at all stages of study find in the Itasca field biology station a unique and protected environment able to provide the basic materials for study and research. The variety of courses available in both terms allows the student to choose an entire summer of intensive work in a particular field of interest or to select a course from one of the two terms of summer study. Graduate students who elect to devote themselves to research problems will find well equipped and maintained laboratories.

Teachers and professional biologists can pursue advanced study or can use summer field study as a time for professional renewal and enhancement. Short courses allow for flexibility and in-depth study of a specialized topic at Itasca.

Independent investigators may pursue research in various fields of terrestrial and freshwater biology during any season. To initiate research projects and to use the excellent laboratories, an application must be made to the resident biologist.

Instructional Facilities

Twelve 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, birds, small mammals, algae, and fish are available for study. Four complete sets of aerial photos of the park, made in 1938, 1951, 1959, and 1966, are maintained at the station along with stereoscopic equipment.

A freshwater algal culture collection consisting of about 60 species found within Itasca State Park is available for students and researchers.

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 field work and offers ample room for study. Other journals and books are available from the University Libraries.

Advanced students and research workers needing laboratory space and special equipment should make prior arrangements with the Resident Biologist, University of Minnesota Forestry and Biological Station, Lake Itasca, MN 56460. An application to conduct research on the station and a research permit must be completed and research fees

paid before initiating research projects.

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

Medications for *minor problems* (e.g., colds) are kept in the Itasca Program office. For more severe illnesses, you will be taken to Park Rapids for emergency service. If you obtain the prior approval of the person in charge of your group, Park Rapids outpatient emergency charges that are not collectible from your insurance (excluding take-home drugs and supplies) will be paid by your health service fee up to a maximum of \$100 per visit. If you are taking fewer than three credits and elected not to pay the health service fee, all medical services are your responsibility. In addition, everyone living at the station is required to have hospitalization insurance whether obtained through or outside the University. (See information about University-sponsored hospital insurance on page 27.)

Scholarships and Research Stipends

Both scholarship awards and graduate student research stipends are available for qualified students in the summer, as follows:

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, University of Minnesota, 101 Pleasant Street S.E., Minneapolis, MN 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, MN 55455.

Itasca Director's Scholarship, at \$350, has been established by the Biological Sciences Alumni Society (BSAS) to be made available to an outstanding undergraduate student from the University of Minnesota (Twin Cities campus) registering and fulfilling coursework at Itasca.

Inquiries should be directed to Professor Donald B. Siniiff, Program Director, Itasca Biology Program, 305 Zoology Building, University of Minnesota, 318 Church Street S.E., Minneapolis, MN 55455. Inquiries should be made as early as possible; the deadline for research stipend application is April 15.

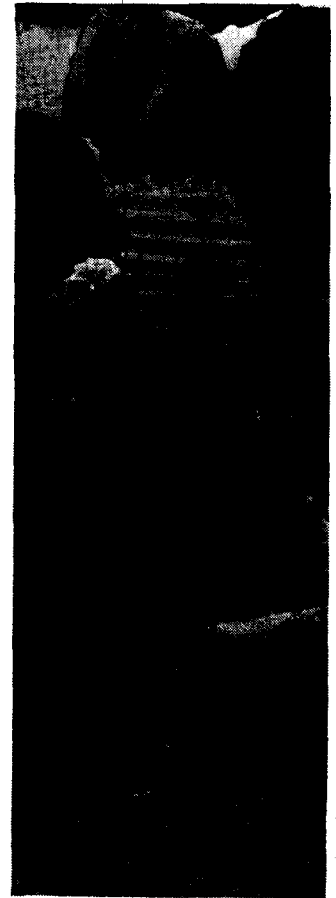
Student Loans

Students who are enrolled in a University of Minnesota degree or certificate program during the academic year may be eligible for a Guaranteed Student Loan to help pay for the cost of their Itasca sessions. The necessary forms may be obtained from the Office of Student Financial Aid in 210 Fraser Hall on the Minneapolis campus or 172 Coffey Hall on the St. Paul campus.

Visiting students who are regularly enrolled in other institutions should arrange for student loans through their home institutions.

Employment Opportunities

A limited number of jobs (library, office, shops, etc.) are available to students on a competitive basis. Students must carry at least 6 credits to be eligible for employment. Interested persons should request an application form from Donald B. Siniiff, Program Director, Itasca Biology Program, 305 Zoology Building, 318 Church St. S.E., Minneapolis, MN 55455. Only University of Minnesota students may apply for graduate teaching assistant positions and College Work-Study Program jobs. Employment in area resorts and in the Park is sometimes available.



How to Register for Courses at Itasca

Registration for a course taught at the Itasca Station is a two step process. First you register for a course; second you complete your registration by paying your tuition and fees. Since both housing facilities and class sizes are limited, early application is recommended. Although you can register at the Itasca Station on Monday, June 10 for the first term, and Wednesday, July 17 for the second, a spot in the class or in housing cannot be guaranteed. It is best to register before arriving at the station.

Step 1: Complete the registration form on page xx and send to the Itasca Biology Program, 305 Zoology Building, University of Minnesota, 318 Church Street S.E., Minneapolis, MN 55455, or deliver it personally to the office. Students may register for 2-10 credits per term. Mail registration must be received by June 7, 1991 for term I. Mail registration for term II should be sent to the Itasca Biology Program, Lake Itasca Forestry and Biological Station, Lake Itasca, MN 56460., in order to insure registration before classes begin. After June 7, registration will be at Itasca on June 10 and July 17.

Step 2: Prior to the start of the Itasca Program, a fee statement will be mailed to registered students showing the classes in which they are enrolled. Tuition and fees can be mailed to or paid in person at the Bursar's office in 145 Williamson or paid in person at the Cashier's office in 107 Coffey Hall.

Term	Itasca Registration Day
First	June 10
Second	July 17

Changes in Registration and Cancellations

Changes in registration must be approved by the program director and are strongly discouraged after registration day. Because late cancellations often create vacancies in classes that someone else wants, students who know they are going to cancel should notify the program director by May 25. Students who want to cancel after the session has begun must receive permission from their instructor.

Tuition, Fees, and Other Costs¹

Tuition. Tuition and all fees are payable on the due date indicated on the fee statement. An additional charge is assessed for both late registration and late payment. Tuition is assessed on a per-credit basis according to the University of Minnesota college in which the academic year student registered during a previous term. Summer-only undergraduate students will be charged tuition at the College of Biological Sciences rate: \$72.50. Academic year students, please consult the tuition and late registration/late payment schedule on page 22.

Graduate School Tuition.

Students registering through the Graduate School pay Itasca Biology Program tuition at the rate of \$128.00 per credit, per term for 1-5 credits; for six or more credits the tuition is \$768.00 per term.

Student Services and Laboratory Fee. All students pay a laboratory fee of \$10 per term, and those who take 3 or more credits pay a student services fee of \$30.15 per term. (See section on Health Services on page 27.)

Room and Board. There is a service charge of \$65 per week for room and board. This fee is also payable at the beginning of each term.

Transportation Costs. University vehicles are available for class field trips. Students using them are charged a fee to cover actual costs. Costs usually range from less than \$1 to \$30. Most courses use University vehicles for long or frequent field trips.

¹Tuition, fees, and other costs are subject to final approval by the Board of Regents and may change without notice.

At the Station...

Getting there—By car, highways 200 and 71 provide easy access into the park; **by plane,** Northwest Airlines offers daily service between the Twin Cities and Bemidji; or **by bus** to Bemidji. If you come by plane or bus, you will be met upon arrival *if you make prior arrangements with the program director.* Before June 7 you may telephone or write the Itasca Program Office. After June 7 you may telephone the Itasca office (218/266-3302) or write the University of Minnesota Forestry and Biological Station, Lake Itasca, MN 56460.

Living arrangements—there are nine cabins for men, each accommodating eight students, and seven cabins for women, accommodating six to eight students each. The heated cabins are rustic, but comfortable, with bunk beds and with desks for study in each cabin. Women's cabins contain toilets and wash basins. A central bathhouse with laundry facilities is located near each of these groups of cabins. Camping space is very limited at the station. However, early applicants will be given priority if space becomes available.

You will have to bring your own pillows, bed linen, and towels, and since the nights are often cool, you may want to bring two or three wool blankets.

Family accommodations—A list of accommodations off-campus in one of many resorts in the vicinity will be furnished upon request.

Personal needs—essential equipment includes serviceable clothing (sweaters, sweatshirts, shorts for warmer days, shoes or boots for fieldwork), a warm jacket, rain gear, a swimsuit, a flashlight, notebooks, pocket field manuals, a portable typewriter, typing paper, and a calculator.

Meals—The dining hall is managed by University Food Services. Meals are served in an attractive dining hall located on the lakeshore. **Important:** All persons housed in student cabins must use the dining hall facility.

Accommodations for visitors—There are very limited facilities for guests on the station; these facilities may be reserved in advance at the Itasca office. It is also possible you may have to make arrangements for guests at a local resort. Meals for your

guests can be arranged in advance at the Itasca office. Please inform your guests of park regulations—students must take responsibility for the conduct of their visitors.

Mail—Have your mail addressed to University of Minnesota Forestry and Biological Station, Lake Itasca, MN 56460.

Recreation—Within the park, the opportunities for swimming, fishing, canoeing, biking, and hiking are excellent. At the station, equipment for softball, volleyball, soccer, and horseshoes is available. Evening social events may be planned by the students, and there are weekly lectures by staff members or visiting scientists.

Guidelines—campus regulations are kept at a minimum. Students are expected to keep their own quarters clean and orderly. You may bring your car, but garages and repair services are not provided. Weekend absences and extended field trips should 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 (\$16.00 for both Minnesota residents and for nonresidents) must be purchased for private cars at the park entrance.

Itasca biology program faculty

David D. Biesboer, Associate Professor, University of Minnesota, has research interests in the area of anatomy and physiology of angiosperms with an emphasis on secondary metabolism in plant tissue cultures; and in the biology and control of the noxious weed, leafy spurge. (Biol 3812)

David E. Blockstein, National Institutes for the Environment, studies ecology and conservation of doves and pigeons on tropical islands. (EEB 5834)

Donald P. Christian, Professor, University of Minnesota, Duluth, is interested in population of biology and environmental physiology of mammals. His research activities have emphasized laboratory and field studies of the physiology and ecology of water metabolism in desert mammals and mineral balance in herbivore mammals. (Biol 5850)

James W. Curtsinger, Associate Professor, University of Minnesota, does experimental and theoretical work in population and quantitative genetics, with an emphasis on insect populations. (Biol 5850)

Irwin Forseth, Associate Professor, University of Maryland, has research interests in plant physiological ecology, with an emphasis on plant water relations, photosynthetic response to the environment and leaf radiant energy balance. Current research is centered on an understanding of the physiological mechanisms and ecological ramifications of heliotropic leaf movements. (Biol 5850)

Guy E. Gibbon, Associate Professor, University of Minnesota, is studying the origin and impact of wild rice harvesting in prehistoric Minnesota through the excavation and analysis of archaeological sites. (Anth 3376, Anth 5920)

Perry B. Hackett, Associate Professor, University of Minnesota, is a molecular biologist interested in the regulation of gene structure, organization and expression in vertebrate cells. Current research is focused on regulation of translation in retroviruses (including HIV) and regulation of transcription in transgenic fish. (Biol 5850)

Robert E. Holtz, Professor of Biology and Science Education, Concordia College—St. Paul, has special interests in ecology, ornithology and environmental education. He recently wrote *Environmental Education: Program Planning Guide for the Minnesota Department of Education*. (Biol 5810)

Ralph W. Holzenthal, Assistant Professor, University of Minnesota, is interested in the taxonomy and systematics of Trichoptera. (Ent 5920)

Terry J. Kreeger, Research Associate/Wildlife Veterinarian, University of Minnesota, is interested in conservation biology, predator/prey ecology and physiology, wildlife diseases, and human-animal interactions. (Biol 5850)

Jeffrey W. Lang, Associate Professor, University of North Dakota, has research interests focused on the energetics, ecology, and evolution of thermoregulation in reptiles, including the overwintering ecology of snakes, the reproductive behaviors of egg-tending lizards (Eumeces), and the distribution and ecology of Minnesota herpetofauna. (Biol 5850)

Howard D. Mooers, Assistant Professor, University of Iowa, has research interests focusing on glacial and periglacial processes, particularly the genesis of glacial landscapes, glacial dynamics and thermo dynamics, permafrost and patterned ground formation, and the hydrogeology of glacial sediments. (Biol 5850)

Dr. Richard Poppele, Professor, University of Minnesota, has research interests in the area of sensorimotor integration in the vertebrate nervous system. (Neuroscience 5100 and 5550)

Donald L. Rubbelke, Assistant Professor, Yakima Valley Community College, is currently interested in developing and applying new methods in biological photography. (Biol 5816, Biol 5850)

Donald B. Siniff, Professor, University of Minnesota, is interested in vertebrate ecology, with special interest in population ecology of large mammals. (Biol 5841)

John R. Tester, Professor, University of Minnesota, is interested in behavioral and population ecology of terrestrial vertebrates. Recent research has emphasized habitat selection and activity rhythms. (EEB 5817)

Melbourne C. Whiteside, Professor, University of Minnesota—Duluth, does research on factors causing the mid-summer decline of littoral zooplankton, with emphasis on larval fish/zooplankton interactions. (Biol 5850)

Susan M. Wick, Associate Professor, University of Minnesota, does research on higher plant development and morphogenesis, especially as it is regulated at the cellular level. Recent projects include a study of ryegrass pollen development and the use of immunochemical procedures to examine the roles of microtubules and actin microfilaments in control of the plane of cell division, to characterize microtubule initiation sites, and to determine if there is differential usage of tubulin isotypes in tissues and throughout development in *Zea* and *Arabidopsis*. (Biol 3812)



Courses of instruction



Administrative Staff

Office Minneapolis, (612)
625-9165

Lake Itasca (218) 266-3302
(June 10 to August 22 only)

Donald B. Siniff, Program
Director

Dorothy K.
Bromenshenkel, Secretary

Building and Grounds

Daniel Traun, Resident
Manager

Research

Jon Ross, Resident
Biologist

Library

Thomas J. English,
Librarian

techniques, recording analysis,
and interpretation of
archaeological materials.

Anth 5920: Field Techniques in Historical Archaeology— Term I, June 11-July 16

(188966) (5 cr; limited to 15
students; prereq Anth 1101 or
#; Tuesday/Friday) Gibbon
Introduction to the basic tools
necessary for reading historic
period cultural landscapes:
oral interviewing, recording
and documenting architecture,
records searching, locating and
evaluating sites, recognizing
period artifacts (e.g., ceramics,
nails, bottles). Examples and
field exercises focus on the
Headwaters Lakes region of
Minnesota.

Biology (Biol)

R3812. Plant Biology—Term II, July 18-August 21. (591659)

(5 cr; limited to 20 students;
prereq general courses in
biology and chemistry;
Wednesday/Saturday) Biesboer
and Wick
Plant diversity and evolution;
structure and function of the
plant cell and of the whole
organism; growth and
development of plants. This
course satisfies the plant
biology requirement for
University of Minnesota
majors.



R 5810. Topics in Environmental Education for Elementary Teachers—Term I, July 7-July 19. (292014) (5 cr.; limited to 20 students; hrs arr.;

Holtz
An intensive two-week
Environmental Education
Institute to instruct elementary
teachers in several areas of
ecology and environmental
concerns. Using ecosystem
concepts as a basis for study,
the emphasis will be on
integrating these concepts into
the elementary school
curriculum.

R5841. Ecology—Term II, July 18-August 21. (989469) (5 cr;

limited to 20 students; prereq
course in calculus, course in
plant biology and/or animal
biology; Monday/Thursday)
Siniff and staff
Growth, structure and
evolution of populations.
Pairwise biotic interactions
between species and their
effect on the diversity and
structure of natural
communities. Nutrient
dynamics, function,
productivity, and temporal
stability of ecosystems.

R5816. Field Biology Photography—Term I, June 11-June 29. (385605) (3 cr;

limited to 20 students; prereq
course in beginning biology;
Wednesday/Saturday)
Rubbelke
Field photography techniques
for documentation of insects,
vertebrates, aquatic organisms,
and habitats of the Itasca area.

Emphasis on general
photographic principles and
applied advanced techniques
using flash, reversed lenses,
and infra-red photoelectric
tripping devices. On-site
processing of color slides and
black and white films. No
previous processing
experience required.

R5850. Special Topics in Biology.

**Sec 1, Term I, June 11-June
28; Tuesday/Friday; Glacial
Geology.** (086675) (3 cr;
limited to 20 students; prereq
two courses in biology or
geology) Mooers
Glacial deposits and landforms
of the Itasca region, their
origin, and their relation to
modern soils and vegetation.
Late Quaternary geologic
history of the region.

Sec 2, Term I, June 11-July 12; Tuesday/Friday; Field Studies in Mammalogy.

(886676) (5 cr; limited to 20
students) Christian
A field course emphasizing
techniques in study of small
mammals. Lectures and field
projects will emphasize
identification distributions,
community interactions,
ecophysiology, and population
ecology.

Sec 3, Term I, June 11-July 13; Wednesday/ Saturday; Conservation Biology.

(686677) (5 cr; limited to 20
students) Kreeger
An introduction to the
influence of human activities
on ecological systems. Field
studies focusing on ecological

R Means "controlled
enrollment."

¶ Means "concurrent
registration."

Means "consent of instructor
is required."

□ Means "consent of college is
required."

Classes begin at 8:00 a.m. and
continue all day.

The University of Minnesota is
on the quarter system.

Anthropology (Anth)

R3376. Field Research in Archaeology—Term I, June 11-July 16. (288965) (5 cr;

limited to 15 students; prereq
Anth 1101 or #; Monday/
Thursday) Gibbon
Archaeological field
excavation, survey, and
research in prehistoric sites in
Minnesota. Excavation

changes caused by these activities in the Itasca area will be conducted by students. Written reports on the results of these studies will be required.

Sec 4, Term I, June 11-July 15; Monday/Thursday; Aquatic Ecology. (689112) (5 cr; limited to 20 students; prereq 15 cr biology, 5 cr chemistry) Whiteside Biological, chemical and physical aspects of lakes. Includes extensive laboratory and field analysis of the ecological relationships between aquatic organisms and their environment.

Sec 5, Term I, July 3-July 13; Wednesday/Saturday; Advanced Field Biology Photography. (290120) (2 cr, limited to 20 students; prereq Field Biology Photography) Rubbelke

A course designed to introduce students to more advanced photographic application, including high resolution black and white photomacrography, ultraviolet photography, and infra-red technology for remote documentation.

Sec 6, Term II, July 18-August 19; Monday/Thursday; Ecological Genetics. (388813) (5 cr; limited to 15 students) Curtsinger and Hackett
Introduction to basic population and quantitative genetics; variation in natural populations; electrophoretic analysis of field samples; reconstructing phylogeny; genetic studies of population structure, and introduction to mitochondrial DNA analysis.

Sec 7, Term II, July 18-August 6; Tuesday/Friday; Measurements of Plant Environments. (188814) (3 cr; limited to 20 students; prereq course in Ecology.) Forseth
A field course designed to introduce students to techniques for the measurement of plant microclimate, leaf radiant energy balance, water

relations, and photosynthetic gas exchange. Emphasis will be on plant response to the environment in the field, with special attention devoted to plant physiological and ecological responses to currently projected global climate changes caused by human activity (i.e., increasing atmospheric CO₂ concentration, changes in ambient temperature, and increased periods of water stress).

Sec 8, Term II, July 18-August 7; Wednesday/Saturday; Ecology of Amphibians and Reptiles. (289114) (3 cr; limited to 20 students) Lang
The life histories of the various species of amphibians and reptiles in the Itasca area will be studied. The close proximity of three major biomes to the Itasca station allows for field trips to consider ecological and morphological differences among closely related species. Study of such differences will provide the major focus of this course.

Sec 9, Term II, July 18-August 7; Wednesday/Saturday; Behavior/Telemetry. (090130) (3 cr; limited to 20 students) Siniff/Tester and staff
Use of radio-telemetry to study animal behavior, especially movements and the use of space. Basic features of radiotransmission, transmitters, and receivers relevant to bio-telemetry; safe and humane methods for capture and immobilization of animals for radio-tagging; techniques for attachment of transmitters, locating radio-tagged animals; processing data from radio-fixes; telemetry of further behavioral and physiological information.

R5890. Research Problems at Itasca. (cr ar; prereq #; Terms I and II) Staff
Undergraduate and graduate students develop a short-term research project in most of the departments offering courses at

Itasca during both term I and term II.

Sec 1, Term I, June 11-July 16. (785407)

Sec 2, Term II, July 18-August 21. (385507)

Ecology, Evolution and Behavior (EEB)

R5817. Vertebrate Ecology—Term II, July 18-August 21. (390674) (5 cr; limited to 15 students; prereq course in ecology; Tuesday/Friday) Tester

Field studies on vertebrate populations and their relationships to local environments; habitat analysis and ecological research methods. Students working individually or in teams investigate behavioral and ecological aspects of selected vertebrates. This is a research-oriented course supplemented with lectures and field trips.

R5834. Field Ornithology—Term I, June 11-July 16.

(990668) (5 cr; limited to 15 students; prereq course in general biology, including study of zoology; Monday/Thursday) Blockstein
Emphasis on the breeding season, biology, and behavioral ecology of birds in the Itasca Park region. Field trips to a variety of habitats to learn bird identification and to observe and practice techniques for conducting field studies. Laboratory sessions investigate family distinctions and species identification. Individual field projects. (Classes often begin at 5:00 a.m., with a break in the day)

Entomology (Ent)

R5920. Special Topics in Entomology—Aquatic Insects—Term I, June 11-June 29. (788968) (3 cr; limited to 20 students; prereq introductory biology; Wednesday/Saturday) Holzenthal

This course emphasizes the taxonomy and natural history of aquatic insects, including their importance in aquatic ecology, water resource management, recreation, and conservation. Morning lectures are followed by afternoon field trips to local standing and running water habitats. Emphasis is on family-level identification. A collection is required.

Neuroscience (NSc)

R5100. Introductory Neurobiology Laboratory at Itasca—Term I, June 11-June 28. (390271) (5 cr; limited to 10-12 students; prereq advanced undergraduate

(junior or senior) in biological or physical sciences; introductory biology and chemistry; instructor consent required; hrs arr.) Dr. Richard Poppele, Director, and Neuroscience faculty.
This course is designed for biological or physical sciences undergraduate students with an interest in the neurosciences. A major objective of the course is to provide an introduction to concepts in cellular neurosciences in a laboratory environment. Emphasis will be placed on understanding the basis of membrane properties, including ionic and molecular mechanisms of resting potentials, action potentials, and synaptic potentials. Students will work with state-of-the-art equipment and contemporary techniques to examine the experimental evidence for these concepts.

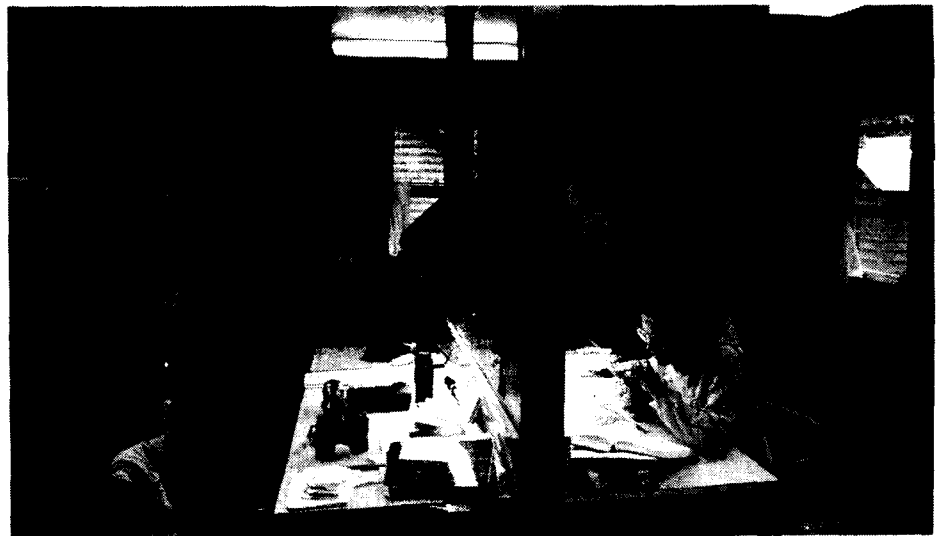


This is a 3-week, full-time, intensive course. Financial aid will be available.

5550. Itasca Cell and Molecular Neurobiology Laboratory Course—Term II, July 28-August 30. (885785) (6 cr; limited to 10-12 students; prereq enrolled in Neuroscience Graduate Program or consent of Neuroscience Program; hrs ar) Dr. Richard Poppele, Director, and Neuroscience faculty. Intensive laboratory course introducing cellular and molecular research techniques and topics in contemporary neuroscience. Topics covered include electrophysiological studies of neuronal properties, neuropharmacological assays of transmitter action, and immunohistochemical identification of transmitters. Concepts and techniques studied in the context of a number of preparations including the neuromuscular junction, *in vitro* invertebrate nervous system, the hippocampal slice, retina, and the nervous system of the gut. Course is designed for entering or 1st year graduate students in the neurosciences or closely related fields.

Plant Pathology

R5102. Fungal Ecology—will be offered in 1992.



Condensed Schedule

Term I					
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Aquatics	Mammalogy	Photography	Aquatics	Mammalogy	Photography
Ornithology	Glac. Geol.	Entomology	Ornithology	Glac. Geol.	Adv. Photo.
Anth 3376	Anth 5920	Adv. Photo.	Anth 3376	Anth 5920	Adv. Photo.
		Cons. Biol.			Cons. Biol.
Term II					
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Ecology	Vert. Ecol.	Plant Biology	Ecology	Vert. Ecol.	Plant Biology
Ecol. Genetics	Plant Phys	Amph. & Rept.	Ecol. Genetics	Plant Env.	Amph. & Rept.
		Telemetry			Telemetry

*Neuroscience, hrs. arr.

See Registration section of this bulletin before completing this form. Schedule only one course per day, using the Condensed Course Schedule. Mail this form to Program Director, Itasca Biology Program, 305 Zoology Building, University of Minnesota, 318 Church Street S.E., Minneapolis, MN 55455. Registration may be made immediately.

Registration Form

Student Name (last, first, middle, former)			U of M ID Number	
Current Street Address			Home Phone Number ()	
City	State	Zip Code	Work Phone Number ()	
Permanent Street Address			Reserve for me a student cabin <input type="checkbox"/> Yes <input type="checkbox"/> No	
City	State	Zip Code		
Have you ever registered in University of Minnesota day classes, including summer? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, write quarter, year, and college:			Social Security Number	
Quarter _____ Year _____		College _____		Degree held _____
Current Student Status (check one): <input type="checkbox"/> Grad <input type="checkbox"/> Adult Special <input type="checkbox"/> Freshman <input type="checkbox"/> Sophomore <input type="checkbox"/> Junior <input type="checkbox"/> Senior <input type="checkbox"/> Independent Investigator				
Student Status by Summer 1991			University or College You Now Attend	
If you are a University of Minnesota student, write college and year in which you were last enrolled:				
College _____			Year 19 _____	
Term I June 11-July 16	Call Number	Credits	Department	Course Number
Term II July 18-August 21				

Admission

Courses are open to all qualified graduate and undergraduate students, and to others with continuing education objectives. The general rules for admission of graduate and undergraduate students to the summer session apply to the Itasca Forestry Session. Please read the admission and registration instructions as they refer to your particular situation on page 6.

The Itasca habitats

See Page 34.

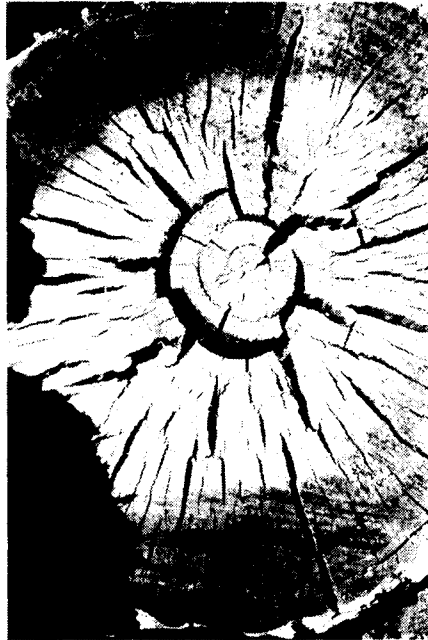
Instructional facilities

The University of Minnesota Forestry and Biological Station, home to the Itasca program, is on Lake Itasca, headwaters of the Mississippi River. Itasca Park's old growth forest and numerous lakes have helped make it one of the nation's outstanding field stations.

The Forestry and Biological Station offers heated, comfortable cabins, a large assembly hall for gatherings, a dining hall, a reference library that overlooks the lake and study rooms. Rowboats and canoes are available for classes and personal use. Given the small class size and with students and faculty living on campus, the setting lends itself to establishing good, long lasting friendships.

Course work

At Itasca, you do not spend much time sitting in a classroom listening to lectures. With an emphasis on field study, 80 percent of your time will be spent in the forests and on the waters of Itasca Park and surrounding areas. Depending upon your interests, the requirements of your major, and your academic status, you may select one of three course



College of Natural Resources Itasca Forestry Session

Sunday, August 25—Wednesday, September 18, 1991

packages; Forestry, Fisheries and Wildlife, or a Graduate Student Practicum.

Forest Resources

This package is open to all qualified students and is required for students who are in the Forest Resources, Urban Forestry, and Renewable Resource Science Curricula. Prerequisites are 40 credits with at least a "C" average including courses in botany and chemistry with grades of "C" or better. College or high school trigonometry with a grade of "C" is also required. In this package you will learn the ecological principles behind the practice of forest resource management. Faculty will help you master technical skills such as using compasses and reading maps, sampling

forest vegetation and identifying important forest plants. A full day is spent visiting special areas such as the Chippewa National Forest. You will learn how management balances wildlife, outdoor recreation, water, and timber while maintaining the forest ecosystems. Three courses are offered in this package.

- FR 3100: Minnesota Plants (2 credits)
Learn to identify 140 forest plants

- FR 3101: Field Forest Ecology (3 credits)
Field examination of succession, soils, silvical characteristics, tree classification, stand structure, and the ecology of regeneration.

- FR 3201: Field Forest Measurements (1 credit)
Introduction to land survey, tree and stand measurement

and basic forest sampling techniques.

Fisheries and Wildlife

This package is required of all Fisheries and Wildlife majors and is open to others on a space available basis and with consent of the instructor, Dr. David Smith, 612-624-5369. Fisheries and Wildlife students must have completed the following courses with a grade of "C" or better: Biol 1009, 1103, 1106, and FW 3052. In this package you will develop confidence and skills in fisheries and wildlife field work. Students will be provided experiences in planning field projects or research, introduced to skills in data collection and keeping a daily journal, learn a variety of fisheries and wildlife techniques, introduced to the scientific method, and learn basic field skills such as map reading, water safety, boat handling, and equipment operation.

The Fisheries and Wildlife package includes the following courses:

- FW 3600: Fisheries and Wildlife Field Techniques (5 credits)

An introduction to various field techniques and skills, planning and implementing field projects, data collection and analysis using micro-computers, written reports and a field journal.

- FR 3106: Important Plants: Fisheries and Wildlife Habitats (1 credit)

Identification of plants important in fisheries and wildlife habitats.

Graduate student practicum

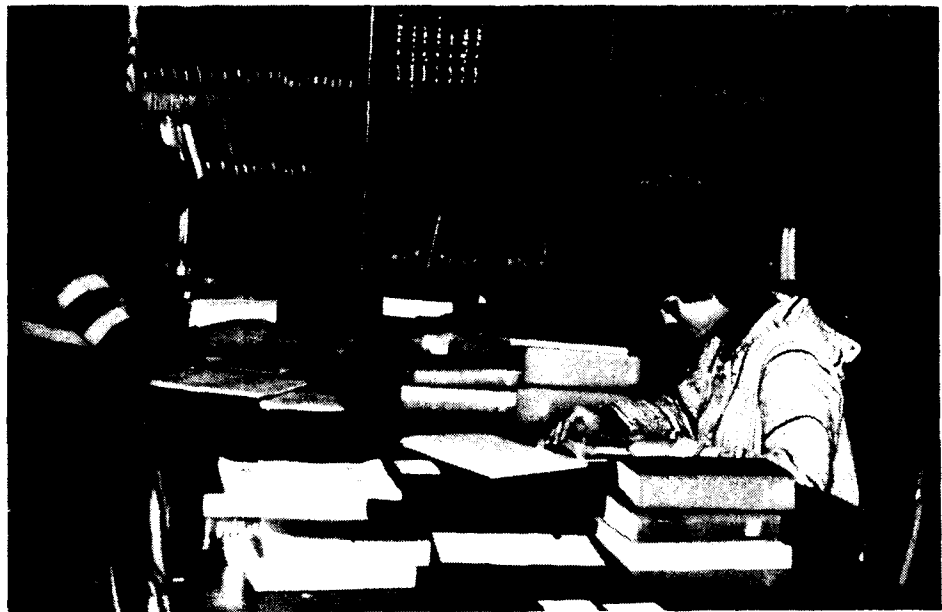
Graduate students may enroll in undergraduate courses. They may alternatively enroll in FR 5160: Practicum in Forest Biology and Measurements, which covers plant identification, plant dynamics, land survey, and tree measurement. Some fisheries and wildlife subject matter may also be incorporated into this package.

How to register for courses at Itasca

Permission from the College of Natural Resources is required to register for the Itasca Session. If you wish to attend, please contact the College of Natural Resources, Office for Student Affairs by Friday, April 19, 1991 and request registration materials and details about the Itasca Session. If you wish additional information, please contact Marni Lucas, Room 135 Natural Resources Administration Building, 2003 Upper Buford Circle, St. Paul, MN 55108, (612) 624-6768.

Itasca Forestry Session Program Faculty

Vilis Kurmis, Professor Emeritus, University of Minnesota, has studied the



ecology of Itasca forests for 30 years and is the leading authority on this subject.

Harold Scholten, Professor, University of Minnesota, is interested in trees in prairie settings.

David Smith, Assistant Professor, University of Minnesota, is interested in endangered wildlife species and conservation biology.

Philip Splett, Instructor, University of Minnesota, teaches measurements based on his practical forestry experience.

Edward Sucoff, Professor, University of Minnesota, is interested in ecological physiology and vegetation management of parks.

Tuition, Fees and other costs¹
(Paid at St. Paul, 107 Coffey Hall)

The 1991 Itasca Session will begin Sunday, August 25 and will end Wednesday, September 18, 1991.

Tuition. Tuition and all fees are payable on the date indicated on the fee statement. An additional charge is assessed for both late registration and late payment. Tuition is assessed on a per-credit basis according to the University of Minnesota college in which the academic year student registered during a previous term. Summer-only undergraduate students will be charged tuition at the College of Natural Resources rate: \$72.50 per credit. Academic year students please consult the tuition and late registration/payment schedule on page 22.

Graduate School tuition. Students registered through the Graduate School pay Itasca Forestry Session tuition at the rate of \$128.00 per credit for 1-5 credits; for six or more credits the tuition is \$768.00.

Student Services Fee. All students who take 3 or more credits pay a student services fee of \$30.15.

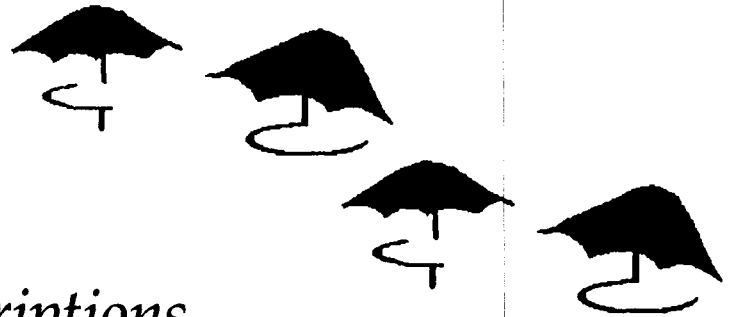
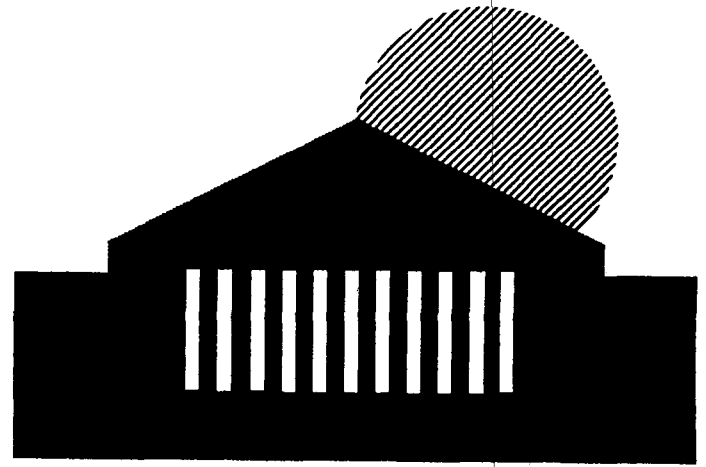
Meals and Cabin. (Paid at Itasca; subject to minor change) \$227.50.

Hospitalization Insurance. Must be purchased if you do not already have hospitalization insurance. Coverage for the August 25-September 18 term is \$41.00

¹Tuition, fees, and other costs are subject to final approval by the Board of Regents and may change without notice.

Equipment

A list of required texts and equipment is available from the College of Natural Resources, Office for Student Affairs. As with other credit courses, you register for the Itasca Session and pay tuition and student service fees before the first day of the session. If you do not already have hospitalization insurance, you must also pay for that coverage. The fees for meals and lodging are paid at Itasca on the first day of class.



*Course descriptions
and class schedules
begin on next page...*

*Workshops of special
interest to teachers
are featured by department...*

A Guide to the Summer Session Bulletin

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

- * Courses in which graduate students may prepare Plan B projects.
- † All courses preceding this symbol must be completed before credit will be granted for any quarter of the sequence.
- § Credit will not be granted if credit has been received for the course listed after this symbol.
- ¶ Concurrent registration is required (or allowed) in the course listed after this symbol.
- # Registration Override Permit, completed and signed by the instructor, is required for registration.
- △ Registration Override Permit, completed and signed by the department offering the course, is required for registration.
- Registration Override Permit, completed and signed by the college offering the course, is required for registration.
- ** A special fee is charged. See section on Course Fees.
- R The letter R preceding a course number indicates limited enrollment.

Courses—Following each course title are parenthetical statements; the first indicates the computer call number of the course, and the second specifies 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. The following breakdown may vary slightly by college: freshman, 0-45 credits; sophomore, 46-90 credits; junior, 91-135 credits; senior, 136 or more credits. Check with your college office for further information.

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

- 0000 to 0999 no credit
- 1000 to 1999 primarily for freshmen and sophomores
- 3000 to 3999 primarily for juniors, seniors, and fifth-year students
- 5000 to 5999 for juniors, seniors, fifth-year students, graduate students, and professional students
- 8000 to 8999 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 place of that prerequisite. Instructors may also, at their discretion, waive prerequisites.

Hours and Days—The starting and ending times for classes 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	Standard Time
0800	8:00 a.m.
0900	9:00 a.m.
1000	10:00 a.m.
1100	11:00 a.m.
1200	12:00 noon
24-hour clock	Standard Time
1300	1:00 p.m.
1400	2:00 p.m.
1500	3:00 p.m.
1600	4:00 p.m.
1700	5:00 p.m.

Classes generally meet for 60 minutes, beginning and ending at the following times: 0800-0900; 0915-1015; 1030-1130; 1145-1245; 1300-1400; 1415-1515; 1530-1630. Converting to standard time, a class meeting 1415-1515, for example, begins at 2:15 p.m. and ends at 3:15.

Many classes, especially those in the Carlson School of Management meet for more than 60 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.

Limited Enrollment Courses—Courses with limited enrollments have an R before the course number. Check the Section Status Report (posted outside of 101 Fraser Hall, B18 and 16 Johnston Hall, 4 Mechanical Engineering, 170 Anderson Hall, and 130 Coffey Hall) to see if space is available in your limited enrollment courses.

Call Number—This six-digit number follows the title or section number for each course. You must use the course numbers and *these specific call numbers* when you fill out your Course Request Form.

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

Cancellation of Courses or Changes in Courses—While Summer Session sincerely regrets to do so, it is sometimes necessary to cancel courses with insufficient enrollment. If Summer Session cancels a course, you will be notified and will be given the opportunity to transfer into another course without penalty. If you do not want to enroll in another course, a full refund will be given. Academic departments reserve the right to cancel, postpone, limit enrollment, split, or combine courses, and to change instructors and/or locations of courses. In *all* cases of cancellation, you must officially cancel at your registration center. Changes made subsequent to the printing of this bulletin are published in the school newspaper *Minnesota Daily*. Lists of changes are also available in the Summer Session Office, 135 Johnston. Call 624-3555 if you have questions about this policy.

A

Accounting (Acct)

625 Management/Economics.
624-6506
Carlson School of Management

Refer to registration instructions for undergraduate Carlson School of Management courses on page 11, 14.

SPECIAL TERM: SEVEN-WEEK COURSES JUNE 11-JULY 30

1050. INTRODUCTION TO FINANCIAL REPORTING. (891344) (4 cr; limited to 50 students; \$8050; prereq 40 cr; A-F only; 0800-0945 MWTh; BlegH 240)

Basic concepts of measurement and valuation underlying development of financial reports for external users. Financial statement preparation, analysis of alternative valuation approaches, and interpretation of financial statement information.

3001. INTRODUCTION TO MANAGEMENT ACCOUNTING. (588485) (4 cr; limited to 50 students; prereq 1050; A-F only; 0800-0945 MWTh; BlegH 420)

Broad overview of management accounting as the main information collection and analysis technology in an organization. Analysis of cost-volume-profit relationships, budgeting and analysis of variances from budgeted performance, and decentralized organizational design.

3101. INTERMEDIATE FINANCIAL REPORTING. (691345) (4 cr; limited to 60 students; prereq 1050, acct maj or gen mgmt maj with finance emphasis; A-F only; 1200-1345 MWTh; BlegH 120)

Relationships between economic events and their representation in financial statements aimed at external users. Income determination, asset valuation, and capitalization of corporations.

3201. INTERMEDIATE MANAGEMENT ACCOUNTING. (585411) (4 cr; limited to 60 students; prereq 3001, acct maj or gen mgmt maj with finance emphasis; A-F only; 1000-1145 MWTh; BlegH 240)

Examines multiproduct, multiperiod decision contexts emphasizing net present value including statistical and other data collection and analysis techniques; analysis of performance evaluation stemming from development in the theory of contracting; and richer development of coordination problems in decentralized organizations.

5102. ADVANCED FINANCIAL REPORTING I. (491346) (4 cr; limited to 60 students; prereq 3101 or 5101; mgmt or grad mgmt students only; A-F only; 1200-1345 MWTh; BlegH 235)

The relationship between complex events such as defined benefit pension plans, leases, and intercorporate investments, and the reflection of these events in financial statements. Introduction to business combinations and consolidated reporting.

5125. AUDITING PRINCIPLES AND PROCEDURES. (385412) (4 cr; limited to 60 students; prereq 5102; accounting majors or grad students only; A-F only; 1730-2000 TTh; BlegH 220)

Auditor's role and function. Includes audit standards, ethics, procedures, legal responsibilities.

5135. INCOME TAX ACCOUNTING. (185413) (4 cr; limited to 60 students; prereq 1025 or 1050; accounting majors or grad students only; A-F only; 1730-2000 MW; BlegH 110)

Introduction to principles of federal income taxation of various taxpaying entities.

5180. ADVANCED FINANCIAL REPORTING II. (190099) (4 cr; limited to 60 students; prereq 5102; mgmt or MBA students only; A-F only; 1730-2000 TTh; BlegH 230)

Consolidated financial reporting with a particular focus on international business organizations. Introduction to reporting issues in government and not-for-profit entities.

SPECIAL TERM: TEN-WEEK COURSE JUNE 11-AUGUST 21

5160. FINANCIAL STATEMENT ANALYSIS. (791952) (4 cr; limited to 60 students; prereq 1050 or MBA 8030; A-F only; 1730-2100 Th)

Interpretation and analysis of financial statements and schedules for investors and other users.

Adult and Teacher Education (AdEd)

175 Peik Hall. 625-6372
(Curriculum and Instruction)
College of Education

FIRST TERM

5103. ADULT EDUCATION WORKSHOP; Parent Education for Families at Risk—June 20-22 & Ar. (392019) (1-12 cr; [max 12 cr]; \$Educ 5103; limited to 20 students; prereq practicing adult educator or #; Ar THFS; VoTech R390; S/N opt.) Bruning

Study of issues and current literature focused on emerging topics relevant to parent and family education. This offering for 2 credits. Meets concurrently with HEEd 5406.

5110. THE STATUS AND ROLE OF WOMEN IN AMERICAN SOCIETY—June 11-July 10. (691166) (4 cr; \$Educ 5110; 1300-1530 MTW; PeikH 25; A-F only) Park

Role of women in American history; perceptions of women in literature and art; attention to women in social studies curricula; human sexuality; male and female character—nature and/or nurture; choices of family and career.

5205. FIELD EXPERIENCE IN ADULT EDUCATION. (4-8 cr [max 8 cr]; \$Educ 5205; prereq #; A-F only)

Sec 21, (491167) Bruning
Sec 23, (291168) Williams
Sec 25, (191169) Park

5401. ADULT LEARNING AND DEVELOPMENT THROUGH THE LIFE SPAN. (491170) (3 cr; \$Educ 5401; 1030-1245 TTh, PeikH 46; A-F only) Williams.

Physiological, social, and cultural bases of adult behavior; motivation, socialization, personality change as applied to education of adults.

5411. STRATEGIES FOR TEACHING ADULTS—June 11-July 3. (291171) (3 cr; \$Educ 5411; 0800-1015 MTWTh; PeikH 46; A-F only) Bruning

Identification, classification, and analysis of techniques used in teaching adults.

8284. PROBLEMS: TEACHER EDUCATION. (191172) (3-9 cr; \$Educ 8284; prereq #)

Research in supervision, organization, and administration; laboratory experiences at elementary and secondary levels.

Workshops for teachers...

ADULT AND TEACHER EDUCATION (AdEd)

- 5103 Workshop: Parent Education for Families at Risk (June 20-21 and ar)
- 5110 The Status and Role of Women in American Society (June 11-July 10)
- 5411 Strategies for Teaching Adults (June 11-July 3)

AEROSPACE ENGINEERING AND MECHANICS (AEM)

- 5001 Workshop: Elementary and Secondary Teachers (July 1-15)
- 5001 Workshop: Elementary and Secondary Teachers (July 18-31)

AGRICULTURAL EDUCATION (AgEd)

- 5082 Current Issues in Agricultural Education (June 17-20, 25-28)
- 5080 Organization and Management (July 29-August 2)

ART EDUCATION

- 5302 Curriculum Innovations in Art Education (June 14-28)
- 5389 Applications of Aesthetic Theory in Education (July 29-August 16)



Aerospace engineering workshop for teachers

This workshop for elementary and secondary school teachers, AEM 5001, will be held in Minneapolis during two special terms, July 1-15 and July 18-31. 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 information about aviation and the space sciences that can be used to create new courses or enhance existing classroom programs. Enrollment is limited to 30 participants per session. **Registration** is through the Department of Aerospace Engineering and Mechanics, University of Minnesota, 107 Akerman Hall, 110 Union Street SE, Minneapolis, MN 55455. A registration information packet may be obtained by calling 625-8000.

Course enrollment is limited to in-service teachers (documentation required). Students are required to obtain a Registration Override Permit which is completed and signed by the Department of Aerospace Engineering and Mechanics. In addition, students must follow their collegiate guidelines to complete registration. Restrictions are:

- 1) Request for registration override permit must be accompanied by written verification of current in-service teaching status on school district letterhead.
- 2) Qualified students will be issued a dated course override. Students who do not register by the designated expiration date will lose their place in the course.
- 3) Students who are practicing administrators/counselors or non-in-service teachers can send in a written request to the Aerospace Workshop Instructor for course enrollment consideration (c/o Department of Aerospace Engineering and Mechanics, address above). Such request should include the purpose for taking the course.

Enrollment requirements are strictly enforced. Neither the department nor the course instructor will give written permission for registration in this class once the limit is reached and the class closes. **Note:** course fills up quickly. **You must attend the entire first class session or your space in this class will be forfeited.**

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

8302. PROBLEMS: ADULT EDUCATION. (1-9 cr; \$8302; prereq #) Individual research in area of adult education.

Sec 21, (991173) Bruning
Sec 23, (791174) Williams
Sec 25, (591175) Park

SECOND TERM

5205. FIELD EXPERIENCE IN ADULT EDUCATION. (4-8 cr [max 8 cr]; \$Educ 5205; prereq #; A-F only)
See First Term.

Sec 21, (391176) Park
Sec 22, (191177) Bruning

8284. PROBLEMS: TEACHER EDUCATION. (091178) (3-9 cr; \$Educ 5205; prereq #) Bruning
See First Term.

8302. PROBLEMS: ADULT EDUCATION. (1-9 cr; \$Educ 8302; prereq #)
See First Term.

Sec 21, (891179) Park
Sec 22, (191180) Bruning

Adult Psychiatry (AdPy)

8-605 Mayo. 626-5400
Medical School

FIRST TERM

5530. INDEPENDENT STUDY. (487586) (Up to 9 cr per period; prereq Δ ; hrs ar) Mackenzie
Completion of individual projects or study courses in psychiatry or basic sciences.

8777. THESIS CREDITS: MASTERS. (689658) (1-16 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (489743) (1-16 cr [max 11 cr per summer term])

Aerospace Engineering and Mechanics (AEM)

107 Akerman Hall. 625-8000
Institute of Technology

FIRST TERM

#1015. STATICS. (4 cr each rec; limited to 30 students; prereq Phys 1271 or equiv, Math 1241 or equiv; IT student; A-F only; lect 0800-1015 MWF; Arch 10)

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.

Rec 1, (585067) 0915-1015 TTh,
Arch 10
Rec 2, (390898) 0915-1015 TTh,
AkerH 309

#3036. DYNAMICS. (4 cr; limited to 30 students; prereq 1015, Math 3221 or equiv; IT student; A-F only; lect 1030-1245 MWF; Arch 10)
Review of particle dynamics. Mechanical systems and the rigid-body model. Equilibrium. Kinematics and dynamics of plane systems. Technical applications.

Rec 1, (385068) 1030-1130 TTh,
Arch 10

#5001. WORKSHOP: ELEMENTARY AND SECONDARY TEACHERS—July 1-15. (286360) (4 cr; limited to 30 students; prereq educ major; in-service teacher (documentation required), and Δ . 1300-1745 MTWThF; MechE 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.) *Prerequisite will be enforced. Special registration procedures apply* **Restrictions, see box this page. Note: Course fills up quickly.**

8777. THESIS CREDITS: MASTERS. (489659) (1-16 cr [max 11 cr per summer term])

8800. SELECTED TOPICS IN MECHANICS AND MATERIALS. (186361) (1-4 cr per qtr; prereq Δ) Topics of current interest.

8880. PLAN B PROJECT. (388200) (1-4 cr per qtr [max 4 cr]; prereq grad aerospace engineering or mechanics maj, Δ ; S-N only)

8888. THESIS CREDITS: DOCTORAL. (989830) (1-36 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

5800. PROBLEMS IN MECHANICS AND MATERIALS. (985244) (1-4 cr per qtr; prereq Δ) Topics of current interest. Individual projects.

5810. PROBLEMS IN FLUID MECHANICS. (785245) (1-4 cr per qtr; prereq Δ)

5838. SUMMER ENGINEERING EMPLOYMENT. (786735) (1-4 cr per qtr; prereq completion of 3rd yr, Δ)

5840. INDUSTRIAL ASSIGNMENT. (986362) (2 cr; prereq regis in engineering intern program; Δ) Engineering intern industrial laboratory. A formal technical report, covering the work during the industrial assignment, is required.

5841. INDUSTRIAL ASSIGNMENT. (786363) (2 cr; prereq regis in engineering intern program; Δ)

5842. INDUSTRIAL ASSIGNMENT. (586364) (2 cr; prereq regis in engineering intern program; Δ)

5843. INDUSTRIAL ASSIGNMENT. (287413) (2 cr; prereq regis in engineering intern program; Δ)

SECOND TERM

3016. DEFORMABLE BODY MECHANICS. (4 cr; each rec limited to 25 students; prereq 1015, Math 3221 or equiv; IT student; A-F only; lect 1030-1245 MWF; Arch 10) 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.

Rec 1, (185069) 1030-1130 TTh, Arch 10

Rec 2, (890100) 1030-1130 TTh, Arch 35

5001. WORKSHOP: ELEMENTARY AND SECONDARY TEACHERS—July 18-31. (091181) (4 cr; limited to 30 students; prereq educ major; in-service teacher (documentation required), and Δ. 1300-1745 MTWThF; MechE 108) Kaldahl, Aerospace Engineering and Mechanics faculty. See First Term.

8777. THESIS CREDITS: MASTERS. (989746) (1-16 cr [max 11 cr per summer term])

8800. SELECTED TOPICS IN MECHANICS AND MATERIALS. (489547) (1-4 cr; prereq Δ) See First Term.

8810. SELECTED TOPICS IN FLUID MECHANICS. (487023) (1-4 cr per qtr; prereq Δ) Topics of current interest.

8880. PLAN B PROJECT. (688199) (1-4 cr per qtr; prereq grad aerospace engineering and mechanics maj, Δ; S-N only)

8888. THESIS CREDITS: DOCTORAL. (989889) (1-36 cr [max 11 cr per summer term])

Afro-American Studies (Afro)

808 Social Sciences Tower. 624-9847 (Afro-American and African Studies) College of Liberal Arts

FIRST TERM

3002. INTRODUCTION TO WEST AFRICAN HISTORY: 1800 TO PRESENT. (290716) (4 cr; limited to 40 students; 0915-1015 MTWThF; BlegH 440) Coifman

3970. DIRECTED STUDIES. (585053) (1-15 cr per term; prereq #, Δ, CLA approval)

3991-3992-3993. SENIOR PROJECT IN AFRO-AMERICAN AND AFRICAN STUDIES. (890680, 690681, 490682) (2 cr per qtr; prereq completed CLA advanced composition requirement, permission of undergrad adviser; A-F only) Continuous (X) registration three-quarter course for writing of senior paper under the guidance of a faculty supervisor.

5597. HARLEM RENAISSANCE: AFRO-AMERICAN ART AND CULTURE IN THE 1920's. June 17-28. (491895) (4 cr; §Engl 5597; 1030-1500 MTWThF; SocSci 815) Wright A multidisciplinary review of the Jazz Age's Harlem Renaissance; literature, popular culture, visual arts, political journalism, and black and white figures such as Jean Toomer, Claude McKay, Langston Hughes, Bessie Smith, DuBose Heyward, Carl Van Vechten, Eugene O'Neill, Marcus Garvey. Meets with Engl 5597. See page 28.

5970. DIRECTED STUDIES. (185010) (1-6 cr per term; prereq #, Δ, CLA approval; qualified sr and grad students may register with # for work on tutorial basis)

Agricultural and Applied Economics (AgEc)

231 Classroom/Office Building, St. Paul. 625-9710 College of Agriculture

FIRST TERM

5990. SPECIAL TOPICS AND INDEPENDENT STUDY IN AGRICULTURAL AND APPLIED ECONOMICS. (388486)

(Cr ar; prereq #) Staff Independent study, supervised reading, or research on agricultural economics problems not covered in regularly offered courses.

8200. ADVANCED TOPICS IN AGRICULTURAL AND APPLIED ECONOMICS. (185377) (1-9 cr; [may be repeated for cr]; hrs ar) Staff Special problems for individual work by qualified students.

8777. THESIS CREDITS: MASTERS. (889660) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (789831) (1-36 cr [max 11 cr per summer term])

SECOND TERM

5990. SPECIAL TOPICS AND INDEPENDENT STUDY IN AGRICULTURAL AND APPLIED ECONOMICS. (188487)

(Cr ar; prereq #; 0900-1200 MTWThF; ClaOff B42) Staff See First Term.

8200. ADVANCED TOPICS IN AGRICULTURAL AND APPLIED ECONOMICS. (088488) (1-9 cr; [may be repeated for cr]; hrs ar) Staff See First Term.

8777. THESIS CREDITS: MASTERS. (389749) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (289890) (1-36 cr [max 11 cr per summer term])

Agricultural Education (AgEd)

320 Vocational/Technical Building, St. Paul. 624-2221 (Vocational and Technical Education) College of Education

FIRST TERM

3001. EXPERIENTIAL LEARNING: PRODUCTION AGRICULTURE. (289095) (1-14 cr [max 14 cr]; limited to 10 students; prereq #; hrs ar; S-N only) Zilbert Experiential learning in a production of agriculture business; planned, organized, monitored, and evaluated based on pre-experience diagnosis of learning prerequisite to higher-level courses in technical agriculture.

3002. EXPERIENTIAL LEARNING: AGRICULTURAL BUSINESS. (490066) (1-14 cr; limited to 10 students; prereq #; hrs ar; S-N only) Zilbert Experiential learning in an agricultural non-farm business. Planned, organized, monitored, and evaluated based on a pre-experience diagnosis of learning required to meet competency expectations for persons employed in agricultural businesses.

5027. PRACTICUM: PLACEMENT FOR EXTENSION EXPERIENCES. (986443) (2-9 cr [max 9 cr]; §HEEd 5027; hrs ar; off campus; S-N optional) Norenberg Observation of and participation in activities of Extension Service staff at county and state level; familiarization with staffing, program planning and development, and educational and administrative functions.

5082. CURRENT ISSUES IN AGRICULTURAL EDUCATION—June 17-20, 25-28. (190068) (1-3 cr [max 9 cr]; limited to 30 students; prereq #; 1300-1600 & hrs ar; MTWThF; VoTech R385; A-F only) Peterson Emphasizes study of and clarification of current issues: strategies of responses, implications of response actions, and related leadership roles. This offering for 3 credits.

5090. INDEPENDENT STUDY. (1-3 cr; prereq sr; hrs ar; A-F only) 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, (088085) Norenberg
Sec 22, (888086) Peterson
Sec 23, (688087) Leske
Sec 25, (488088) Persons

5095. INTEGRATING PAPER: MASTER OF EDUCATION. (3 cr; prereq MEd student in agricultural education; hrs ar; A-F only) Preparation of a paper dealing with learning in agricultural education applied to professional responsibilities.

Sec 21, (288089) Norenberg
Sec 22, (688090) Peterson
Sec 23, (488091) Leske
Sec 25, (288092) Persons

8001. RESEARCH IN AGRICULTURAL EDUCATION. (Cr ar; prereq 15 cr in education)

Selecting problems, preparing bibliographies, analyzing and interpreting data, and preparing manuscripts.

Sec 21, (188093) Norenberg
Sec 22, (988094) Peterson
Sec 23, (788095) Leske
Sec 25, (588096) Persons

8091. FIELD PROBLEMS. (3 cr; hrs ar) Making investigations, gathering data, and formulating plans regarding agricultural education.

Sec 21, (388097) Norenberg
Sec 22, (188098) Peterson
Sec 23, (088099) Leske
Sec 25, (788100) Persons

8777. THESIS CREDITS: MASTERS. (689661) (1-16 cr [max 11 cr per summer term])

SECOND TERM

3001. EXPERIENTIAL LEARNING: PRODUCTION AGRICULTURE. (189096) (1-14 cr [max 14 cr]; limited to 10 students; prereq #; hrs ar; S-N only) Zilbert See First Term.

3002. EXPERIENTIAL LEARNING: AGRICULTURAL BUSINESS. (990069) (1-14 cr [max 14 cr]; limited to 10 students; prereq #; hrs ar; S-N only) Zilbert See First Term.

5027. PRACTICUM: PLACEMENT FOR EXTENSION EXPERIENCES. (285354) (2-9 cr [max 9 cr]; §HEEd 5027; hrs ar; off campus; S-N optional) Norenberg See First Term.

5080. ORGANIZATION AND MANAGEMENT—July 29-August 2. (491136) (3 cr; limited to 30 students; prereq #; 0815-1215, 1300-1600 MTWThF; VoTech R385; A-F only) Leske, Wardlow Administrative structure and function of subcollegiate programs.

5090. INDEPENDENT STUDY. (1-3 cr; prereq sr; hrs ar; A-F only) See First Term.

Sec 21, (888069) Norenberg
Sec 22, (188070) Peterson
Sec 23, (088071) Leske
Sec 25, (888072) Persons

5095. INTEGRATING PAPER: MASTER OF EDUCATION. (3 cr; prereq MEd student in agricultural education; hrs ar; A-F only) See First Term.

Sec 21, (688073) Norenberg
Sec 22, (488074) Peterson
Sec 23, (288075) Leske
Sec 25, (188076) Persons

8001. RESEARCH IN AGRICULTURAL EDUCATION. (Cr ar; prereq 15 cr in education) See First Term.

Sec 21, (988077) Norenberg
Sec 22, (788078) Peterson
Sec 23, (588079) Leske
Sec 25, (988080) Persons

8091. FIELD PROBLEMS. (3 cr; hrs ar) See First Term.

Sec 21, (788081) Norenberg
Sec 22, (588082) Peterson
Sec 23, (388083) Leske
Sec 25, (188084) Persons

8777. THESIS CREDITS: MASTERS. (389752) (1-16 cr [max 11 cr per summer term])

Agricultural Engineering (AgEn)

213 Agricultural Engineering, St. Paul. 625-7733 Institute of Technology

FIRST TERM

8777. THESIS CREDITS: MASTERS. (489662) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589832) (1-36 cr [max 11 cr per summer term])

50 Agricultural Engineering—Anesthesiology

SECOND TERM

8777. THESIS CREDITS: MASTERS. (889755) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (789893) (1-36 cr [max 11 cr per summer term])

Agricultural Engineering Technology (AgET)

213 Agricultural Engineering, St. Paul.
625-7733
College of Agriculture

FIRST TERM

5032. ELECTRICAL POWER AND PROCESSING. (291137) (1-3 cr; prereq 5020 or #) Bear
Principles and practices pertaining to implementation of instructional programs in agricultural mechanics. Selection, application, operation, service, and maintenance of equipment used in agricultural mechanics for the specific instructional program.

SECOND TERM

5033. FARM BUILDINGS AND ENVIRONMENTAL CONTROL. (191138) (1-3 cr; prereq 5020 or #) Bear
See 5032 First Term.

Agromony and Plant Genetics (Agro)

411 Borlaug Hall, St. Paul. 625-7773
College of Agriculture

FIRST TERM

1020. SPECIAL PROBLEMS. (085378) (1-3 cr; prereq 5 cr agronomy, #) Smith, Cardwell
In-depth research or studies in agronomy. Intended for those who wish to pursue aspects of agronomy in greater depth than that offered in other courses or who wish to investigate areas not presently offered. Tutorial instruction under staff guidance.

5001. PROBLEMS IN AGRONOMY FOR ADVANCED STUDENTS. (885379) (1-5 cr; prereq 20 cr agronomy, #) 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 other courses or who wish to investigate areas not presently offered. Independent study and research under staff guidance.

8010.* RESEARCH IN AGRONOMY. (185380) (Cr ar; prereq #) Staff
Problems in physiology and production of crop plants.

8330.* RESEARCH IN PLANT GENETICS. (085381) (Cr ar) Staff

8777. THESIS CREDITS: MASTERS. (289663) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (389833) (1-36 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

5310.* ORIENTATION TO FIELD CROP BREEDING. (190076) (1 cr; prereq 5020 or #; 0800-1000 F; BorH 306) Stuthman
Field study of plant breeding programs and techniques.

8320.* ORIENTATION TO AGRONOMY AND SOILS FIELD RESEARCH TECHNIQUES. (185475) (1 cr; S-N only; §Soils 8320; prereq 5040 or #; 0800-1000 M; BorH 306) 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. (386446) (1-3 cr; prereq 5 cr agronomy, #) Smith, Cardwell
See First Term.

5001. PROBLEMS IN AGRONOMY FOR ADVANCED STUDENTS. (186447) (1-5 cr; prereq 20 cr agronomy, #) Smith, Cardwell
See First Term.

8010.* RESEARCH IN AGRONOMY. (086448) (Cr ar; prereq #) Staff
See First Term.

8330.* RESEARCH IN PLANT GENETICS. (985163) (Cr ar) Staff

8777. THESIS CREDITS: MASTERS. (489757) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589894) (1-36 cr [max 11 cr per summer term])

American Indian Studies (AmIn)

102 Scott Hall, 624-1338
College of Liberal Arts

FIRST TERM

3810. FIELD PRACTICE: INDIAN STUDIES. (087275) (3-9 cr per term; prereq soph or jr or sr, #)
Supervised field practice in approved agencies serving Indian clients.

5960. SUMMER INSTITUTE FOR TEACHERS: The Flowering Tree: Traditional and Contemporary American Indian Literature and Culture—June 17-28. (592018) (4 cr; limited to 20 students) Miller
See page 28 for course description and registration information.

5990. DIRECTED RESEARCH. (988256) (1-15 cr per term; prereq by petition only, #, Δ, CLA approval)
Independent research under faculty guidance.

SECOND TERM

1771. INTRODUCTION TO AMERICAN INDIAN STUDIES. (791336) (4 cr; limited to 100 students; §AmSt 1771; 1030-1130 MTWTh; WullH 230)
Contents, methods, and objectives of American Indian Studies. Images of the American Indian, persistence and change in American Indian communities, linguistics and literature, and tribal ethnohistories.

3810. FIELD PRACTICE: INDIAN STUDIES. (887276) (3-9 cr per term; prereq soph or jr or sr, #)
See First Term.

5990. DIRECTED RESEARCH. (188263) (1-15 cr per term; prereq by petition only, #, Δ, CLA approval)
See First Term.

American Studies (AmSt)

104 Scott Hall, 624-4190
College of Liberal Arts

FIRST TERM

1001. AMERICAN CULTURE. (191348) (4 cr; limited to 45 students; 0915-1015 MTWThF; AndH 230)
Interdisciplinary study of American cultures, using four sources—a related event, literary document, artifact, and place—to help students understand large cultural issues. This course focuses on the origins of the country to mid-19th century.

3113. AMERICAN CULTURAL DIVERSITY. (889125) (4 cr; limited to 35 students §CLit 3979; 1145-1245 MTWThF; BlegH 250) Sarles
Patterns of American cultural expression, values, and lifestyles analyzed within the context of the dominant "normative" pattern of American life. Meets with CLit 3979.

3970. DIRECTED STUDIES. (488995) (1-15 cr; prereq #, Δ, CLA approval)
Staff

5920. SUMMER INSTITUTE FOR TEACHERS: The Flowering Tree: Traditional and Contemporary American Indian Literature and Culture—June 17-28. (592049) (4 cr; limited to 20 students) Miller
See page 28 for course description and registration information.

8777. THESIS CREDITS: MASTERS. (189664) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189834) (1-36 cr [max 11 cr per summer term])

8970. READINGS IN AMERICAN CIVILIZATION. (785813) (Cr and hrs ar) Staff

SECOND TERM

1003. AMERICAN CULTURE. (991349) (4 cr; limited to 40 students; 0915-1015 MTWThF; BlegH 205) Law, Zimmerman
Interdisciplinary study of American cultures, using four sources—a related event, literary document, artifact, and place—to help students understand large cultural issues. Focuses on the 1920's to the present.

3111. CREATIVE AMERICANS AND THEIR WORLDS: 1920s to the present. (291350) (4 cr; limited to 60 students; 1145-1345 TTh; BlegH 350) Furia
The cultural life of Americans through study of works and lives of selected artists in several media, including painting, literature, architecture, music, and drama.

3970. DIRECTED STUDIES. (086921) (1-15 cr; prereq #, Δ, CLA approval)
Staff

8777. THESIS CREDITS: MASTERS. (189759) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189896) (1-36 cr [max 11 cr per summer term])

8970. READINGS IN AMERICAN CIVILIZATION. (286925) (ar cr) Staff

Ancient Near Eastern Studies (ANE)

178 Klaeber Court, 624-0060
(Classical and Near Eastern Studies)
College of Liberal Arts

(See also Hebrew; Jewish Studies; Religious Studies)

FIRST TERM

3501. ANCIENT ISRAEL: BACKGROUND OF THE BIBLE. (289209) (4 cr; §5501, RelS 3501; no knowl of Hebr req; 0915-1145 MW, NichH 209) Paradise
Introductory study of Biblical civilization which places Israel in the cultural, historical, and religious milieu of its origins. Impact of Egypt, Canaan, and Mesopotamia on the Ancient Hebrews; the Bible's indebtedness to pagan literature, religion, and law; unique aspects of Israelite civilization. Meets with RelS 3501, ANE 5501.

5501. ANCIENT ISRAEL: BACKGROUND OF THE BIBLE. (591953) (4 cr; §3501, RelS 3501; no knowl of Hebr req; prereq grad stu or #; 0915-1145 MW, NichH 209) Paradise
Additional written assignments and reading. Meets with ANE 3501, RelS 3501.

Ancient Studies (AnSt)

230 Folwell Hall, 625-2503
College of Liberal Arts

FIRST TERM

8777. THESIS CREDITS: MASTERS. (589667) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (889836) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (589765) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (689899) (1-36 cr [max 11 cr per summer term])

Anesthesiology (Anes)

8515 Mayo, 624-9990
Medical School

FIRST TERM

8777. THESIS CREDITS: MASTERS. (989665) (1-16 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

Elective Courses

5186. CLINICAL PRACTICE IN ANESTHESIA. (488768) (15 cr; prereq CRNA, regis B.S. in nurs anes, 5086, #) Palahniuk, staff

5286. DIRECTED STUDY, ANESTHESIA TOPICS/PROJECT: CLINICAL. (585280) (Cr ar; prereq CRNA, regis B.S. in nurs anes, #)

5386. EDUCATION IN NURSE ANESTHESIA. (088765) (1 cr; prereq CRNA, regis B.S. in nurs anes, #) Palahniuk, staff

SECOND TERM

8777. THESIS CREDITS: MASTERS. (289761) (1-16 cr [max 11 cr per summer term])

Animal Physiology (AnPh)

120 Peters Hall, St. Paul. 624-2722
College of Agriculture

FIRST TERM

8777. THESIS CREDITS: MASTERS. (789666) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (089835) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (989763) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (889898) (1-36 cr [max 11 cr per summer term])

Animal Science (AnSc)

120 Peters Hall, St. Paul. 624-2722
College of Agriculture

FIRST TERM

3306. ARTIFICIAL INSEMINATION TECHNIQUES. (389072) (1 cr; prereq #...3305rec; S-N only; off-campus) Crabo
Practical insemination exercises in cows. Review of the physiology of the bovine estrus cycle and semen handling.

5710. SPECIAL PROBLEMS. (885382) (Cr ar; prereq #) Staff
Research in an area of animal science under the supervision of a staff member. Written report on the research required.

5715. TUTORIAL. (187414) (Cr ar; prereq #)
Informally structured course to encourage study in depth of a specific discipline in animal science. Pertinent readings, centered on fundamental propositions, suggested; preparation of written essays of high quality required. Tutorials available in cryobiology, cytogenetics, genetics, meats, nutrition, and physiology.

8750. CONCEPTS AND DEVELOPMENTS IN MEAT SCIENCE AND TECHNOLOGY. (685383) (1 cr [may be repeated once for cr]; prereq #) Staff
Review and evaluation of pertinent scientific literature.

8777. THESIS CREDITS: MASTERS. (190054) (1-16 cr [max 11 cr per summer term])

8810.* RESEARCH IN ANIMAL SCIENCE. (485384) (Cr and hrs ar; prereq #) Staff
Research including experimental studies in the disciplines associated with animal production and research, with emphasis on interdisciplinary studies embracing environmental and

8820.* RESEARCH IN ANIMAL GENETICS. (285385) (Cr and hrs ar; prereq #) Staff
Research in quantitative genetics, cytogenetics, and other areas related to animal breeding.

8830.* RESEARCH IN ANIMAL PHYSIOLOGY. (185386) (Cr and hrs ar; prereq #) 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. (985387) (Cr and hrs ar; prereq #) Staff
Research in selected areas of animal nutrition. Topics and species studied determined by consultation.

8850.* RESEARCH IN MUSCLE CHEMISTRY AND PHYSIOLOGY. (785388) (Cr and hrs ar; prereq #) Staff
Individual, original research, under staff direction, on selected problems involving the chemical, biochemical, and physiological aspects of muscle and meat technology. Topic may be a specialized aspect of a thesis problem or an individual problem of mutual interest to graduate student and adviser.

8888. THESIS CREDITS: DOCTORAL. (990055) (1-36 cr [max 11 cr per summer term])

SECOND TERM

5710. SPECIAL PROBLEMS. (886449) (Cr ar; prereq #) Staff
See First Term.

5715. TUTORIAL. (485059) (Cr ar; prereq #)
See First Term.

8750. CONCEPTS AND DEVELOPMENTS IN MEAT SCIENCE AND TECHNOLOGY. (186450) (1 cr [may be repeated once for cr]; prereq #) Staff
See First Term.

8777. THESIS CREDITS: MASTERS. (790056) (1-16 cr [max 11 cr per summer term])

8810.* RESEARCH IN ANIMAL SCIENCE. (086451) (Cr and hrs ar; prereq #) Staff
See First Term.

8820.* RESEARCH IN ANIMAL GENETICS. (886452) (Cr and hrs ar; prereq #) Staff
See First Term.

8830.* RESEARCH IN ANIMAL PHYSIOLOGY. (686453) (Cr and hrs ar; prereq #) Staff
See First Term.

8840.* RESEARCH IN ANIMAL NUTRITION. (486454) (Cr and hrs ar; prereq #) Staff
See First Term.

8850.* RESEARCH IN MUSCLE CHEMISTRY AND PHYSIOLOGY. (286455) (Cr and hrs ar; prereq #) Staff
See First Term.

8888. THESIS CREDITS: DOCTORAL. (590057) (1-36 cr [max 11 cr per summer term])

Anthropology (Anth)

215 Ford Hall. 625-3400
College of Liberal Arts

FIRST TERM

1101. HUMAN ORIGINS. (991352) (5 cr; 1030-1130 MTWThF; FordH 55)
World prehistory as investigated by anthropologists; methods and concepts used by anthropologists in studying of prehistoric human biological and cultural development.

1102. INTRODUCTION TO SOCIAL AND CULTURAL ANTHROPOLOGY. (888489) (5 cr, §1115, §5102; 0915-1015 MTWThF; FordH 55) Rowe
Varieties and range of human behavior as revealed through comparative study of cultures in all parts of the world.

3201. APPROACHES IN CULTURAL ANTHROPOLOGY. (190104) (4 cr; prereq 1102 or #; 0915-1015 MTWThF; FordH 150) Lipset
Humanistic and scientific conceptions of culture. Interpretation and explanation. Theoretical foundations of current anthropological thought.

3261. INDIAN CULTURE AND SOCIETY. (791353) (4 cr; 1030-1130 MTWThF; FordH 285) Raheja
Survey of broad South Asian civilization patterns and ethnographic contexts; theoretical issues in forming South Asian anthropology. Caste, sovereignty, and polity; person and society; kinship, marriage, and gender; ritual; colonial discourse and transformations.

3376. FIELD RESEARCH IN ARCHAEOLOGY. (288965) (5 cr; limited to 15 students; prereq 1101 and #; taught at Itasca; 0900-1630 MTh) Gibbon
Archaeological field excavation, survey, and research in prehistoric sites in Minnesota. Excavation techniques, recording analysis, and interpretation of archaeological materials. See 5920. See page 34.

3970. DIRECTED STUDIES. (385815) (Cr and hrs ar; prereq #, Δ, □) Staff

5920. TOPICS IN ANTHROPOLOGY: Field Techniques in Historical Archaeology. (188966) (5 cr; limited to 15 students; 0900-1630 TF; taught at Itasca) Gibbon
Introduction to the basic tools for reading historic cultural landscapes. See 3376. See page 34.

5970. DIRECTED READINGS. (188490) (2-4 cr; prereq #, Δ, □) Staff
Qualified students may register for work on tutorial basis.

8211. ADVANCED FIELD TECHNIQUES IN ARCHAEOLOGY. (088491) (3 cr; hrs ar) Staff

8777. THESIS CREDITS: MASTERS. (389668) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (689837) (1-36 cr [max 11 cr per summer term])

8950. DIRECTED STUDIES. (185816) (Cr and hrs ar; prereq #) Staff

SECOND TERM

1102. INTRODUCTION TO SOCIAL AND CULTURAL ANTHROPOLOGY. (488494) (5 cr, §1115, §5102; 1145-1245 MTWThF; FordH 55) Gerlach
See First Term.

3970. DIRECTED STUDIES. (786931) (Cr and hrs ar; prereq #, Δ, □) Staff

5131. ANTHROPOLOGY OF RELIGION. (191351) (4 cr; prereq 1102 or 5102 or #; 0915-1015 MTWThF; FordH 285) Penn
Comparative study of beliefs, myths, and rituals in folk and indigenous religions. Integration of religion and social relations.

5141. CULTURE AND PERSONALITY. (590107) (4 cr; prereq 1102 or 5102 or # [waived for majors in public health, nursing, psychology, sociology, and social work]; 1030-1130 MTWThF; FordH 285) Ingham
Role of culture in formation of personality. Individual adjustments to demands of culture. Psychological approach to culture.

5970. DIRECTED READINGS. (288495) (2-4 cr; prereq #, Δ, □) Staff
See First Term.

8777. THESIS CREDITS: MASTERS. (389766) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (389900) (1-36 cr [max 11 cr per summer term])

8950. DIRECTED STUDIES. (586932) (Cr and hrs ar; prereq #) Staff

Arabic (Arab)

808 Social Sciences. 624-9847
(Afro-American and African Studies)
College of Liberal Arts

FIRST TERM

3213. THE QUR'AN AS LITERATURE. (591354) (4 cr; limited to 15 students; prereq 1103 or #; §MidE 3213, RelS 3213; 1115-1315 TTh, BlegH 415) AshShareef
Texts and commentaries in translation. Knowledge of Arabic not required. Meets with MidE 3213 and RelS 3213.

Architecture (Arch)

110 Architecture. 624-7866
College of Architecture and Landscape Architecture

FIRST TERM

1010. INTRODUCTION TO ARCHITECTURE DRAWING. (791143) (4 cr; limited to 10 students; 0915-1200 MWF; Arch 60) Piotrowski
Basic drawing/techniques, freehand drawing and sketching; perspective, shades, and shadows.

1021. HISTORY OF ARCHITECTURE. (686663) (4 cr; limited to 80 students; §LA 1021; 0915-1130 MWF; Arch 25) Satkowski
Introduction to history and theory of architecture. Survey of architecture from ancient through modern periods.

52 Architecture—Arts, Studio

3062. BUILDING SYSTEMS. (192015) (4 cr; limited to 60 students; prereq Arch major or adult special, 3081 or 3081 or #; 4 lect hrs per wk; 0800-1015 MWF; Arch 55) Weeks
Building systems, subsystems, and components; principles of structural theory; materials and methods used in building; new and developing technologies.

3970. DIRECTED STUDY. (085347) (Cr ar; prereq 3081 or Δ)

5056. MODERN ARCHITECTURE. (591144) (4 cr; limited to 60 students; \$ArH 5056; prereq Arch 1021 or #; 1415-1630 MWF; Arch 25) James
History of development of architecture and urban design in Europe and America from early 19th century until World War II.

5961. COMPUTER-AIDED ARCHITECTURAL DESIGN. (190109) (4 cr; limited to 20 students; prereq architecture major, 3083 or #; 1030-1225 MWF; Arch 35) Dorgan
PASCAL programming as an introduction to computing; creating database for 3D modeling; selection and implementation of business microcomputers and CAD systems; hardware and software selection, trends and anticipated developments.

8777. THESIS CREDITS: MASTERS. (189669) (1-16 cr [max 11 cr per summer term])

SECOND TERM

5053. GOTHIC ARCHITECTURE. (390108) (4 cr; \$ArH 5053; limited to 60 students; prereq 1021 or #; 0915-1130 MWF; Arch 25) Satkowski
History of development of architecture and urban design in Western Europe from 1150 until 1400 A.D.

5970. DIRECTED STUDY. (185243) (Cr ar; prereq #)

8777. THESIS CREDITS: MASTERS. (889769) (1-16 cr [max 11 cr per summer term])

Art Education (ArEd)

135 Wulling Hall. 625-8021
(Curriculum and Instruction)
College of Education

FIRST TERM

5302. CURRICULUM INNOVATIONS IN ART EDUCATION—June 14-28. (088779) (4 cr; 0915-1630 MTWThF; WullH 240 and off-campus; A-F only) DiBlasio

Study and analysis of innovations, evaluation of materials for teaching units and projects.

5600. INTERNSHIP. (189115) (3-9 cr; prereq #; hrs ar; A-F only) DiBlasio
Professional assignment for degree candidates under joint supervision of departments and cooperating agency.

5605. PRACTICUM. (889116) (3-9 cr; prereq #; A-F only) DiBlasio
Independent project under direction; gathering data, developing proposals, experimenting with evaluating innovative practices.

5900. PROFESSIONAL PROBLEMS. (590110) (3 cr; prereq MEd student; #; hrs ar, A-F only) DiBlasio
Independent study for MEd candidates integrating learning from art education, art, and education.

8900. PROBLEMS: ART EDUCATION. (390111) (Cr ar; prereq #; hrs ar) DiBlasio
Independent projects under staff guidance; may include advanced studio practice or technical problems requiring experimental or library research.

SECOND TERM

3309. INDEPENDENT STUDY. (090113) (1-4 cr [max 4 cr]; prereq #; A-F only) Freedman
Individual exploration and study of basic types of art expression with the opportunity for in-depth professional research and creative involvement in one area of interest.

5001. ART MEDIA TECHNIQUES: Computer Use in the Art Class. (890114) (1-12 cr [max 12 cr]; limited to 25 students; 1030-1245 MWTh; PeikH 355; A-F only) Freedman
Lectures, demonstrations, discussions, critique sessions exploring and learning various techniques and processes in creativity; handling specific media. Learning experiences using computer graphics technology. Focuses on three areas of graphics production and research: computer graphics in teaching art and design; social and aesthetic implications of computer graphics technology; and the development of skills using computer hardware and software to produce graphics. This offering for 3 credits.

5389. APPLICATIONS OF AESTHETIC THEORY IN EDUCATION—July 29-August 16. (891182) (3 cr; 0800-1015 MTWThF; WullH 240; A-F only) DiBlasio
Contemporary theories of art, psychological and philosophical foundations. Open to teachers, supervisors, and administrators concerned with art in general education at all levels.

5600. INTERNSHIP. (3-9 cr; prereq #; hrs ar; A-F only)
See First Term.

Sec 21, (191186) DiBlasio
Sec 22, (691183) Freedman

5605. PRACTICUM. (3-9 cr; prereq #; A-F only; hrs ar)
See First Term.

Sec 21, (991187) DiBlasio
Sec 22, (491184) Freedman

5900. PROFESSIONAL PROBLEMS. (3 cr; prereq MEd student; #; hrs ar; A-F only)
See First Term.

Sec 21, (190118) DiBlasio
Sec 22, (490116) Freedman

8300. RESEARCH IN ART EDUCATION. (291185) (3 cr; 1415-1630 MWTh; WullH 110; A-F only) Freedman
Research techniques.

8900. PROBLEMS: ART EDUCATION. (Cr ar; prereq #; hrs ar)
See First Term.

Sec 21, (990119) DiBlasio
Sec 22, (290117) Freedman

Art History (ArH)

108a Jones Hall. 624-4500
College of Liberal Arts

FIRST TERM

3011. HISTORY OF RENAISSANCE AND BAROQUE ART. (987270) (4 cr; limited to 130 students; 0915-1015 MTWThF; AndH 310) 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. (191141) (4 cr; limited to 130 students; 1030-1145 MTWTh; AndH 310) Haxthausen
Major monuments and concepts of the modern period: sculpture, architecture, painting and prints.

3970. DIRECTED STUDIES. (588258) (1-5 cr; prereq #, Δ, □) Staff
Guided individual reading or study.

3971. MAJOR PROJECT. (188496) (1 cr; prereq art history major, 3895, #; A-F only) Staff
Completion of a research paper begun in a 5000-level project course.

5767. JAPANESE PAINTING. (991142) (4 cr; limited to 30 students; 1145-1245 MTWThF; Jones 207B) Poor
Japanese pictorial arts from earliest to modern times; development of indigenous traditions.

5970. DIRECTED READINGS. (585084) (1-5 cr; prereq sr, #, Δ, CLA approval) Staff
Guided individual reading or study.

8888. THESIS CREDITS: DOCTORAL. (489838) (1-36 cr [max 11 cr per summer term])

SECOND TERM

3009. HISTORY OF MEDIEVAL ART. (386933) (4 cr; 0900-1015 MTWTh; limited to 130 students; AndH 310) Steyaert
Medieval architecture, painting, and sculpture from early Christian to Gothic period.

3325. MICHELANGELO: HIS WORK IN ITS TIMES. (991139) (4 cr; limited to 130 students; 1030-1130 MTWThF; AndH 310) Canedy
An integrated view of Michelangelo's sculpture, painting and architecture within the context of his times; emphasis on the use of relevant preparatory drawings, in facsimile and contemporary texts in translation, to understand the work's inception and ultimate character.

3970. DIRECTED STUDIES. (988175) (1-5 cr; prereq #, Δ, □) Staff
See First Term.

3971. MAJOR PROJECT. (988497) (1 cr; prereq art history major, #; A-F only) Staff
See First Term.

5106. GREEK PAINTING. (992050) See Clas 5106 page 59.

5970. DIRECTED READINGS. (186934) (1-5 cr; prereq sr, #, Δ, CLA approval) Staff
See First Term.

8888. THESIS CREDITS: DOCTORAL. (189901) (1-36 cr [max 11 cr per summer term]; open to graduate students first registered in the Graduate School fall, 1983 or later)

Arts, Studio (Arts)

208 Art Building. 625-8096
College of Liberal Arts

Studio Arts policy requires that all students must have written permission from the instructor to register for a class after the first class meeting.

Materials fees are assessed at the time of registration for most Studio Arts courses. The fee covers part of the cost of expendable materials, models, breakage, and special facilities. For fee amounts, see page 23. Materials fees for ceramic and sculpture courses also cover rental of a Studio Arts locker and include a refundable \$10 deposit.

FIRST TERM

1101. DRAWING I. (4 cr; each section limited to 20 students)
Introduction to studio work; exploration of contemporary and traditional methods. Work from nature, various drawing mediums.

Sec 1, (085817) 0800-1015
MTWThF, ArtB 150, Roode
Sec 2, (988502) 0800-1015
MTWThF, ArtB 140, Cowette
Sec 3, (788503) 1030-1245
MTWThF, ArtB 160, Rowan

1302. SCULPTURE. (988063) (4 cr; limited to 20 students; 1030-1245 MTWThF; ArtB 50) Baldwin
Study of structure with emphasis on form and space. Clay, plaster, wood. Mold making and casting.

1701. PHOTO MEDIUM. (4 cr; each section limited to 20 students)
Contemporary and historical use of photography. Use of camera, film development, and enlarging. The creative process.

Sec 1, (188604) 0800-1015
MTWThF, ArtB 120, Henkel
Sec 2, (188062) 1030-1245
MTWThF, ArtB 120, Henkel

1812. CERAMICS: WHEEL THROWING. (986524) (4 cr; limited to 20 students; 0800-1015 MTWThF; ArtB 10) Hoard
Introduction to wheel throwing techniques for individual creative expression.

3105. INTRODUCTION TO PAINTING. (185556) (4 cr; limited to 20 students; prereq 1101, 1102, 1401, 1404; 1030-1245 MTWThF; ArtB 151) Roode
Introduction to studio work in painting. Fundamentals of visual art making via the paint media. Emphasis on visual language: volume, texture, color, line, space, light, composition. Concepts, technique, and philosophies of painting.

3110. DRAWING. (885818) (4 cr per term [max 12 cr]; limited to 12 students; prereq 1102, 1401; 1030-1245 MTWThF; ArtB 140) Cowette
From model, still life, and nature; individual creative expression in various mediums. Meets with 5110.

3160. WATERCOLOR. (588504) (4 cr per term [max 12 cr]; limited to 12 students; prereq 1101, 1102, 1401, 1404; 0800-1015 MTWThF; ArtB 141) Rowan
Transparent watercolor, gouache, casein, tempera. Figure, still life, landscape, abstract design. Meets with 5160.

■3420. STUDIO ARTS WORKSHOP MONOPRINTS: Unique Expressions. (990282) (4 cr per term [max 8 cr], limited to 9 students; prereq 1401 or #; 1030-1245 MTWThF, ArtB 176) Krepps Immediacy of expression utilizing various print approaches. Versatility of the print through painted images transferred to paper using rollers, stencils, brushes, colle and various supports. Meets with 5420.

■3430. PAPER: PULP TO PLASTIC EXPRESSION. (391145) (4 cr per term [max 12 cr]; limited to 10 students; prereq 1401, 1xxx level Studio Arts course; 0800-1015 MTWThF; ArtB 35) Krepps Creative and traditional approaches in papermaking. The role of paper in the total expression of an art work and the relationship of materials and preparation that lends uniqueness to handmade papers. Papermaking as a creative involvement in both two- and three-dimensional applications. Meets with 5430.

3970. DIRECTED STUDY. (1-5 cr per term [max 8 cr]; prereq 24 cr in studio arts and #, Δ, □)

- Sec 1, (489029) Baldwin
- Sec 4, (485014) Cowette
- Sec 8, (386527) Henkel
- Sec 9, (487281) Hoard
- Sec 11, (386530) Krepps
- Sec 16, (490276) Roode
- Sec 18, (088782) Rowan

3980. DIRECTED INSTRUCTION. (1-5 cr per term [max 8 cr]; prereq #, Δ, □) Students assist in teaching a course they have completed.

- Sec 1, (889030) Baldwin
- Sec 4, (285015) Cowette
- Sec 8, (186528) Henkel
- Sec 9, (787285) Hoard
- Sec 11, (186531) Krepps
- Sec 16, (290277) Roode
- Sec 18, (888783) Rowan

■5110. DRAWING. (685819) (4 cr per term [max 16 cr]; limited to 8 students; prereq 12 cr of 3110 or #; 1030-1245 MTWThF; ArtB 140) Cowette Drawing in all mediums from life. Meets with 3110.

■5160. WATERCOLOR. (388505) (4 cr per term [max 16 cr]; limited to 8 students; prereq 12 cr of 3160 or #; 0800-1015 MTWThF; ArtB 141) Rowan Advanced watercolor techniques, aesthetic directions. Individual concepts and development of sensibilities. Meets with 3160.

5190. ADVANCED ENTRY: DRAWING AND PAINTING. (4 cr; max 16 cr; prereq #, Δ)

- Sec 4, (186540) Cowette
- Sec 16, (190278) Roode
- Sec 18, (688784) Rowan

5390. ADVANCED ENTRY: SCULPTURE. (386656) (4 cr; max 16 cr; prereq #, Δ) Baldwin

■5420. STUDIO ARTS WORKSHOP: Monoprints: Unique Expressions. (790283) (4 cr per term [max 8 cr], limited to 9 students; prereq 1401 or #; 1030-1245 MTWThF, ArtB 176) Krepps Immediacy of expression utilizing various print approaches. Versatility of the print through painted images transferred to paper using rollers, stencils, brushes, colle and various supports. Meets with 3420.

■5430. PAPER: PULP TO PLASTIC EXPRESSION. (191146) (4 cr per term [max 16 cr], limited to 4 students; prereq 12 cr of 3430 or #; 0800-1015 MTWThF; ArtB 35) Krepps See description for 3430. Meets with 3430.

5590. ADVANCED ENTRY: PRINTMAKING. (786539) (4 cr; max 16 cr; prereq #, Δ) Krepps

5790. ADVANCED ENTRY: PHOTOGRAPHY. (186657) (4 cr; max 16 cr; prereq #, Δ) Henkel

5890. ADVANCED ENTRY: CERAMICS/GLASS. (086658) (4 cr; max 16 cr; prereq #, Δ) Hoard

5970. DIRECTED STUDIES. (1-5 cr per term [max 12 cr]; prereq 24 cr in studio arts and #, Δ, CLA approval)

- Sec 1, (689031) Baldwin
- Sec 4, (185016) Cowette
- Sec 8, (086529) Henkel
- Sec 9, (187288) Hoard
- Sec 11, (086532) Krepps
- Sec 16, (990279) Roode
- Sec 18, (585778) Rowan

8110. DRAWING. (4 cr per term [max 12 cr])

- Sec 4, (987415) Cowette
- Sec 16, (290280) Roode
- Sec 18, (488785) Rowan

8120. PAINTING. (4 cr per term [max 24 cr])

- Sec 4, (787416) Cowette
- Sec 16, (190281) Roode
- Sec 18, (288786) Rowan

8510. PRINTMAKING. (886533) (4 cr per term [max 36 cr]) Krepps

8710. PHOTOGRAPHY. (587417) (4 cr per term [max 24 cr]) Henkel

8810. CERAMICS. (387418) (4 cr per term [max 24 cr]) Hoard

SECOND TERM

■1101. DRAWING I. (088605) (4 cr; limited to 20 students; 0800-1015 MTWThF; ArtB 150) Gray See First Term.

■1102. DRAWING II. (086935) (4 cr; limited to 20 students; prereq 1101; 1030-1245 MTWThF; ArtB 141) Gray Work from life and nature; color and pictorial structure.

■1301. SCULPTURE. (788064) (4 cr; limited to 20 students; 1030-1245 MTWThF; ArtB 65) Lucey Study of structure with emphasis on form and space. Direct construction in metal.

■1404. COLOR. (586526) (4 cr; limited to 20 students; §1104; prereq 1101; 0800-1015 MTWThF; ArtB 141) Feinberg Color and its visual implications.

■1540. PRINTMAKING: SCREEN. (085557) (4 cr per qtr [8 cr max]; limited to 9 students; 0800-1015 MTWThF; ArtB 170) Bethke Traditional and contemporary screen printing media. Paper stencil, tusche and glue, cut stencil, and photo stencil techniques and their aesthetic applications.

■1701. PHOTO MEDIUM. (4 cr; each section limited to 20 students) See First Term.

- Sec 1, (188506), 0800-1015 MTWThF, ArtB 120
- Sec 2, (290683), 1030-1245 MTWThF, ArtB 120

■1811. CERAMICS: HANDBUILDING. (685089) (4 cr; limited to 20 students; 1030-1245 MTWThF; ArtB 10) Lane Introduction to hand-building techniques in clay for individual creative expression.

■3120. PAINTING. (186948) (4 cr per term [max 12 cr]; limited to 12 students; prereq 1101, 1102, 1401, 1404, 3105, 4 cr of 3110 or §3110; 1030-1245 MTWThF; ArtB 151) Feinberg Media and problems in painting. Individual projects. Meets with 5120.

■3540. PRINTMAKING: SCREEN. (885558) (4 cr per qtr [12 cr max]; limited to 6 students; prereq 1401, 4 cr of 1540 or #; 0800-1015 MTWThF; ArtB 170) Bethke Screen printing techniques, emphasis on color and image development.

3970. DIRECTED STUDY. (1-5 cr per term [max 8 cr]; prereq 24 cr in studio arts and #, Δ, □)

- Sec 2, (686534) Bethke
- Sec 5, (588065) Feinberg
- Sec 6, (090077) Gray
- Sec 12, (186537) Lane
- Sec 13, (289033) Lucey

3980. DIRECTED INSTRUCTION. (1-5 cr per term [max 8 cr]; prereq #, Δ, □) See First Term.

- Sec 2, (486535) Bethke
- Sec 5, (388066) Feinberg
- Sec 6, (890078) Gray
- Sec 12, (986538) Lane
- Sec 13, (189034) Lucey

■5120. PAINTING. (286956) (4 cr per term [max 16 cr]; limited to 8 students; prereq 12 cr of 3120 or #; 1030-1245 MTWThF; ArtB 151) Feinberg Various media. Individual problems. Meets with 3120.

5190. ADVANCED ENTRY: DRAWING AND PAINTING. (4 cr [max 16 cr]; prereq #, Δ)

- Sec 5, (986653) Feinberg
- Sec 6, (090659) Gray

5390. ADVANCED ENTRY: SCULPTURE. (886659) (4 cr [max 16 cr]; prereq #, Δ) Lucey

■5540. PRINTMAKING: SCREEN. (685559) (4 cr per qtr [16 cr max]; limited to 5 students; prereq 12 cr of 3540 or #; 0800-1015 MTWThF; ArtB 170) Bethke Screen processes and combined techniques.

5590. ADVANCED ENTRY: PRINTMAKING. (186660) (4 cr [max 16 cr]; prereq #, Δ) Bethke

5890. ADVANCED ENTRY: CERAMICS/GLASS. (086661) (4 cr [max 16 cr]; prereq #, Δ) Lane

5970. DIRECTED STUDIES. (1-5 cr per term [max 12 cr]; prereq 24 cr in studio arts and #, Δ, CLA approval)

- Sec 2, (286536) Bethke
- Sec 5, (188067) Feinberg
- Sec 6, (690079) Gray
- Sec 12, (786525) Lane
- Sec 13, (989035) Lucey

8110. DRAWING. (4 cr per term [max 12 cr])

- Sec 5, (187419) Feinberg
- Sec 6, (390660) Gray

8120. PAINTING. (4 cr per term [max 24 cr])

- Sec 5, (587420) Feinberg
- Sec 6, (190661) Gray

8810. CERAMICS. (387421) (4 cr per term [max 24 cr]) Lane

Astronomy (Ast)

356 Physics, 624-0211
Institute of Technology

FIRST TERM

■1011. DESCRIPTIVE ASTRONOMY. (586414) (4 cr, §1021; limited to 153 students; 0915-1115 MWF; Phys 166) Survey of the sun, moon, planets, and stars; description of the galaxy and universe to which the sun belongs.

■1015. DESCRIPTIVE ASTRONOMY LABORATORIES. (1 cr, §1025H; prereq high school algebra...highschool trigonometry recomm; each section limited to 25 students; 4 lab hrs per wk; minimum one night observation required)

- Sec 1, (089110) 1300-1515 MW, Phys 450
- Sec 2, (889111) 0915-1130 TTh, Phys 450

8777. THESIS CREDITS: MASTERS. (589670) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (289839) (1-36 cr [max 11 cr per summer term])

SECOND TERM

■1011. DESCRIPTIVE ASTRONOMY. (487054) (4 cr, §1021; limited to 153 students; 0915-1130 MWF; Phys 166) See First Term.

■1015. DESCRIPTIVE ASTRONOMY LABORATORIES. (1 cr, §1025H; prereq high school algebra...highschool trigonometry recomm; each section limited to 25 students; 4 lab hrs per wk; minimum one night observation required)

- Sec 1, (889108) 1300-1515 MW, Phys 450
- Sec 2, (689109) 0915-1130 TTh, Phys 450

8777. THESIS CREDITS: MASTERS. (089771) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (889903) (1-36 cr [max 11 cr per summer term])

Workshops for teachers...

BIOLOGY (Biol)

- 5810 Topics in Environmental Education for Elementary Teachers (July 7-19) (Itasca)
- 5816 Field Biology Photography (June 11-29) (Itasca)
- 5850 Special Topics (Itasca)
- Sec 1. Glacial Geology, June 11-June 28
- Sec 2 Field Studies in Mammology, June 11-July 12
- Sec 3 Conservation Biology, June 11-July 13
- Sec 4 Aquatic Ecology, June 11-July 15
- Sec 5 Advanced Field Biology Photography, July 3-13
- Sec 6 Ecological Genetics, July 18-August 19
- Sec 7 Measurement of Plant Environments, July 18-August 6
- Sec 8 Ecology of Amphibians and Reptiles, July 18-August 7
- Sec 9 Behavior/Telemetry, July 18-August 7
- 5950 Special Topics: Global Biogeochemistry and Microbial Ecology, July 12-26

BUSINESS AND MARKETING EDUCATION (BME)

- 5153 Consumer Education: Curriculum, Methods, and Materials (June 24-July 3)
- 5353 Curriculum Construction in Business and Marketing Education (June 11-21)

New for BME Teachers

Business and Marketing Education in the Private Sector is offered July 8-12 (BME 5370) for business and marketing teachers and corporate trainers. Participants will explore strategies used to develop what ASD's Anthony P. Carnevale has identified as the "upskilled" worker. Emphasis will be placed on curriculum and training strategies used in local business firms to prepare workers for the emergent job market.

Innovations in Business Communication will be the focus of BME 5390, June 24-28. This course will place emphasis on both the written and verbal communication curriculum. Current innovations such as electronic mail, voice mail, and teleconferencing will be studied as integrated components to the traditional content of business communications.

Teaching Keyboarding and Word Processing in Elementary and Middle Schools. A special section of BME 5360 has been scheduled July 22-August 2 for those responsible for teaching keyboarding and word processing in elementary and middle schools. Students will become familiar with expected learner outcomes, effective teaching strategies, selecting equipment and software, and management and organization of labs.

Advanced Applications in Desktop Publishing is a special section of BME 5390 scheduled July 22-August 2. This course is designed to provide advanced study of desktop publishing. Participants will create multiple page documents, add graphics including the creation of a paint-type image, cropping, combining text and images including wrapping around irregular shapes, and converting a spreadsheet to text and importing into the document. Advanced printing options such as scaling, substitute fonts, PostScript options, and preparing files for photo typesetting will also be examined.

Sales Training. During the second term teachers and trainers in BME 5261 will have the opportunity to develop strategies and techniques useful in developing effective sales people. The course will also include topics such as training needs analysis, developing training objectives, and using media and research for sales training.

B**Biochemistry (BioC)**

140 Gortner Laboratory, St. Paul.
624-7755
College of Biological Sciences

FIRST TERM

5950. SPECIAL TOPICS. (088751) (1-5 cr; prereq #, Δ)

5970. DIRECTED STUDIES. (488737) (Cr ar; prereq #, Δ) Staff

5990. DIRECTED RESEARCH. (288738) (Cr ar; prereq #, Δ) Staff
Laboratory or field investigation of selected areas of research.

8290. CURRENT RESEARCH TECHNIQUES. (685402)

(1-3 cr; prereq grad major in biochemistry; S-N only) 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.

8777. THESIS CREDITS: MASTERS. (389671) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (489841) (1-36 cr [max 11 cr per summer term])

8990. GRADUATE RESEARCH. (485403) (2-5 cr; prereq #) Graduate faculty
Research problems in various fields in biochemistry represented by staff interest.

SECOND TERM

5950. SPECIAL TOPICS. (888752) (1-5 cr; prereq #, Δ)

5970. DIRECTED STUDIES. (188739) (Cr ar; prereq #, Δ) Staff

5990. DIRECTED RESEARCH. (488740) (Cr ar; prereq #, Δ) Staff
See First Term.

8290. CURRENT RESEARCH TECHNIQUES. (886466) (1-3 cr; prereq grad major in biochemistry; S-N only) Graduate faculty
See First Term.

8777. THESIS CREDITS: MASTERS. (689773) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (489905) (1-36 cr [max 11 cr per summer term])

8990. GRADUATE RESEARCH. (686467) (2-5 cr; prereq #) Graduate faculty
See First Term.

Biochemistry, Medical (MdBc)

4-225 Millard Hall. 625-6100
Medical School

Elective Courses**FIRST TERM**

5053. PROBLEMS IN BIOCHEMISTRY. (186822) (1-10 cr; may be taken one or both terms; biochem grad student must register S-N prereq 5100 or 5753; hrs ar) Staff
Special work arranged with qualified students.

8290. CURRENT RESEARCH TECHNIQUES. (086823)

(1-3 cr; prereq grad major in biochemistry, #; S-N only) Staff

8300. RESEARCH. (886824) (Cr and hrs ar) Staff

SECOND TERM

5053. PROBLEMS IN BIOCHEMISTRY. (187588) (1-10 cr; may be taken one or both terms; biochem grad student must register S-N prereq 5100 or 5753; hrs ar) Staff
See First Term.

8290. CURRENT RESEARCH TECHNIQUES. (987589)

(1-3 cr; prereq grad major in biochemistry, #; S-N only) Staff

8300. RESEARCH. (287590) (Cr and hrs ar) Staff

Biology (Biol)

223 Snyder Hall. 624-9717
College of Biological Sciences

(See also Itasca Biology Program on page 34)

FIRST TERM

1009. GENERAL BIOLOGY. (5 cr; §1011; each section limited to 24 students; lect 0800-0900 MTWThF; MoosT 2-650) Fifield
Introduction to the principles of biology. The cell, metabolism, heredity, reproduction, ecology, and evolution.

Lab 1, (790123) 0915-1100 MTWTh, KoltH S160

Lab 2, (590124) 0915-1100 MTWTh, KoltH S167

Lab 3, (390125) 0915-1100 MTWTh, KoltH S170

1103. GENERAL BOTANY. (091889) (4 cr, §3012; limited to 40 students; prereq 1009; students who plan to major in biology in CLA or any bioscience major in CBS should take 3012; lect 1300-1400 MTWThF, BioSci 70; lab 0915-1245 TTh; BioSci 176, 182) Koukkari, Biesboer
Levels of organization of plants, plant functions, plant growth and development, plant reproduction.

3011. ANIMAL BIOLOGY. (5 cr, §1106; each section limited to 22 students; prereq 1009, Chem 1005; lect 1210-1330 MTWTh; ClaOff B35) Kerr
Comparison of ways different phyla have solved similar physiological problems. Laboratory includes survey of major animal groups and physiological experiments. Meets with 3111.

Lab 1, (090127) 1000-1200 MTWTh,
BioSci 107
Lab 2, (890128) 1400-1600 MTWTh,
BioSci 107

3012. PLANT BIOLOGY. (585506) (5 cr, \$1103, 3812; limited to 32 students; prereq 1009, Chem 1005; lect 0915-1030 MTWTh, BioSci 70; lab 1045-1230 MTWTh; BioSci 151) Charvat
Plant diversity and evolution; structure and function of the plant cell and of the whole organism; growth and development of plants.

3111. ANIMAL BIOLOGY. (690129) (4 cr, \$3011; prereq 1009, 1106, Chem 1005; 1210-1330 MTWTh; ClaOff B35) Kerr
Lectures covering the comparative physiology of various animal groups; coordination, movement, support, excretion, reproduction. Meets with 3011.

5001. BIOCHEMISTRY. (285404) (4 cr, \$3021, BioC 5001; prereq 1009, 12 cr organic chemistry or #; 0815-0945 MTWThF; ClaOff B35) staff
Biochemistry and biophysics of cells; emphasis on enzyme catalysis, cellular energetics, biosynthesis of cellular constituents, and cellular regulatory mechanisms.

5003. GENETICS. (188787) (4 cr, \$GCB 3022, \$GCB 5022; prereq 5001; 1125-1245 MTWThF; ClaOff B25) staff
Introduction to the nature of genetic information, its transmission from parents to offspring, its expression in cells and organisms, and its course in populations.

5041. ECOLOGY. (4 cr; each section limited to 18 students; \$5841; prereq Math 1142 or 1211, Biol 1103 or 1106, or 3011 or 3012; A-F only; lect 0800-1000 MTWThF; Zoology 108) Staff
Growth, structure and evolution of populations. Pairwise biotic interactions between species and their effect on the diversity and structure of natural communities. Nutrient dynamics, function, productivity, and temporal stability of ecosystems.

Rec 1, (986555) 1030-1130 TTh,
Zoology 108
Rec 2, (786556) 1145-1245 TTh,
Zoology 108

5810. TOPICS IN ENVIRONMENTAL EDUCATION FOR ELEMENTARY TEACHERS—July 7-19. (292014) (5 cr.; limited to 20 students; hrs arr taught at Itasca, see page 34) Holtz
An intensive two-week Environmental Education Institute to instruct elementary teachers in several areas of ecology and environmental concerns. Using ecosystem concepts as a basis for study, the emphasis will be on integrating these concepts into the elementary school curriculum.

5816. FIELD BIOLOGY PHOTOGRAPHY—June 11-June 29. (385605) (3 cr; limited to 20 students; A-F only; prereq course in beginning biology; Δ ; 0900-1630 WS; taught at Itasca, see page 34) Rubbelke
Field photography techniques for documentation of insects, vertebrates, aquatic organisms, and habitats of the Itasca area. Emphasis on general photographic principles and applied advanced techniques using flash, reversed lenses, and infra-red photoelectric tripping devices. On-site processing of color slides and black and white films. No previous processing experience required.

5850. SPECIAL TOPICS IN BIOLOGY. (prereq Δ ; each section limited to 20 students; taught at Itasca, see page 34)

Sec 1, (086675), **Glacial Geology, June 11-28;** prereq two courses in biology or geology; 0900-1630 TF, 3 cr; Mores

Sec 2, (886676), **Field Studies in Mammalogy, June 11-July 12,** 0900-1630 TF, 5 cr; Christian
Sec 3, (686677), **Conservation Biology, June 11-July 13;** 0900-1630 WS (5 cr; limited to 20 students)

Kræger
Introduction to the influence of human activities on ecological systems. Field studies focusing on ecological changes caused by these activities in the Itasca area will be conducted by students. Written reports on the results of these studies will be required.

Sec 4, (689112), **Aquatic Ecology, June 11-July 15;** prereq 15 cr biology, 5 cr chemistry; 0900-1630 MTh, 5 cr; Whiteside
Sec 5, (290120), **Advanced Field Biology Photography, July 3-13;** prereq 5816; 0900-1630 WS, 2 cr; Rubbelke

5890. RESEARCH PROBLEMS AT ITASCA IN ECOLOGY AND BEHAVIORAL BIOLOGY; OR ENTOMOLOGY; OR FISHERIES AND WILDLIFE; OR PLANT PATHOLOGY; OR SOIL SCIENCE; OR ZOOLOGY. (785407) (See Itasca Biology Program on page 34) (Cr ar; prereq #, Δ) Staff

5950. SPECIAL TOPICS.
Sec. 1 **Global Biogeochemistry and Microbial Ecology, July 12-26,** Gray
Freshwater Biological Institute, Navarre, MN 55392) R. Hanson, Wackett
Students may register for lecture without lab, but may not register for lab without lecture. The Gray Freshwater Biological Institute will have a competitive process for registration in the lab section; lab is limited to 12 students; lecture is limited to 40 students.
Lect (190121), 1 cr 0800-1700 FS, July 12-13
Lab (090662), 2 cr, 1030-1730 MTWThF, July 15-26

SECOND TERM

1008. INTRODUCTORY BIOLOGY: AN EVOLUTIONARY APPROACH. (4 cr; each section limited to 25 students; lect 1030-1130 MTWThF, SmithH 331) Fall
Description of evolution as the unifying principle in biology; organization and change in the biological world and the origin of humans.

Rec 1, (988807) 0915-1015 TF,
AmundH 162
Rec 2, (489113) 1145-1245 TF,
SmithH 121

3812. PLANT BIOLOGY—July 18-August 21. (591659) (5 cr; limited to 20 students; \$1103, \$3012; prereq 1009, Chem 1005; 0800-1700 WS; Special offerings of the core Plant Biology course taught at Itasca, see page 34) Biesboer, Wick

5004. CELL BIOLOGY. (890131) (3 cr; limited to 45 students; prereq 5001; 1030-1130 MTWThF; BioSci 6)
Structured functions of membranes, organelles, and other macromolecular aggregates found in plant, animal, and bacterial cells. Cell form and movement, intercellular communication, transport, and secretion.

5841. ECOLOGY—July 18-August 19 (989469) (5 cr; limited to 20 students; \$3541; prereq Math 1142 or 1211, Biol 1103 or 1106 or 3011 or 3012, Δ ; A-F only; 0800-1700 MTh; Special offering of the core ecology course, taught at Itasca, see page 34) Siniff and Staff

5850. SPECIAL TOPICS IN BIOLOGY. (Taught at Itasca, see page 34) See First Term.

Sec 6, (388813), **Ecological Genetics, July 18-August 19,** 0900-1630 MTh, 5 cr; Curtsinger, Hackett
Sec 7, (188814), **Measurements of Plant Environments, July 18-August 6,** 0900-1630 TF, 3 cr; Forseth
Sec 8, (289114), **Ecology of Amphibians and Reptiles, July 18-August 7,** 0900-1630 WS, 3 cr; Lang
Sec 9, (090130), **Behavior/Telemetry, July 18-August 7,** 0900-1630 WS, 3 cr; Siniff, Tester and Staff

5890. RESEARCH PROBLEMS AT ITASCA IN ECOLOGY AND BEHAVIORAL BIOLOGY; OR ENTOMOLOGY; OR FISHERIES AND WILDLIFE; OR PLANT PATHOLOGY; OR SOIL SCIENCE; OR ZOOLOGY. (385507) (See page 34) (Cr ar; prereq #, Δ) Staff

Biomedical Engineering (BMEn)

455 Mechanical Engineering. 625-0140
(Mechanical Engineering)
Institute of Technology

FIRST TERM

8002. INTERNSHIP IN BIOMEDICAL ENGINEERING. (790865) (3 cr; prereq biomed engineering grad stu or Δ ; S-N only)

8770. PLAN B PROJECT. (391954) (4 cr; no cr toward PhD; prereq #; A-F only)

8777. THESIS CREDITS: MASTERS. (589975) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (090080) (1-36 cr [max 11 cr per summer term])

8970. INDEPENDENT STUDY. (191955) (1-4 cr; prereq #; A-F only)

SECOND TERM

8002. INTERNSHIP IN BIOMEDICAL ENGINEERING. (590866) (3 cr; prereq biomed engineering grad stu or Δ ; S-N only)

8770. PLAN B PROJECT. (091956) (4 cr; no cr toward PhD; prereq #; A-F only)

8777. THESIS CREDITS: MASTERS. (890081) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (389976) (1-36 cr [max 11 cr per summer term])

8970. INDEPENDENT STUDY. (891957) (1-4 cr; prereq #; A-F only)

Biophysical Sciences (BPhy)

V372 VFW Cancer Research Center.
625-8440
Medical School

FIRST TERM

8223. RESEARCH IN BIOPHYSICS. (790980) (Cr ar) Staff

8777. THESIS CREDITS: MASTERS. (889674) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189843) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8223. RESEARCH IN BIOPHYSICS. (590981D) (Cr ar) Staff

8777. THESIS CREDITS: MASTERS. (789778) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (989911) (1-36 cr [max 11 cr per summer term])

Business Administration (BA)

290 Hubert H. Humphrey Center.
624-3313
Carlson School of Management

Refer to registration instructions for undergraduate Carlson School of Management courses on pages 11, 14.

FIRST TERM

3998. INDEPENDENT STUDY. (085414) (Cr ar [may be repeated for cr]; limited to 10 students; prereq Staff
Student-initiated project and/or independent course of study. Forms and instructions available in 290 HHHCtr.

8888. THESIS CREDITS: DOCTORAL. (689840) (1-36 cr [max 11 cr per summer term])

SECOND TERM

3998. INDEPENDENT STUDY. (386477) (Cr ar [may be repeated for cr]; limited to 10 students; prereq Staff
See First Term.

8888. THESIS CREDITS: DOCTORAL. (689904) (1-36 cr [max 11 cr per summer term])

Business and Marketing Education (BME)

420 Vocational/Technical Education Building, St. Paul. 624-7799
(Vocational and Technical Education)
College of Education

FIRST TERM

5153. CONSUMER EDUCATION: CURRICULUM, METHODS, AND MATERIALS—June 24-July 3. (791188) (3 cr; \$BDE 5153, \$HEED 5153; limited to 30 students; 0800-1130 MTWThF; VoTech 220; A-F only)
Objectives, content, curricular organization, teaching methods, materials, and evaluation methods for the elementary, secondary, postsecondary, and adult levels. This offering for 3 credits.

5330. SPREADSHEET ANALYSIS USING MICROCOMPUTERS IN BUSINESS AND MARKETING EDUCATION. (591189) (3 cr; limited to 22 students; prereq 5310 or equiv; 1800-2045 TTh; VoTech 230; A-F only)
Introduction to use of spreadsheet software; instructional applications in business areas.

56 Business and Marketing Education—Chemical Engineering

5353. CURRICULUM CONSTRUCTION IN BUSINESS AND MARKETING EDUCATION—June 11-21. (585490) (4 cr; limited to 25 students; \$BDE 5353; 1300-1700 MTWThF; VoTech 220; A-F only) Stone
Content identification, program organization, preparation of instructional objectives, guidelines for selection and development of instructional materials.

5359. OCCUPATIONAL EXPERIENCE. (088068) (1-18 cr; limited to 15 students; prereq #; S-N optional; 1800-2000 W, June 12, and hrs ar; VoTech 420C) Schwartz
Observation and employment experiences in business offices or marketing 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.

5370. SPECIAL TOPICS IN INSTRUCTION: Business and Marketing Education in the Private Sector—July 8-12. (290084) (1-6 cr; limited to 25 students; 0830-1200, 1330-1630 MTWThF; VoTech 220; A-F only) Stone
Strategies used to develop the "upskilled" worker. Emphasis on curriculum and training strategies used in local business firms to prepare workers for the emergent job market. This offering for 3 credits.

5390. SPECIAL TOPICS IN TECHNICAL UPDATING: Innovations in Business Communication—June 24-28. (991190) (1-6 cr; limited to 25 students; 1300-1630 MTWThF; VoTech 230; A-F only)
Current innovations such as electronic mail, voice mail, and teleconferencing as integrated components in the traditional content of business communications. This offering for 2 credits.

5600. FIELD-BASED PROJECTS IN BUSINESS AND MARKETING EDUCATION. (1-12 cr [max 12 cr]; prereq #; hrs ar; A-F only)
Individual or group work on curricular, instructional, developmental, or evaluation problems and projects applicable to local school or business situations.

Sec 22, (385491) Stone
Sec 25, (390089) Schwartz

5900. DIRECTED STUDY IN BUSINESS AND MARKETING EDUCATION. (1-6 cr [max 6 cr]; S-N optional; prereq Δ; hrs ar)
Opportunity for individual learning experiences not covered by regular courses.

Sec 22, (185492) Stone
Sec 25, (790087) Schwartz

8777. THESIS CREDITS: MASTERS. (189672) (1-16 cr [max 11 cr per summer term])

8900. PROBLEMS: BUSINESS AND MARKETING EDUCATION. (1-9 cr [max 9 cr]; prereq #; hrs ar)
Individual research.

Sec 22, (085493) Stone
Sec 25, (590088) Schwartz

SECOND TERM

5261. SALES TRAINING. (791191) (3 cr; limited to 25 students; prereq 5253, 5260 or #; 1800-2045 TTh; VoTech R285; A-F only)
Introduction to strategies and techniques useful in developing effective sales people.

5360. PROGRAM DEVELOPMENTS IN BUSINESS AND MARKETING EDUCATION: Teaching Keyboarding and Word Processing in Elementary and Middle Schools—July 22-August 2. (591192) (1-6 cr; limited to 25 students; 1300-1545 MTWThF; VoTech 230 & 240; A-F only)
For those responsible for teaching keyboarding and word processing in elementary and middle schools. Expected learner outcomes, effective teaching strategies, selecting equipment and software, and management and organization of labs. This offering for 3 credits

5390. SPECIAL TOPICS IN TECHNICAL UPDATING: Advanced Applications in Desktop Publishing—July 22-August 2. (391193) (1-6 cr; limited to 22 students; 0800-1045 MTWThF; VoTech 230; A-F only)
Advanced study of desktop publishing; multiple page documents, creation of a paint-type image, cropping, combining text and images including wrapping around irregular shapes, converting a spreadsheet to text and importing into the document, and other advanced printing options. This offering for 3 credits.

5600. FIELD-BASED PROJECTS IN BUSINESS AND MARKETING EDUCATION. (1-12 cr [max 12 cr]; prereq #; hrs ar; A-F only)

Sec 24, (191194) McLean

Sec 25, (091195) Schwartz
See First Term.

5900. DIRECTED STUDY IN BUSINESS AND MARKETING EDUCATION. (1-6 cr [max 6 cr]; S-N optional; prereq Δ; hrs ar)

Sec 24, (789098) McLean

Sec 25, (891196) Schwartz
See First Term.

8777. THESIS CREDITS: MASTERS. (289775) (1-16 cr [max 11 cr per summer term])

8900. PROBLEMS: BUSINESS AND MARKETING EDUCATION. (1-9 cr [max 9 cr]; prereq #; hrs ar)

Sec 24, (589099) McLean

Sec 25, (691197) Schwartz
See First Term.

Business Law (BLaw)

645 Management/Economics.
624-6506
Carlson School of Management

Refer to registration instructions for undergraduate Carlson School of Management courses on pages 11, 14.

FIRST TERM

3058. INTRODUCTION TO LAW, THE LAW OF CONTRACTS AND SALES CONTRACTS. (885415) (4 cr, \$8158; limited to 40 students; prereq Econ 1002; 0800-0945 MTW; BlegH 435; A-F only) Andrews
Study of the origin of law, its place in and effect upon society; the history and development of law; the system of courts; and legal procedure. An extensive study of the law of contracts as the basic law affecting business transactions; and law affecting the sales of goods contracts.

Business, Government, and Society (BGS)

835 Management/Economics.
624-5232
Carlson School of Management

Refer to registration instructions for undergraduate Carlson School of Management courses on pages 11, 14.

SECOND TERM

3004. INTERNATIONAL BUSINESS. (591337) (4 cr; each section limited to 45 students; 0900-1130 TTh; BlegH 235) Maitland
World business with emphasis on the global economy, international concepts, global business strategies, multinational corporations and technology, personnel and operations in the host nations. Resource (including energy) questions in their global contexts: quantities, demands, distribution of resources.

C

Cell and Developmental Biology (CDB)

250 Biological Sciences. 624-3003
(Genetics and Cell Biology)
College of Biological Sciences

FIRST TERM

8777. THESIS CREDITS: MASTERS. (289677) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589846) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (389783) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189915) (1-36 cr [max 11 cr per summer term])

Cell Biology and Neuroanatomy (CBN)

4-135 Jackson Hall. 624-1123
Medical School

FIRST TERM

3970. SPECIAL PROBLEMS. (185606) (2 cr; prereq #) Staff
Guided individual reading or study.

8156. ADVANCED ANATOMY. (285614) (1-6 cr; prereq #) Staff
Individual problems in gross anatomy, embryology, histology, or neuroanatomy.

8204. RESEARCH IN ANATOMY. (185615) (1-10 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.

8777. THESIS CREDITS: MASTERS. (489676) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (989844) (1-36 cr [max 11 cr per summer term])

SPECIAL TERMS: THREE-, SIX-, OR TEN-WEEK COURSES (Register once in Term I)

5304. HEAD, NECK ANATOMY FOR MEDICAL/DENTAL RESIDENTS. (085607) (5 cr; prereq participation in a residency in the Medical School or School of Dentistry) Robertson and staff

5500. GENERAL GROSS ANATOMY. (885608) (ar cr; prereq Phase D medical student or #) Robertson

5501. THE EXTREMITIES. (685609) (ar cr; prereq Phase D medical student or #) Robertson

5502. HEAD AND NECK. (085610) (ar cr; prereq Phase D medical student or #) Robertson

5508. THE THORAX. (885611) (ar cr; prereq Phase D medical student or #) Robertson

5509. THE ABDOMEN. (685612) (ar cr; prereq Phase D medical student or #) Robertson

5510. PERINEUM, GENITAL-URINARY SYSTEM AND PELVIS. (485613) (ar cr; prereq Phase D medical student or #) Robertson

SECOND TERM

3970. SPECIAL PROBLEMS. (985616) (2 cr; prereq #) Staff
See First Term.

8156. ADVANCED ANATOMY. (785617) (1-6 cr; prereq #) Staff
See First Term.

8204. RESEARCH IN ANATOMY. (585618) (1-10 cr; prereq #) Staff
See First Term.

8777. THESIS CREDITS: MASTERS. (989780) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589913) (1-36 cr [max 11 cr per summer term])

Chemical Engineering (ChEn)

151 Amundson Hall. 625-1313
(Chemical Engineering and Materials Science)
Institute of Technology

FIRST TERM

5902, 5903, 5904, 5905. SPECIAL TOPICS. (386365) (186366) (086367) (886368) (Cr ar)

8777. THESIS CREDITS: MASTERS. (189695) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (889853) (1-36 cr [max 11 cr per summer term])

8901-8902-8903. RESEARCH IN CHEMICAL ENGINEERING. (686369) (086370) (886371) (Cr ar)

**FIRST AND SECOND TERMS:
TEN-WEEK COURSES
(Register once in Term I)**

3091. INDUSTRIAL EMPLOYMENT.
(485305) (1-2 cr)

SECOND TERM

5902, 5903, 5904, 5905. SPECIAL TOPICS. (287024) (187025) (987026) (787027) (Cr ar)

8777. THESIS CREDITS: MASTERS.
(489791) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL.
(489922) (1-36 cr [max 11 cr per summer term])

8901-8902-8903. RESEARCH IN CHEMICAL ENGINEERING. (587028) (387029) (787030) (Cr ar)

Chemical Physics (ChPh)

139 Smith Hall, 624-6000
Institute of Technology

FIRST TERM

8777. THESIS CREDITS: MASTERS.
(789702) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL.
(189857) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS.
(789795) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL.
(789926) (1-36 cr [max 11 cr per summer term])

Chemistry (Chem)

139 Smith Hall, 624-6000
Institute of Technology

A \$30 deposit card, available at the Bursar's Office, Williamson Hall, is necessary for all lab courses.

FIRST TERM

1004. GENERAL PRINCIPLES OF CHEMISTRY. (189123) (5 cr; limited to 96 students; 1004-1005†, §1001, §1002, §1014, §1031, §1032; primarily for non-chemistry majors; prereq high school chemistry or equiv, placement index of Y or predicted mathematics GPA 1.90 on ACT or Math 0009 or college course in algebra...highschool physics, 4 yrs math recommended; lect 0800-0930 MTWThF, SmithH 100; rec 1145-1245 MWF; lab 1300-1600 MWF, SmithH 210)
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. (786346) (4 cr; limited to 20 students; prereq 1005 or 1032; lect 0915-1015 MTWThF, SmithH 331; lab 1145-1545 MWF, SmithH 210)
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.

1014. CONCEPTS OF CHEMISTRY. (287427) (4 cr; for IT students only; prereq Phys 1105 or 1281 or 1321 or 1421 or #; 1030-1145 MTWThF; SmithH 331)
Fundamental principles of chemistry. A terminal course—cannot be used as a prereq for any advanced chemistry course.

3100. QUANTITATIVE ANALYSIS LECTURE. (586347) (3 cr; limited to 60 students; 3100-3101†; for non-chemistry majors; prereq 1005 or 1032; 1145-1400 MWF; SmithH 231)
Modern quantitative methods of analysis.

3101. QUANTITATIVE ANALYSIS LABORATORY. (285497) (2 cr; limited to 36 students; 3100-3101†; for non-chemistry majors; prereq 3100 or §3100; 0800-1130 MTWThF; SmithH 310)
Modern quantitative methods of analysis including elementary physicochemical procedures.

3301. ELEMENTARY ORGANIC CHEMISTRY I. (386348) (4 cr; limited to 100 students; §3331; for non-chemistry majors; prereq 1005 or 1032; 0800-1015 MTWTh; SciCB 325)
Important classes of organic compounds, both aliphatic and aromatic, and heterocyclic compounds.

3303. ELEMENTARY ORGANIC CHEMISTRY III. (986541) (4 cr; limited to 30 students; prereq 3302, 3306 or §3306; 0800-1015 MTWTh; SmithH 111)
Basic principles of organic chemistry, with emphasis on a survey of organic reaction mechanisms, intended to coordinate the knowledge which has been acquired in the preceding two quarters of organic chemistry.

3305. ELEMENTARY ORGANIC CHEMISTRY LABORATORY I. (586350) (2 cr; limited to 80 students; prereq 3301 or §3301; lect 1030-1130 T, SmithH 231; lab 1145-1600 WTh, SmithH 349)
See 3301.

3499. SENIOR THESIS. (386351) (Cr ar; prereq #, 4th yr)
Written final senior thesis report.

3970. DIRECTED STUDIES. (086353) (Cr ar; prereq #)
On- or off-campus learning experiences, individually arranged between a student and faculty member, in areas not covered by regular courses.

Workshops for teachers...

CHILD PSYCHOLOGY (CPSy)

5310 Topics in Child Psychology: Cross-Cultural Child Development (July 23-August 8)
5331 Processes of Social Development (July 18-August 7)

CURRICULUM AND INSTRUCTIONAL SYSTEMS (CISY)

5003 Introduction to Computers and their Uses (June 12-24)
5600 Introduction to Curriculum Systems (June 11-July 3)
5605 Principles and Procedures in Designing Curriculum (June 11-July 3)
5600 Introduction to Curriculum Systems (July 18-August 7)

5520. ELEMENTARY PHYSICAL CHEMISTRY. (186352) (3 cr; limited to 50 students; prereq 1 yr college chemistry, Phys 1291 or §Phys 1291 or 1106 or #, Math 3211; 0800-1015 MWF; SmithH 231)
Brief general survey. Chemical thermodynamics.

8777. THESIS CREDITS: MASTERS.
(689692) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL.
(089852) (1-36 cr [max 11 cr per summer term])

8990. RESEARCH IN CHEMISTRY.
(785780) (Cr ar; limited to 1 student; prereq Δ)

SECOND TERM

1005. GENERAL PRINCIPLES OF CHEMISTRY. (589135) (5 cr; limited to 96 students, 1004-1005†, §1001, §1002, §1014, §1031, §1032; primarily for non-chemistry majors; prereq 1004; lect 0800-0930 MTWThF, SciCB 175; rec 1145-1245 MWF; lab 1300-1600 MWF; SmithH 110)
See 1004 First Term.

3302. ELEMENTARY ORGANIC CHEMISTRY II. (687215) (4 cr; limited to 100 students; prereq 3301, 3305 or §3305; if 3305 taken concurrently, a passing grade required for 3305 to receive cr for 3302; 0800-1015 MTWTh; SciCB 325)
See 3301 First Term.

3306. ELEMENTARY ORGANIC CHEMISTRY LABORATORY II. (187221) (2 cr; limited to 100 students; prereq 3302 or §3302, 3305; lect 1030-1130 T, SmithH 231; lab 1145-1600 WTh; SmithH 349)
See 3301 First Term.

3499. SENIOR THESIS. (587224) (Cr ar; prereq #, 4th yr)
See First Term.

3970. DIRECTED STUDIES. (187226) (Cr ar; prereq #)
See First Term.

5521. ELEMENTARY PHYSICAL CHEMISTRY. (087230) (3 cr; limited to 50 students; prereq 5520; 0800-1015 MWF; SmithH 231)
Kinetics, bonding, and structure.

8777. THESIS CREDITS: MASTERS.
(289789) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL.
(689921) (1-36 cr [max 11 cr per summer term])

8990. RESEARCH IN CHEMISTRY.
(285791) (Cr ar; prereq Δ)

Chicano Studies (Chic)

102 Scott Hall, 624-6309
College of Liberal Arts

FIRST TERM

3106. INTRODUCTION TO CHICANO STUDIES: MEXICO AND THE UNITED STATES. (391758) (4 cr; limited to 20 students; 0915-1015 MTWThF; NichH 201)
Aleman
Convergence of Spanish-Mexican and Anglo American societies in the Spanish borderlands. Literary, social, cultural and historical perspectives—1821 to 1960.

3213. CHICANO MUSIC AND ART. (191339) (4 cr; limited to 20 students; 1030-1130 MTWThF; Nich 201)
Martinez
The musical and artistic experiences of Chicanos.

3970. DIRECTED STUDIES. (885043) (Cr ar; prereq #, Δ, □)
Guided individual reading or study.

5970. DIRECTED STUDIES. (185310) (Cr ar; prereq #, Δ, CLA approval)
Guided individual reading or study.

SECOND TERM

3107. INTRODUCTION TO CHICANO STUDIES: CHICANO IN CONTEMPORARY SOCIETY. (191759) (4 cr; limited to 20 students; 0915-1015 MTWThF; NichH 201)
Aleman
The formation of contemporary Chicano political, economic and cultural consciousness, and the forms in which it has been expressed. 1960 to present.

3970. DIRECTED STUDIES. (985311) (Cr ar; prereq #, Δ, □) Guided individual reading or study.

5970. DIRECTED STUDIES. (685349) (Cr ar; prereq #, Δ, CLA approval) Guided individual reading or study.

Child and Adolescent Psychiatry (CAPy)

D-697 Mayo. 626-6577
Medical School

SPECIAL TERM: JUNE 18-SEPTEMBER 7

5203. CHILD AND ADOLESCENT PSYCHIATRY FOR PSYCHOLOGY INTERNS. (787609) (1-5 cr; prereq #) Experience in assessment and therapeutic interventions with children, adolescents, and families in an outpatient child and adolescent psychiatric setting.

5603. INPATIENT CLINICAL CHILD PSYCHIATRY FOR PRIMARY CARE PHYSICIANS. (787612) (Cr and hrs ar) 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. (587613) (3 cr; prereq MD and/or #, basic psychopath course, current supervised involvement in treatment of cases)

8228. RESEARCH IN CHILD AND ADOLESCENT PSYCHIATRY. (487622) (1 cr; hrs ar) August Research design, methodology, and current research projects are reviewed with faculty members and invited guests.

Child Psychology (CPsy)

104 Child Development. 624-2396
College of Education

FIRST TERM

1301. INTRODUCTORY CHILD PSYCHOLOGY. (485434) (4 cr, \$3309, \$5301; prereq 5 cr introductory psychology; 1145-1245 MTWThF; BuH 123) Dow Introduction to science of child behavior; review of theories and research. Meets with 3309.

3302. INFANCY. (388780) (4 cr; prereq 1301 or #; 1030-1130 MTWThF; ChDev 105) Nelson Perceptual, motor, emotional, social, and cognitive development during the first two years of life; the developing infant in its social and physical environment.

3309. INTRODUCTORY CHILD PSYCHOLOGY FOR THE SOCIAL SCIENCES. (187291) (4 cr, \$1301, \$5301; prereq Psy 1001; 1145-1245 MTWThF; BuH 123) Dow Science of child behavior; review of theory and research; designed for majors in psychology, sociology, and related disciplines; not suggested for CPsy majors. Meets with 1301.

3313. PSYCHOLOGY OF ATYPICAL CHILDREN. (191356) (4 cr, \$5313; prereq 1301 or equiv; 0800-0900 MTWThF; ChDev 105) 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. INTRODUCTION TO SOCIAL DEVELOPMENT—June 11-28. (891358) (4 cr, \$5331; prereq 1301 or equiv; 1030-1215 MTWThF; ChDev 216) LaFreniere Development of social relations and personality; research methodology, and contrasting theoretical perspectives. Survey of findings on interpersonal relationships, the concept of self, prosocial and antisocial behavior, and acquisition of social roles.

3980. DIRECTED INSTRUCTION. (185436) (1-4 cr [max 4 cr]; prereq #; A-F only) Weinberg Undergraduates serve as teaching assistants in courses they have successfully completed for credit.

5303. ADOLESCENT PSYCHOLOGY—June 12-July 2. (985437) (4 cr, \$3303; prereq 5 cr introductory psychology; 0830-1015 MTWThF; ChDev 216) Shulman Physical, cognitive, and social development during adolescence.

5310. TOPICS IN CHILD PSYCHOLOGY: Separation and Loss. (987284) (4 cr; prereq 1301; 1030-1215 TWh; BuH 125) Loewen Examination of various experiences of separation and loss that children encounter, including infant day care, marital disruption and divorce, death of parent or sibling, and terminal illness, using major developmental theories as a framework

5313. PSYCHOLOGY OF ATYPICAL CHILDREN. (091357) (4 cr, \$3313; prereq 1301 or equiv; 0800-0900 MTWThF; ChDev 105) 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.

5343. COGNITIVE DEVELOPMENT. (691359) (4 cr, \$3343; prereq 1301 or #; 0915-1015 MTWThF; ChDev 105) Sera Development of cognitive processes; discussion of relevant theory, research literature, and methodology.

5970. DIRECTED STUDY. (785438) (Cr ar; prereq #) Weinberg Independent reading.

5990. DIRECTED RESEARCH. (585439) (Cr ar; prereq #) Weinberg Individual empirical investigation.

8777. THESIS CREDITS: MASTERS. (489712) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (489869) (1-36 cr [max 11 cr per summer term])

8970. INDEPENDENT STUDY. (985440) (Cr ar) Weinberg Independent reading.

8990. RESEARCH PROBLEMS. (785441) (Cr ar) Weinberg Individual empirical investigation.

SECOND TERM

1301. INTRODUCTORY CHILD PSYCHOLOGY. (286567) (4 cr, \$3309, \$5301; prereq 5 cr introductory psychology; 0915-1015 MTWThF; ChDev 105) Montello See First Term. Meets with 3309.

3303. ADOLESCENT PSYCHOLOGY. (686484) (4 cr, \$5303; prereq 5 cr introductory psychology; 1145-1245 MTWThF; BuH 123) Physical, cognitive, and social development during adolescence.

3309. INTRODUCTORY CHILD PSYCHOLOGY FOR THE SOCIAL SCIENCES. (186568) (4 cr, \$1301, \$5301; prereq Psy 1001; 0915-1015 MTWThF; ChDev 105) Montello See First Term. Meets with 1301.

3343. INTRODUCTION TO COGNITIVE DEVELOPMENT. (091360) (4 cr, \$5343; prereq 1301; 1030-1130 MTWThF; ChDev 105) Maratsos Development of cognitive processes emphasizing research, methodology, and contrasting theoretical perspectives. Introduction to research and theory in developmental psychology necessary to understand course material.

3980. DIRECTED INSTRUCTION. (486485) (1-4 cr [max 4 cr]; A-F only; prereq #) Weinberg See First Term.

5310. TOPICS IN CHILD PSYCHOLOGY: Cross Cultural Child Development—July 23-Aug. 8. (390139) (4 cr; prereq 1301; 1000-1410 TTh; PeikH 225; S-N optional) Tapp This workshop will offer a concentrated experience with issues of development in children from different cultures and ethnic populations. Implications for teaching, programs, and policies are included.

5311. INTRODUCTION TO DEVELOPMENTAL PSYCHOPATHOLOGY. (891361) (4 cr, \$3311; prereq 1301 or equiv, 3308 or Psy 1005; 0800-0900 MTWThF; ChDev 105) Stansbury Theories and research strategies to investigate origins and course of disordered behavior in childhood and adults, including description, etiology, development. Excluded are problems of physical, sensory, or mental handicaps.

5331. PROCESSES OF SOCIAL DEVELOPMENT—July 18-August 7. (286570) (4 cr, \$3331; prereq 1301 or equiv; 1030-1210 MTWThF; ChDev 218) Processes of individual changes from infancy through adolescence and development of capacities for and influences of social relations; research, methodology, and theoretical perspectives.

5336. DEVELOPMENT AND INTERPERSONAL RELATIONS. (991660) (4 cr, \$5339; prereq 1301 or equiv, 3308 or Psy 1005, 3331 or 5331; 0915-1015 MTWThF; ChDev 216) Repinski Processes and functions of interactions with parents and peers; analysis of theory and research on developmental changes and influences.

5970. DIRECTED STUDY. (786489) (Cr ar; prereq #) Weinberg See First Term.

5990. DIRECTED RESEARCH. (986491) (Cr ar; prereq #) Weinberg See First Term.

8777. THESIS CREDITS: MASTERS. (189803) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189932) (1-36 cr [max 11 cr per summer term])

8970. INDEPENDENT STUDY. (786492) (Cr ar) Weinberg See First Term.

8990. RESEARCH PROBLEMS. (586493) (Cr ar; prereq #) Weinberg See First Term.

Chinese (Chn)

105 Folwell Hall. 624-0007
(East Asian Studies)
College of Liberal Arts

(See Nankai Institute, page 32)

FIRST TERM

3161. CHINESE POETRY IN ENGLISH TRANSLATION. (190314) (4 cr; 1145-1245 MTWThF; FoIH 138) Major poets examined in context of their intellectual, social, and aesthetic traditions. Knowledge of Chinese not required.

3970. DIRECTED STUDIES. (788498) (1-15 cr; prereq #, Δ, □) Staff

5970. DIRECTED STUDIES. (585179) (1-4 cr; prereq #, Δ, CLA approval) Staff

8777. THESIS CREDITS: MASTERS. (389699) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (489855) (1-36 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSE (Register once in Term I)

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 enroll for all three courses and may not enroll in other summer courses.** Prospective students should talk to an adviser before registering for intensive language courses.

1011-1012-1013. INTENSIVE BEGINNING MODERN CHINESE. (15 qtr credit for both terms, 10 hours with principal instructor, 10 hours with drillmaster; limited to 28 students; 0800-1215 MTWThF; KoltH S132)

■1011, Sec 5, (087342) June 11-July 3, 5 cr Wang

■1012, Sec 5, (887343) July 5-30, 5 cr Wang, Liu

■1013, Sec 5, (687344) July 31-August 21, 5 cr Liu

SECOND TERM

3970. DIRECTED STUDIES. (288108) (1-15 cr; prereq #, Δ, □) Staff

5970. DIRECTED STUDIES. (188109) (1-4 cr; prereq #, Δ, CLA approval) Staff

8777. THESIS CREDITS: MASTERS. (189793) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189924) (1-36 cr [max 11 cr per summer term])

Civil Engineering (CE)

122 Civil and Mineral Engineering.
625-5522
(Civil and Mineral Engineering)
Institute of Technology

FIRST TERM

8097. CIVIL ENGINEERING RESEARCH. (889545) (4 cr; prereq #)

8777. THESIS CREDITS: MASTERS. (689689) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (389850) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8097. CIVIL ENGINEERING RESEARCH. (689546) (4 cr; prereq #)

8777. THESIS CREDITS: MASTERS. (689787) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (689918) (1-36 cr [max 11 cr per summer term])

Classical Civilization (ClCv)

304a Folwell Hall. 625-7565
College of Liberal Arts

SECOND TERM

3990. DIRECTED RESEARCH. (989570) (4 cr; prereq #, Δ, □)

Classics (Clas)¹

309 Folwell Hall. 625-5353
(Classical and Near Eastern Studies)
College of Liberal Arts

FIRST TERM

1045. BASIC PROGRAM IN TECHNICAL TERMINOLOGY AND WORD STUDY. (287511) (3 cr; independent and optional assistance labs ar; **orientation** 0800-0900 T, June 11 or 1145-1245 W, June 12 or 1300-1400 Th, June 13; Arch 5) Study of prefixes, suffixes, and high frequency roots from Greek and Latin through computer-assisted instruction; principles of word compounding; methods and techniques of work analysis.

1048. GREEK AND LATIN TERMINOLOGY IN THE MEDICAL AND BIOLOGICAL SCIENCES. (187512) (2 cr, \$1141; prereq 1045 or 11045; independent and optional assistance labs ar; **orientation** See 1045) Study of roots and terms basic to the medical and biological sciences in English contexts.

1141. GREEK AND LATIN TERMINOLOGY FOR NURSING. (488110) (3 cr, \$1048; independent and optional assistance labs ar; **orientation** See 1045) Greek and Latin prefixes, suffixes, and roots basic to the vocabulary of nursing through computer-assisted instruction.

3012. THE WORLD OF ROME. (091200) (4 cr, \$5012; 1145-1245 MTWThF; FolH 340) Hershbell General survey of Roman civilization from its origins to the reign of Constantine. The Roman way of life as seen in art, history, literature, and philosophy. Special attention paid to the Etruscans and to the golden age of Rome under Augustus. Meets with 5012.

3046. ADVANCED ETYMOLOGY: VOCABULARY OF THE SCIENCES AND HUMANITIES. (288111) (2 cr; prereq 1045 or 11045; independent and optional assistance labs ar; **orientation** See 1045) Latin and Greek roots that have English derivatives; regularities of linguistic change (Grimm's law), principles of etymology, and lessons on specialized terminology in various fields, computer-assisted instruction.

5012. THE WORLD OF ROME. (891201) (4 cr, \$3012; 1145-1245 MTWThF; FolH 340) Hershbell Meets with 3012, but requires additional work for advanced undergraduate and graduate credit. Meets with 3012.

5012. THE WORLD OF ROME. (891201) (4 cr, \$3012; 1145-1245 MTWThF; FolH 340) Hershbell Meets with 3012, but requires additional work for advanced undergraduate and graduate credit. Meets with 3012.

8777. THESIS CREDITS: MASTERS. (189705) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189865) (1-36 cr [max 11 cr per summer term])

SECOND TERM

1042. GREEK AND ROMAN MYTHOLOGY. (491203) (4 cr; 0915-1015 MTWThF; FolH 306) Erickson

The heroes, gods, and goddesses of ancient Greece and Rome. The stories of the myths and the stories behind the myths.

1045. BASIC PROGRAM IN TECHNICAL TERMINOLOGY AND WORD STUDY. (487345) (3 cr; independent and optional assistance labs ar; **orientation** 0800-0900 Th, July 18, or 1145-1245 F, July 19, or 1300-1400 M, July 22; Arch 5) See First Term.

1048. GREEK AND LATIN TERMINOLOGY IN THE MEDICAL AND BIOLOGICAL SCIENCES. (287346) (2 cr; \$1141; prereq 1045 or 11045; independent and optional assistance labs ar; **orientation** See 1045) See First Term.

1141. GREEK AND LATIN TERMINOLOGY FOR NURSING. (187347) (3 cr, \$1048; independent and optional assistance labs ar; **orientation** See 1045) See First Term.

3046. ADVANCED ETYMOLOGY: VOCABULARY OF THE SCIENCES AND HUMANITIES. (987348) (2 cr; prereq 1045 or 11045; independent and optional assistance labs ar; **orientation** See 1045) See Term I. Meets with 1045.

5106. GREEK PAINTING. (691202) (5 cr, \$ArH 5106; prereq jr or #; 0900-1130 MW; FolH 326) Keuls Research and analysis in classical art as applied to the study of vases, original objects and sources. Meets with ArH 5106.

8777. THESIS CREDITS: MASTERS. (189798) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (389928) (1-36 cr [max 11 cr per summer term])

Clinical and Population Sciences (CAPS)

225 Veterinary Hospital, St. Paul.
625-7755
College of Veterinary Medicine

FIRST TERM

5000. CLINICAL LARGE ANIMAL MEDICINE. (791708) (6 cr; prereq #; arranged MTWThF; VetTchHos; S-N only) Staff Laboratories devoted to the application of principles and techniques of the basic and clinical medical sciences to the diagnosis, prognosis, treatment, prevention, and eradication of disease in food-producing animals and the horse.

5002. CLINICAL LARGE ANIMAL SURGERY. (591709) (6 cr; prereq #; arranged MTWThF; VetTchHos; S-N only) Staff Laboratories devoted to the application and techniques of the basic and clinical surgical sciences to the diagnosis, treatment, and surgical management of disease in food-producing animals and the horse.

5004. CLINICAL THERIOGENOLOGY. (991710) (6 cr; prereq #; arranged MTWThF; VetTchHos; S-N only) Staff Laboratories devoted to the application of principles and techniques of the basic and clinical medical sciences in theriogenology.

5006. CLINICAL HERD MEDICINE. (791711) (6 cr; prereq #; arranged MTWThF; VetTchHos; S-N only) Staff Application of principles and techniques of the basic and clinical medical sciences in herd medicine.

5009. VETERINARY PUBLIC HEALTH. (591712) (4 cr; prereq #; arranged MTWThF; VetTchHos; S-N only) Staff Laboratories devoted to the application of principles and techniques of the basic and clinical medical sciences in veterinary public health.

5572. REPRODUCTIVE PATTERNS AND INFERTILITY IN THE DOG AND CAT—July 22-August 19. (391713) (1 cr; prereq 5570, regis vet med, 3rd or 4th year or grad student or #; 1300-1450 M; AnScVM 125) S Johnston Lectures on reproductive patterns, breeding management, artificial insemination, and infertility in dogs and cats.

5680. PROBLEMS IN VETERINARY EPIDEMIOLOGY AND PUBLIC HEALTH. (191714) (Cr ar; prereq 5650 or equiv or #) Diesch, Pullen, R. Robinson, others Individual study arranged with faculty member.

5951. DIRECTED STUDIES. (091715) (1-5 cr; prereq #, Δ) Independent, directed study in veterinary science in areas arranged by the student and a faculty member.

8193.* ADVANCES IN CLINICAL IMMUNOBIOLOGY. (891716) (Cr ar; student or #) Molitor Students, faculty members, and guest speakers present seminars on current research in and clinical application of immunologic procedures in the diagnosis, control, and treatment of disease processes in animals.

8194.* PROBLEMS IN DIAGNOSTIC VIROLOGY, SEROLOGY, AND IMMUNOLOGY. (691717) (Cr ar; prereq grad student or #) Ames, Molitor Laboratory techniques of diagnostic virology, serology, and immunology. Research techniques of fluorescent antibody; determination of classes of immunoglobulins and immunostimulation of lymphocytes.

8195.* PREVENTIVE VETERINARY MEDICINE. (491718) (Cr ar) Diesch, others Application of the principles and practice of preventive veterinary medicine in food-animal production at the herd, state, national, or international levels.

8199. PROBLEMS IN ECONOMICS OF ANIMAL HEALTH. (291719) (1-3 cr) Olson, others Impact of animal disease on animal productivity and the return to investment in animal health by producers or the society studied using disease problems of current interest as subjects. Questions involving human health problems may be studied.

8290. ADVANCED VETERINARY MEDICINE. (691720) (Cr ar; prereq 5162, SACS 5172, #) V. Larson, Hardy, others Discussions of the diseases of organs or systems in animals from the following etiologic group: prenatal, metabolic, toxic infectious, physical influences.

8291. ADVANCED DIAGNOSIS AND THERAPEUTICS OF ANIMAL DISEASES. (491721) (Cr ar; prereq 5162, SACS 5172, #) V. Larson, Osborne, McKeever, Ogburn, Olson, others Detailed examination, discussions, and treatment of cases of animal diseases.

8292. SEMINAR: VETERINARY MEDICINE. (291722) (Cr ar; prereq #) V. Larson, Osborne, others

8293. MEDICAL CONFERENCE. (191723) (Cr ar; prereq 5162, SACS 5172, #) V. Larson, Osborne, others Medical, surgical, or obstetrical cases supported by anatomic, bacteriologic, pathologic, physiologic, pharmacologic, and radiologic evaluations whenever applicable.

¹Knowledge of Greek or Latin is not required.

60 Clinical and Population Sciences—Communication Disorders

8299. RESEARCH IN VETERINARY MEDICINE. (991724)

(Cr ar) V. Larson, others
Research problems relating to any aspect of internal medicine or to the various systems in animals.

8390. SEMINAR: VETERINARY SURGERY. (791725) (Cr ar; prereq DVM degree or equiv) Wallace

8392. ADVANCED LARGE ANIMAL SURGERY. (591726)
(Cr ar; prereq DVM degree or equiv, #) Kobluk, Trent
Surgery of various systems in large animals with preoperative and postoperative evaluation and treatment.

8393. PROBLEMS IN LARGE ANIMAL ORTHOPEDICS. (391727) (3 cr; prereq 5365, #) Kobluk, Trent

8397. LARGE ANIMAL ANESTHESIA. (191728) (Cr ar; prereq SACS 5380, #) Raffé

Special problems associated with anesthesia of large animals.

8590. ADVANCED DIAGNOSTIC METHODS IN REPRODUCTIVE DISEASES. (091729) (Cr ar; prereq 5570 or #)

Discussion and laboratory practices of methods for determination of fertility status of female and male animals.

8594. SPECIAL PROBLEMS IN ANIMAL REPRODUCTION. (391730) (Cr ar; prereq 5570, #) Staff

Detailed discussion and laboratory study of specific reproductive disorders.

8595. SEMINAR: VETERINARY OBSTETRICS. (191731) (1 cr) Seguin

8790. PROBLEMS IN VETERINARY CLINICAL PHARMACOLOGY AND THERAPEUTICS. (091732) (3 cr; prereq grad student or #)

Lecture, discussion, and clinical laboratory course examining clinical cases and experimental animals, and dealing with pharmacotherapeutics of various drugs used for food producing and companion animals.

8791. SEMINAR IN CLINICAL PHARMACOLOGY AND THERAPEUTICS. (891733) (2 cr; prereq grad student or #)

Examination of current literature and case material.

SECOND TERM

5680. PROBLEMS IN VETERINARY EPIDEMIOLOGY AND PUBLIC HEALTH. (691734) (Cr ar; prereq 5650 or equiv or #) Diesch, Pullen, R Robinson, others See First Term.

5951. DIRECTED STUDIES. (491735) (1-5 cr; prereq #, Δ) See First Term.

8193.* ADVANCES IN CLINICAL IMMUNOBIOLOGY. (291736) (Cr ar; prereq grad student or #) Molitor See First Term.

8194.* PROBLEMS IN DIAGNOSTIC VIROLOGY, SEROLOGY, AND IMMUNOLOGY. (191737) (Cr ar; prereq grad student or #) Ames, Molitor See First Term.

8195.* PREVENTIVE VETERINARY MEDICINE. (991738)

(Cr ar) Diesch, others
See First Term.

8199. PROBLEMS IN ECONOMICS OF ANIMAL HEALTH. (791739) (1-3 cr)

Olson, others
See First Term.

8290. ADVANCED VETERINARY MEDICINE. (191740) (Cr ar; prereq 5162, 5172, #) V. Larson, Hardy, others

See First Term.

8291. ADVANCED DIAGNOSIS AND THERAPEUTICS OF ANIMAL DISEASES. (991741) (Cr ar; prereq 5162, SACS 5172, #) V. Larson, Osborne, McKeever, Ogburn, Olson, others

See First Term.

8292. SEMINAR: VETERINARY MEDICINE. (791742) (Cr ar; prereq #) V. Larson, Osborne, others

8293. MEDICAL CONFERENCE. (591743) (Cr ar; prereq 5162, SACS 5172, #) V. Larson, Osborne, others

See First Term.

8299. RESEARCH IN VETERINARY MEDICINE. (391744)

(Cr ar) V. Larson, others
See First Term.

8390. SEMINAR: VETERINARY SURGERY. (191745)

(Cr ar; prereq DVM degree or equiv) Wallace

8392. ADVANCED LARGE ANIMAL SURGERY. (091746)

(Cr ar; prereq DVM degree or equiv, #) Kobluk, Trent
See First Term.

8393. PROBLEMS IN LARGE ANIMAL ORTHOPEDICS. (891747) (3 cr; prereq 5365, #) Kobluk, Trent

8397. LARGE ANIMAL ANESTHESIA. (691748) (Cr ar; prereq SACS 5380, #) Raffé

See First Term.

8590. ADVANCED DIAGNOSTIC METHODS IN REPRODUCTIVE DISEASES. (491749) (Cr ar; prereq 5570 or #) Staff

See First Term.

8594. SPECIAL PROBLEMS IN ANIMAL REPRODUCTION. (891750)

(Cr ar; prereq 5570, #)
See First Term.

8595. SEMINAR: VETERINARY OBSTETRICS. (691751)

(1 cr) S. Johnston

8790. PROBLEMS IN VETERINARY CLINICAL PHARMACOLOGY AND THERAPEUTICS. (491752) (3 cr; prereq grad student or #)

See First Term.

8791. SEMINAR IN CLINICAL PHARMACOLOGY AND THERAPEUTICS. (291753) (2 cr; prereq grad student or #)

See First Term.

Clinical Laboratory Science (CLS)

D-242 Mayo. 625-9171
(Laboratory Medicine and Pathology) Medical School

FIRST TERM

5180. ADVANCED CHEMISTRY. (185503) (1-5 cr; prereq #) Yasmineh

5768. ADVANCED HEMATOLOGY. (985504) (Cr ar; prereq #) Brunning

8236. RESEARCH ON CLINICAL LABORATORY PROBLEMS. (285502) (1-10 cr) Hallgren

8777. THESIS CREDITS: MASTERS. (489709) (1-16 cr [max 11 cr per summer term])

SECOND TERM

5180. ADVANCED CHEMISTRY. (685500) (1-5 cr; prereq #) Yasmineh

5768. ADVANCED HEMATOLOGY. (485501) (Cr ar; prereq #) Brunning

8236. RESEARCH ON CLINICAL LABORATORY PROBLEMS. (985499) (1-10 cr) Hallgren

8777. THESIS CREDITS: MASTERS. (389802) (1-16 cr [max 11 cr per summer term])

Communication Disorders (CDIs)

115 Shevlin Hall. 624-3322
College of Liberal Arts

FIRST TERM

3100. CLINICAL AND RESEARCH OBSERVATION. (2 cr; each section limited to 2 students; prereq Δ; S-N only)

Supervised observation of clinical procedures such as evaluation and treatment of persons with communication disorders or of research relating to normal and disordered communication.

Sec 1, (885821) 0800-1200 W,
MoosT 6296, Starr, Moller

Sec 2, (086546) 1230-1600 Th,
MoosT 6296, Starr, Moller

5900. TOPICS IN COMMUNICATION DISORDERS: Use of Instrumentation in the Management of Phonation and Resonance Disorders. (787271) (3 cr; prereq 5507 or 5508 or #; 0800-1015 MTThF; ShH 125) Starr

Discussions and demonstrations of commercially available instruments that provide measures of fundamental frequency, frequency and intensity perturbations, signal to noise ratios, nasal resonance and other laryngeal functions.

5970. DIRECTED STUDIES. (685822) (Cr ar [may be repeated for cr]; prereq #, Δ, CLA approval) Staff

Directed readings and preparation of reports on selected subjects.

8502. SEMINAR: STUTTERING—June 24-July 12. (092010) (3 cr; prereq 5502 or # 1030-1300 MWF, ShevH 125)

Roger Ingham
Theoretical explanations of stuttering; research data and methodologies subserving the respective theories. Students independently design and, when feasible, execute research studies that derive from and are consistent with, a particular theory of stuttering.

8504. SEMINAR: NORMAL AND DISORDERED CHILD PHONOLOGY. (291204) (3 cr; prereq 5504 or #; 1030-1245 TTh; ar) Broen

Advanced study and independent research.

8520. CLINICAL EDUCATION IN SPEECH-LANGUAGE PATHOLOGY. (485823) (1-6 cr [may be repeated for cr]; prereq Communication Disorders grad stu) Staff

8521. CLINICAL EDUCATION IN SPEECH-LANGUAGE PATHOLOGY. (688509) (1-6 cr [may be repeated for cr]; prereq Communication Disorders grad stu) Staff

8720. CLINICAL EDUCATION IN AUDIOLOGY. (285824)

(1-6 cr [may be repeated for cr]; prereq Communication Disorders grad stu) Staff

8721. CLINICAL EDUCATION IN AUDIOLOGY. (088510)

(1-6 cr [may be repeated for cr]; prereq Communication Disorders grad stu) Staff

8721. CLINICAL EDUCATION IN AUDIOLOGY. (088510)

(1-6 cr [may be repeated for cr]; prereq Communication Disorders grad stu) Staff

8777. THESIS CREDITS: MASTERS. (089687) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189848) (1-36 cr [max 11 cr per summer term])

Open to graduate students engaged in research.

8990. RESEARCH. (185825) (Cr ar [may be repeated for cr]) Staff

Open to graduate students engaged in research.

SECOND TERM

5704. NOISE AND HUMANKIND. (991996) (4 cr; prereq 5301 or #; 0915-1130 MTWTh; FolH 340) 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; pre-employment testing and monitoring audiometry.

5900. TOPICS IN COMMUNICATION DISORDERS. (191205) (3 cr) Guest Lecturer

5970. DIRECTED STUDIES. (786976) (Cr ar [may be repeated for cr]; prereq #, Δ, CLA approval) Staff

See First Term.

8520. CLINICAL EDUCATION IN SPEECH-LANGUAGE PATHOLOGY. (386978) (1-6 cr [may be repeated for cr]; prereq Communication Disorders grad stu) Staff

8521. CLINICAL EDUCATION IN SPEECH-LANGUAGE PATHOLOGY. (088507) (1-6 cr [may be repeated for cr]; prereq Communication Disorders grad stu) Staff

8720. CLINICAL EDUCATION IN AUDIOLOGY. (186979) (1-6 cr [may be repeated for cr]; prereq Communication Disorders grad stu) Staff

8721. CLINICAL EDUCATION IN AUDIOLOGY. (888508) (1-6 cr [may be repeated for cr]; prereq Communication Disorders grad stu) Staff

8777. THESIS CREDITS: MASTERS. (889786) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (889917) (1-36 cr [max 11 cr per summer term])

8990. RESEARCH. (386981) (Cr ar [may be repeated for cr]) Staff See First Term.

Comparative Literature (CLit)

301 FolH. 624-8099
College of Liberal Arts

FIRST TERM

83910. ISSUES IN THE STUDY OF LITERATURE. (391209) (4 cr; limited to 20 students; 1300-1545 TTh; NichH 201) Jha

Survey of critical modes, from formal methods to post-structuralist and Marxist approaches, through selected theoretical and practical readings. Analysis of each mode's assumptions and claims.

83979. ISSUES IN CULTURAL PLURALISM. (489211) (4 cr; limited to 40 students; \$AmSt 3113; 11:45-12:45 MTWThF BlegH 250) Sarles
Critical, comparative basis for studying minority cultures in America: fabric, dynamics, strengths, tensions; how they differ, yet form a distinct culture. Meets with AmSt 3113.

5970. DIRECTED READINGS. (189333) (1-4 cr; prereq #, Δ, CLA approval) Staff
Guided individual reading or study.

8888. THESIS CREDITS: DOCTORAL. (889867) (1-36 cr [max 11 cr per summer term])

8970. DIRECTED READING. (588275) (1-4 cr; prereq grad student in comparative literature, Δ)

SECOND TERM

83332. THE MODERN NOVEL IN A COMPARATIVE PERSPECTIVE. (792017) (4 cr; limited to 20 students; 1300-1545 MW; FolH 142) Canning
Relationship of modernity to the genre of the novel in Western Europe and the Americas. Notions of subjectivity and philosophical reflection as manifested by various novelists over various literary periods and geographical regions.

5970. DIRECTED READINGS. (689210) (1-4 cr; prereq #, Δ, CLA approval) Staff
Guided individual reading or study.

8888. THESIS CREDITS: DOCTORAL. (589930) (1-36 cr [max 11 cr per summer term])

8970. DIRECTED READING. (185792) (1-4 cr; prereq grad student in comparative literature, Δ)

Comparative Studies in Discourse and Society (CSDS)

314 Ford Hall. 624-5553
(Humanities)
College of Liberal Arts

FIRST TERM

8888. THESIS CREDITS: DOCTORAL. (289873) (1-36 cr [max 11 cr per summer term])

SECOND TERM

85910. TOPICS IN COMPARATIVE STUDIES IN DISCOURSE AND SOCIETY: SEMIOTICS OF CULTURE. (591967) (4 cr; limited to 15 students; prereq jr, sr, maj or grad; \$Hum 5910; 1030-1300 MW; FordH 40; A-F only) Fiske
Theories of European semiotics and structuralism in the analysis of contemporary mass media and popular culture. Emphasis on the role of culture in the politics of gender, race, and class. Meets with Hum 5910.

8888. THESIS CREDITS: DOCTORAL. (689935) (1-36 cr [max 11 cr per summer term])

Composition and Communication (Comp)

209 Lind Hall. 625-2888
College of Liberal Arts

(See also Rhetoric)

FIRST TERM

81011. WRITING PRACTICE I. (5 cr; each section limited to 25 students; prereq assignment to category 2 or 3) Guided practice in solving writers' problems: defining purpose, organizing and developing content, analyzing audience, drafting the whole essay and its parts, and revising and editing to master fundamentals of expository structure and style. Workshops on basic skills, syntactic fluency, and editing.
Sec 1, (188580) 0915-1015 MTThF, 0915-1130 W, AkerH 211
Sec 2, (988581) 1030-1130 MTThF, 1030-1245 W, FordH 40

81027. INTERMEDIATE EXPOSITORY WRITING. (685836) (4 cr; limited to 25 students; prereq fulfillment of Writing Practice requirement; 0915-1015 MTWThF, NichH 122)
Focuses on the range of choices writers make based on audience, purpose, and context. Relies on critical reading and a variety of written assignments to improve students' control over their writing and the effect it will have on their intended audiences.

83011. WRITING ABOUT LITERATURE. (886550) (4 cr; limited to 20 students; prereq fulfillment of Writing Practice requirement, jr.; 1030-1130 MTWThF, LindH 303)
Primary focus on presenting the active reading of literary works (poems, plays, fiction) in literary commentary and criticism, primarily for academic audiences. Use of secondary sources, and attention to various theoretical and critical approaches.

83012. WRITING IN THE HUMANITIES. (489225) (4 cr; limited to 20 students; prereq fulfillment of Writing Practice requirement, jr.; 0915-1015 MTWThF, LindH 303)
Writing on topics where historical and multicultural perspectives are brought together in the context of these disciplines. Assignments involve integrating primary texts with critical commentary. Frequent practice in presenting primary materials through paraphrase and summary.

83013. WRITING FOR THE ARTS. (686551) (4 cr; limited to 20 students; prereq fulfillment of Writing Practice requirement, jr.; 0800-0900 MTWThF, LindH 315)
Writing in the roles of artist, member of the audience, and critic to balance subjective responses and academic analysis. Emphasis on the importance of writing to create and maintain the arts communities through grants, reviews, and formal criticism.

83014. WRITING IN THE SOCIAL SCIENCES. (4 cr; each section limited to 20 students; prereq fulfillment of Writing Practice requirement, jr.)
Emphasizes writing as a way to communicate knowledge about individual and collective human behavior. Multidisciplinary perspectives on common social issues, description and analysis of quantitative data. Assignments may include the literature review, research proposal, case study, and theoretical argument.
Sec 1, (486552) 0915-1015 MTWThF, ApH 303
Sec 3, (289050) 0800-0940 MWF, AmundH 162
Sec 4, (989522) 1030-1210 MWF, ApH 226

83015. WRITING ABOUT SCIENCE. (191558) (4 cr; limited to 20 students; prereq fulfillment of writing practice requirement, jr; 1030-1130 MTWThF; LindH 320)
Presentation of problems in science and mathematics in clear expository prose. Writing for expert and non-expert audiences. Emphasis on integrating theoretical explanations and empirical evidence.

83022. CRITICAL READING AND WRITING FOR MANAGEMENT. (890498) (4 cr; limited to 20 students; prereq 1011 or equiv, Mgmt or Pre-Mgmt stu with more than 60 cr; 0915-1055 MWF; FordH 50)
Strategies and conventions for writing in management and related fields. Improvement of communication skills through the incorporation of narrative, descriptive, analytical, and persuasive techniques into writing on current business topics, with an emphasis on critical reading, thinking, and writing. Strategies for communicating among varied audiences in business settings.

83027. ADVANCED EXPOSITORY WRITING. (4 cr; each section limited to 20 students; prereq fulfillment of Writing Practice requirement, jr.)
Designed for already competent writers, this course focuses on the production of polished writing within and beyond the university setting. Teaches effective argumentation through critical reading and awareness of context and audience.
Sec 1, (788114) 0915-1015 MTWThF, AmundH 240
Sec 2, (188241) 1030-1130 MTWThF, LindH 340
Sec 3, (686727) 0800-0940 MWF, LindH 302
Sec 4, (585750) 0915-1055 MWF, MechE 202

83031. TECHNICAL WRITING FOR ENGINEERS. (4 cr; each section limited to 20 students; prereq fulfillment of Writing Practice requirement, jr., IT stu)
Presenting technical information accurately and clearly with attention to the rhetorical and organizational contexts of the writing. Analysis of writing situations, style and form of technical reports, and collaborative written and spoken presentations.
Sec 1, (788582) 0915-1015 MTWThF, LindH 320
Sec 2, (085025) 0800-0940 MWF, LindH 215

83032. PREPROFESSIONAL WRITING FOR BUSINESS. (387273) (4 cr; limited to 20 students; prereq fulfillment of Writing Practice requirement, School of Mgmt or BIS stu, jr; 1030-1130 MTWThF, BuH 120)
Writing for the wide variety of situations and audiences found in business. Form and style of business writing in collaborative and individual assignments. Assignments and practical examples tied as much as possible to student's major fields.

83033. WRITING FOR THE HEALTH SCIENCES. (089429) (4 cr; limited to 20 students; prereq fulfillment of Writing Practice req, Health Science or Pre-Health Science major with more than 60 credits; 0915-1055 MWF; MechE 221)
Addresses the writing needs of students from the diverse fields of the Health Sciences. Primary emphasis on practicing and achieving verbal clarity in a variety of situations ranging from precise description of a clinical procedure to balanced discussion of ethical contexts.

SECOND TERM

81011. WRITING PRACTICE I. (791658) (5 cr; limited to 25 students; 0915-1015 MTThF, 0915-1130 W, LindH 302)
See First Term.

81027. INTERMEDIATE EXPOSITORY WRITING. (188585) (4 cr; limited to 25 students; prereq fulfillment of Writing Practice requirement; 1030-1130 MTWThF; LindH 315)
See First Term.

83014. WRITING IN THE SOCIAL SCIENCES. (291560) (4 cr; limited to 20 students; prereq fulfillment of Writing Practice requirement, jr; 0800-0940 MWF, LindH 315)
See First Term.

83027. ADVANCED EXPOSITORY WRITING. (4 cr; each section limited to 20 students; prereq fulfillment of Writing Practice requirement, jr)
See First Term.
Sec 1, (187274) 0800-0900 MTWThF, LindH 325
Sec 2, (286553) 1030-1130 MTWThF, LindH 325
Sec 3, (486728) 0915-1055 MWF, LindH 340

3031. TECHNICAL WRITING FOR ENGINEERS. (4 cr; each section limited to 20 students; prereq fulfillment of Writing Practice requirement, jr, IT stu) See First Term.

Sec 1, (888586) 0915-1015
MTWThF, LindH 325

Sec 2, (688266) 1030-1130
MTWThF, Lind 303

Sec 3, (689224) 0800-0940 MWF,
LindH 320

3032. PREPROFESSIONAL WRITING FOR BUSINESS.

(4 cr; each section limited to 20 students; prereq fulfillment of Writing Practice requirement, School of Mgmt or BIS stu, jr) See First Term.

Sec 1, (888587) 1030-1130
MTWThF, BlegH 205

Sec 2, (085056) 0915-1055 MWF,
BlegH 350

3033. WRITING FOR THE HEALTH SCIENCES. (191561) (4 cr; limited to 20 students; prereq fulfillment of Writing Practice requirement, Health Science or Pre-Health Science majors with more than 60 credits; 0800-0940 MWF, LindH 303) See First Term.

Computer Science (CSci)

4-192 EE/CSci. 625-4002
Institute of Technology

FIRST TERM

3101. A FORTRAN INTRODUCTION TO COMPUTER PROGRAMMING. (886354) (4 cr; limited to 50 students; prereq Math 1111 or 1201 or equiv or #; 0915-1115 MW, 0915-1015 F; Arch 5)

FORTRAN computer language with extension; applications; programming techniques. Designed to bring students to advanced level competence in FORTRAN programming. Integral nonscheduled laboratory.

3104. INTRODUCTION TO PROGRAMMING AND PROBLEM SOLVING. (686355) (5 cr; limited to 50 students; prereq Math 1211 or equiv or #; intended for CSci majors; 1300-1505 MTWTh; EE/CSci 3111)

Required introductory course for CSci and Math/CSci majors; others require department permission. Problem solving techniques, stepwise refinement, systematic loop design, evaluation criteria, programming style, documentation, design of test data. Applications in PASCAL. Scheduled lab sections.

3105. FUNDAMENTALS OF ALGORITHMS AND LANGUAGES I. (585070) (4 cr; limited to 50 students; prereq 3101 or 3102 or 3104 or #; informal lab; 1030-1235 TW, 1030-1130 Th; AmundH B75)

Informal and formal approaches to algorithms, their properties and specification through an algorithmic language; computability, complexity, O-notation. Design of algorithms, solution techniques, problem decomposition, design documentation. Scope of variables and block structure. Analysis of numerical errors. Program testing. Examples from sorting and searching are required, to illustrate solution techniques.

3400. DISCRETE STRUCTURES OF COMPUTER SCIENCE. (486356) (4 cr; limited to 50 students; prereq Math 1231 or 1331 or #; 1530-1735 MW, 1530-1630 Th; EE/CSci 3230)

Proof techniques. Propositional calculus. First-order logic. Sets and multisets. Combinatorics. Analysis of algorithms. Graphs.

5106. STRUCTURE OF HIGH LEVEL LANGUAGES. (286522) (4 cr; limited to 50 students; prereq CLA or upper division IT computer science maj or grad, 5102, 5121 or #; 1030-1240 ThF, 1030-1130 W; EE/CSci 3111)

Shekhar Formal definition of the syntax and semantics of programming languages; semantics both by means of interpreters and by using the axiomatic approach. Concepts underlying programming languages and their realizations in a selected group of languages. Program description at compile time and execution time.

5201. COMPUTER ARCHITECTURE. (491363) (4 cr; limited to 50 students; prereq CLA or upper division IT computer science maj or grad, 3400, 3107, 5101 or #; 0800-1000 MT, 0915-1015 W; EE/CSci 3111)

Choi Elementary computer architecture; gates and digital logic, register transfers and micro-operations, processor studies of existing systems.

5301. NUMERICAL ANALYSIS. (385071) (4 cr; limited to 65 students; prereq Math 3142 or equiv or #...a knowledge of Pascal or FORTRAN is assumed; informal lab; 1030-1230 MT, 1145-1245 W; EE/CSci 3111)

Floating point arithmetic and rounding errors. Iterative methods. Numerical solution of nonlinear equations. Newton's method. Direct methods for linear systems of equations. Gauss elimination. Factorization methods. Interpolation and approximation. Numerical integration and differentiation. Introduction to numerical solution of ordinary differential equations.

8777. THESIS CREDITS: MASTERS. (189714) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (689871) (1-36 cr [max 11 cr per summer term])

SECOND TERM

3101. A FORTRAN INTRODUCTION TO COMPUTER PROGRAMMING. (588521) (4 cr; limited to 50 students; prereq Math 1111 or 1201 or equiv or #; for non-CSci majors; 0915-1115 MW, 0915-1015 F; Arch 50)

See First Term.

3104. INTRODUCTION TO PROGRAMMING AND PROBLEM SOLVING. (088748) (5 cr; limited to 50 students; prereq Math 1211 or equiv or #; intended for CSci majors; 1300-1500 MTWTh; EE/CSci 3115)

See First Term.

3106. FUNDAMENTALS OF ALGORITHMS AND LANGUAGES II. (185072) (4 cr; limited to 75 students; prereq 3104 and 3105, 3400 or #3400 or #; informal lab, 1030-1230 TW, 1030-1130 Th; AmundH B75; A-F only)

Recursion as an algorithm development technique and its implementation in a programming language. LISP. Data structures, use of recursive data structures, pointers and records in Pascal, data abstractions and data invariants. Syntax BNF. Semantics, abstract interpreters. Proving correctness of programs, inductive assertions, structural induction.

5121. INTRODUCTION TO DATA STRUCTURES. (691362) (4 cr; limited to 60 students; prereq CLA or upper div IT comput sci maj or grad stu or EE or math maj; 3106, 3400 or #; informal lab; 0800-1000 MT, 0915-1015 W; EE/CSci 3111)

Srivastava 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.

8777. THESIS CREDITS: MASTERS. (889805) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (089933) (1-36 cr [max 11 cr per summer term])

Control Science and Dynamical Systems (CSDy)

109 Vincent Hall. 625-8883
(School of Mathematics)
Institute of Technology

FIRST TERM

8888. THESIS CREDITS: DOCTORAL. (989875) (1-36 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (489936) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8888. THESIS CREDITS: DOCTORAL. (489936) (1-36 cr [max 11 cr per summer term])

Curriculum and Instructional Systems (CISy)

125 Peik Hall. 625-6372
(Curriculum and Instruction)
College of Education

FIRST TERM

5003. INTRODUCTION TO COMPUTERS AND THEIR USES—June 12-24. (391212) (1 cr; limited to 24 students; 0800-1015 MWF, PeikH 355; S-N only) Stochl

Introduction to computer technology in instruction: hardware, software, terminology, word processing, instructional applications. Intended for students with no background in computing.

5006. INTRODUCTION TO INSTRUCTIONAL COMPUTER PROGRAMMING. (591211) (3 cr; limited to 15 students; prereq 5003 or #; 1030-1245 MWF; PeikH 355; A-F only) Hooper

Introduction to designing computer-based instructional programs through programming. Students need not have a science or mathematics background.

5100. CURRICULUM AND INSTRUCTIONAL SYSTEMS WORKSHOP: Innovation and the Instructional Process—June 11-21. (891960) (1-3 cr; [max 9 cr]; limited to 25 students; 0915-1315 MTWThF, ChDev 218; A-F only) Anderson, Wahlstrom

Special topics course in the design, development, implementation, and evaluation of curricular and instructional systems. Will provide students with information, concepts, and interpretive frameworks for comprehending, analyzing, and evaluating instructional innovations and the change process that has brought them about. Students will gain knowledge and skills necessary for developing and consuming instructional innovations. This offering for 3 credits.

5206. MICROCOMPUTER USES IN ELEMENTARY CLASSROOMS—June 12-July 12. (885513) (3 cr, \$Elem 5140; limited to 5 students; 1330-1630 MWF; PeikH 355; A-F only) Stochl

Uses of microcomputers to enhance instruction; applications in language arts, mathematics, science, social studies; evaluation of available programs. Meets with Elem 5140.

5208. COMPUTER-BASED TOOLS FOR TEACHERS. (690146) (3 cr; prereq 5003 or 5206, or #; limited to 25 students; 0800-1030 TTh; PeikH 355; S-N optional) Hooper

The use of microcomputers for instructional material generation, record keeping, and classroom management tasks in K-12 classrooms.

5509. DIRECTED INDIVIDUAL STUDY. (1-6 [max 6 cr]; prereq #; A-F only)

Review of literature in research and theory related to issues in curricular instructional systems.

Sec 22, (485515) Kimpston

Sec 24, (490147) Hooper

5600. INTRODUCTION TO CURRICULUM SYSTEMS—June 11-July 3. (888492) (3 cr; limited to 25 students; 1030-1245 TWTh and Monday, July 1; PeikH 315; A-F only) Kimpston

Exploration of principles of curriculum design, forces influencing goals and curriculum planning, curricular trends and issues, traditional and emergent curricular designs, current proposals for change, and a model for curriculum planning.

5605. PRINCIPLES AND PROCEDURES IN DESIGNING CURRICULUM—June 11-July 3. (688493) (3 cr; limited to 25 students; 1300-1515 TWTh and Monday July 1; PeikH 315; A-F only) Kimpston

Systematic curriculum planning; development of models for planning, formulation of plans, outlining a curriculum design for an educational setting.

8501. PROBLEMS: CURRICULUM AND INSTRUCTIONAL SYSTEMS. (Cr ar; prereq #)

Individual empirical investigation.

Sec 22, (185517) Kimpston

Sec 24, (290148) Hooper

8700. CURRICULUM AND INSTRUCTIONAL SYSTEMS FIELD EXPERIENCE. (3-6 cr [max 6 cr]; prereq #; hrs ar)

Internship experience in an educational setting; planning, implementing, and supervising curriculum or instructional change.

Sec 22, (985518) Kimpston
Sec 24, (190149) Hooper

SECOND TERM

5509. DIRECTED INDIVIDUAL STUDY. (891215) (1-6 cr [max 6 cr]; prereq #; A-F only) Kimpston
See First Term.

5600. INTRODUCTION TO CURRICULUM SYSTEMS—July 18-August 7. (189512) (3 cr; limited to 25 students; 1030-1245 MTWThF; PeikH 315; A-F only) Kimpston
See First Term.

8100. CURRICULUM AND INSTRUCTION CORE: CRITICAL EXAMINATION OF CURRICULAR CONTEXTS—August 8-21. (188781) (3 cr; prereq PhD student or #; limited to 15 students; 1300-1530 MTWThF; SmithH 121; A-F only) Lange
Theoretical principles and major empirical findings in the core discipline of generic curriculum decision making; relationships among curricular processes, instructional design variables, and interactive teaching behavior.

8501. PROBLEMS: CURRICULUM AND INSTRUCTIONAL SYSTEMS. (191213) (Cr ar; prereq #) Kimpston
See First Term.

8700. CURRICULUM AND INSTRUCTIONAL SYSTEMS FIELD EXPERIENCE. (091214) (3-6 cr [max 6 cr]; prereq #; hrs ar) Kimpston
See First Term.

D

Dance (Dnce)

106 Norris Hall. 624-5060
(Theatre Arts and Dance)
College of Liberal Arts

FIRST TERM

1110. TOPICS IN DANCE THEORY.
Sec 1, Beginning Modern Technique, (491962), 2 cr, limited to 25 students; prereq audition, #, 1030-1200 MWF, NorrisH M151, Cheng
Meets with 3330 sec. 1
Sec 2, Tap, (291963), 1 cr, limited to 18 students, 1030-1200 TTh, PeikG G65, Sealy
The basics of tap; working on fundamental syncopation and various rhythms.
Sec 3, Beginning Jazz Technique, (191964), 2 cr, limited to 20 students; prereq audition, #, 1030-1200 MWF, PeikG G65, Sealy
Basic technique of jazz dance for those at a high beginning/low intermediate level. Meets with 3330 sec. 2

3330. TOPICS IN DANCE THEORY.

Sec 1, Intermediate Modern Technique, (291364), 2 cr, limited to 25 students; prereq audition, #, 1030-1200 MWF, NorrisH M151, Cheng
Basic technique of modern dance for those at a high beginning/low intermediate level. Meets with 1110 sec. 1

Sec 2, Intermediate Jazz Technique, (691961), 2 cr, limited to 20 students; prereq audition, #, 1030-1200 MWF, PeikG G65, Sealy
Basic technique of jazz dance for those at a high beginning/low intermediate level. Meets with 1110 sec. 3

5910. TOPICS IN DANCE.

Sec 1, Choreographic and Dance Practicum in Musical Theatre, (191365), 3 cr [max 12 cr], limited to 25 students; prereq #, 1230-1430 MTWThF, NorrisH M151, Cheng/Sealy and guests
Performance of dance theatre work constructed by faculty and guest choreographer.

Dental Hygiene (DH)

9436 MoosT. 625-9121
School of Dentistry

FIRST TERM

3501. ADVANCED DENTAL HYGIENE CLINICAL EXPERIENCE I. (891148) (1-6 cr; limited to 7 students; prereq 3195; S-N only)
Advanced clinical dental hygiene experience to prepare the student for private practice employment, continued education, and/or other career opportunities.

SECOND TERM

3502. ADVANCED DENTAL HYGIENE CLINICAL EXPERIENCE II. (091147) (1-6 cr; limited to 7 students; S-N only)
See DH 3501 First Term.

Dentistry (Dent)

15-209 Moos Tower. 625-9982
School of Dentistry

FIRST TERM

5054. DENTAL AUXILIARY UTILIZATION CLINIC (DAU I, II). (691149) (2 cr total; prereq 5053; S-N only)
Clinical experience designed to help students develop specific skills in sit-down, four-handed dentistry with emphasis on the efficient utilization of chairside dental assistants.

5070. HEALTH ECOLOGY ELECTIVE. (386785) (ar cr)
Allows highly motivated students to undertake study and receive academic credit for activities in special-interest areas.

5075. SPECIAL TOPICS IN DENTAL ASSOCIATESHIPS. (186786) (Cr ar; elective)
An individually designed reading and research course focused on dental practice, associateships, career decision-making, and career tracks.

5155. OPERATIVE DENTISTRY LABORATORY. (490858) (2 cr; 5154-5155); prereq 5154; A-F only)
Techniques and principles of cavity preparation, manipulation of restorative materials, and instrumentation.

5680. ORAL BIOLOGY: INDEPENDENT STUDY. (390965) (ar cr)

5900. DENTAL CLINIC. (391646) (Cr ar; 0900-1200 MTWThF, 1315-1600 MTWThF, MoosT 6125, 7336, 7555, 8327, 9346)

5989. ADVANCED CLINICAL GERIATRIC DENTISTRY. (591161) (Cr ar)
Practical clinical experience in examination, diagnosis, treatment planning, and treatment of older adult patients in the dental clinic at the Amherst H. Wilder Senior Health Center. Extensive case history reports reflecting the total social, psychological, and physical aspects of the patient as well as the oral health status will be prepared and presented.

5990. FIELD EXPERIENCE: ADMINISTRATION IN A MULTIDISCIPLINARY HEALTH CENTER. (190966) (2 cr)
Administration and management concerns related to the development of a dental service in a multidisciplinary care facility for older adults. Field placement at the Amherst H. Wilder Senior Health Clinic and affiliated residences.

5995. ADVANCED CLINICAL RESTORATIVE DENTISTRY. (589104) (Cr ar)
Application of advanced technical and clinical procedures with emphasis on the more complex problems in operative dentistry; diagnosis and treatment planning, management of patients, and dental auxiliary utilization.

8441. SEMINARS IN TMJ AND CRANIOFACIAL PAIN. (189011) (1 cr; A-F only)
Advanced topics on theories and application of recently developed techniques of data collection, diagnostic strategies, and management for TMJ and craniofacial pain problems.

8442. ADVANCED CLINICAL TMJ AND CRANIOFACIAL PAIN. (391162) (1-4 cr; A-F only)
Interdisciplinary study of patients with TMJ and craniofacial pain using techniques of assessment currently being researched; background and clinical knowledge of the patient synthesized with current literature on management; management program is developed, discussed with faculty, and implemented; effects of treatment and compliance are reviewed at each follow-up appointment.

8443. CURRENT LITERATURE IN TMJ AND CRANIOFACIAL PAIN. (889013) (1 cr; A-F only)
Review of current literature in TMJ and craniofacial pain and how it relates to past literature, theories on pain, and philosophies of management.

8777. THESIS CREDITS: MASTERS. (189719) (1-16 cr [max 11 cr per summer term])

FIRST AND SECOND TERM: TEN-WEEK COURSES (Register once in Term I)

5925. THE USE OF BUSINESS THEORY IN DENTAL PRACTICE. (191026) (1 cr)

Lectures and seminar instruction in business theory as it applies to the establishment, direction, and management of a modern dental practice. Alternatives for purchasing, equipping, and marketing of the practice; principles of accounting, personnel management, and quality assurance.

5930. HENNEPIN COUNTY MEDICAL CENTER CLINICAL ORAL AND MAXILLOFACIAL SURGERY. (891151) (Cr ar; S-N only)

Clinical experience in oral and maxillofacial surgery including simple and surgical extraction, management of odontogenic infections, repair of oral lacerations, and dental trauma, assisting in management of maxillofacial trauma, and orthognathic procedures.

5935. HENNEPIN COUNTY MEDICAL CENTER CLINICAL HOSPITAL DENTISTRY I. (691152) (10 cr; S-N only)

Clinical dentistry practiced in the hospital setting. Dental management of medically compromised patients, general dental treatment for patients in the O.R. under general anesthesia, and general dentistry with I.V. sedation. Rotations in general anesthesia, internal medicine, and pediatric dentistry, and experience in diagnosis and management of temporomandibular joint pain.

5936. HENNEPIN COUNTY MEDICAL CENTER CLINICAL HOSPITAL DENTISTRY II. (491153) (10 cr; S-N only)

See 5935.

5937. HENNEPIN COUNTY MEDICAL CENTER CLINICAL HOSPITAL DENTISTRY III. (291154) (10 cr; S-N only)

See 5935.

5945. GERIATRIC HOSPITAL DENTISTRY. (290862) (ar cr)
Rotations at the University of Minnesota Hospital Dental Clinic and/or the Minneapolis Veterans Administration Medical Center Dental Clinic.

Management of elderly patients in acute care settings. Dental management of patients compromised by medical therapies such as radiation treatment or chemotherapy, as well as patients with acute illness.

5950. ADVANCED GENERAL DENTISTRY SEMINAR I. (585733) (Cr ar; S-N only)

Clinical seminars with an emphasis on treatment planning, case presentation, techniques and materials, comprehensive oral health care and maintenance, and issues in practice management. Correlated with concurrent clinical experiences.

5955. ADVANCED GENERAL DENTISTRY CLINICAL ADMINISTRATION I. (191155) (Cr ar; S-N only)

Field experience in community dental clinic practice and administration.

64 Dentistry—Design, Housing and Apparel

5960. ADVANCED GENERAL DENTISTRY CLINIC I. (991156) (Cr ar; S-N only)

Comprehensive oral health care delivered in a variety of settings, with emphasis on complex restorative care, coordinating care with dental and medical specialists, special needs patients, and advanced techniques.

5964. ADVANCED GENERAL DENTISTRY CLINIC V. (791157) (Cr ar; S-N only)

Comprehensive oral health care delivered in a variety of settings, with emphasis on complex restorative care, coordinating care with dental and medical specialists, special needs patients, and advanced techniques.

5970. GENERAL PRACTICE SEMINAR I. (385278) (Cr ar)

A sequence of lectures, discussions, and seminars on topics, related to current dental practice. Correlated with clinical experiences.

5974. GENERAL PRACTICE CLINICAL ADMINISTRATION I. (591158) (Cr ar)

Field experience in hospital dental clinic administration for residents.

5980. GENERAL PRACTICE CLINIC I. (391159) (Cr ar)

A series of planned experiences in the clinical disciplines of dentistry. Emphasis on patient care.

5984. GENERAL PRACTICE CLINIC V. (791160) (Cr ar)

A series of planned experiences in the clinical disciplines of dentistry. Emphasis on patient care.

SECOND TERM

5054. DENTAL AUXILIARY UTILIZATION CLINIC (DAU I, II). (391243) (2 cr total; prereq 5053; S-N only)

See First Term.

5070. HEALTH ECOLOGY ELECTIVE. (687554) (ar cr)

See First Term.

5075. SPECIAL TOPICS IN DENTAL ASSOCIATESHIPS. (487555) (Cr ar; elective)

See First Term.

5460. PERIODONTOLOGY: INDEPENDENT STUDY. (685058) (Cr ar)

See First Term.

5602. BIOMATERIALS: INDEPENDENT STUDY. (185055) (Cr ar)

See First Term.

5900. DENTAL CLINIC. (191244) (Cr ar)

See First Term.

5938. HENNEPIN COUNTY MEDICAL CENTER CLINICAL HOSPITAL DENTISTRY IV. (091245) (5 cr; S-N only)

See 5935, First and Second Term: Ten-Week Courses

5950. ADVANCED GENERAL DENTISTRY SEMINAR I. (491041) (ar cr; S-N only)

Clinical seminars with an emphasis on treatment planning, case presentation, techniques and materials, comprehensive oral health care and maintenance, and issues in practice management. Correlated with concurrent clinical experiences.

5960. ADVANCED GENERAL DENTISTRY CLINIC I. (891246) (ar cr; S-N only)

Comprehensive oral health care delivered in a variety of settings, with emphasis on complex restorative care, coordinating care with dental and medical specialists, special needs patients, and advanced techniques.

5989. ADVANCED CLINICAL GERIATRIC DENTISTRY. (691247) (Cr ar)

Practical clinical experience in examination, diagnosis, treatment planning, and treatment of older adult patients in the dental clinic at the Amherst H. Wilder Senior Health Center. Extensive case history reports reflecting the total social, psychological, and physical aspects of the patient as well as the oral health status prepared and presented.

5990. FIELD EXPERIENCE: ADMINISTRATION IN A MULTIDISCIPLINARY HEALTH CENTER. (090967)

See First Term.

5995. ADVANCED CLINICAL RESTORATIVE DENTISTRY. (189106) (Cr ar)

See First Term.

8129. TOPICS AND PROBLEMS IN DENTAL EDUCATION. (488270) (Cr ar; prereq #)

Independent study arranged for individual student to pursue advanced work in student learning, instructional development, curriculum planning, student testing and evaluation, and academic administration, where these areas and their interfaces are applied directly to professional dental education. Provides opportunity for applying and extending concepts learned in 8126, 8127, 8128.

8150. RESEARCH: RESTORATIVE DENTISTRY. (089107) (Cr ar)

See First Term.

8441. SEMINARS IN TMJ AND CRANIOFACIAL PAIN. (789019) (1 cr; prereq #; A-F only)

See First Term.

8442. ADVANCED CLINICAL TMJ AND CRANIOFACIAL PAIN. (491248) (1-4 cr; prereq #; A-F only)

See First Term.

8443. CURRENT LITERATURE IN TMJ AND CRANIOFACIAL PAIN. (989021) (1 cr; prereq #; A-F only)

See First Term.

8777. THESIS CREDITS: MASTERS. (489810) (1-16 cr [max 11 cr per summer term])

Dermatology (Derm)

4240 Phillips-Wangenstein Building.
625-8625
Medical School

FIRST TERM

8777. THESIS CREDITS: MASTERS. (389721) (1-16 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

5184. SPECIAL COURSE IN DERMATOLOGY. (286827) (Cr ar) Gentry

8225. CLINICAL DERMATOLOGY. (986829) (Cr ar) Lynch, Dahl, Gentry, others

Conference twice weekly on diagnosis and treatment of skin conditions.

8227. HISTOLOGY OF THE SKIN. (186831) (Cr ar; 1530-1630 WF; PWB 4-272) Kaye, Orkin, others

Includes histopathology, histochemistry, and fluorescence microscopy.

8228. RESEARCH: DERMATOLOGY AND RELATED BASIC SCIENCES. (986832) (Cr ar) Dahl, Hordinsky, Kalish

Zelickson, others

8230. FUNCTIONAL BIOLOGY OF THE SKIN. (586834) (Cr ar) Dahl, Lynch

8231. CLINICS IN DERMATOLOGY FOR NON-DERMATOLOGISTS. (386835) (Cr ar) Lynch, Gentry

8232. SEMINAR: DERMATOLOGIC HISTOPATHOLOGY AND MYCOLOGY. (186836) (Cr ar) Kaye, others

SECOND TERM

5182. PRECEPTORSHIP IN DERMATOLOGY. (189543) (Cr ar; prereq regis med)

8777. THESIS CREDITS: MASTERS. (189812) (1-16 cr [max 11 cr per summer term])

Design (Dsgn)

240 McNeal Hall, St. Paul. 624-9700
(Design, Housing, and Apparel)
College of Human Ecology

FIRST TERM

81525. DESIGN PROCESS: TWO DIMENSIONAL DESIGN. (189137) (4 cr; limited to 20 students; 0800-1130 MWF; McNH 258) Blade
Experiments with principles of two-dimensional design.

83584. FIELD EXPERIENCE IN DESIGN. (687473) (Cr ar [max 8 cr]; limited to 20 students; prereq 3571 or 13571, #, completion of min 60 credits in Category E, and plan to be submitted and approved in advance by adviser and employer; S-N only) Madson, M.
Supervised work experience with a professional, design studio, retail store, community service, museum, printing or publishing firm, or other appropriate organization. Evaluative report required.

85571. SPECIAL TOPICS IN APPLIED DESIGN: Color for Designed Environment—June 11-June 18. (691216) (2 cr; limited to 20 students; prereq 1528, Sr, Grad; 0900-1200, 1300-1600 MTWThF; McNH 262) Bagley, M., Koos, U.
Overview of environmental color usage.

5582. FIELD EXPERIENCE ABOARD—June 17-July 9. (291218) (6-8 cr; Gentry, D., Mason, Miami University)

An inter-university course with Miami University. Three week European study tour examining design of interiors, architecture, and decorative arts in relation to the culture in which it occurs. Important historic and contemporary sites and major museum collections in London, Paris, Luxembourg/Trier, Florence, and Venice. In each city, the study is structured around a specific focus through lectures by the faculty. These sessions are complemented by seminars, discussions, student participation, and presentations by museum personnel. Key artworks, interiors, and buildings will be examined individually as well as in the context of seminar topics.

SECOND TERM

81523. DESIGN PROCESS: VISUAL PRESENTATION. (191219) (4 cr; limited to 20 students; 0800-1130 MWF; McNH 333)
Development of basic drawing skills for the designer.

83525. DESIGN PROCESS: TWO DIMENSIONAL DESIGN II. (089138) (4 cr; prereq 1525 or equiv; limited to 20 students; 0800-1130 MWF, McNH 258)
Experiments with principles of two-dimensional design.

83528. DESIGN PROCESS: COLOR II. (491220) (4 cr; limited to 20 students; prereq 1523, 1528, or #; 0800-1130 MWF; McNH 262)
Continued study of color concepts and their application to design.

83584. FIELD EXPERIENCE IN DESIGN. (786542) (Cr ar [max 8 cr]; limited to 20 students; prereq 3571 or 13571, #, completion of min 60 credits in Category E, and plan to be submitted and approved in advance by adviser and employer) Madson, M.
See First Term.

Design, Housing, and Apparel (DHA)

240 McNeal Hall, St. Paul. 624-9700
College of Home Economics

FIRST TERM

8777. THESIS CREDITS: MASTERS. (889724) (1-16 cr [max 11 cr per summer term])
8888. THESIS CREDITS: DOCTORAL. (589877) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (789814) (1-16 cr [max 11 cr per summer term])
8888. THESIS CREDITS: DOCTORAL. (689966) (1-36 cr [max 11 cr per summer term])

E

East Asian Studies (EAS)

105 Folwell Hall. 624-0007
(East Asian Studies)
College of Liberal Arts

FIRST TERM

3468. PEOPLE'S REPUBLIC OF CHINA: THE COMMUNIST REVOLUTION, 1900 TO PRESENT. (889139) (4 cr, §Hist 3468, Hist 5468; 0915-1015 MTWThF; HHCtr 30) Farmer
Introduction to Marxism in China, rise of Communist Party, and development of rural guerilla movement. Career of Mao Tse-tung and developments in People's Republic; the Great Leap, Cultural Revolution, Gang of Four. Meets with Hist 3468 and Hist 5468.

3970. DIRECTED STUDIES. (388116) (1-15 cr; prereq #, Δ, □) Staff

5970. DIRECTED STUDIES. (990900) (1-15 cr; prereq #, Δ, CLA approval) Guided individual reading or study.

8777. THESIS CREDITS: MASTERS. (689725) (1-16 cr [max 11 cr per summer term])

SECOND TERM

3970. DIRECTED STUDIES. (188117) (1-15 cr; prereq #, Δ, □) Staff

5970. DIRECTED STUDIES. (791661) (1-15 cr; prereq #, Δ, CLA approval) Guided individual reading or study.

8777. THESIS CREDITS: MASTERS. (389816) (1-16 cr [max 11 cr per summer term])

Ecology, Evolution, and Behavior (EEB)

109 Zoology. 625-4466
College of Biological Science
(See also *Itasca Biology Program*, page 34.)

FIRST TERM

■3001. INTRODUCTION TO ECOLOGY. (4 cr; each rec limited to 20 students; open to jrs and above but not biology majors; lect 0915-1015 MWF; Zoology 102)

Basic concepts in ecology dealing with organization, development, and functioning of ecosystems; population growth and regulation. Human impact on such systems.

Rec 1, (290666) 0800-0900 TTh, Zoology 102
Rec 2, (190667) 0915-1015 TTh, Zoology 102

■5834. FIELD ORNITHOLOGY. (990668) (5 cr; limited to 15 students; prereq course in general biology including study of zoology, Δ; 0800-1700 MTh; offered at Itasca, see page 34)

5970. DIRECTED STUDIES. (790669) (Cr ar; prereq #, Δ) Staff

5990. DIRECTED RESEARCH. (190670) (Cr ar; prereq #, Δ) Staff
Laboratory or field investigation of selected areas of research.

8391. ADVANCED WORK IN ECOLOGY AND BEHAVIORAL BIOLOGY. (990671) (Cr ar; prereq #) Staff

8777. THESIS CREDITS: MASTERS. (790672) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (590673) (1-36 cr [max 11 cr per summer term])

SECOND TERM

■5817. VERTEBRATE ECOLOGY. (390674) (5 cr; limited to 15 students; prereq course in ecology, Δ; 0800-1700 TF; offered at Itasca, see page 34) Tester

5970. DIRECTED STUDIES. (190675) (Cr ar; prereq #, Δ) Staff

5990. DIRECTED RESEARCH. (090676) (Cr ar; prereq #, Δ) Staff
See First Term.

8391. ADVANCED WORK IN ECOLOGY AND BEHAVIORAL BIOLOGY. (890677) (Cr ar; prereq #) Staff

8777. THESIS CREDITS: MASTERS. (690678) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (490679) (1-36 cr [max 11 cr per summer term])

Workshops for teachers...

EDUCATIONAL POLICY AND ADMINISTRATION (EdPA)

- 5128 Workshop: Educational Administration
 - Sec 1, *Managing the At-Risk School*, (June 17-28)
 - Sec 2, *Outcome Based Education*, (June 17-28)
 - Sec 3, *Shared Decisionmaking in Schools*, (July 1-15)
 - Sec 4, *School Based Management*, (June 17-28)
- 5141 Critical Issues in Contemporary Education (June 17-July 12)
- 5128 Workshop: Educational Administration
 - Sec 1, *Managing the At-Risk School* (July 22-August 2)
 - Sec 2, *Surveys and Sampling for Educational Administrators* (July 22-August 8)
- 5214 School Management Information Systems (July 18-August 14)
- 5216 Recent Research in Elementary School Administration (July 18-August 1)

EDUCATIONAL PSYCHOLOGY (EPSY)

- 3131 Introduction to Human Relations (June 11 and July 1-12)
- 3606 Exceptional Students in Regular Classes (June 11-July 3)
- 5111 Psychology and Pedagogy of Reading (June 11-21)
- 5151 Structuring Learning: Social Psychological Approaches (June 12-28)
- 5200 Workshops for Educators
 - Sec 1, *Using Microcomputers to Design and Manage Classroom Assessment* (June 17-28)
 - Sec 2, *Higher Order Thinking Skills* (July 8-12)
- 5400 Workshop: Counseling Psychology:
 - Sec 1: *Clinical Supervision in Human Services* (June 14-16)
 - Sec 2: *Career Development for a New Age: Skills, Programs, Resources* (July 8-12)
- 5601 Education of Exceptional Children (June 11-July 3)
- 5606 Exceptional Students in Regular Classes (June 11-July 3)
- 5612 Education of Learning-Disabled Children (June 11-July 12)
- 5624 Biomedical Aspects of Physical Impairments (June 11-24)
- 5643 Language for Hearing-Impaired Children (July 8-12)
- 5656 Educational Needs of Students with Emotional Disturbances or Behavioral Disorders (June 11-25)
- 5657 Educational Interventions for Students with Emotional Disturbance or Behavioral Disorders (June 26-July 12)
- 5658 Crisis Intervention in School Programs for Emotionally Disturbed and Behavior Disordered Students (June 26-July 12)
- 5673 Methods of Teaching Visually Handicapped Children (June 18-26)
- 5676 Management of Low Vision (July 9-16)
- 5702 Workshop: Special Education
 - Sec 1, *Collaboration for Inclusion: Strategies for Educating Students with Disabilities in General Education* (July 8-12)
- 5710 Contemporary Services for Person with Development Disabilities (June 17-28)
- 3606 Exceptional Students in Regular Classes (July 18-August 9)
- 5114 Psychology of Student Learning (July 19-August 9)
- 5115 Adult Learning and Educational Practice (July 19-August 9)

Workshops for teachers...

- 5220 Educational Measurements in the Classroom (July 22-26)
- 5602 Application of Computer Technology to Special Education (August 5-August 16)
- 5606 Exceptional Students in Regular Classes (July 18-August 9)
- 5608 Parent and Professional Planning for Handicapped Students (July 18-August 2)
- 5609 Family-Professional Planning for Persons with Severe Handicaps (July 18-24)
- 5640 Psychosocial and Educational Aspects of Deafness (July 29-August 2)
- 5644 Language Programming for Children with Hearing Impairments (July 18-August 2)
- 5648 Modes of Communication for the Handicapped (July 22-26)
- 5700 Assessment and Decision Making in Special Education (July 18-August 16)

ELEMENTARY EDUCATION (Elem)

- 5100 Elementary School Curriculum (June 11-27)
- 5107 Diagnosis and Treatment of Learning Difficulties (June 11-26)
- 5140 Microcomputer Uses in Elementary Classrooms (June 12-July 12)
- 5145 Classroom Management (June 11-26)
- 5227 Teaching about the Newspaper in the Classroom (June 17-July 2)
- 5316 Teaching and Supervision of English in the Elementary Schools (June 11-26)
- 5318 Creative Writing for and by Children (June 11-26)
- 5338 Teaching Reading in the Intermediate Grades (June 27-July 15)
- 5339 Workshop: Curriculum Implementation in Elementary School Reading (June 28-July 16)
- 5350 Elementary School Science: Materials and Resources (June 17-July 2)
- 5101 Workshop: Programs and Procedures of Curricular Development: Multicultural Gender-Fair Curriculum (July 19-August 16)
- 5334 Reading Difficulties (July 18-August 2)

Economics (Econ)

1035 Management/Economics Building.
625-6353
College of Liberal Arts
See also Public Affairs

FIRST TERM**■1101. PRINCIPLES OF**

MICROECONOMICS. (4 cr, §1002, §1005, §1104; each section limited to 40 students; prereq plane geometry and intermediate algebra at GC 0623 and GC 0631 level)

Demand and supply; competition and monopoly; the distribution of income.

Sec 1, (889142) 0800-0900

MTWThF, AndH 230

Sec 2, (689143) 0915-1015

MTWThF, AndH 210

Sec 3, (489144) 1030-1130

MTWThF, AndH 270

Sec 4, (289145) 1145-1245

MTWThF, BlegH 115

Sec 5, (189146) 1300-1400

MTWThF, BlegH 115

■1102. PRINCIPLES OF

MACROECONOMICS. (4 cr, §1001, §1004, §1105; each section limited to 40 students; prereq 1101 or equiv, plane geometry and intermediate algebra at GC 0623 and GC 0631 level) National income; money and banking; business cycles; international trade.

Sec 1, (989147) 0800-0900

MTWThF, BlegH 415

Sec 2, (789148) 0915-1015

MTWThF, BlegH 415

Sec 3, (589149) 1030-1130

MTWThF, BlegH 10

■3101. MICROECONOMIC THEORY.

(985826) (4 cr; §3105; limited to 50 students; prereq 1101, 1102 or equiv, 1 qtr calculus; 1030-1130 MTWThF; BlegH 235)

Behavior of households, firms, and industries under competitive and monopolistic conditions; factors influencing production, price, and advertising decisions.

■3102. MACROECONOMIC THEORY.

(785827) (4 cr; limited to 45 students; prereq 3101 or equiv; 1145-1245 MTWThF; BlegH 205)

Determinants of national income, employment, and price level; aggregate consumption, investment, and government demand; the money market; the labor market.

■3103. WELFARE ECONOMICS.

(088815) (4 cr; limited to 50 students; prereq 3101 or equiv; 1030-1130 MTWThF; BlegH 130)

Economic efficiency and the conditions necessary to sustain it. Conflicts between efficiency and income distribution goals. How market structure and public policies increase or decrease efficiency.

■3105. MANAGERIAL ECONOMICS.

(185081) (4 cr, §3101, §BGS 3001; limited to 50 students; not open to economics majors; prereq 1101, 1102 or equiv, 1 qtr calculus; 0915-1015 MTWThF; BlegH 230)

Theory of the firm; managerial decision problems. Demand theory. Production technology and cost concepts. Pricing and output decisions. Investment behavior.

■3501. LABOR ECONOMICS.

(687361) (4 cr, §5531; limited to 50 students; not open to economics majors; prereq 1101, 1102 or equiv; 1030-1130 MTWThF; BlegH 150)

Smiler
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.

■3601. INDUSTRIAL**ORGANIZATION, AND ANTI-TRUST****POLICY.** (989150) (4 cr; §5631; limited to 30 students; not open to economics

majors; prereq 1101, 1102 or equiv; 0800-0900 MTWThF; BlegH 120)

Economic aspects of antitrust and related policies. Relations between market structure and economic efficiency and welfare. Economic origins of monopoly and other restraints on competition. Purposes and effects of antitrust and related legislation. Meets with 5631.

■3701. MONEY AND BANKING.

(985194) (4 cr, §5701, §5721; limited to 100 students; prereq 1101, 1102 or equiv; not open to economics majors; 1145-1245 MTWThF, AndH 230)

Historical development, present characteristics, and economic role of financial institutions. Commercial banking, the Federal Reserve system, and monetary policy.

■3751. FINANCIAL ECONOMICS I.

(285659) (4 cr; limited to 50 students; prereq 3101 or 3105 or equiv, 1 qtr statistics, 1 qtr calculus; 1030-1130

MTWThF; AndH 330) Werner
Financial decisions of firms and investors. Determination of interest rates and asset prices. The role of risk and uncertainty. Emphasis on economic models rather than the details of financial institutions.

3951. MAJOR PROJECT SEMINAR.

(791367) (2 cr; prereq 3101, 3102, 3103 or equiv)

3970. DIRECTED STUDIES. (585828)

(Cr ar; prereq #, Δ, □)
Guided individual reading or study in areas not available in regular course offerings.

■5301. ECONOMIC DEVELOPMENT.

(385829) (4 cr, §5331; limited to 35 students; prereq 1101, 1102 or equiv; not open to economics majors;

1145-1245 MTWThF; BlegH 155) Smith
Economic growth in low income countries. Theory of aggregate and per capita income growth. 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.

(785830) (4 cr, §5301; limited to 25 students; prereq 3101, 3102 or equiv; 1145-1245 MTWThF; BlegH 155) Smith
See 5301. Meets with 5301.

5401. INTERNATIONAL ECONOMICS. (585831) (4 cr, \$5429, \$5431, \$5432; limited to 50 students; not open to economics majors; prereq 1101, 1102 or equiv; 1030-1130 MTWThF; BlegH 155) Smith
 Explanations of trade patterns. Commercial policy and international capital movements. Balancing international receipts and payments, the role of exchange rates, international monetary reform.

5631. INDUSTRIAL ORGANIZATION AND ANTITRUST POLICY. (789151) (4 cr, \$3601; limited to 30 students; prereq 3101, 3103 or equiv; 0800-0900 MTWThF; BlegH 120)
 See 3601. Meets with 3601.

5721. MONEY AND BANKING. (385832) (4 cr, \$3701, \$5701; limited to 50 students; prereq 3101, 3102 or equiv; 0915-1015 MTWThF; BlegH 120)
 Historical development, present characteristics, and economic role of financial institutions. Commercial banking, the Federal Reserve system, and monetary policy.

5831. COST-BENEFIT ANALYSIS. (487362) (4 cr; limited to 50 students; prereq 3101, 3103 or equiv; 0800-0900 MTWThF; BlegH 155)
 Principles for evaluation of benefits and costs of public projects or programs. Definition and measurement of benefits and costs. Rate of return and rate of discount. Treatment of market imperfections, risk, and uncertainty.

5970. DIRECTED STUDIES. (185833) (Cr ar; prereq #, Δ, CLA approval) Staff
 Guided individual reading or study in areas not available in regular course offerings.

8777. THESIS CREDITS: MASTERS. (189728) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (389878) (1-36 cr [max 11 cr per summer term])

8990. INDIVIDUAL RESEARCH. (085834) (Cr ar) Staff

SECOND TERM

1101. PRINCIPLES OF MICROECONOMICS. (4 cr; \$1002, \$1005, \$1104; each section limited to 40 students; prereq plane geometry and intermediate algebra at GC 0623 and GC 0631 level)
 See First Term.

Sec 1, (089155) 0915-1015 MTWThF, BlegH 135
 Sec 2, (889156) 1030-1130 MTWThF, BlegH 215
 Sec 3, (689157) 1145-1245 MTWThF, BlegH 130

1102. PRINCIPLES OF MACROECONOMICS. (4 cr; \$1001, \$1004, \$1105; each section limited to 40 students; prereq 1101 or equiv, plane geometry and intermediate algebra at GC 0623 and GC 0631 level)
 See First Term.

Sec 1, (489158) 0800-0900 MTWThF, BlegH 105
 Sec 2, (289159) 0915-1015 MTWThF, BlegH 115
 Sec 3, (689160) 1030-1130 MTWThF, HHCtr 25
 Sec 4, (489161) 1145-1245 MTWThF, BlegH 135

3101. MICROECONOMIC THEORY. (4 cr; \$3105; limited to 50 students; prereq 1101, 1102 or equiv, 1 qtr calc)
 See First Term. See Special Term for Section 2.

Sec 1, (486986) 0915-1015 MTWThF, BlegH 215

3102. MACROECONOMIC THEORY. (286990) (4 cr; limited to 50 students; prereq 3101 or equiv; 1145-1245 MTWThF; BlegH 205)
 See First Term.

3103. WELFARE ECONOMICS. (986992) (4 cr; limited to 40 students; prereq 3101 or equiv; 0915-1015 MTWThF; AndH 270) Coen
 See First Term.

3701. MONEY AND BANKING. (786993) (4 cr, \$5701, \$5721; limited to 100 students; prereq 1101, 1102 or equiv; not open to economics majors; 0915-1015 MTWThF; AndH 350)
 See First Term.

3751. FINANCIAL ECONOMICS I. (391369) (4 cr; limited to 50 students; prereq 3101 or 3105 or equiv, 1 qtr Statistics, 1 qtr Calculus; 1030-1130 MTWThF; BlegH 230)
 See First Term.

3801. ELEMENTS OF PUBLIC FINANCE. (287363) (4 cr, \$5821; limited to 30 students; prereq 1101, 1102 or equiv; not open to Economics majors; 0915-1015 MTWThF; AndH 370)

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.

3951. MAJOR PROJECT SEMINAR. (591368) (2 cr; prereq 3101, 3102, 3103 or equiv)

3970. DIRECTED STUDIES. (586994) (Cr ar; prereq #, Δ, □)
 See First Term.

5307. COMPARATIVE ECONOMIC SYSTEMS. (888119) (4 cr, \$5337; limited to 35 students; prereq 1101, 1102 or equiv; not open to Economics majors; 1030-1130 MTWThF; BlegH 120) Smith
 Functions of economic systems; market economy, liberal socialism, centrally planned economy. American and Soviet economies. Meets with 5337.

5337. COMPARATIVE ECONOMIC SYSTEMS. (188120) (4 cr, \$5307; limited to 25 students; prereq 3101, 3102 or equiv; 1030-1130 MTWThF; BlegH 120) Smith
 See 5307. Meets with 5307.

5401. INTERNATIONAL ECONOMICS. (088118) (4 cr, \$5429, \$5431, \$5432; limited to 50 students; not open to economics majors; prereq 1101, 1102 or equiv; 1145-1245 MTWThF; BlegH 110) Smith
 See First Term.

5431. INTERNATIONAL TRADE. (685660) (4 cr; \$5401, \$5429; limited to 50 students; prereq 3101, 3102, 3103 or equiv; 1145-1245 MTWThF; BlegH 215)
 Explanations of trade patterns. Commercial policy and international capital movements.

5821. ELEMENTS OF PUBLIC FINANCE. (187364) (4 cr, \$3801; limited to 30 students; prereq 3101, 3103 or equiv; 0915-1015 MTWThF; AndH 370)
 See 3801. Meets with 3801.

5970. DIRECTED STUDIES. (186996) (Cr ar; prereq #, Δ, CLA approval) Staff
 See First Term.

8777. THESIS CREDITS: MASTERS. (189820) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189969) (1-36 cr [max 11 cr per summer term])

8990. INDIVIDUAL RESEARCH. (086997) (Cr ar) Staff

SPECIAL TERM: AUGUST 12-SEPTEMBER 13

3101. MICROECONOMIC THEORY. Sec 5, (986989) 4 cr, \$3105; limited to 45 students; prereq 1101, 1102 or equiv, 1 qtr calculus, Humphrey Institute Students only; 0915-1015 MTWThF; HHCtr 25, Kudrle
 Microeconomics with a public policy emphasis. For incoming graduate students in public affairs. Course is a prerequisite to the school's core sequence in policy and analysis.

Education (Educ)

FIRST TERM

8888. THESIS CREDITS: DOCTORAL. (1-36 cr [max 11 cr per summer term])
 Sec 1, (291221) Higher Education
 Sec 2, (191222) Curriculum and Instruction
 Sec 3, (991223) Vocational Education
 Sec 4, (791224) Recreation, Park, and Leisure Studies
 Sec 5, (591225) Social and Philosophical Foundations of Education

SECOND TERM

8888. THESIS CREDITS: DOCTORAL. (1-36 cr [max 11 cr per summer term])
 Sec 1, (391226) Higher Education
 Sec 2, (191227) Curriculum and Instruction
 Sec 3, (091228) Vocational Education
 Sec 4, (891229) Recreation, Park, and Leisure Studies
 Sec 5, (191230) Social and Philosophical Foundations of Education

Educational Administration (EdAd)

275 Peik Hall, 624-1006
 (Educational Policy and Administration)
 College of Education
 Also see EdPA

FIRST TERM

8777. THESIS CREDITS: MASTERS. (289730) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589880) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (089821) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (489970) (1-36 cr [max 11 cr per summer term])

Educational Policy and Administration (EdPA)

275 Peik Hall, 624-1006
 (Educational Policy and Administration)
 College of Education

FIRST TERM

5090. SCHOOL AND SOCIETY. (191406) (3 cr, \$SPFE 3090, \$SPFE 5090; limited to 45 students; prereq sr or post-BA in education; 0800-0900 MTWThF; PeikH 28; A-F only) Harkins
 Readings in social science and philosophy integrating views of the role of the school in a changing American society.

5099. DIRECTED STUDY. (Cr and hrs ar [max 9 cr]; prereq #; S-N optional)
 Individual or group work on topics or problems in social and philosophical foundations of education.

Sec 21, (091407) Harkins
 Sec 22, (891408) Louis
 Sec 23, (691409) Turner

5128. WORKSHOP: EDUCATIONAL ADMINISTRATION. (1-6 cr; S-N optional)

Laboratory approach provides opportunities for experienced administrators to concentrate their study on common administrative and supervisory problems. See page 68.

Sec 1, Managing the At-Risk School—June 17-28. (691412) 3 cr, 0915-1215 MTWThF, PeikH 28, limited to 30 students, Ammentorp
Sec 2, Outcome Based Education—June 17-28. (091410) 3 cr, 1300-1530 MTWThF, ClaOff B36, King
Sec 3, Shared Decisionmaking in Schools—July 1-15. (891411) 3 cr, 0900-1200 MTWThF, PeikH 28, Louis/Bruning
Sec 4, School-Based Management—June 17-28. (491413) 3 cr, 1300-1530 MTWThF, PeikH 28, Nickerson

5141. CRITICAL ISSUES IN CONTEMPORARY EDUCATION—June 17-July 12. (291414) (3 cr; \$SPFE 5141; 0900-1130 MWF; BioSci 6; S-N optional) King
 Introduces ideas involved in current theory and practice.

Educational Policy and Administration special seminars and topics courses

Leadership Development Seminar—

Applicants for admission to degree programs in educational administration are encouraged to participate in a second term seminar requiring a combined registration in both EdPA 5130 and EdPA 5139. Assessment and counseling, skill development, and contemporary issues in the field are topics of this seminar. See course listings for registration requirements. Advance application is required. Inquiries should be addressed to the Department of Educational Policy and Administration, 275 Peik Hall, University of Minnesota, 159 Pillsbury Drive S.E., Minneapolis, MN 55455-0208.

Special Topics Offerings—Each summer the Department of Educational Policy and Administration offers coursework focusing on contemporary issues, innovations, and skills. These special offerings for 1991 include:

- **The Saturn School and Institute** (EdPA 5099, 3 credits, second summer term);
- **Managing the At-Risk School** (EdPA 5128, 3 credits, first and second summer term);
- **Shared Decisionmaking in Schools** (EdPA 5128, 3 credits, first summer term);
- **School-Based Management** (EdPA 5128, 3 credits, first summer term);
- **Outcome-Based Education** (EdPA 5128, 3 credits, first summer term);
- **Surveys and Sampling for Educational Administrators** (EdPA 5128, 3 credits, second summer term) and;
- **Minorities in Higher Education** (EdPA 5142, 3 credits, first summer term).

Times and locations for the above are contained in the course listings under the designator EdPA.

#5142. MINORITIES IN HIGHER EDUCATION. (191415) (3 cr; limited to 20 students; 1000-1145 MWF; EdHAN 64; A-F only) Turner
Explores access and equity issues related to the participation of minority populations in American institutions of higher education. Emphasis on analysis of educational status of minority students and faculty in two- and four-year colleges as presented in research literature.

5201. FORMAL ORGANIZATIONS IN EDUCATION. (085476) (3 cr; §EdAd 5201 and EdAd 8201; 1300-1445 MWF; PeikH 46; S-N optional) Turner
Classical and current theories of organizational behavior and administration. Special topics include leadership and control, communication, conflict, the effects of educational environments, organizational design and change, and organizational effectiveness.

5204. FINANCING ELEMENTARY AND SECONDARY SCHOOLS. (991416) (3 cr, §EdAd 5210, §EdAd 8210; 0800-1000 MWF; PeikH 31; S-N optional) 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.

5209. EDUCATION IN FUTURE SOCIAL SYSTEMS. (791417) (3 cr, §SPFE 5209, §SPFE 5212; 0915-1015 MTWThF; PeikH 25; S-N optional) Harkins
Interdisciplinary inquiry into problems of social specialization and generalization; projections and analysis of long-range (30 years or more) social and technological trends related to education.

5215. THE ELEMENTARY SCHOOL PRINCIPALSHIP. (591418) (3 cr, §EdAd 5215, §EdAd 8215; 1300-1600 MW; PeikH 48; S-N optional) Alkire
Problems in elementary school administration and the principal's role of leadership.

5227. PUBLIC SCHOOL PERSONNEL PROGRAMS. (391419) (3 cr, §EdAd 5227, §EdAd 8227; 0915-1145 TTh; EdHAN 64; S-N optional) Alkire
Selection assignment, evaluation, and development of school personnel; salary and conditions of service; policies of administrative, instructional and noninstructional personnel.

5250. AMERICAN HIGHER EDUCATION. (791420) (4 cr, §Educ 5250, §EdAd 5250, §HiEd 5250; 0900-1200 MW; PeikH 48; S-N optional) Staff
American higher and postsecondary education in historical and contemporary perspective; special emphasis on the societal and political demands on the higher education system and consequent changes in its various forms and functions.

8228. PROBLEMS: HIGHER EDUCATION. (Cr and hrs ar, §EdAd 8228, §HiEd 8228; prereq #)
Selected topics on college programs, instruction, organization, and administration.

Sec 21, (591421) Ammentorp
Sec 22, (391422) Louis
Sec 23, (191423) Turner

8238. SEMINAR: THEORY AND RESEARCH. (091424) (3 cr, §EdAd 8238; prereq educational administration major or #; 1030-1230 MWF; PeikH 31) Mueller
Research design involving thesis or field project; includes interrelatedness of formulation of conceptual framework and the analytical process; clinical and research problems.

8261. PROBLEMS: HISTORY AND PHILOSOPHY OF EDUCATION. (Cr and hrs ar; §SPFE 8241; prereq #)
For graduate students interested in research and original work in these areas.

Sec 21, (691426) Harkins
Sec 22, (491427) Louis
Sec 23, (291428) Turner

8270. PROBLEMS: ELEMENTARY SCHOOL ADMINISTRATION. (191429) (Cr and hrs ar; §EdAd 8270; prereq #) Alkire

8271. PROBLEMS: SECONDARY SCHOOL ADMINISTRATION. (491430) (Cr and hrs ar; §EdAd 8271; prereq #) Nickerson

8272. PROBLEMS: EDUCATIONAL ADMINISTRATION. (1-3 cr per term, hrs ar, §EdAd 8272)
For superintendents and principals qualified to make intensive studies of a school system.

Sec 21, (291431) Alkire
Sec 26, (191432) Mueller
Sec 27, (991433) Nickerson
Sec 31, (791434) Ammentorp
Sec 32, (591435) Turner
Sec 33, (391436) Louis
Sec 34, (191437) King

8273. FIELD STUDY. (0-10 cr, hrs ar, §EdAd 8273; prereq #)
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, (091438) Alkire
Sec 26, (891439) Mueller
Sec 27, (191440) Nickerson
Sec 31, (091441) Ammentorp
Sec 32, (891442) Turner
Sec 33, (691443) Louis
Sec 34, (491444) King

SECOND TERM

#5090. SCHOOL AND SOCIETY. (291445) (3 cr, §SPFE 3090, §SPFE 5090; limited to 45 students; prereq sr or post-BA in education; 0800-0900 MTWThF; PeikH 28; A-F only) Harkins
See First Term

5099. DIRECTED STUDY. (Cr and hrs ar, max 9 cr; prereq #; S-N optional)
See First Term.

Sec 1, The Saturn School and Institute. (191446) 3 cr, 1100-1200 MTWThF, PeikH 31, Harkins
Sec 2, (991447) Harkins

5128. WORKSHOP: EDUCATIONAL ADMINISTRATION. (1-6 cr; S-N optional)
See First Term.

Sec 1, Managing the At-Risk School—July 22-August 2. (591449) 3 cr, 0915-1215 MTWThF, St Cen 110, limited to 30 students, Ammentorp
Sec 2, Surveys and Sampling for Educational Administrators—July 22-August 8. (791448) 3 cr, 1000-1230 MTWTh, EdHAN 62, Hendrix

#5130. LEADERSHIP DEVELOPMENT SEMINAR. (991450) (3 cr, §EdAd 5130; limited to 25 students; 1000-1500 MTWThF; KaufL 302; S-N optional) Nickerson
Assessment and development of skills required of the educator in areas of planning, decision making, and human relations; introduction to contemporary issues in educational administration. Participants register concurrently for 3 credits in EdPA 5130 and EdPA 5139. Advance application required by July 15, 1991.

#5139. LABORATORY IN DECISION MAKING. (791451) (3 cr, §EdAd 5139; limited to 25 students; 1000-1500 MTWThF; KaufL 302; S-N optional) 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 register concurrently for 3 credits in EdPA 5130 and EdPA 5139. Advance application required by July 15, 1991.

5212. SCHOOL BUDGETING. (591452) (3 cr, §EdAd 5212, §EdAd 8212; 1300-1530 MW; PeikH 48; S-N optional) 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.

5213. FINANCIAL RESOURCE MANAGEMENT. (391453) (3 cr, §EdAd 5213, §EdAd 8213; 1300-1530 TTh; PeikH 48; S-N optional) Sederberg
Concepts and skills involved in the management of financial resources in public schools; performance exercises related to public school accounting systems, purchasing, the controller function, and reporting and interpreting school financial data.

5214. SCHOOL MANAGEMENT INFORMATION SYSTEMS—July 18-August 14. (191454) (3 cr, \$EdAd 5214, \$EdAd 8214; 0800-0915 MTWThF; EdHAN 62; S-N optional) Hendrix
Basic techniques required to generate, maintain, and make accessible the computer-based management information system in education.

5216. RECENT RESEARCH IN ELEMENTARY SCHOOL ADMINISTRATION—July 18-August 1. (091455) (3 cr, \$EdAd 5216, \$EdAd 8216; prereq 5215 or EdAd 5215; 1300-1600 MTWTh; PeikH 46; S-N optional) Alkire
Pertinent research literature.

8228. PROBLEMS: HIGHER EDUCATION. (891456) (Cr and hrs ar, \$EdAd 8228, \$HiEd 8228; prereq #) Ammentorp
See First Term.

8261. PROBLEMS: HISTORY AND PHILOSOPHY OF EDUCATION. (691457) (Cr and hrs ar, \$SPFE 8241; prereq #) Harkins
See First Term.

8270. PROBLEMS: ELEMENTARY SCHOOL ADMINISTRATION. (491458) (Cr and hrs ar, \$EdAd 8270; prereq #) Alkire

8271. PROBLEMS: SECONDARY SCHOOL ADMINISTRATION. (291459) (Cr and hrs ar, \$EdAd 8271; prereq #) Nickerson

8272. PROBLEMS: EDUCATIONAL ADMINISTRATION. (1-3 cr per qtr, hrs ar, \$EdAd 8272)
See First Term.

- Sec 21, (691460) Alkire
- Sec 22, (491461) Hendrix
- Sec 27, (291462) Nickerson
- Sec 28, (191463) Sederberg
- Sec 31, (991464) Ammentorp

8273. FIELD STUDY. (0-10 cr, hrs ar, EdAd 8273; prereq #)
See First Term.

- Sec 21, (791465) Alkire
- Sec 22, (591466) Hendrix
- Sec 27, (391467) Nickerson
- Sec 28, (191468) Sederberg
- Sec 31, (091469) Ammentorp

Educational Psychology (EPsy)

204 Burton Hall. 624-3543
College of Education

FIRST TERM

3131. INTRODUCTION TO HUMAN RELATIONS. (487278) (3 cr, \$PsyF 3380; limited to 30 students; prereq education sr. or Post BA; 0800-1100 June 11 and 0800-1100 MTWThF July 1-12; Arch 45; S-N only)
Based on small-group training theory and methods; designed to help the student develop an understanding of own behavior, the behavior of others, and group and organizational behavior.

3606. EXCEPTIONAL STUDENTS IN REGULAR CLASSES—June 11-July 3. (287279) (2 cr, \$5606, \$PsyS 3106, \$PsyS 5106; 1300-1400 MTWThF; BuH 120; A-F only)

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 5606.

5111. PSYCHOLOGY AND PEDAGOGY OF READING—June 11, 13, 17, 19, 21. (886595) (3 cr; limited to 30 students; \$PsyF 5148; 0915-1600; BioSci 12; A-F only) Samuels
Physiological, psychological, and linguistic factors influencing beginning and fluent reading; implications for instruction.

5114. PSYCHOLOGY OF STUDENT LEARNING. (687280) (3 cr; limited to 40 students; \$PsyF 5182; 0800-0900 MTWThF; BuH 123 A-F only) Van den Broek
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.

5130. PERSONALITY AND SOCIAL DEVELOPMENT. (287282) (3 cr; \$PsyF 5162; prereq 5 cr introductory psychology; 1030-1145 MTWTh; PeikH 225 A-F only)
Major concepts and research findings in adjustment and development with special emphasis on educational implications.

5135. WORKSHOP IN HUMAN RELATIONS. (187283) (6 cr, \$PsyF 5305; limited to 25 students; 0800-1300 June 11 and 0800-1300 MTWThF July 1-12; Arch 30; S-N only) Maruyama
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.

5151. STRUCTURING LEARNING: SOCIAL PSYCHOLOGICAL APPROACHES. (285550) (3 cr; \$PsyF 5172; limited to 30 students; June 12-28; 1300-1600 MTWTh and 1300-1500, July 12; BuH 123, and hrs ar off campus; A-F only)
How to use cooperation, competition, and individualization to affect learning climate and cognitive and affective outcomes of instruction.

5200. SPECIAL TOPICS: PSYCHOLOGICAL FOUNDATIONS. (3 cr; section 1 limited to 20 students, section 2 limited to 30 students)

Sec. 1, Using Microcomputers to Design and Manage Classroom Assessment, June 17-28. (291543) 1300-1600 MTWThF VoTech 240, Anderson
Hands-on use of microcomputer software for purposes of generating classroom tests, scoring and analyzing test results, and assigning grades.

Sec. 2, Higher Order Thinking Skills: A Workshop for Educators, July 8-12. (191544) 0800-1500 MTWThF; FolH 148 Bart, Orton
Conceptions and development of higher order thinking skills; implications and educational practices and psychological research.

Educational Psychology Workshops

Educational Measurement in the Classroom—(EPsy 5220, July 22-26). This workshop will focus on rationales for developing classroom tests, techniques for writing and scoring items, methods for analyzing test results, and procedures for combining a variety of assessment data for purposes of grade assignment. Large group sessions in the mornings will be followed by small group activities in the afternoons. The workshop is designed for teachers at both the secondary and postsecondary levels. For information contact Professor James S. Terwilliger, 319 Burton Hall, University of Minnesota, 178 Pillsbury Drive S.E., Minneapolis, MN 55455, or call 612/624-1643.

Clinical Supervision in Human Services—(EPsy 5400 Sec 1, June 14-16). This workshop is designed for individuals in human services fields who provide clinical supervision. The workshop will include theory, research, and techniques of supervision through lecture, instructor demonstrations, videotapes of critical incidents in supervision, discussion, and small group interaction. Participants will be encouraged to articulate and refine philosophy of supervision that integrates theory, research, and personal experience. For information, contact Professor Patricia McCarthy, 612/624-3580, or Professor Thomas Skovholt, 612/625-3573, 129 Burton Hall, University of Minnesota, 178 Pillsbury Drive S.E., Minneapolis, MN 55455.

Career Development for a New Age: Skills, Programs, Resources—(EPsy 5400, Section 2, July 8-12, Project due July 19). Intensive one week renewal workshop focuses on new knowledge and skills for creating career development programs and providing career counseling for students and clients in a variety of educational, industrial, and community settings. It relates societal trends to new knowledge in the field of career development and counseling. It deals with career issues such as transitions, job loss, and chemical abuse; presents a holistic concept of career, including work-family linkages, changing gender roles, multicultural issues, and work and spirituality. Designed for educators (teams of teachers, counselors, and administrators encouraged), academic advisers, human resource development personnel, trainers, career specialists, youth workers, and other human services staff. For information contact Professor L. Sunny Hansen, 139B Burton Hall, University of Minnesota, 178 Pillsbury Drive S.E., Minneapolis, MN 55455, or call 612/624-4885.

Psychology and Pedagogy of Reading—(EPsy 5111, June 11, 13, 17, 19 and 21). This course will cover the physiological, psychological, and linguistic factors influencing beginning and fluent reading; implications for instruction. For further information contact Professor Jay Samuels, 178 Pillsbury Drive SE, 178 Pillsbury Drive SE, Minneapolis, MN 55455, or call 612/625-5586.

Psychology of Student Learning—(EPsy 5114 will be offered both terms—during Summer Session I on a traditional 5-week schedule and during Summer Session II as a 3-week workshop July 19-Aug. 9). This course will include: 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. For further information regarding the Summer Session I offering, contact Professor Paul van den Broek, 178 Pillsbury Drive SE, Minneapolis, MN 55455, or call 612/626-1302. For information regarding the Summer Session II offering, contact Professor Robert Tennyson, 178 Pillsbury Drive SE, Minneapolis, MN 55455, or call 612/626-1618.

Using Microcomputers to Design and Manage Classroom Assessment—(EPsy 5200, Sec. 1, July 17-28). The major emphasis of the workshop is to assist teachers in acquiring practical skills through hands-on experience with microcomputer software. The workshop will offer participants an opportunity to: (1) create a personal (subject matter specific) item bank employing a variety of teacher-made test item formats; (2) generate teacher-made tests using item banks available through commercial software; (3) score responses to teacher-made tests and perform appropriate statistical analyses; (4) create performance records on a hypothetical class of students and assign grades to each student using the computer. For information contact Professor Douglas Anderson, 331 Burton Hall, University of Minnesota, 178 Pillsbury Drive SE, Minneapolis, MN 55455, or call 612/624-2851.

Higher Order Thinking Skills: A Workshop for Educators—(EPsy 5200, Sec. 2, July 8-12). This workshop is designed for educators who want to study the theory and application of principles related to higher order thinking skills and the promotion of these skills in education. This workshop will be especially useful for elementary and secondary school teachers in mathematics and science and will offer participants opportunities to develop exercises that implement higher order thinking skills. A theoretical and applied focus on the promotion of higher order thinking skills will be presented. For information contact Professor William Bart, 211 Burton Hall, University of Minnesota, 178 Pillsbury Drive SE, Minneapolis, MN 55455, or call 612/624-0585.

5240. PRINCIPLES AND METHODS OF EVALUATION. (686596) (3 cr; \$PsyF 5125 limited to 30 students; 0800-0900 MTWThF; BuH 125; S-N optional)

Introductory course in program evaluation; theory; practical examples; purpose, roles, program descriptions, and evaluation strategies.

5260. INTRODUCTORY STATISTICAL METHODS. (4 cr; \$PsyF 5110; each section limited to 40 students; S-N optional)

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, (087289) 0800-0900 MTWThF, EltH N647, Bart
Sec 2, (387290) 0915-1015 MTWThF, EltH N647, ar

5400. WORKSHOP: COUNSELING PSYCHOLOGY. (1-6 cr (max 12 cr)) For all counselors, teachers, and administrators; aspects of intervention theory in relation to psychological principles; counseling, career development, assessment, psychological education, and consultation.

Sec 1, Clinical Supervision in Human Services—June 14-16. (086594) (3 cr; limited to 30 students; 1300-2100 F, 0915-1630 SaSu, EltH N647, A-F only) McCarthy, Skovholt

Designed for individuals in human services fields who provide clinical supervision, this workshop will include theory, research, and techniques of supervision through lecture, instructor demonstrations, videotapes of critical incidents in supervision, discussion, and small group interactions.

Sec. 2, Career Development for a New Age: Skills, Programs, and Resources—July 8-12. (390173) (3 cr; limited to 25 students; 0800-1630 MTWTh, 0800-1245 F, EltH N639, A-F only)

Examines societal changes affecting the field of career development and counseling using emerging knowledge and paradigms; emphasized career development programs, K-adult, and change process skills in the context of an integrative concept of career. Teams of teachers, counselors, and administrators from one setting are encouraged. All participants will develop an applied project for their own present or future work site.

5601. EDUCATION OF EXCEPTIONAL CHILDREN. (087292) (4 cr; \$PsyS 5101; 0800-0900 MTWThF; ChDev 218; A-F only)

Introduction to field of special education for classroom teachers and other school personnel.

5606. EXCEPTIONAL STUDENTS IN REGULAR CLASSES—June 11-July 3. (887293) (2 cr; \$3606, \$PsyS 3106, \$PsyS 5106; 1300-1400 MTWThF; BuH 120; A-F only)

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 3606.

5612. EDUCATION OF LEARNING-DISABLED CHILDREN—June 11-July 12. (691474) (3 cr; limited to 30 students; PsyS 5112; 1030-1130 MTWThF; BuH 123; A-F only)

Analysis of considerations in design and conduct of services for learning-disabled children; approaches to education of such children.

5624. BIOMEDICAL ASPECTS OF PHYSICAL IMPAIRMENTS—June 11-June 24. (491475) (3 cr; PsyS 5124; 1030-1230 MTWThF; Arch 40; A-F only)

Selected information in genetics; anatomy, physiology, and kinesiology; central and peripheral nervous system; prenatal, perinatal, and postnatal development; physically disabling conditions; and management and educational procedures.

5643. LANGUAGE FOR HEARING-IMPAIRED CHILDREN—July 8-July 12. (191477) (4 cr; PsyS 5140; 0900-1600 MTWThF; MN State Academy for the Deaf; A-F only) McAnally

Functional language development in communicatively handicapped persons; overview of language curricula and programming strategies, pertinent research and models of instruction for use in educational environment.

5656. EDUCATIONAL NEEDS OF STUDENTS WITH EMOTIONAL DISTURBANCES OR BEHAVIORAL DISORDERS—June 11-25. (290179) (3 cr; limited to 30 students; 0800-1000 MTWThF; BuH 120; A-F only) Wood

Preparation for specialists: educational characteristics, educational interventions, teaching of social behavior, legal and ethical issues.

5657. EDUCATIONAL INTERVENTIONS FOR STUDENTS WITH EMOTIONAL DISTURBANCE OR BEHAVIORAL DISORDERS—June 26-July 12. (690180) (3 cr; prereq 5656; limited to 30 students; 0800-1000 MTWThF; BuH 120; A-F only) Wood

Preparation for specialists: assessment and planning procedures, interagency cooperation, career preparation and transition for EBD students.

5658. CRISIS INTERVENTION IN SCHOOL PROGRAMS FOR EMOTIONALLY DISTURBED AND BEHAVIOR DISORDERED STUDENTS—June 26-July 12. (191950) (3 cr; limited to 30 students; prereq 5656 and 5657 or equiv; 1030-1230 MTWThF; Arch 40; A-F only) Wilderson

This course will concentrate on children and youth at the point of crisis in their

ability to manage their own school behavior and in their ability to use the ordinary support of teachers and other support personnel. Course is intended to help school based personnel to work with children and youth who may be experiencing internal and/or external conditions which place them at risk for self-destructive and/or acting-out verbal-physical behavior in school settings and at home.

5673. METHODS OF TEACHING VISUALLY HANDICAPPED CHILDREN—June 18-June 26. (991478) (4 cr; prereq 5670 or PsyS 5170; 0915-1345 MTWThF; Bemidji State University; A-F only) Knowlton

Principles of preparation, selection, and effective use of instructional materials; adaptation of school environment; utilization of family, school, and community resources.

5676. MANAGEMENT OF LOW VISION—July 9-16. (791479) (3 cr; prereq 5675 or #; 5170; 0915-1300 MTWThF; Bemidji State University; A-F only) Knowlton

Advanced course requiring competence in evaluation and use of low vision aids; evaluating and managing cognitive, psychosocial, and physical needs of students; consideration of parent, teacher, and student counseling.

5701. PRACTICUM: SPECIAL EDUCATION. (Cr ar, prereq #; S-N only)

Supervised experience in teaching or related work in schools or other agencies serving exceptional children.

Sec 1, (687294) Wilderson; off campus
Sec 2, (089060) off-campus
Sec 21, (487295) Knowlton; off-campus

5702. WORKSHOP: SPECIAL EDUCATION. (cr ar; prereq #)

Laboratory approach; provides opportunities for school personnel to study specific problems related to special education.

Sec 1, Collaboration for Inclusion: Strategies for Educating Students with Disabilities in General Education—July 8-12. (191480) 3 cr, 0800-1400 MTWThF, WullH 130, A-F only, York

This week-long workshop is designed for general educators, special educators, related services personnel, parents, and administrators interested in learning collaborative teamwork strategies for including students with exceptional needs in general education classes. Minnesota educators who have been directly involved in inclusive schooling efforts will participate as speakers in the class. Emphasis will be placed on sharing information that will be of direct relevance for students to use in their respective local communities to promote inclusion. Students will be required to spend after-class time working with other members in the class and are encouraged to participate in the course with colleagues from their respective districts.

5703. PRACTICUM EXPERIENCE: SPECIAL EDUCATION. (Cr and hrs ar; off-campus; prereq #; A-F only) Supervised experience in teaching or related work in schools or other agencies serving exceptional children.

Sec 1, (990184) off campus
Sec 2, (991481) off campus

5710. CONTEMPORARY SERVICES FOR PERSONS WITH DEVELOPMENTAL DISABILITIES—June 17-28. (791482) (3 cr; 0800-1000 MTWThF; WullH 130) York

Survey course focusing on the characteristics and service needs of persons with developmental disabilities using interdisciplinary approaches. Addresses changing concepts, models of services, issues relating to promoting independence, productivity, and integration into communities.

5900. INDEPENDENT STUDY. (Cr and hrs ar (max 12 cr); prereq #; A-F only)

Sec 21, (988984) psychological foundations, MacEachern
Sec 26, (790185) special education, Deno
Sec 29, (287296) special education, Wood
Sec 30, (187297) special education, Knowlton
Sec 31, (391470) counseling, Hansen
Sec 32, (590186) counseling, McCarthy
Sec 35, (888962) special education
Sec 42, (190188) counseling, Skovholt
Sec 43, (591483) special education, Wilderson
Sec 44, (391484) special education, York
Sec 45, (191485) special education, Espin

8260. STATISTICAL METHODS. (787299) (3 cr, \$PsyF 8110; prereq 5260 or PsyF 5110 or Psy 3801 or equiv; 0745-0900 MTWThF; AndH 370) MacEachern

Foundations of statistical theory; practice in applying theories in solution of educational and psychological problems.

8262. STATISTICAL METHODS. (487300) (3 cr, \$PsyF 8112; prereq 8261; 0915-1015 MTWThF; AndH 370) MacEachern

Foundations of statistical theory; practice in applying theories in solving of educational and psychological problems.

8279. PROBLEMS: STATISTICS FOR STUDENTS IN EDUCATION AND PSYCHOLOGY. (Cr and hrs ar) Recent developments in statistical science; applications to educational and psychological problems.

Sec 22, (287301) MacEachern

8289. RESEARCH PROBLEMS: COMPUTER APPLICATIONS. (491489) (Cr, and hrs ar; prereq #) Anderson Recent developments in computer applications to educational and psychological problems.

8777. THESIS CREDITS: MASTERS. (489631) (1-16 cr [max 11 cr per summer term])

8832. CLINICAL PRACTICE IN SCHOOL PSYCHOLOGY. (989424) (1-5 cr; prereq 8810 or PsyS 8310) Supervised diagnosis and treatment of children referred to psychoeducational settings; training in broad range of approaches to problems of adjustment in school-age children, their families, schools, and community settings.

8888. THESIS CREDITS: DOCTORAL. (289632) (1-36 cr [max 11 cr per summer term])

8900. RESEARCH PROBLEMS. (Cr and hrs ar; prereq #)

- Sec 21, (891490) psychological foundations, D. Anderson
- Sec 22, (987303) psychological foundations, Davison
- Sec 24, (787304) psychological foundations, Maruyama
- Sec 27, (387306) psychological foundations, MacEachern
- Sec 32, (090189) special education, Deno
- Sec 36, (585604) special education, Wood
- Sec 38, (191471) counseling, Hansen
- Sec 39, (190191) counseling, McCarthy
- Sec 41, (688963) special education
- Sec 42, (090192) special education, Knowlton
- Sec 46, (890193) counseling, Skovholt
- Sec 47, (190717) school psychology
- Sec 48, (091486) special education, Wilderson
- Sec 49, (891487) special education, York
- Sec 50, (691488) special education, Espin

SECOND TERM

8131. INTRODUCTION TO HUMAN RELATIONS. (3 cr, \$PsyF 3380; each section limited to 30 students; prereq education sr. or Post BA; S-N only) See First Term.

- Sec 1, (187307) 0900-1100, July 18, and 0900-1100 MTWThF, August 1-21; Arch 55
- Sec 2, (185663) 0900-1100, July 18, and 0900-1100 MTWThF, August 1-21; Arch 15

3606. EXCEPTIONAL STUDENTS IN REGULAR CLASSES—July 18-August 9. (087308) (2 cr, \$5606, \$PsyS 3106, \$PsyS 5106; 1300-1400 MTWThF; BuH 120; A-F only) See First Term. Meets with 5606.

8114. PSYCHOLOGY OF STUDENT LEARNING—July 19-August 9. (889304) (3 cr, \$PsyF 5182; limited to 40 students; 0900-1200, MWF, NichH 209; A-F only) R. Tennyson 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.

5115. ADULT LEARNING AND EDUCATIONAL PRACTICE—July 19-August 9. (787335) (4 cr, \$PsyF 5183; 1230-1630 MWF; NichH 209;

A-F only) R. Tennyson Survey of psychological methods and principles in human learning; models of adult learner, topics in motivation, creativity, achievement, intelligence; implications for teaching and curriculum design in higher education, continuing education, and professional training.

8220. EDUCATIONAL MEASUREMENT IN THE CLASSROOM—July 22-26. (486602) (4 cr; limited to 25 students; \$PsyF 5120; 0800-1200 MTWThF, 1300-1500 MTWThF, Fairview Community Center, 1910 W County Rd B, Roseville, MN; S-N only) 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.

8260. INTRODUCTORY STATISTICAL METHODS. (4 cr, \$PsyF 5110; each section limited to 40 students; S-N optional) See First Term.

- Sec 1, (887309) 0800-0900 MTWThF, EltH N647; Davenport, E
- Sec 2, (187310) 0915-1015 MTWThF, EltH N647; Davenport, E

5401. COUNSELING PROCEDURES. (087311) (3 cr, \$PsyS 5110; 0915-1130 TTh; BuH 125; A-F only) Skovholt For persons whose professional work includes counseling and interviewing; not for licensure as school counselor. Emphasis on counseling relationship and principles of interviewing; case studies, role-playing, and demonstration.

8502. COMPUTER TECHNOLOGY IN SPECIAL EDUCATION—August 5-16. (991965) (3 cr; limited to 30 students; 0915-1130 MTWThF; BuH 120; S-N optional) Rose Current and past research into the application of computer technology to special education will be studied in light of learning theory, principles of effective instruction, and the instructional needs of special education populations. Emphasis on applying technology to most effectively meet the needs of special education populations.

5606. EXCEPTIONAL STUDENTS IN REGULAR CLASSES—July 18-August 9. (887312) (2 cr, \$3606, \$PsyS 3106, \$PsyS 5106; 1300-1400 MTWThF; BuH 120; A-F only) See First Term. Meets with 3606.

5608. PARENT AND PROFESSIONAL PLANNING FOR HANDICAPPED STUDENTS—July 18-August 2. (691491) (3 cr, \$PsyS 5108; 0800-1000 MTWThF; Arch 40; A-F only) Study and demonstration of constructive approaches to cooperative planning and implementation of education programs by parents, teachers, and others involved with children who have special needs.

5609. FAMILY-PROFESSIONAL PLANNING FOR PERSONS WITH SEVERE HANDICAPS—July 18-August 2. (491492) (3 cr; 0800-1000 MTWThF; BuH 120; A-F only) Interdisciplinary course examining the needs of families who have children with severe handicaps; emphasis on life cycle needs, service issues, programs of

support from infancy through adult years, services from different agencies, disciplines, professional requirements, and responsibilities in serving families.

8515. EDUCATIONAL INTERVENTIONS FOR LEARNING DISABILITIES. (490164) (3 cr; prereq 5612; limited to 30 students; 1030-1130 MTWThF; BuH 123; A-F only) Planning, implementing, evaluating academic programs for students with disabilities in written and spoken language, quantitative concepts, and cognitive skills required learning.

5640. PSYCHOSOCIAL AND EDUCATIONAL ASPECTS OF DEAFNESS—July 29-Aug. 2. (791966) (3 cr; PsyS 5140; 1000-1600 MTWThF; MN State Academy for the Deaf; A-F only) Kylo Historical and current societal perceptions of the deaf; analysis of effects and patterns of auditory impairment on children and adults; intelligence, personal and social adjustment, effect of psychological process on acquiring language, speech, and speechreading skills.

5644. LANGUAGE PROGRAMMING FOR CHILDREN WITH HEARING IMPAIRMENTS—July 18-24. (291493) (3 cr; \$PsyS 5144; 1000-1600 MTWThF; MN State Academy for the Deaf; A-F only) McAnally Programs and practices focusing on the development of language in infants, children, and youth with hearing impairments; comparative study of language development of hearing impaired and hearing persons.

5648. MODES OF COMMUNICATION FOR THE HANDICAPPED—July 22-26. (191494) (3 cr; \$PsyS 5148; 1000-1600 MTWThF; MN State Academy for the Deaf; A-F only) Rose Theoretical and applied study of selection and application of alternative communication modalities; assessment and development of modes, including gestures, speech reading, cued speech, sign systems, form boards, and Bliss-symbolics.

5700. ASSESSMENT AND DECISION MAKING IN SPECIAL EDUCATION—July 18-August 16. (189302) (3 cr; \$PsyS 5200; 1145-1245 MTWThF; BuH 120; A-F only) For teachers and other educational personnel. Identifying needs of handicapped students; planning, monitoring, evaluating instructional programs; practice in use of standardized devices and development of clinical measures for handicapped students.

5701. PRACTICUM: SPECIAL EDUCATION. (Hrs ar; S-N only; prereq #)

- Sec 21, (991495) Rose, off-campus

5900. INDEPENDENT STUDY. (Cr and hrs ar [max 12 cr]; prereq #; A-F only)

- Sec 21, (788985) psychological foundations, MacEachern
- Sec 25, (791496) special education, Rose
- Sec 40, (689305) special education
- Sec 41, (790168) special education, Deno
- Sec 44, (191499) counseling, Skovholt
- Sec 45, (591497) special education

8129. RESEARCH PROBLEMS: LEARNING AND COGNITION. (985552) (Cr ar; prereq #) R. Tennyson Formulation of research designs.

8261. STATISTICAL METHODS. (287315) (3 cr, \$PsyF 8111; prereq 8260; 0745-0900 MTWThF; AndH 250) MacEachern Foundations of statistical theory; practice in applying theories in solution of educational and psychological problems.

8263. DESIGN AND ANALYSIS OF EXPERIMENTS. (187316) (3 cr, \$PsyF 8113; prereq 8262 or PsyF 8112 or #; 0915-1015 MTWThF; AndH 250) MacEachern Functional approach to principles of efficient design in experiments and other types of observational programs; improved sampling techniques; methods of analyzing observational results.

8279. PROBLEMS: STATISTICS FOR STUDENTS IN EDUCATION AND PSYCHOLOGY. (Cr and hrs ar) Sec 22 (391503), MacEachern Sec 23 (191504), Davenport See First Term.

8777. THESIS CREDITS: MASTERS. (789943) (1-16 cr [max 11 cr per summer term])

8832. CLINICAL PRACTICE IN SCHOOL PSYCHOLOGY. (990718) (1-5 cr; prereq 8810 or Psy 8310) Supervised diagnosis and treatment of children referred to psychoeducational settings; training in broad range of approaches to problems of adjustment in school-age children, their families, schools, and community settings.

8888. THESIS CREDITS: DOCTORAL. (589944) (1-36 cr [max 11 cr per summer term])

8900. RESEARCH PROBLEMS. (Cr and hrs ar; prereq #)

- Sec 22, (185551) psychological foundations, R. Tennyson
- Sec 23, (587319) psychological foundations, Davison
- Sec 24, (987320) psychological foundations, Mac Eachern
- Sec 29, (991500) special education, Rose
- Sec 40, (489306) special education
- Sec 41, (790171) special education, Deno
- Sec 45, (591502) psychological foundations, Davenport
- Sec 47, (790719) School Psychology
- Sec 48, (791501) counseling, Skovholt
- Sec 50, (391498) special education

72 Electrical Engineering—Elementary Education

Electrical Engineering (EE)

4178 *Electrical Engineering/Computer Science*. 625-3300
Institute of Technology

FIRST TERM

■ **1400. CIRCUITS LABORATORY.** (1 cr; limited to 12 students; prereq IT student, 3009 or ¶3009)
Laboratory to accompany EE 3009 and 3010.

Lab 1, (388522) 1300-1515 MW,
EE/CSci 3170

■ **3009. LINEAR CIRCUITS I.** (688526) (4 cr; limited to 90 students; prereq IT student; Math 3321 or ¶Math 3321, Phys 1281 or ¶Phys 1281; 0800-1015 MTWThF; EE/CSci 3210 A-F only)
Physical principles underlying the modeling of circuit elements. Two- and three-terminal resistive elements, Kirchhoff's laws. Simple resistive circuits. Linearity in circuits. First-order circuits. Circuits in sinusoidal steady state.

■ **5470. DIRECTED STUDY.** (085073) (Cr and hrs ar; prereq Δ)

■ **8450. SPECIAL INVESTIGATIONS.** (885074) (1-4 cr; hrs ar; prereq #)

■ **8460. PLAN B PROJECT.** (685075) (4 cr; prereq #)

■ **8777. THESIS CREDITS: MASTERS.** (989732) (1-16 cr [max 11 cr per summer term])

■ **8888. THESIS CREDITS: DOCTORAL.** (089883) (1-36 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

■ **3003. CIRCUITS AND ELECTRONICS.** (188523) (4 cr; limited to 50 students; not for EE majors; prereq IT student, Phys 1291, Math 3321 or ¶Math 3321; 0800-0900 MTWThF; EE/CSci 3230)
Analysis of linear passive circuits: semiconductor principles, devices, and circuits. Applications to digital circuits, logic elements, microprocessors, and operational amplifiers.

■ **3004. CIRCUITS AND ELECTRONICS LABORATORY.** (1 cr; each section limited to 14 students; no EE majors; prereq IT student, 3003 or ¶3003)

Lab 1, (088524) 1030-1245 M,
EE/CSci 3170
Lab 2, (888525) 0800-1015 Th
EE/CSci 3170

■ **3012. SYSTEM DESIGN.** (386379) (4 cr; limited to 50 students; upper division EE major, 3011, Math 3321; 1145-1245 MTWThF; EE/CSci 3230; A-F only)
Continuous, discrete-time systems. Feedback: stability, applications.

■ **3062. ANALOG AND DIGITAL ELECTRONICS.** (888136) (4 cr; limited to 65 students; prereq upper division EE, CSci, or ME major, 3061, 3351; 0915-1015 MTWThF; EE/CSci 3230)
Stability and feedback amplifiers, operational amplifier structures, implementation of digital circuits with bipolar and field effect transistors; application to inverters, gates, flip-flops, logic arrays, and storage elements.

■ **3111. ELECTROMAGNETIC WAVES.** (688137) (4 cr; limited to 50 students; prereq 3110, upper division EE major, 3110; 1030-1130 MTWThF; EE/CSci 3230)
Time-varying electromagnetic fields. Propagation of electromagnetic waves. Metallic and optical waveguides.

■ **3351. INTRODUCTION TO LOGIC DESIGN.** (4 cr; each section limited to 12 students; prereq soph standing in IT; lect 1145-1245 MWThF; EE/CSci 3210)
Boolean algebra and logic gates. Combination logic: simplification and design examples. Sequential logic and design of synchronous, sequential logic systems. Integral laboratory.

Lab 1, (288528) 1530-1745 M,
EE/CSci 2178
Lab 2, (188529) 1030-1245 T,
EE/CSci 2178
Lab 3, (488530) 1300-1515 W,
EE/CSci 2178
Lab 4, (288531) 1300-1515 Th,
EE/CSci 2178

■ **3402. JUNIOR ELECTRICAL ENGINEERING LABORATORY.** (2 cr; each section limited to 12 students; prereq 3401, 3062 or ¶; A-F only)

Lab 1, (686386) 1300-1745 M,
EE/CSci 3146
Lab 2, (486387) 1300-1745 T,
EE/CSci 3146
Lab 3, (286388) 0800-1245 Th,
EE/CSci 3146

■ **3476. INDUSTRIAL ASSIGNMENT I.** (786380) (2 cr; prereq regis in co-op program)
Industrial work assignment in engineering co-op program. Grade based on formal written report covering the quarter's work assignment, but deferred until completion of EE 5478, Industrial Assignment III.

■ **3477. INDUSTRIAL ASSIGNMENT II.** (586381) (2 cr; prereq 3476)
See 3476.

■ **5002. DIGITAL SIGNAL PROCESSING.** (488138) (3 cr; limited to 65 students; prereq upper division elec engr maj or grad IT major, 3012 or #; 0800-0900 MWF; EE/CSci 3125)
General concepts of signal processing; discrete-time systems and digital filters.

■ **5003. DIGITAL SIGNAL PROCESSING LABORATORY.** (1 cr; each section limited to 12 students; prereq upper division EE maj 3400, 3401, 3402, 5002 or #)

Lab 1, (589216) 0800-1015 T,
EE/CSci 2170
Lab 2, (389217) 1030-1245 T,
EE/CSci 2170

■ **5450. SENIOR DESIGN PROJECT.** (2 cr; each section limited to 5 students; prereq EE senior, 3012, 3062, 3110, 3351, 3352, 3402)

Team participation in formulation and solving of open-ended design problems. Oral and written presentations.

Sec 1, (985521) 0915-1245 Th,
EE/CSci 3230
Sec 2, (785522) 0915-1245 Th,
EE/CSci 3230
Sec 3, (288819) 0915-1245 Th,
EE/CSci 3230

■ **5478. INDUSTRIAL ASSIGNMENT III.** (386382) (2 cr; prereq 3477, regis in co-op program; A-F only)
Industrial work assignment in engineering co-op program. Grade based on formal written report covering the quarter's work assignment.

■ **5479. INDUSTRIAL ASSIGNMENT IV.** (186383) (2 cr; prereq 5478)
See 5478.

SECOND TERM

■ **1400. CIRCUITS LABORATORY.** (288139) (1 cr; limited to 12 students; prereq IT student, 3009 or ¶3009; 1300-1515 MW; EE/CSci 3170)

■ **3010. LINEAR CIRCUITS II.** (588535) (4 cr; limited to 75 students; prereq IT student; at least C grades in 3009, Math 3321 or ¶Phys 1291; 0800-1015 MTWThF; EE/CSci 3210; A-F only)
Energy and power in AC circuits. Transformers. Laplace transform techniques of circuit analysis. Frequency response. Two ports.

■ **5470. DIRECTED STUDY.** (285287) (Cr and hrs ar; prereq Δ)

■ **8450. SPECIAL INVESTIGATIONS.** (185296) (1-4 cr; hrs ar; prereq #)

■ **8460. PLAN B PROJECT.** (688140) (4 cr; prereq #)

■ **8777. THESIS CREDITS: MASTERS.** (489824) (1-16 cr [max 11 cr per summer term])

■ **8888. THESIS CREDITS: DOCTORAL.** (189972) (1-36 cr [max 11 cr per summer term])

Elementary Education (Elem)

125 Peik Hall. 625-6372
(Curriculum and Instruction)
College of Education

FIRST TERM

■ **3300. CHILDREN'S LITERATURE.** (085509) (3 cr; limited to 35 students; 0800-0900 MTWThF, ClaOff B30; A-F only)
Materials for children's reading in the elementary school program.

■ **3604.¹ STUDENT TEACHING IN THE NURSERY SCHOOL.** (385443) (3-6 cr; S-N only; prereq approval of major adviser and director of student tchg; hrs ar)Durgin

■ **5100. ELEMENTARY SCHOOL CURRICULUM—June 11-27.** (185444) (3 cr; prereq 3101; each section limited to 35 students; 1145-1400 MTWThF, ClaOff B30; A-F only)
Selection and organization of subject matter for courses; methods, problems, and findings of research by subjects.

■ **5107. DIAGNOSIS AND TREATMENT OF LEARNING DIFFICULTIES—June 11-26.** (385510) (3 cr; limited to 35 students; 0800-1015 MTWThF; ClaOff B36; A-F only) Park
Diagnosis of pupil difficulty; development and prevention; tests as aids to teaching; following up a testing program, socioemotional problems associated with learning difficulties.

¹Student teaching is open only to students in regular degree programs of the College of Education. Application must be made by May 1. Forms and instructions are available in 203 Burton Hall.

■ **5140. MICROCOMPUTER USES IN ELEMENTARY CLASSROOMS—June 12-July 12.** (288500) (3 cr; limited to 20 students; §CISy 5206; 1300-1600; PeikH 355; A-F only) Stochl
Use of microcomputers to enhance instruction; applications in language arts, mathematics, science, social studies; evaluation of available programs. Meets with CISy 5206.

■ **5145. CLASSROOM MANAGEMENT—June 11-26.** (290196) (3 cr; limited to 40 students; §SeEd 5145; prereq tchg or admin exper or #; 1530-1745 MTWThF; PeikH 165; A-F only) Hansen.

For teachers, administrators, and support staff working in elementary school programs; focus on management of student behavior, or instruction as it relates to student behavior, and of teaching organizational tasks in the classroom.

■ **5227. TEACHING ABOUT THE NEWSPAPER IN THE CLASSROOM—June 17-July 2.** (190197) (1-3 cr [max 4 cr]; §SeEd 5227; limited to 20 students; 1300-1630 MTWThF; ClaOff B45; A-F only) Mackey

The institution of the newspaper; articulation of a series of articles of useful instructional strategies, curriculum development techniques, and teaching materials. This 3-credit offering meets with SeEd 5227.

■ **5300. LITERATURE FOR THE ELEMENTARY SCHOOL.** (085445) (3 cr; 0915-1015 MTWThF; ClaOff B30; A-F only)

■ **5316. TEACHING AND SUPERVISION OF ENGLISH IN THE ELEMENTARY SCHOOLS—June 11-26.** (588499) (3 cr; limited to 35 students; prereq 3316 or elem tchg exper; 0800-1015 MTWThF; AlderH 415; A-F only) Dykstra
Improvement of instruction; study of trends in English education.

■ **5318. CREATIVE WRITING FOR AND BY CHILDREN—June 11-26.** (3 cr [max 6 cr]; each section limited to 60 students; prereq 3300 or 3316 or elem tchg exper or #; S-N only)
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 these 3 credit offerings. Sections will meet jointly for several sessions.

Sec 1, (885446) 1030-1245
MTWThF, BorH 335, Dykstra
Sec 2, (488804) 1030-1245
MTWThF, BorH 365, Monson

■ **5319. TEACHING SECOND LANGUAGES AND CULTURES IN ELEMENTARY SCHOOLS.** (387323) (3 cr; 0915-1245 TTh; PeikH 215; A-F only) Jorstad
Methods and materials; development of oral and written communication; consideration of alternatives in program format; preparation of materials; global awareness and cross-cultural experience; assessment of children's language; children's literature, games, songs; development of units and lessons.

5335. CLINICAL DIAGNOSIS OF READING DIFFICULTIES. (991271) (3 cr; limited to 15 students; prereq 5334; concurrent registration in 5336 required; 0800-0900 MTWThF; off campus location to be announced; A-F only) Taylor
Relationship to psychological factors and remedial correction.

5336. CLINICAL PRACTICE IN REMEDIAL TEACHING. (185176) (3 cr; limited to 15 students; prereq 5334 or 5107 and #; 0915-1015 MTWThF; off campus location to be announced; A-F only) Taylor
Remedial tutoring of individual children who have difficulty in school learning. Students will be informed of where class will meet upon registration. Concurrent registration in 5335 required.

5338. TEACHING READING IN THE INTERMEDIATE GRADES—June 27-July 15. (788131) (3 cr; limited to 35 students; prereq 3331 or elem teacher or #; 1030-1245 MTWThF; PeikH 155; A-F only) Taylor
For teachers and specialists interested in problems of teaching reading beyond the decoding stage; comprehension strategies, basic study skills, reading in the content areas, and use of literature in the reading program.

5339. WORKSHOP: CURRICULUM IMPLEMENTATION IN ELEMENTARY SCHOOL READING: Integrating the Reading/Language Arts Curriculum—June 28-July 16. (791272) (1-9 cr [max 9 cr]; limited to 35 students; prereq elementary teaching experience or #; 1030-1245 MTWThF; ClaOff B36 A-F only) Monson
Analysis of new instructional materials, techniques, recent trends, and innovations in elementary reading instruction. This offering for 3 credits.

5350. ELEMENTARY SCHOOL SCIENCE: MATERIALS AND RESOURCES—June 17-July 2. (591273) (3 cr; limited to 25 students; 1300-1545 MTWThF; PeikH 385; A-F only) Finley
Experiences in the use of educational materials and media common to the teaching of modern elementary school science.

5361. TEACHING SOCIAL STUDIES IN THE ELEMENTARY SCHOOL. (391274) (3 cr; prereq 3101 or equiv; limited to 30 students; 1145-1515 TTh; PeikH 165; A-F only) Avery
Content and organization of social studies programs; programs of understanding, improving the learning situation, and effective use of materials.

5376. CURRENT TRENDS IN EARLY CHILDHOOD EDUCATION—June 11-26. (990198) (3 cr; limited to 40 students; prereq tchg experience in kindergarten or primary school or #; 1300-1515 MTWThF; PeikH 155; A-F only) Hansen
Continuing needs of children in our changing culture; current practices and recent research.

5602. PRACTICUM: IMPROVEMENT OF TEACHING. (3 cr; prereq MEd student in elem education; S-N only; hrs ar)

Sec 21, (685447) Dykstra
Sec 23, (485448) Stochl
Sec 25, (685450) Monson
Sec 27, (485451) Taylor
Sec 28, (191275) Finley
Sec 29, (091276) Avery
Sec 30, (589250) Jackson
Sec 31, (790199) Hansen

8916. PROBLEMS: TEACHING ENGLISH. (Cr and hrs ar; prereq #)
Sec 21, (185508) Dykstra
Sec 22, (185511) Monson

8931. PROBLEMS: TEACHING READING. (691278) (Cr and hrs ar; prereq 5331 or SeEd 5344 and #) Taylor

8976. PROBLEMS: TEACHING KINDERGARTEN. (490200) (3 cr; prereq #; hrs ar) Hansen

8991. PROBLEMS: IMPROVEMENT OF INSTRUCTION. (Cr and hrs ar; prereq #)

Sec 21, (985454) Dykstra
Sec 23, (585456) Stochl
Sec 25, (185458) Monson
Sec 27, (085459) Taylor
Sec 28, (891277) Finley
Sec 30, (190202) Jackson
Sec 31, (290201) Hansen

SECOND TERM

5101. WORKSHOP: PROGRAMS AND PROCEDURES OF CURRICULAR DEVELOPMENT: Multicultural Gender-Fair Curriculum—July 19-August 16. (491279) (1-3 cr; limited to 15 students; prereq elementary teaching experience, #; concurrent registration in SeEd 5351, sec 27 is required; 1145-1515 MTWThF; PeikH 155; A-F only) Avery, Walker
Planning for development and implementation of a multicultural gender-fair perspective in elementary and secondary classrooms. Individual teacher goals and professional issues related to multicultural gender-fair curricula, and the acquisition of resources and teaching strategies for successful exploration of new perspectives. (A follow-up course to allow implementation of goals and directions that teachers will have developed for their own classrooms is tentatively planned for next winter.) This offering for 3 credits. Meets with SeEd 5153 and SeEd 5351, sec 27.

5107. DIAGNOSIS AND TREATMENT OF LEARNING DIFFICULTIES—July 18-August 2. (486762) (3 cr; limited to 35 students; 0800-1015 MTWThF; PeikH 40; A-F only) Park
See First Term.

Creative Writing for and by Children

The twelfth annual Chase Lecture will be presented this year on Tuesday, June 18, at 3:30 p.m. in Coffman Memorial Union. This lecture, which emphasizes creative writing for and by children, is open to the public and 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 and reading. This year's guest lecturer is Nancy Larrick who is also one of several guest lecturers in the creative writing course (Elem 5318). Other guest lecturers include Marion Dane Bauer, author, and Julie Jensen, professor of language arts at Univ of Texas-Austin, and former president of NCTE.

Questions about the course or the Chase Lecture may be directed to Department of Curriculum and Instruction, 125 Peik Hall, University of Minnesota, 159 Pillsbury Drive S.E., Minneapolis, MN 55455, 612/625-6372.

5331. TEACHING AND SUPERVISION OF READING IN THE ELEMENTARY SCHOOL—July 18-August 2. (990203) (3 cr; prereq 9 credits in education; limited to 35 students; 1300-1515 MTWThF; APH 303; A-F only)
Objectives, materials, and teaching procedures; current practices and curricula; class and individual projects.

5334. READING DIFFICULTIES—July 18-August 2. (286763) (3 cr; limited to 35 students; prereq 5331 or SeEd 5344; 1030-1245 MTWThF; PeikH 40; A-F only) Manning
Causes, prevention, and correction; remedial practices useful to the classroom teacher, school counselor, and reading specialist.

5602. PRACTICUM: IMPROVEMENT OF TEACHING. (3 cr; prereq MEd student in elem education; S-N only; hrs ar)

Sec 21, (186764) Jackson
Sec 26, (689529) Manning

8931. PROBLEMS: TEACHING READING. (687327) (Cr and hrs ar; prereq 5331 or SeEd 5344 and #) Manning

8991. PROBLEMS: IMPROVEMENT OF INSTRUCTION. (Cr and hrs ar; prereq #)

Sec 21, (986765) Jackson
Sec 26, (089530) Manning

Endodontics (Endo)

8-166 Moos Tower, 624-9900
School of Dentistry

FIRST AND SECOND TERMS: TEN-WEEK COURSE (Register once in Term I)

5299. ADVANCED CLINICAL ENDODONTICS. (792020) (cr. arr)

5303. ADVANCED CLINICAL ENDODONTICS. (086787) (Cr ar; A-F only)

Diagnosis and treatment of clinical cases. Students assigned complex cases and explore new and unique techniques.

5309. ADVANCED ENDODONTIC EMERGENCY. (592021) (1 cr)

5313. ENDODONTIC EMERGENCY PROBLEMS. (886788) (1 cr)

Each student is responsible for all emergencies in the Endodontic Clinic during an assigned 1-week period (8 hours a day).

5329. REVIEW OF CASES. (392022) (1 cr)

5333. REVIEW OF CASES. (686789) (1 cr; S-N only)
Students present cases from the previous quarter for review by endodontic faculty and graduate students.

8004. RESEARCH IN ENDODONTICS. (086790) (1 cr)

Organized literature review in areas of specific interest to student, selection of this project, and completion of research and thesis.

8313. SEMINAR: ENDODONTICS. (886791) (2 cr)

Organized literature review in areas of interest to student, selection of a project, and completion of research and a thesis.

74 English as a Second Language—Engl: Creative Writing

English as a Second Language (ESL)

116 Klaeber Court. 624-1503
(Linguistics)
College of Liberal Arts

FIRST TERM

8777. THESIS CREDITS: MASTERS. (789635) (1-16 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (389945) (1-16 cr [max 11 cr per summer term])

English Language and Literature (Engl)

207 Lind Hall. 625-3363
College of Liberal Arts

FIRST TERM

#1005. INTRODUCTION TO LITERATURE. (085526) (4 cr; limited to 38 students; 0915-1015 MTWThF; LindH 203) Staff
Understanding and enjoying literature. Readings of novels, short stories, poems, and plays.

#1016. INTRODUCTION TO AMERICAN LITERATURE. (691393) (4 cr; limited to 38 students; 0800-0900 MTWThF; LindH 305) Staff
Critical discussion and of writing about selected works of American literature. Typical authors: Poe, Hawthorne, Whitman, Dickinson, Twain, Frost, Fitzgerald, Hurston.

#1017. INTRODUCTION TO MODERN POETRY. (590320) (4 cr; limited to 38 students; 0915-1145 TTh; Phys 131) Browne
Critical discussion of and writing about selected modern poems. Typical authors: Dylan Thomas, Robert Frost, Marianne Moore, W. B. Yeats, Thomas Hardy, e.e. cummings.

#1019. INTRODUCTION TO MODERN DRAMA. (491394) (4 cr; limited to 38 students; 0800-0900 MTWThF; LindH 203) Luke
Critical discussion of and writing about selected modern plays. Typical authors: Ibsen, Shaw, Synge, Chekhov, O'Neill, Williams, Beckett.

#1591. LITERATURE OF AMERICAN MINORITIES. (291395) (4 cr; limited to 38 students; 1145-1245 MTWThF; LindH 215) Staff
Representative works by Afro-American, American Indian, Asian American, and Chicano/Chicana writers. Examination of relevant social factors.

#3008. TECHNIQUES OF LITERARY STUDY. (390321) (4 cr; limited to 30 students; 0800-1030 TTh; LindH 229) Anderson
Training and practice in the analysis of various literary forms, with a special emphasis on poetry. Use of the argument, evidence, and documentation in literary papers; introduction to major developments in contemporary criticism.

#3115. THE MIDDLE AGES. (191396) (4 cr; limited to 30 students; 0800-1030 MW; LindH 229) Savage
Major and representative works of the Middle Ages (650-1485). Typical readings: *Beowulf*, Chaucer, ballads, *Sir Gawain and the Green Knight*, *Everyman*.

#3116. THE RENAISSANCE. (991397) (4 cr; limited to 30 students; 1030-1300 TTh; FolH 312) Clayton
Major and representative works of the Renaissance (1485-1660). Typical authors: More, Sidney, Spenser, Shakespeare, Donne, Milton.

#3241. SHAKESPEARE. (885835) (4 cr; \$3243; limited to 30 students; 0915-1145 MW; Phys 131) Hirsch
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.

#3455. AMERICAN SHORT STORY. (690325) (4 cr; limited to 30 students; 1030-1300 WF; LindH 302) Solotaroff
Typical authors: Irving, Poe, Hawthorne, Twain, Crane, Cather, Faulkner, Welty, Bellow.

#3851. THE ENGLISH LANGUAGE. (490326) (4 cr; \$5851; limited to 76 students; 0800-0900 MTWThF; Phys 131) MacLeish
The English language: its structure (phonetics, phonology, morphology, syntax, semantics) and use (pragmatics, dialect variation, and first language acquisition).

#3960. JUNIOR-SENIOR SEMINAR: Vonnegut. (389220) (4 cr per qtr, limited to 15 students, prereq English major, completion of Comp 3011 or 3012 or 3013, jr or sr and Δ ; 1030-1300 TTh; CivMinE 214) Reed
A core selection of the novels of contemporary American writer Kurt Vonnegut; projects in other novels, short stories, essays, or plays by Vonnegut, and the critical writing about Vonnegut. Heavy student participation with discussion, individual oral reports, and an essay which will determine a large portion of the course grade. Essays can be expanded to satisfy the senior project requirement.

3961. SENIOR PAPER. (190328) (1 cr; prereq Engl maj, sr, 3960 or $\text{\$}3960$ or $\text{\$}3960\text{H}$ or 3931-3932 or $\text{\$}3931$ -3932 or EngW 3960 or $\text{\$}EngW$ 3960)

3963H. HONORS THESIS. (787352) (4 cr; prereq honors candidacy in English and consent of English honors adviser)

3970. DIRECTED STUDIES. (888234) (1-15 cr per term; prereq #, Δ , \square)
Guided individual reading or study.

3980. DIRECTED INSTRUCTION. (187350) (Cr ar; prereq #, Δ , \square)

#5152. 19TH-CENTURY ENGLISH NOVEL. (791398) (4 cr; limited to 38 students; 1030-1130 MTWThF; LindH 215) Luke
Novels by such authors as Scott, Dickens, the Brontes, Thackeray, Eliot, Hardy.

#5221. CHAUCER: THE CANTERBURY TALES. (885527) (5 cr; limited to 38 students; prereq grad stu or engl maj or Δ ; 1030-1130 MTWThF; LindH 203) MacLeish
Reading *The Canterbury Tales*; Chaucer's language. Prerequisite to all

other courses in Middle English literature (5215-5222).

#5597. SUMMER INSTITUTE FOR TEACHERS: HARLEM RENAISSANCE SEMINAR—June 17-28. (691894) (4 cr; $\text{\$}Aro$ 5597; limited to 18 students; 1030-1500 MTWThF; SocSci 815) Wright
See description on page 28. Meets with Afro 5597.

#5910. SUMMER INSTITUTE FOR TEACHERS: TOPICS IN ENGLISH AND AMERICAN LITERATURE: African and African American Woman Writers—June 17-28. (091892) (4 cr; limited to 18 students; 1000-1200 MTWThF; BlegH 420) Nnaemeka
See description on page 28.

#5920. SUMMER INSTITUTE FOR TEACHERS: TOPICS IN ENGLISH AND AMERICAN LITERATURE: Multicultural Literature—June 17-28. (891893) (4 cr; limited to 18 students; 1000-1200 MTWThF; CMU 624) Sugnet
See description on page 28.

8888. THESIS CREDITS: DOCTORAL. (689885) (1-36 cr [max 11 cr per summer term])

8970. INDEPENDENT READING. (688235) (1-15 cr; prereq #, Δ)

SECOND TERM

#1005. INTRODUCTION TO LITERATURE. (685528) (4 cr; limited to 38 students; 1030-1130 MTWThF; AmundH 120)
See First Term.

#1018. INTRODUCTION TO MODERN FICTION. (591399) (4 cr; limited to 38 students; 0800-0900 MTWThF; LindH 215)
Critical discussion of and writing about selected modern novels and stories. Typical authors: Conrad, Lawrence, Joyce, Woolf, Cather, Hemingway, Faulkner, Nabokov.

#1591. LITERATURE OF AMERICAN MINORITIES. (790316) (4 cr; limited to 38 students; 1145-1245 MTWThF; LindH 305) Staff
See First Term.

#3009. MODERN LITERARY THEORY. (191401) (4 cr; limited to 30 students; 1030-1300 TTh; FordH 40) Mowitt
Problems of interpretation and criticism. Questions of meaning, form, authority, literary history, social significance.

#3242. SHAKESPEARE. (692009) (4 cr; limited to 30 students, $\text{\$}3243$; 0915-1145 TTh; LindH 215) Geffen
Plays from the middle and late periods. All Sections read *King Lear*, *Macbeth*, *The Tempest*, and two or three others.

#3251. THE KING JAMES BIBLE AS LITERATURE. (291896) (4 cr; limited to 38 students; 0915-1015 MTWThF; Phys 143) Haley
The Old Testament and literary tradition. The historical narratives, prophets, psalms, and wisdom literature.

#3851. THE ENGLISH LANGUAGE. (189221) (4 cr; limited to 76 students; $\text{\$}5851$; 0915-1145 MW; Phys 131) Anson
The English language: its structure (phonetics, phonology, morphology, syntax, semantics) and its use (pragmatics, dialect variation, and first language acquisition).

3961. SENIOR PAPER. (390318) (1 cr; prereq Engl maj, sr, 3960 or $\text{\$}3960$ or $\text{\$}3960\text{H}$ or $\text{\$}3931$ -3932 or EngW 3960 or $\text{\$}EngW$ 3960)

3963H. HONORS THESIS. (587353) (4 cr; prereq honors candidacy in English and consent of English honors adviser)

3970. DIRECTED STUDIES. (488236) (1-15 cr per term; prereq #, Δ , \square)
Guided individual reading or study.

3980. DIRECTED INSTRUCTION. (987351) (Cr ar; prereq #, Δ , \square)

#5151. 18TH-CENTURY ENGLISH NOVEL. (791403) (4 cr; limited to 38 students; prereq grad stu or engl maj or Δ ; 1030-1300 MW; LindH 203) Weinsheimer
Novels by such authors as Defoe, Richardson, Fielding, Smollett, Sterne, Austen.

#5452. AMERICAN NOVEL. (591404) (4 cr; limited to 38 students; prereq grad stu or engl maj or Δ ; 0800-1030 MW; LindH 305) Furia
Late 19th and 20th centuries. Typical authors: James, Dreiser, Cather, Hemingway, Fitzgerald, Faulkner, Ellison

#5871. THE LANGUAGE OF LITERATURE. (391405) (4 cr; limited to 38 students; 0915-1145 WF; LindH 215) Ross
The place of linguistic analysis in a theory of literary criticism; stylistic analysis in Europe and America since 1920; theories of linguistic description relevant to critical analysis; applications to texts in prose and poetry.

8888. THESIS CREDITS: DOCTORAL. (989973) (1-36 cr [max 11 cr per summer term])

8970. INDEPENDENT READING. (288237) (1-15 cr; prereq #, Δ)

English: Creative and Professional Writing (EngW)

207 Lind Hall. 625-3363
(English Language and Literature)
College of Liberal Arts

FIRST TERM

#1102. INTRODUCTION TO FICTION WRITING. (089205) (4 cr; limited to 25 students; $\text{\$}Engl$ 1101; prereq writing practice or EngW 1101, 1115-1345 TTh; LindH 302) Staff
Beginning instruction in the art of fiction: characterization, plot, dialogue, and style. Writing exercises to help students generate ideas. Students read and discuss published fiction as well as their own writing.

#1103. INTRODUCTION TO POETRY WRITING. (889206) (4 cr; limited to 25 students; $\text{\$}Engl$ 1104; prereq writing practice or EngW 1101, 1115-1345 MW; LindH 229) Staff
Beginning instruction in the art of poetry. Discussion of student poems and contemporary poetry, ideas for generating material, and writing exercises both in and out of class.

Entomology (Ent)

219 Hodson Hall, St. Paul. 624-3278
College of Agriculture

FIRST TERM

5910. SPECIAL PROBLEMS IN ENTOMOLOGY. (288772)

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

5920. SPECIAL LECTURES IN ENTOMOLOGY: AQUATIC INSECTS—June 11-29. (788968) (3 cr;

limited to 20 students; prereq introductory biology; W/S; A-F only taught at Itasca, see page 34) Holzenthal
This course emphasizes the taxonomy and natural history of aquatic insects, including their importance in aquatic ecology, water resource management, recreation, and conservation. Morning lectures are followed by afternoon field trips to local standing and running water habitats. Emphasis is on family level identification. A collection is required.

8500.* RESEARCH IN ENTOMOLOGY. (585389) (Cr ar; prereq #) Staff

8777. THESIS CREDITS: MASTERS. (389735) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (489886) (1-36 cr [max 11 cr per summer term])

SECOND TERM

5910. SPECIAL PROBLEMS IN ENTOMOLOGY. (188773)

(Cr ar; prereq #) Staff
See First Term.

8500.* RESEARCH IN ENTOMOLOGY. (186456) (Cr ar; prereq #) Staff

8777. THESIS CREDITS: MASTERS. (189826) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (789974) (1-36 cr [max 11 cr per summer term])

F

Family Practice and Community Health (FPCH)

6-240 Phillips-Wangenstein Building.
624-2622
Medical School

SPECIAL TERM: JULY 2-SEPTEMBER 27

Required Courses

8201. CLINICAL FAMILY MEDICINE. (086837) (Cr ar; hrs ar) Ciriacy, staff

8207. SEMINAR: COMMON DISEASES SEEN IN FAMILY PRACTICE. (486843) (1 cr; hrs ar) Ciriacy, staff

8208. FAMILY MEDICINE CONFERENCES. (886838) (1 cr; hrs ar) Ciriacy, staff

8209. FAMILY MEDICINE X-RAY CONFERENCE. (286844) (1 cr; hrs ar) Ciriacy, staff

8210. FAMILY MEDICINE GRAND ROUNDS. (686839) (0-1 cr; hrs ar) Krogh, staff

8212. CLINICAL PSYCHIATRY ROUNDS. (086840) (1 cr; prereq 1st yr resident in family practice; hrs ar) Kelly, staff

Elective Courses

5955. DIRECTED STUDY. (885656) (1-15 cr; prereq #; hrs ar) Coleman

5960. BASIC RESEARCH METHODS SEMINAR AND PRACTICUM. (788517) (4 cr; hrs ar) Ciriacy, staff

5967. INTRODUCTION TO HEALTH DATA SYSTEMS. (088202) (2 cr; prereq completion of first yr residency in family practice and community health or #) Krogh

5968. COMPUTERS IN THEORY AND PRACTICE. (585523) (Cr ar) Gepner

8205. MEDICAL RECORDS SYSTEMS. (385524) (2 cr; hrs ar) Ciriacy, Kelly

8223. INTRODUCTION TO GERONTOLOGY, GERIATRIC MEDICINE. (288240) (2 cr; prereq 2nd yr FPCH resident cr #; 1300-1630 Th; 0830-1600 F; Ebenezer Society) Ciriacy, staff

8253. RESEARCH PROBLEMS. (186845) (Cr ar; hrs ar) Kelly, staff

Family Social Science (FSoS)

290 McNeal Hall. 625-1900
College of Human Ecology

FIRST TERM

1001. DYNAMICS OF FAMILY RELATIONSHIPS. (488821) (4 cr; limited to 50 students; 0900-1130 MW; McNH 197) Lally
Application of behavioral sciences to mate selection, interaction in marriage and other committed relationships, sex roles, and maintaining and ending relationships.

1025. PARENTHOOD. (289162) (4 cr; 1300-1530 TTh; McNH 197)
Examination of differing concepts of family roles—father, mother, son, daughter, sister, brother. Their implications for parent-child and sibling interaction. Effects of parenthood on husband-wife relations.

5220. FAMILY ECONOMICS. (288822) (4 cr; prereq 3260 or #; 1500-1730 MW; McNH 197) Gage
Variations in family income, saving, spending, and decision making related to socioeconomic factors. Conceptual development and research on economic problems of families.

5230. INDEPENDENT STUDY IN FAMILY SOCIAL SCIENCE. (785455) (1-5 cr [max 16 cr]) Staff

5240. SPECIAL TOPICS: FAMILY STRESS. (688820) (4 cr; 1300-1530 MW; McNH 198) Boss
Seminar for graduate students and upper level undergraduates about family stress theory and research and application through family therapy. Focuses on what makes families resilient, even during chronic illness, divorce, war, economic hardship, etc.

5251. AGING FAMILIES. (691507) (4 cr; prereq FSoS 5200 or SW 5024 or equiv; 0830-1100 TTh; McNH 197) Detzner
Aging families examined as complex developing systems interacting with a changing social structure. Marital relationships, role changes, and family caregiving issues are studied.

Study in the forests and lakes of Northern Minnesota

Learn while living in Itasca State Park: August 25-September 18, 1991.

Study Minnesota Plants (FR 3100); Field Forest Ecology (FR 3101); Important Plants: Fisheries and Wildlife Habitats (FR 3106); and, Fisheries and Wildlife Techniques (FW 3600); and Practicum in Forest Biology and Measurements (FR 5160).

For information see page 34, contact Professor Edward Sucoff, 612/624-7249, or write to the College of Natural Resources, University of Minnesota, 115 Green Hall, 1530 North Cleveland Ave., St. Paul, MN 55108.

5500. RACIAL AND ETHNIC MINORITY FAMILIES. (891506) (4 cr; prereq 5200; 1300-1530 TTh; McNH 198) McAdoo
Overview of family issues of various American racial and ethnic populations. Combines a study of research and case studies with individual projects to develop and enrich understanding of cultural diversity.

8230. DIRECTED STUDY. (091505) (1-5 cr; prereq #) Staff

8777. THESIS CREDITS: MASTERS. (989696) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589698) (1-36 cr [max 11 cr per summer term])

FIRST AND SECOND TERM: TEN-WEEK COURSE (Register once in Term I)

5249. FIELD WORK: DIRECTED COMMUNITY WORK EXPERIENCE. (989164) (5 cr [max 15 cr]; prereq 5231, human relationships maj or #; 1000-1130 T; McNH 375) Goodman

8553. INTERNSHIP IN MARITAL AND FAMILY THERAPY. (390769) (7 cr; prereq 8214, 8215, family therapy intern; A-F only)
Participation in actual marital and family therapy clinical practice in approved community setting with on-site supervision (one to one) plus on-campus supervision (group setting with fellow interns).

SECOND TERM

3240. MASS MEDIA AND COMMUNICATION TECHNIQUES FOR THE HUMAN SERVICES PROFESSION. (892011) (3 cr; prereq soph or above; 0900-1100 TTh; McNH 375) Macy

Introduction to various communication and mass media techniques. Discussion of how mass media (radio, television, press) and emerging technology (interactive video technology, CD-ROM) can enhance the social service profession.

3260. FAMILY RESOURCE MANAGEMENT. (291509) (4 cr; prereq AgEc 1030, Psy 1001, Soc 1001...Anth 1002, Pol 1001 rec; 0915-1145 MW; ClaOff B25) Rettig
Development of a theoretical systems framework to analyze behavior in families with emphasis on managerial aspects of behavior; goal setting, planning, and implementing resources.

5200. FAMILY RELATIONSHIPS. (189154) (5 cr; prereq Psy 1001, Soc 1001; 0830-1145 TTh; McNH 198) Olson

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.

5230. INDEPENDENT STUDY IN FAMILY SOCIAL SCIENCE. (886886) (1-5 cr [max 16 cr]) Staff

8230. DIRECTED STUDY. (491508) (1-5 cr; prereq #) Staff

76 Family Social Science—Foreign Studies Management

8319. ETHICAL AND LEGAL ISSUES IN MARITAL AND FAMILY THERAPY. (691510) (4 cr; prereq 8214, 8215, or #; 0915-1145 TTh; McNH 197) Maddock

Major issues including general social issues (e.g.; feminism), legal concerns (e.g.; reporting laws) and specific client situation (e.g. sexual exploitation by therapists) explored from a systemic perspective.

8777. THESIS CREDITS: MASTERS. (289954) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189955) (1-36 cr [max 11 cr per summer term])

Finance (BFin)

737 Management/Economics Building.
624-2888
Carlson School of Management

Refer to registration instructions for undergraduate Carlson School of Management courses on pages 11, 14.

FIRST TERM

83000. FINANCE FUNDAMENTALS. (685416) (4 cr, \$MBA 8040; limited to 50 students; prereq Acct 1025; 0900-1030 MTWTh; BlegH 135; A-F only)

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

83300. INVESTMENT MANAGEMENT AND FINANCIAL MARKETS. (485417) (4 cr, \$8300; limited to 40 students; prereq 3000; 0930-1030 MTWTh; BlegH 205)

Introduction to financial decision procedures for a variety of financial markets. Among the topics covered: banks and other financial intermediaries, risk-return relationships of various marketable securities, analytical techniques of portfolio management in changing financial markets.

FIRST AND SECOND TERM: TEN-WEEK COURSE (Register once in Term I)

8100. CASES IN FINANCIAL MANAGEMENT. (990735) (4 cr; limited to 15 students; prereq MBA 8040 or #, grad mgmt student or Grad Sch Mgmt approval; 1730-2000 M; BlegH 340; A-F only)

Introduction to corporate financial decision making. Cases used to illustrate what modern finance theory implies for evaluation of operating, e.g., marketing, production, strategic, and capital structure decisions. Intended primarily for students not specializing in finance.

8150. THEORY OF FINANCE. (885530) (4 cr; limited to 15 students; prereq MBA 8040 or #, grad mgmt/IR student or Grad Sch Mgmt approval; 1730-2000 M; BlegH 330; A-F only) Rigorous introduction to modern theory of finance. Discussion of, *inter alia*, capital budgeting, capital structure, dividend policy, asset pricing, application of option pricing to corporate finance, and efficiency of financial markets.

8200. FINANCIAL MARKETS AND INTEREST RATES. (889335) (4 cr; limited to 15 students; prereq MBA 8040 or #, grad mgmt or Grad Sch Mgmt approval; 1730-2000 Th; BlegH 425)

Survey of world financial markets. Among the topics covered: the term structure of interest rates, the interest rate-exchange rate and interest rate-inflation rate relationships, and the use of financial futures.

SECOND TERM

83000. FINANCE FUNDAMENTALS. (186478) (4 cr, \$MBA 8040; limited to 50 students; prereq Acct 1025; 0900-1030 MTWTh; BlegH 150; A-F only)

See First Term.

Fisheries and Wildlife (FW)

200 Hodson Hall, St. Paul. 624-3600
College of Natural Resources

(See also Itasca Biology Program, page 34, and Itasca Forestry session, page 43)

FIRST TERM

5393. SPECIAL PROBLEMS IN FISHERIES BIOLOGY. (985390) (Cr ar; prereq #) Staff
Individual field, library, and laboratory research in various lines of fisheries biology.

5398. SPECIAL PROBLEMS IN WILDLIFE BIOLOGY. (785391) (Cr ar; prereq #) Staff
Individual field, library, and laboratory research in various areas of wildlife biology.

8364.* RESEARCH IN FISHERIES BIOLOGY. (585392) (Cr ar; prereq fisheries grad) Staff

8377.* RESEARCH IN WILDLIFE BIOLOGY. (385393) (Cr ar; prereq wildlife grad) Staff

8777. THESIS CREDITS: MASTERS. (189700) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589703) (1-36 cr [max 11 cr per summer term])

SECOND TERM

3600. FISHERIES AND WILDLIFE FIELD TECHNIQUES—August 25-September 18. (788825) (5 cr; prereq 3052, □; offered at Itasca) Introduction to field techniques and skills; planning and implementing field projects; data collection and analysis using microcomputers; written reports and field journal.

5393. SPECIAL PROBLEMS IN FISHERIES BIOLOGY. (986457) (Cr ar; prereq #) Staff
See First Term.

5398. SPECIAL PROBLEMS IN WILDLIFE BIOLOGY. (786458) (Cr ar; prereq #) Staff
See First Term.

8364.* RESEARCH IN FISHERIES BIOLOGY. (586459) (Cr ar; prereq fisheries grad) Staff

8377.* RESEARCH IN WILDLIFE BIOLOGY. (986460) (Cr ar; prereq wildlife grad) Staff

8777. THESIS CREDITS: MASTERS. (989956) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (789957) (1-36 cr [max 11 cr per summer term])

Fluid Mechanics (FIME)

125 Mechanical Engineering. 625-0705
Institute of Technology

FIRST TERM

8777. THESIS CREDITS: MASTERS. (189681) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (789683) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (889948) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (689949) (1-36 cr [max 11 cr per summer term])

Food Science and Nutrition (FScN)

225 Food Science and Nutrition,
St. Paul. 624-1290
Colleges of Agriculture and Human Ecology

FIRST TERM

1612. PRINCIPLES OF NUTRITION. (789165) (4 cr; prereq HS Chem and Biol; 0800-1015 MWF, 0915-1015 TTh; FScN 15) Hanson
Fundamental concepts: human nutritional requirements, function of nutrients, nature of deficiencies. Vegetarianism, weight loss, fad diets, activity, obesity, cancer, heart disease, food processing safety, world food problems.

5111. INDEPENDENT STUDY IN FOOD SCIENCE AND NUTRITION. (185394) (1-5 cr [may be repeated for cr]; prereq Δ; hrs ar) Staff
Individual laboratory or library research in some area related to food science or nutrition.

85404. CURRENT ISSUES IN FOOD AND NUTRITION—July 1-16. (690194) (3 cr; limited to 25 students; prereq 15 cr in food science, nutrition or #; 0900-1130 MTWThF; ABLMS 222) 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. (085395) (1-5 cr; prereq Δ; hrs ar) Staff
Independent study and written reports.

8621. INDEPENDENT STUDY: NUTRITION. (885396) (1-9 cr; prereq #; hrs ar) Staff
Independent study and written reports.

8777. THESIS CREDITS: MASTERS. (889691) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (289694) (1-36 cr [max 11 cr per summer term])

SECOND TERM

5111. INDEPENDENT STUDY IN FOOD SCIENCE AND NUTRITION. (786461) (1-5 cr [may be repeated for cr]; prereq Δ; hrs ar) Staff
See First Term.

8401. INDEPENDENT STUDY: FOOD SCIENCE. (586462) (1-5 cr; prereq Δ; hrs ar) Staff
See First Term.

8403. ADVANCED TOPICS IN FOOD SCIENCE—July 18-August 1. (188823) (3 cr; prereq #; 0800-1045 MTWThF; ABLMS 222)
Review of recent research in food science.

8621. INDEPENDENT STUDY: NUTRITION. (386463) (1-9 cr; prereq #; hrs ar) Staff
See First Term.

8777. THESIS CREDITS: MASTERS. (689952) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (489953) (1-36 cr [max 11 cr per summer term])

Foreign Studies Management (FSMg)

290 Hubert H. Humphrey Center.
624-3313
Carlson School of Management

FIRST TERM

3460. INSTITUTE OF EUROPEAN STUDIES PROGRAM IN VIENNA, AUSTRIA. (189168) (1-54 cr; prereq □)

3490. INSTITUTE OF EUROPEAN STUDIES PROGRAM AT THE UNIVERSITY OF SINGAPORE. (089169) (1-45 cr; prereq □)

3620. COUNCIL ON INTERNATIONAL EDUCATIONAL EXCHANGE JAPANESE BUSINESS AND SOCIETY PROGRAM. (191897) (1-24 cr; prereq □)

3680. COUNCIL ON INTERNATIONAL EDUCATIONAL EXCHANGE BUSINESS AND SOCIETY PROGRAM IN SEVILLE, SPAIN. (991898) (1-26 cr; prereq □)

3820. DENMARK'S INTERNATIONAL BUSINESS STUDIES PROGRAM IN COPENHAGEN. (389170) (1-36 cr; prereq □)

Foreign Study (FoSt)

260 Social Sciences. 624-4525
College of Liberal Arts

FIRST TERM

0010. STUDY ABROAD. (488219)
(prereq permission of coordinator of Foreign Study; S-N only)
This no-credit registration allows students to maintain their status at the University while studying abroad; for less than half-time study.

0060. STUDY ABROAD. (888220)
(prereq permission of coordinator of Foreign Study; S-N only)
Same as 0010; for half-time but less than three-quarter-time study.

0090. STUDY ABROAD. (688221)
(prereq permission of coordinator of Foreign Study; S-N only)
Same as 0010; for program of more than three-quarter but less than full-time.

0120. STUDY ABROAD. (488222)
(prereq permission of coordinator of Foreign Study; S-N only)
Same as 0010; for program of full-time study abroad.

0150. STUDY ABROAD. (486499)
(prereq permission of coordinator of Foreign Study; S-N only)
Same as 0120; for full-time study on International Student Exchange program (ISEP).

SECOND TERM

0010. STUDY ABROAD. (288223)
(prereq permission of coordinator of Foreign Study; S-N only)
See First Term.

0060. STUDY ABROAD. (188224)
(prereq permission of coordinator of Foreign Study; S-N only)
See First Term.

0090. STUDY ABROAD. (988225)
(prereq permission of coordinator of Foreign Study; S-N only)
See First Term.

0120. STUDY ABROAD. (788226)
(prereq permission of coordinator of Foreign Study; S-N only)
See First Term.

0150. STUDY ABROAD. (586655)
(prereq permission of coordinator of Foreign Study; S-N only)
See First Term.

Foreign Study SPAN (FSSP)

107 Nicholson Hall. 626-1083
College of Liberal Arts

FIRST TERM

5960. PREPARATORY SEMINAR FOR SPAN OVERSEAS RESEARCH. (6 cr; prereq approval before Nov 1990 by a faculty selection committee; A-F only)
Sec 1 (288996) Australia, Gärhart
Sec 2 (391968) Berlin, Hirschbach
Sec 3 (191969) Ghana, Pike
Sec 4 (591970) Mexico, Miskowicz
Intensive study of culture and society to be visited, intercultural communication training, and development of the research project. Usually meets on Saturdays. Credit for 5960 not granted until completion of 5970.

SECOND TERM

5970. PREPARATORY SEMINAR FOR SPAN OVERSEAS RESEARCH. (6 cr; prereq satisfactory completion of first term; A-F only)
Sec 1 (088961) Australia, Gärhart
Sec 2 (391971) Berlin, Hirschbach
Sec 3 (191972) Ghana, Pike
Sec 4 (091973) Mexico, Miskowicz
Summer directed field study in Australia, Ghana, Berlin, or Mexico under the guidance of a SPAN faculty adviser accompanying each country group. Each student writes a comprehensive research paper upon return.

Forest Products (ForP)

203 Kaufert Laboratory, St. Paul.
624-9219
College of Natural Resources

FIRST TERM

8300.* RESEARCH PROBLEMS. (086871) (Cr ar) Staff

8301.* RESEARCH PROBLEMS. (886872) (Cr ar) Staff

8302.* RESEARCH PROBLEMS. (686873) (Cr ar) Staff

FIRST AND SECOND TERM: TEN-WEEK COURSES (Register once in Term I)

3301. INDUSTRIAL INTERNSHIP. (187431) (2 cr; prereq FP cooperative education student; A-F only)
Evaluation based on formal report written by student at end of each quarter of work assignment.

5401. SENIOR TOPICS. (787478) (prereq sr, #) (Cr ar)

SECOND TERM

8300.* RESEARCH PROBLEMS. (986846) (Cr ar) Staff

8301.* RESEARCH PROBLEMS. (786847) (Cr ar) Staff

8302.* RESEARCH PROBLEMS. (586848) (Cr ar) Staff

Forest Resources (FR)

115 Green Hall, St. Paul. 624-3400
College of Natural Resources
(See also Itasca Forestry Session Information, page 43).

FIRST TERM

3225. DIRECTED STUDY EXPERIENCE. (486664) (1-5 cr)

5225. DIRECTED STUDY EXPERIENCE. (792051) (1-5 cr)

8100.* RESEARCH PROBLEMS: SILVICULTURE. (486874) (Cr ar) Alm, Scholten

8101.* RESEARCH PROBLEMS: FOREST-TREE PHYSIOLOGY. (286875) (Cr ar) Sucoff

8102.* PROBLEMS: FOREST-TREE GENETICS. (186876) (Cr ar) Mohn, Furnier

8103.* RESEARCH PROBLEMS: FOREST HYDROLOGY. (986877) (Cr ar) Brooks, Perry

The Student Project for Amity Among Nations (SPAN)

SPAN was founded after World War II to promote friendship and understanding among nations. It does this by training and sending undergraduate and graduate students from 19 Minnesota colleges and universities to countries around the globe each summer to undertake individual research. Students apply a full year in advance and begin their academic preparation during the academic year prior to their summer abroad. Twelve credits are awarded at the completion of the research project.

For information come to the Span office in 107 Nicholson Hall or call 626-1083.

8105. ADVANCED FIELD SILVICULTURE. (186884) (3 cr; prereq 5101, #; offered at Cloquet Forestry Center) Staff
Selected current silvicultural problems and research. Plant-soil relationships with particular reference to forest soils. Methods of forest soil investigations in the field and in the laboratory.

8200.* RESEARCH PROBLEMS: FOREST MANAGEMENT. (786878) (Cr ar) Rose, Blinn, Hoganson

8201.* RESEARCH PROBLEMS: FOREST ECONOMICS. (586879) (Cr ar) Skok, Ellefson, Gregersen, Rose, Blinn

8202.* RESEARCH PROBLEMS: FOREST BIOMETRY. (986880) (Cr ar) Ek, Burk

8203.* RESEARCH PROBLEMS: FOREST RECREATION. (786881) (Cr ar) Anderson, Lime

8204.* RESEARCH PROBLEMS: FOREST POLICY. (586882) (Cr ar) Skok, Ellefson, Gregersen, Baughman

8205.* RESEARCH PROBLEMS: REMOTE SENSING. (386883) (Cr ar) Bauer, Martin, Queen

SECOND TERM

3225. DIRECTED STUDY EXPERIENCE. (788274) (1-5 cr)

5225. DIRECTED STUDY EXPERIENCE. (592052) (1-5 cr)

8100.* RESEARCH PROBLEMS: SILVICULTURE. (386849) (Cr ar) Alm, Scholten

8101.* RESEARCH PROBLEMS: FOREST-TREE PHYSIOLOGY. (786850) (Cr ar) Sucoff

8102.* PROBLEMS: FOREST-TREE GENETICS. (586851) (Cr ar) Mohn, Furnier

8103.* RESEARCH PROBLEMS: FOREST HYDROLOGY. (386852) (Cr ar) Brooks, Perry

8200.* RESEARCH PROBLEMS: FOREST MANAGEMENT. (186853) (Cr ar) Rose, Blinn, Hoganson

8201.* RESEARCH PROBLEMS: FOREST ECONOMICS. (086854) (Cr ar) Skok, Ellefson, Gregersen, Rose, Blinn

8202.* RESEARCH PROBLEMS: FOREST BIOMETRY. (886855) (Cr ar) Ek, Burk

8203.* RESEARCH PROBLEMS: FOREST RECREATION. (686856) (Cr ar) Anderson, Lime

8204.* RESEARCH PROBLEMS: FOREST POLICY. (486857) (Cr ar) Skok, Ellefson, Gregersen, Baughman

8205.* RESEARCH PROBLEMS: REMOTE SENSING. (286858) (Cr ar) Bauer, Martin, Queen

SPECIAL TERM OFFERED AT LAKE ITASCA FORESTRY AND BIOLOGICAL STATION—AUGUST 25-SEPTEMBER 18

83100. MINNESOTA PLANTS. (2 cr; each section limited to 20 students; prereq Biol 1103, Δ; offered at Itasca) Identification of plants as related to habitat.

Sec 1, (186859) Scholten
Sec 2, (486860) Scholten
Sec 3, (286861) Scholten
Sec 4, (186862) Scholten

83101. FIELD FOREST ECOLOGY. (3 cr; each section limited to 20 students; prereq Chem 1001 or 1004, Δ; offered at Itasca)

Field examination of succession, soils, silvical characteristics, tree classification, stand structure, and the ecology of regeneration.

Sec 1, (986863) Sucoff, Kurmis
Sec 2, (786864) Sucoff, Kurmis
Sec 3, (586865) Sucoff, Kurmis
Sec 4, (386866) Sucoff, Kurmis

3106. IMPORTANT PLANTS: FISHERIES AND WILDLIFE HABITATS. (290702) (1 cr; prereq 1; FW 3600 or #; A-F only) Splett
Field identification of important plants in fisheries and wildlife habitats. Offered at Itasca.

83201. FIELD FOREST MEASUREMENTS. (1 cr; each section limited to 20 students; prereq Math 1008, Δ; offered at Itasca)
Introduction to land survey, tree and stand measurement, and basic forest sampling techniques.

Sec 1, (186867) Splett
Sec 2, (086868) Splett
Sec 3, (886869) Splett
Sec 4, (186870) Splett

■1160. PRACTICUM IN FOREST BIOLOGY AND MEASUREMENTS. (187422) (3 cr; limited to 30 students; prereq graduate student, #; offered at Itasca) Sucoff, Splett
Plant identification, plant dynamics, land survey, tree measurement.

Forestry (Fors)

235 Natural Resources Administration Building (NRAB), St. Paul. 624-2774
College of Natural Resources

FIRST TERM

8777. THESIS CREDITS: MASTERS. (189977) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (089978) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (889979) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189980) (1-36 cr [max 11 cr per summer term])

French (Fren)

200 Folwell Hall. 624-4308
(French and Italian)
College of Liberal Arts

FIRST TERM

■1101. BEGINNING FRENCH. (5 cr; limited to 20 students)
Sec 1, (485837) 0915-1130
MTWThF, Arch 20

■1102. BEGINNING FRENCH. (285838) (5 cr; limited to 20 students; prereq 1101 or equiv; degree credit granted only according to Entrance Standard; 0800-1015 MTWThF; Arch 15)

■1103. BEGINNING FRENCH. (185839) (5 cr; limited to 20 students; prereq 1102 or Entrance Standard proficiency test; 0800-1015 MTWThF; FordH 70)

■1104. INTERMEDIATE FRENCH. (485840) (5 cr; limited to 20 students; prereq 1103 or 3 yrs high school French; 1030-1245 MTWThF; CivMinE 212)

■1106. INTERMEDIATE FRENCH. (385538) (5 cr; limited to 20 students; prereq 1105; 1030-1245 MTWThF; SmithH 111)

■3015. FRENCH COMPOSITION AND CONVERSATION. (285841) (4 cr; limited to 18 students; prereq 1106; 0915-1130 MWF; FolH 138) Robinson
Emphasis on writing, development of communication skills. Based on a consolidation of grammar.

■3017. STYLISTICS THROUGH TRANSLATION. (988824) (4 cr; limited to 18 students; prereq 3016 or superior achievement in 3015, #; 0915-1130 MWF; FolH 312) Waldauer
Organized around various perspectives: the arts, economics, politics, sociology.

■3550. TOPICS IN FRENCH CIVILIZATION: History of Paris. (889223) (4 cr; limited to 25 students; prereq 3015; 0915-1130 MWF; FolH 214) Gabriel
History of Paris from its origins to the present.

3970. DIRECTED READINGS. (185842) (1-5 cr; prereq undergrad, #, Δ, □)

8777. THESIS CREDITS: MASTERS. (189686) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (889688) (1-36 cr [max 11 cr per summer term])

8970. DIRECTED READINGS. (985843) (1-5 cr; hrs ar) Staff

FIRST AND SECOND TERMS: TEN-WEEK COURSE (Register once in Term I)

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 enroll for all three courses and may not enroll in other summer courses.** Prospective students should talk to an adviser before registering for intensive language courses.

■1101-1102-1103. BEGINNING FRENCH. (15 cr for both terms; limited to 20 students; 0915-1245 MTWThF; FolH 104)

■1101, Sec 5, (785844) June 11-July 3, 5 cr

■1102, Sec 5, (585845) July 5-July 30, 5 cr

■1103, Sec 5, (385846) July 31-August 21, 5 cr, Barnes

■1104-1105-1106. INTERMEDIATE FRENCH. (15 cr for both terms; limited to 20 students; 0915-1245 MTWThF; KoltH 5138)

■1104, (591581) Sec 5, June 11-July 3, 5 cr, Wieland

■1105, (391582) Sec 5, Junly 5-July 30, 5 cr

■1106, (191583) Sec 5, July 31-August 21, 5 cr

SECOND TERM

■1102. BEGINNING FRENCH. (387001) (5 cr; limited to 20 students; prereq 1101 or equiv; degree credit granted only according to Entrance Standard; 0915-1130 MTWThF; CivMinE 213)

■1103. BEGINNING FRENCH. (187002) (5 cr; limited to 20 students; prereq 1102 or Entrance Standard proficiency test; 0800-1015 MTWThF; JonesH 4)

■1105. INTERMEDIATE FRENCH. (087003) (5 cr; limited to 20 students; prereq 1104; 1030-1245 MTWThF; NichH 201)

■3016. ADVANCED FRENCH COMPOSITION AND CONVERSATION. (887004) (4 cr; limited to 18 students; prereq 3015 or #; 1145-1400 MWF; FolH 340) Akehurst, Sivert

■3601. LITERATURE IN ENGLISH TRANSLATION. (091584) (4 cr [cr does not count toward French major]; limited to 60 students; taught in English; 0915-1130 MWF; FolH 50) Akehurst
Representative works from the Middle Ages through the 18th century; movements; genres; themes.

3970. DIRECTED READINGS. (687005) (1-5 cr; prereq undergrad, #, Δ, □) Staff

8777. THESIS CREDITS: MASTERS. (089950) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (889951) (1-36 cr [max 11 cr per summer term])

8970. DIRECTED READINGS. (487006) (1-5 cr; hrs ar) Staff

French and Italian (Frlt)

200 Folwell Hall. 624-4308
(French and Italian)
College of Liberal Arts

FIRST TERM

■3608. NEW WAVE CINEMAS. (091231) (4 cr; limited to 60 students; does not count toward French major; knowledge of French and Italian helpful but not necessary; 1145-1400 MWF; FolH 306) Conley
Film work of directors recasting classical traditions of Europe and America. Filmic theories of the Western, B-genre; political cinema; Godard, Resnais, Rivette, Pasolini, Antonioni, Bertolucci. Course varies in structure.

G

General College (GC)

109 Appleby. 625-6663

GENERAL COLLEGE

The General College summer program offerings enable students to refine and further develop their study skills; to strengthen their academic record; and to prepare for transfer to degree programs. Courses are offered in mathematics, science, the social sciences, literature, speech, and writing. Students interested in planning a Summer Program are encouraged to call 625-3339 to make an academic planning appointment.

FIRST TERM

■1132. BIOLOGICAL SCIENCE: THE HUMAN BODY. (189199) (4 cr; limited to 40 students; 0800-1015 MTWThF; SciCB 125) Dearden
Problems of physical, mental, and social health related to anatomy, physiology, and needs of the human organism. In studying the heart, for example, instructor shows what it is, how it works, its importance to overall functioning of the body, what can go wrong with it, and what is known about keeping it on the job. Films, televised dissections, and demonstrations supplement lectures.

■1166. PHYSICAL SCIENCE: PRINCIPLES OF CHEMISTRY. (989200) (4 cr; limited to 30 students; 1030-1245 MTWThF; SciCB 125) Schwabacher
Fundamental principles and laws of chemistry, stressing theory development, application, roots in experience. Problem-solving techniques. Classification of matter, elements, atomic and molecular structure, compounds and chemical bonding, chemical reactions and stoichiometry, gas laws. No separate weekly laboratory.

■1421. WRITING LABORATORY: BASIC WRITING. (588177) (4 cr; limited to 18 students; 0800-1015 MTWThF; ApH 227)
Students write on various topics in response to reading and discussion. Personal help with writing problems. Emphasis on clear and effective written expression. Requires use of microcomputer; uses IBM PC.

■1456. FUNCTIONS AND PROBLEMS OF LOGIC. (490522) (4 cr; limited to 30 students; §1422; 1030-1245 MTWThF; ApH 223) Zanoni
Introduction to logical thinking. Application of critical analysis and techniques of precise reasoning to various types of discourse and argument, development of systematic thinking by learning about complexities of language, differences between good and bad evidence, and methods of deductive and inductive reasoning.

#1462. ORAL COMMUNICATION: SPEAKING AND CRITICAL THINKING. (591578) (4 cr; prereq 1461; limited to 20 students; 1030-1245 MTWThF; ApH 102) Benson

In conversations, discussions, and prepared speeches, students share ideas, attitudes and experiences with others. Focus is on methods of organizing and developing oral communication so that students are helped to increase skills in gathering and selecting material, organizing and presenting it in a manner appropriate to the particular audience and occasion. Modes and methods of critical thinking are explored in relation to effective oral communication. Students listen and respond to communication of others and comment on what they see, hear, and feel.

FIRST TERM: SHORT COURSES

Summer in the Cities

#1221. MINNESOTA HISTORY—June 11-27. (390514) (4 cr; limited to 25 students; 0900-1200 MTWThF; ApH 209) Buckley

Introduction to the settlement, economic development, politics, people, resources, and institutions of Minnesota. Compressed section will make use of the resources of several historic sites in the Twin Cities as well as those on campus. Some sessions will meet at Fort Snelling, the Ramsey House, the James J. Hill House, and the State Capitol complex; other sessions will meet on the Minneapolis campus.

#1284. BEHAVIOR PROBLEMS OF CHILDREN—July 1-16. (791577) (4 cr; limited to 25 students; 0845-1200 MTWThF; ApH 209) Latts

Study of children and adolescents displaying maladaptive and inappropriate behaviors, the causes of these behavior patterns, and what can be done to prevent and treat these behavior problems. Includes the hostile, aggressive child; passive, withdrawn child; school-phobic child; and juvenile delinquent. In addition to meeting on campus, class sessions will be held at Twin Cities agencies that deal with the behavior problems of children, such as Wilder Child Guidance Clinic, Early Childhood Center, an in-patient children's psychiatric ward, St. Joseph's Home for Children, PACER, and the juvenile court system.

#1311. ART: GENERAL ARTS—June 11-27. (890520) (4 cr; limited to 25 students; \$3311; 0900-1200 MTWThF; ApH 302; frequent off-campus field trips and gallery visits) Adamson

Examines representative works of art from genres of painting, sculpture, architecture, literature, and music to discover how and why art is created. Intensive two-week section takes advantage of the rich art resources of the Twin Cities. Visit to the major museums, the Minneapolis Sculpture Garden, galleries, architectural sites, and other institutions.

#1331. MUSICAL HERITAGE—July 1-16. (690521) (4 cr; limited to 25 students; 0845-1200 MTWThF; ApH 302; attendance at four evening music performances [may require ticket purchase]) Byrne

Listening awareness developed through acquaintance with sound of orchestral instruments, traditional means of organizing music, and representative works of some major composers. Intensive section takes advantage of the rich summer music opportunities in the Twin Cities. Focuses on materials fostering understanding of live performances, including Minnesota Orchestra Sommerfest, Music in the Parks, and other festivals.

FIRST AND SECOND TERM: EIGHT-WEEK COURSES

#0621. ELEMENTARY ALGEBRA—June 11-August 2. (189423) (No cr; limited to 30 students; \$1435; prereq GC math level C or 0611 or 1434; 1030-1200 MTWThF; ApH 303) Garfield

For students with strong arithmetic background. Sets, properties, signed numbers, equations, word problems, inequalities, graphing, polynomials, factoring, fractions, radicals.

#0625. INTERMEDIATE ALGEBRA, PART 1—June 11-August 2. (889433) (No cr; limited to 30 students; \$1445; prereq GC math level D or 0621 with grade of C or better or 1435; 1030-1200 MTWThF; ApH 219) Ganguli

Knowledge of signed numbers, linear equations, polynomials, factoring, fractions, and radicals assumed. Sets, real numbers, linear equalities, linear inequalities, absolute values, polynomials, rational expressions, exponents, roots, systems of equations, word problems.

#0631. INTERMEDIATE ALGEBRA, PART 2—June 11-August 2. (689434) (No cr; limited to 30 students; \$1446; prereq 0625 with a grade of C or better; 1030-1200 MTWThF; ApH 103) A. Johnson

Substantial knowledge of linear equations and inequalities, exponents, factoring, roots, and radicals assumed. Rational expressions, radicals, rational exponents, complex numbers, quadratic equations, inequalities, determinants and matrices, conic sections, functions and relations, exponential and logarithmic functions, sequences, series.

#0643. BASIC MATHEMATICS: PROGRAMMED STUDY—June 11-August 2. (489550) (No cr; limited to 20 students; prereq GC math level B or C or 0611 or 0641, □; may be repeated as needed; 1030-1200 MTWThF; ApH 9 [offered through Mathematics Learning and Assessment Center]) Math staff

With aid of instructor, topics selected from following: whole numbers, fractions, decimals, percents, signed numbers, formulas, simple graphs, ratio and proportion, sets, properties, equations, inequalities, rectangular graphs, polynomials, factoring, rational expressions, radicals.

FIRST AND SECOND TERM: SEVEN-WEEK COURSES

#1235. UNITED STATES: LAW IN SOCIETY—June 24-August 9. (690518) (4 cr; limited to 15 students; 0800-1015 TWTh; ApH 226) Hower

The role of law in our changing society; legal aspects of current topics. Courts and court systems, corrections, police-community relations, environmental problems, domestic problems, wills and probate, and insurance. When possible on individual or group basis, students visit conciliation, municipal, or district courts, prisons, workhouses, jails, juvenile detention centers, or similar institutions.

#1285. CULTURAL ANTHROPOLOGY—June 24-August 9. (490519) (4 cr; limited to 15 students; 0800-1015 TWTh; ApH 103) F. Johnson

Human culture viewed as integrated system of learned and shared knowledge that guides behavior of all members of given society. Attempt to develop generalizations about influence of culture on human behavior by analyzing and comparing ways of life in wide range of cultures. Power of culture to shape personality and power of individuals to alter cultures.

#1557. BUSINESS AND SOCIETY: FIELD EXPERIENCE—June 24-August 9. (790770) (4 cr; limited to 15 students; 0800-1015 WTh; ApH 223; T afternoon site visits arranged) S. Peterson

Career exploration in a business field. Business concepts studied in class, followed by field trips to local businesses ranging from large corporations to small, individually owned enterprises. Field trips include experiences both in business per se (manufacturing, marketing, management, finance) and also in the arts, sciences, and society in general (attending concerts, plays, and exhibits while learning about marketing in the arts).

SECOND TERM

#1112. SCIENCE IN CONTEXT: HUMAN USES OF THE ENVIRONMENT—July 17-31. (191575) (4 cr; limited to 30 students; 0900-1200 MTWThF; SciCB 125) Hatch

Study of ecology applied to our past, present, and future existence. Principles of ecology as seen in ecosystem structure and function; pollution of soil, water, and air resources; population explosion; and relationship of people, disease, food production, environmental controls to survival.

#1422. WRITING LABORATORY: COMMUNICATING IN SOCIETY. (086885) (4 cr; prereq 1421; limited to 18 students; 0800-1015 MTWThF; ApH 204) Miller

Primarily through expository writing, but also through reading and discussion, students analyze how people communicate in society, how they perceive events and ideas, how they think and write about them. Extensive writing practice. Requires use of microcomputer; uses IBM PC.

#1513. PRINCIPLES OF SMALL BUSINESS OPERATIONS. (389198) (4 cr; limited to 30 students; 1030-1245 MTWThF; ApH 226) Kroll

Environment and management of small business, problems of initiating business, financial and administrative control, marketing policies, and legal and governmental relationships. Designed specifically for those who plan to own or operate some form of small business in marketing-related area.

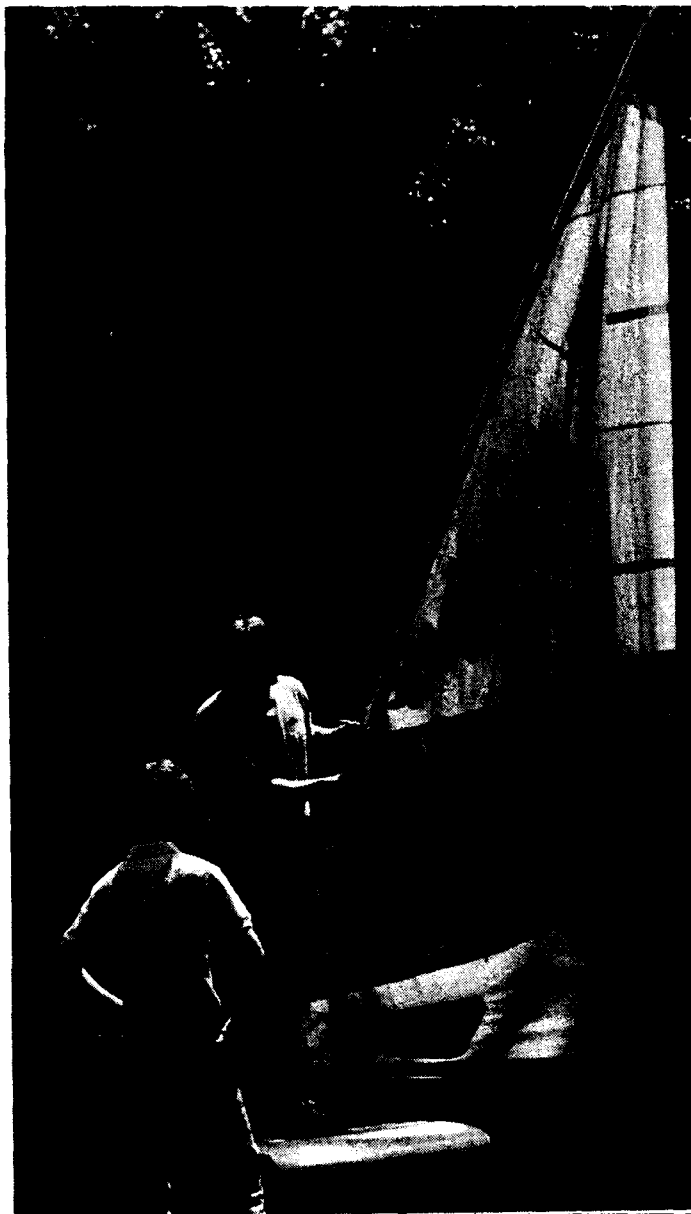
Geology field study

Fieldwork in geologic mapping (Geo 5111) will be conducted in a special term (June 10-July 19) in the Sawatch Mountains near Gunnison, Colorado. The course is restricted to geology, geophysics or geo-engineering majors who have satisfactorily completed the core sequence of Geo 1111 (or 1001), 3102, 3112, 3401, 5201, 5501, and 5651. A major paper is required. Instructor's permission is required for registration.

Workshops for teachers...

GEOLOGY AND GEOPHYSICS (Geo)

5051 Physical Geology for Teachers
5111 Field Geology (June 10-July 19)



Genetics (Gene)

250 Biological Sciences, St. Paul.
624-3003
(Genetics and Cell Biology)
College of Biological Sciences

FIRST TERM

8777. THESIS CREDITS: MASTERS. (089706) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (689708) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (589958) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (389959) (1-36 cr [max 11 cr per summer term])

Genetics and Cell Biology (GCB)

250 Biological Sciences, St. Paul.
624-3003
College of Biological Sciences

FIRST TERM

3022. GENETICS. (190720) (4 cr, §Biol 5003; not intended for biology majors; prereq Biol 1009; 1000-1120 MTWThF; ClaOff B35)

Mechanisms of heredity, their implications for biological populations, and applications to practical problems. Meets with 5022.

5022. GENETICS. (990721) (3 cr, §3022, §Biol 5003; not open to grad students in genetics; 1000-1120 MTWThF; ClaOff B35)
Meets with 3022. See 3022.

5134. ENDOCRINOLOGY. (091164) (4 cr; prereq Biol 3011, 5001 or #; 1145-1305 MTWThF; BioSci 6) W. Herman
Survey of structure and function of invertebrate and vertebrate endocrine systems.

5970. DIRECTED STUDIES. (088538) (Cr ar; prereq #, Δ) Staff
Individual study on selected topics or problems with emphasis on selected readings and use of scientific literature.

5990. DIRECTED RESEARCH. (888539) (Cr ar; prereq #, Δ) Staff
Laboratory or field investigation of selected areas of research.

8970. DIRECTED STUDIES. (185405) (Cr ar; prereq #) Staff

8990. RESEARCH. (985406) (Cr ar; prereq #) Staff

SECOND TERM

5970. DIRECTED STUDIES. (188540) (Cr ar; prereq #, Δ) Staff
See First Term.

5990. DIRECTED RESEARCH. (088541) (Cr ar; prereq #, Δ) Staff
See First Term.

8970. DIRECTED STUDIES. (486471) (Cr ar; prereq #) Staff

8990. RESEARCH. (286472) (Cr ar; prereq #) Staff

Geo-Engineering (GeoE)

122 Civil and Mineral Engineering Building. 625-5522
(Civil and Mineral Engineering)
Institute of Technology

FIRST TERM

5660. SPECIAL GEO-ENGINEERING PROBLEMS. (989052) (1-4 cr; prereq IT sr or #; A-F only)
Literature survey, research work, or design study in geo-engineering problems.

8777. THESIS CREDITS: MASTERS. (289713) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (989715) (1-36 cr [max 11 cr per summer term])

SECOND TERM

5660. SPECIAL GEO-ENGINEERING PROBLEMS. (091049) (2 cr; prereq IT sr or #; A-F only)

8612. GEO-ENGINEERING RESEARCH PROBLEMS. (891070) (1 cr; prereq #; A-F only)

8777. THESIS CREDITS: MASTERS. (389962) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189963) (1-36 cr [max 11 cr per summer term])

Geography (Geog)

414 Social Sciences. 625-6080
College of Liberal Arts

FIRST TERM

3121. LATIN AMERICA. (991514) (4 cr; 0915-1145 TTh; BlegH 105) Weil
Physical and human geography of Latin America.

3215. CHINA. (791515) (4 cr, §5215; 1030-1210 MWF; BlegH 435) Hsu
Socioeconomic geography of China. Environment as resource, population dynamics, economic development and social change. Geographic organization of human activities, regional contracts, foreign trade, and international relations. Meets with 5215.

3801. DEVELOPMENT OF GEOGRAPHIC THOUGHT. (692012) (4 cr; §5801; prereq 3 courses in geography; 1145-1325 MWF; BlegH 415) Mather
Concepts and methods of geography; differing schools of thought as expressed in contemporary geographic literature.

3940. DIRECTED FIELD STUDY. (588244) (2-4 cr; prereq #; A-F only) Staff
Guided individual field study.

3970. DIRECTED READINGS. (185850) (1-15 cr per qtr; prereq #, Δ, □) Staff

5112. WESTERN UNITED STATES. (789389) (4 cr; 0800-0940 MWF; BlegH 425) Mather
Physical and human resources of western United States.

5215. CHINA. (391517) (4 cr; §3215; prereq one course in social science; 1030-1210 MWF; BlegH 435) Hsu
Meets with 3215.

5701. FIELD RESEARCH—June 16-July 3. (189163) (4 cr; limited to 15 students; prereq 12 cr in geography, #) Borchert
Field investigation in physical, cultural, and economic geography; techniques of analysis and presentation; reconstruction of environments.

8777. THESIS CREDITS: MASTERS. (789716) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589717) (1-36 cr [max 11 cr per summer term])

8970. DIRECTED READINGS. (085851) (1-5 cr) Staff

SECOND TERM

1301. HUMAN GEOGRAPHY. (190233) (5 cr; 0915-1100 MWF; BlegH 225) Rice
Geography of population and principal ways of life; capacity of earth for future population.

3321. POLITICAL GEOGRAPHY. (491511) (4 cr; 0915-1015 MTWThF; BlegH 440) Schwartzberg
Scope and methods; selected concepts, problems, and areas.

3381. POPULATION GEOGRAPHY. (790235) (4 cr; 1145-1330 MWF; BlegH 415) Rice
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.

3940. DIRECTED FIELD STUDY. (388245) (2-4 cr; prereq #; A-F only) Staff
Guided individual field study.

3970. DIRECTED READINGS. (287007) (1-15 cr per qtr; prereq #, Δ, □) Staff

5132. SOUTH AMERICA. (191513) (4 cr; 0915-1145 TTh; BlegH 340) Weil
Physical resources, population, agriculture, manufacturing, and transportation in countries of South America.

5701. FIELD RESEARCH: Megalopolis Field Trip—September 4-13. (585571) (4 cr; limited to 9 students; prereq 12 cr in geography, #) Squires
Field investigation in physical, cultural, and economic geography; techniques of analysis and presentation; reconstruction of environments. Details reconnaissance of Megalopolis the urbanized Northeastern seaboard of the U.S.. Emphasis on patterns of long-term development and planning. Reconnaissance of selected important areas within the historic Megalopolis-Midwest transportation corridor en route to and from the east. Required readings and report to be arranged with instructor. Transportation and lodging costs will be partly subsidized. Limited to nine students. Consent of instructor required.

8777. THESIS CREDITS: MASTERS. (089964) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (889965) (1-36 cr [max 11 cr per summer term])

8970. DIRECTED READINGS. (187008) (1-5 cr) Staff

Geology and Geophysics (Geo)

106 Pillsbury. 624-1333
Institute of Technology

FIRST TERM

1001. THE DYNAMIC EARTH: AN INTRODUCTION TO GEOLOGY. (885494) (4 cr; limited to 90 students; 0915-1015 MTWThF; PillsH 110) Sloan
A nonmathematical survey of the earth; its internal and external structure; earthquakes and volcanoes, glaciers; mountain building and destruction, continent formation, seafloor spreading resources for our future. Meets with 5051 lecture.

1021. INTRODUCTION TO GEOLOGY LAB: GEOLOGY OF MINNESOTA. (1 cr; each lab limited to 25 students; prereq 1001 or 11001 or #; a 2 hr lab) Staff
Ten laboratory exercises based on the geology of Minnesota. Introduction to the bedrock, glacial history, topography, mineral resources, and environmental geology of the state through the use of appropriate minerals, rocks, topographic and geologic maps. Meets with 5051 labs.

Lab 1, (685495) 1030-1245 MWF, FordH 185

Lab 2, (485496) 1300-1515 MWF, FordH 185

3990. PROBLEMS IN GEOLOGY AND GEOPHYSICS. (188188) (1-6 cr; prereq #, Δ)

Research or problem selected on the basis of individual interests and background.

5051. PHYSICAL GEOLOGY FOR TEACHERS. (4 cr, \$1001, \$1111; each section limited to 4 students; only for students holding degrees in education; prereq 1 term college chemistry or physics; lect 0915-1015 MTWThF; seminar 1145-1245 TTh; PillsH 110) Sloan

Scientific methods and nature of the earth. Main features of the physical world and of the processes that have formed them. Meets with 1001 lecture, 1021 labs.

Lab 1, (485174) 1030-1245 MWF, FordH 185

Lab 2, (285175) 1300-1515 MWF, FordH 185

5111. FIELD GEOLOGY—June 10-July 19. (5-9 cr; section 1 limited to 40 students, section 2 limited to 20 students; limited to students majoring in geology, geophysics, or geoengineering; prereq 5201 #) Staff
Geologic mapping on topographic maps and aerial photos, field identification of igneous, sedimentary, and metamorphic rocks, measurement of stratigraphic sections, study of structural and geomorphic features. Major report required after completion of field work.

Sec 1, (988189) (9 cr)

Sec 2, (387354) (5 cr; prereq grad student; ar)

8777. THESIS CREDITS: MASTERS. (889710) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (689711) (1-36 cr [max 11 cr per summer term])

SECOND TERM

3990. PROBLEMS IN GEOLOGY AND GEOPHYSICS. (886760) (1-6 cr; prereq #, Δ)
See First Term.

8777. THESIS CREDITS: MASTERS. (789960) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589961) (1-36 cr [max 11 cr per summer term])

German (Ger)

231 Folwell Hall. 625-2080
College of Liberal Arts

To give students a chance to use the language skills they are learning in class, the German Department offers a daily "German Table" to which students of German can bring their lunches. With the help of a German teaching assistant, students converse in German in a non-judgmental, informal setting. Separate times are available for beginning and more advanced students so that students can practice at their own level.

FIRST TERM

1101. BEGINNING GERMAN. (5 cr [CLA degree credit granted only if entrance standard met]; \$1000; each section limited to 20 students) Listening and reading comprehension, writing, speaking.

Sec 1, (885852) 0800-1015 MTWThF, FordH 285

Sec 2, (790493) 0800-1015 MTWThF, NichH 207

1104. INTERMEDIATE GERMAN. (985082) (5 cr; limited to 25 students; prereq 1103 or 10 cr of 1110 or Entrance Standard proficiency test; 0915-1130 MTWThF; FordH 60) See 1101 First Term.

1106. INTERMEDIATE GERMAN. (585540) (5 cr; limited to 25 students; prereq 1105 or placement; 0915-1130 MTWThF; Kolth S134) See 1101 First Term

3011. CONVERSATION AND COMPOSITION. (387368) (4 cr; limited to 20 students; prereq 1106 and the graduation proficiency test; 0800-1015 MTWTh; JonesH 11) Parente
Spoken German; composition; development of vocabulary; grammar review.

3104. READING AND ANALYSIS OF PROSE. (891599) (4 cr; limited to 20 students; prereq 1106 or #; 1030-1130 MTWThF; FolH 426) Teraoka
Reading fluency; appreciation of literary values through literary interpretation and familiarization with critical terminology.

3501. CONTEMPORARY GERMANY: THE FEDERAL REPUBLIC. (391601) (4 cr; limited to 25 students; prereq 1106; 1145-1245 MTWThF; FolH 240) Weiss
Culture of the Federal Republic of Germany and its evolution since 1949. Lectures in English, readings in German.

3610. GERMAN AUTHORS IN TRANSLATION. (4 cr [max 12 cr; (does not count toward German major or minor); limited to 30 students; may be used in fulfillment of Route II, Part B of former BA foreign language requirement; knowledge of German not required])

Sec 1, Friedrich Nietzsche (385541) 1030-1130 MTWThF, FolH 240, Taraba
Lectures and discussions; works to be read include *Thus Spoke Zarathustra*, *Beyond Good and Evil*, *On the Genealogy of Morals*, *Ecce Homo*, and *The Antichrist*.

8777. THESIS CREDITS: MASTERS. (389718) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589720) (1-36 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

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 enroll in all three courses and may not enroll in other summer courses.** Prospective students should talk to an adviser before registering for intensive language courses.

Workshops for teachers...

HOME ECONOMICS EDUCATION (HEEd)

- 5300 Home Economics Curriculum (June 11-21)
- 5320 Adult Education in Home Economics (July 1-12)
- 5404 Introduction to Early Childhood Family Education Programs (June 19)
- 5406 Special Topics in Parent and Family Education: Parent Education for Families At-Risk (June 20-22 and arranged)
- 5407 Family Life Education (July 17-28)
- 5409 Group Methods for Parent and Family Education (July 1-5)
- 5315 Evaluation: Theoretical and Technical Aspects (August 5-16)
- 5405 Child Development and Parent Education (July 22-August 2)
- 5510 Orientation to Teaching Home Economics (July 29-August 19)

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 11 through August 21. It will provide intensive study of the language as well as learning experiences in 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 normal 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 Classical and Near Eastern Studies, 331 Folwell Hall, 9 Pleasant St. S.E., University of Minnesota, Minneapolis, MN 55455.

■1101-1102-1103. **BEGINNING GERMAN.** (15 cr for both terms [CLA degree credit granted only if entrance standard met]; \$1000, \$1110; limited to 23 students; 0915-1245 MTWThF; AmundH 158)
Structure, listening and reading comprehension, writing, speaking.

■1101, Sec 5, (685853) June 11-July 3, 5 cr

■1102, Sec 5, (485854) July 5-29, 5 cr

■1103, Sec 5, (285855) July 30-August 21, 5 cr

SECOND TERM

■1102. **BEGINNING GERMAN.** (5 cr, \$1110; each section limited to 23 students; prereq 1101 or 1000; CLA degree credit granted only according to entrance standard)

Sec 1, (987009) 0800-1015 MTWThF, ChDev 218

Sec 2, (390495) 0800-1015 MTWThF, SmithH 111

See 1101 First Term.

■1105. **INTERMEDIATE GERMAN.** (788811) (5 cr; limited to 25 students; prereq 1104 or placement; 1030-1245 MTWThF; SmithH 111)
See 1101 First Term.

■3012. **CONVERSATION AND COMPOSITION.** (191602) (4 cr; limited to 20 students; prereq 3011; 0800-1015 MTWThF; FolH 234)
See 3011 First Term.

■3105. **READING AND ANALYSIS OF DRAMA AND POETRY.** (289226) (4 cr; limited to 20 students; prereq 1106 or #; 1030-1245 MWF; FolH 234)
Schulte-Sasse
Reading fluency; appreciation of literary values through literary interpretation and familiarization with critical terminology.

■3610. **GERMAN TOPICS IN TRANSLATION.** (4 cr [max 12 cr]; [does not count toward German major or minor]; limited to 30 students; may be used in fulfillment of Route II, Part B of former BA foreign language requirement; knowledge of German not required)

Sec 1, **Literature of the German Democratic Republic.** (489421) 1030-1130 MTWThF; FolH 306
Examination of both unique and universal aspects of modern East German literature.

8777. **THESIS CREDITS: MASTERS.** (489967) (1-16 cr [max 11 cr per summer term])

8888. **THESIS CREDITS: DOCTORAL.** (289968) (1-36 cr [max 11 cr per summer term])

Germanic Philology (GPhl)

304 Walter Library. 626-0805
(Center for Medieval Studies)

FIRST TERM

8777. **THESIS CREDITS: MASTERS.** (189722) (1-16 cr [max 11 cr per summer term])

8888. **THESIS CREDITS: DOCTORAL.** (089723) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. **THESIS CREDITS: MASTERS.** (089981) (1-16 cr [max 11 cr per summer term])

8888. **THESIS CREDITS: DOCTORAL.** (889982) (1-36 cr [max 11 cr per summer term])

Graduate School (Grad)

316 Johnston Hall. 625-3490

FIRST TERM

0000. **STUDENT STATUS.** (388195) (0 cr; prereq graduate student)

SECOND TERM

0000. **STUDENT STATUS.** (188196) (0 cr; prereq graduate student)

Greek (Grk)

310 Folwell Hall. 624-0060
(Classical and Near Eastern Studies)
College of Liberal Arts

FIRST TERM

8777. **THESIS CREDITS: MASTERS.** (489726) (1-16 cr [max 11 cr per summer term])

8888. **THESIS CREDITS: DOCTORAL.** (289727) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. **THESIS CREDITS: MASTERS.** (689983) (1-16 cr [max 11 cr per summer term])

8888. **THESIS CREDITS: DOCTORAL.** (489984) (1-36 cr [max 11 cr per summer term])

H

Health Informatics (HInf)

Box 511 Mayo. 625-8440
(Laboratory Medicine and Pathology)
Medical School

FIRST TERM

■5446. **BIOCOMPUTING CONSULTING SEMINAR.** (689014) (3 cr; prereq HInf major, 5432, PubH 5454 or #; limited to 10 students)
Overview of new computer and communications hardware and software for health science applications. Group work on client projects illustrates roles and responsibilities involved in analyzing requirements of health science clients, specifying and designing computer and data-base interfaces, and coordinating system life cycle process.

■5470. **TOPICS IN HEALTH INFORMATICS.** (489015) (cr ar; prereq #; limited to 10 students)
Selected readings and/or projects.

■8449. **ADVANCED READINGS IN HEALTH INFORMATICS.** (289016) (1-3 cr; prereq 5432, PubH 5434, #; limited to 10 students) Staff
Discussion of methodology and results.

#8450. RESEARCH IN HEALTH INFORMATICS. (189017) (cr ar; prereq #; limited to 10 students) Staff

8777. THESIS CREDITS: MASTERS. (589734) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189736) (1-36 cr [max 11 cr per summer term])

SECOND TERM

#5446. BIOCUMPING CONSULTING SEMINAR. (789022) (3 cr; prereq Hlnf major, 5432, PubH 5454 or #; limited to 10 students) See First term.

#5470. TOPICS IN HEALTH INFORMATICS. (589023) (cr ar; prereq #; limited to 10 students) See First term.

#8449. ADVANCED READINGS IN HEALTH INFORMATICS. (389024) (1-3 cr; prereq 5432, PubH 5434, #; limited to 10 students) Staff See First term.

#8450. RESEARCH IN HEALTH INFORMATICS. (189025) (cr ar; prereq #; limited to 10 students) Staff See First term.

8777. THESIS CREDITS: MASTERS. (189986) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (989987) (1-36 cr [max 11 cr per summer term])

Health Science Units (HSU)

W64 Centennial Hall. 624-7102
Health Sciences

FIRST TERM

5210. TERMINOLOGY OF THE HEALTH SCIENCES. (688770) (2cr, \$SAHP 5210) McKennell
Programmed learning course covering current and traditional usage; language of health care delivery. Call 612/624-2442 for more information.

SECOND TERM

5210. TERMINOLOGY OF THE HEALTH SCIENCES. (488771) (2 cr, \$SAHP 5210) McKennell
Programmed learning course covering current and traditional usage; language of health care delivery. Call 612/624-2442 for more information.

Hebrew (Hebr)

178 Klaeber Court. 624-0060
(Classical and Near Eastern Studies)
College of Liberal Arts
(See also Jewish Studies; ANE)

FIRST TERM

3980. DIRECTED INSTRUCTION. (885690) (1-5 cr; prereq #, Δ, □)
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. (485952) (Cr ar; for advanced students wishing to work on special problems; prereq 3013, #, Δ, CLA approval)

**FIRST AND SECOND TERMS:
TEN-WEEK COURSE (Register once in Term I)**

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 enroll in all three courses and may not enroll in other summer courses.** Prospective students should talk to an adviser before registering for intensive language courses.

#1101-1102-1103. BEGINNING HEBREW ("ULPAN"). (15 cr for both terms; each section limited to 30 students; 0915-1245 MTWThF; AmundH 104) Shendar
Specially designed summer program combining language study with learning experiences in 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. See page 82.

Sec 5, (286665) June 11-July 5, 5 cr
Sec 5, (186666) July 8-26, 5 cr
Sec 5, (986667) July 29-August 21, 5 cr

SECOND TERM

3980. DIRECTED INSTRUCTION. (685691) (1-5 cr; prereq #, Δ, □)
See First Term.

5970. DIRECTED READINGS. (887021) (Cr ar; for advanced students wishing to work on special problems; prereq 3013, #, Δ, CLA approval)

Higher Education (HiEd)

275 Peik Hall. 624-1006
(Educational Policy and Administration)
College of Education

See EdPA

History (Hist)

614 Social Sciences. 624-2800
College of Liberal Arts

FIRST TERM

1002. INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES. (387340) (4 cr, \$1002H, \$3002; not open to jrs, srs; 1030-1130 MTWThF; BlegH 115) Thayer
Revolution, liberalism, and nationalism to 1870. Meets with 1002H and 3002.

1002H. HONORS COURSE: INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES. (786654) (4 cr, \$1002, \$3002; not open to jrs, srs; prereq #; 1030-1130 MTWThF; BlegH 115) Thayer
See 1002. Meets with 1002 and 3002.

1052. ANCIENT CIVILIZATION. (091519) (4 cr; \$3052; 0915-1015 MTWThF; BlegH 150) Kelly
History and civilization of the ancient world, 500-146 B.C. to A.D. 337. Meets with 3052.

1101. INTRODUCTION TO MEDIEVAL HISTORY. (589166) (4 cr; 1030-1130 MTWThF; BlegH 260) Bachrach
Europe from the decline of Rome to the early Renaissance politics, institutions, society, economy, and culture of the Middle Ages.

1301. AMERICAN HISTORY. (389167) (4 cr, \$1301H; 1030-1130 MTWThF; AndH 370) Staff
Colonial era and early national period from the Revolution through Civil War and Reconstruction. Meets with 1301H.

1301H. HONORS COURSE: AMERICAN HISTORY. (689336) (4 cr, \$1301; prereq #; 1030-1130 MTWThF; AndH 370) Staff
See 1301 for description. Meets with 1301.

1305. CULTURAL PLURALISM IN AMERICAN HISTORY. (790249) (4 cr; 1030-1130 MTWThF; BlegH 110) Staff
Survey of the development of American society focusing on the role of Afro-Americans, American Indians, Asian Americans and Hispanic Americans. Concepts of cultural pluralism, racism, and inter-group relations will be explored within comparative historical research.

1402. SURVEY OF LATIN AMERICAN HISTORY: 1800-1929. (191521) (4 cr, \$3402, LAS3402; 1145-1245 MTWThF, BlegH 110) Staff
Development of new nations from independence to the emergence of dependent economics. Meets with 3402.

3002. INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES. (187341) (4 cr, \$1002, \$1002H; 1030-1130 MTWThF; BlegH 115) Thayer
See 1002. Meets with 1002 and 1002H.

3052. ANCIENT CIVILIZATION. (391520) (4 cr; \$1052; 0915-1015 MTWThF; BlegH 150) Kelly
See 1052 for description. Meets with 1052.

3245. HISTORY OF EASTERN EUROPE, 19TH AND 20TH CENTURIES. (091522) (4 cr; 1030-1130 MTWThF); Rudolph
Poland, Czechoslovakia, Hungary, Romania, and Yugoslavia, Nationalism, and formation of national states; fascism and World War II. Jews in Eastern Europe; communist takeovers, society in Communist Eastern Europe today.

3402. SURVEY OF LATIN AMERICAN HISTORY, 1800-1929. (891523) (4 cr; \$1402, LAS3402; 1145-1245 MWTh); Staff
See 1402 for description. Meets with 1402.

3421. THE WORLD AND THE WEST. (691524) (4 cr; 0915-1015 MTWThF; HHHCr 20) Kopf.
Survey of the political, economic, and cultural interaction among the peoples of Europe, Africa, America, and Asia. Era of western dominance.

3468. PEOPLE'S REPUBLIC OF CHINA: THE COMMUNIST REVOLUTION, 1900 TO PRESENT. (189171) (4 cr, \$5468, SEAS 3468; 0915-1015 MTWThF; HHHCr 30) Farmer
Introduction of Marxism to China, rise of Communist Party, and development of a rural guerilla movement. The career of Mao Tse-tung and developments in the People's Republic. The Great Leap. Cultural Revolution, Gang of Four. Meets with Hist 5468 and EAS 3468.

3505. SURVEY OF THE MIDDLE EAST. (491525) (4 cr, \$MidE 3505, MidE 5505; 0900-1130 MW; BlegH 330) Farah
Lands and peoples of the Middle East, historical evolution of Middle East civilizations and societies, status of Middle East countries in world affairs. Meets with MidE 3505, MidE 5505.

3621. RENAISSANCE ITALY, 1200-1530. (390254) (4 cr; 0800-0900 MTWThF; BlegH 350) Tracy
Politics and culture in the city-states from Dante to Machiavelli.

3637. RUSSIAN HISTORY FROM PETER THE GREAT TO THE PRESENT. (991982) (4 cr; \$5133; 1145-1245 MWThF; BlegH 135) Stravrou
A survey of Russian history since Peter the Great.

3748. THE AUSTRIAN REPUBLIC FROM WORLD WAR I TO PRESENT. (189180) (4 cr; 0915-1130 TTh; BlegH 330) Wright
The First Republic, "the state no one wanted," Anschluss and Hitler, World War II, decade of occupation, the new Austria.

3822. UNITED STATES IN THE 20TH CENTURY, 1932-1960. (190255) (4 cr; 0915-1015 MTWThF; BlegH 145) Berman
The Great Depression and the New Deal; the challenge of fascism and the coming of World War II; the origins of the Cold War; the Great Red Scare; the politics and culture of the Eisenhower era; the origins of the civil rights movement.

3883. HISTORY OF AMERICAN FOREIGN RELATIONS. (989181) (4 cr; 1030-1130 MTWThF; BlegH 145) Brauer
American foreign relations during the Cold War, 1941 to present.

3970. DIRECTED STUDIES. (185856) (1-15 cr; prereq #, Δ, □)
Guided individual reading or study. Open to qualified students for 1 or more quarters.

3990. DIRECTED RESEARCH. (985857) (1-15 cr; prereq #, Δ, □)
Qualified students, with consent of instructor, work on a tutorial basis.

5285. DIPLOMATIC HISTORY OF EUROPE, 1900-1945. (090256) (4 cr; 0915-1015 MTWThF; BlegH 260) Kieft
The World Wars.

5468. PEOPLE'S REPUBLIC OF CHINA: THE COMMUNIST REVOLUTION, 1900 TO PRESENT. (190250) (4 cr, \$3468, SEAS 3468; 0915-1015 MTWThF; HHHCr 30) Farmer
See 3468. Meets with 3468 and EAS 3468.

Minnesota History Workshop to be held in Duluth July 21-August 3

Minnesota History comes alive in this two-week intensive survey of Lake Superior history which will be held this year in Duluth. You will study various artistic and literary sources that portray "the big-sea water's" storied past. Participants will, as in years past, create exhibits combining research in local and university resources with experiences of the crafts of Minnesota artists and writers.

The workshop includes lectures, readings, demonstrations, field trips, and group discussions. Finished products will be displayed at a final reception and used in the classrooms of the participants. For further information, contact Phil Fitzpatrick, Minnesota Historical Society, 240 Summit Avenue, St. Paul, MN 55102, (612) 296-1055. Graduate credit available through the Department of History, University of Minnesota.

Home Economics Education

Courses which meet requirements or licensure as an Adult Parent Educator are scheduled over first and second terms. Scheduled courses meet requirements for adult methods, child development and parent education, group methods, family life education, and introduction to early childhood family education.

A special topics course, **Parent Education for Families at Risk**, is offered for those attending the Parent Education Institute for teachers and trainers of parent educators at the University of Minnesota, June 20-22. In addition to attending the Institute, students will develop action projects to do in their own communities. This is a unique opportunity to work with national leaders in parent education. The course is cross-listed with HEEd 5406 and Educ 5103.

HEEd 5404 Introduction to Early Childhood Family Education Program gives an overview of this model of parent education developed in Minnesota. It is offered for both Parent Education Institute participants and parent education students who need the course for licensure. The course is scheduled for June 19.

5970. DIRECTED STUDIES. (785858) (1-15 cr; prereq #, Δ, CLA approval) Qualified senior and graduate students may register for work on tutorial basis. Guided individual reading or study.

5990. DIRECTED RESEARCH. (585859) (1-15 cr; prereq #, Δ, CLA approval) Qualified senior and graduate students may register for work on tutorial basis.

8777. THESIS CREDITS: MASTERS. (889738) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (089740) (1-36 cr [max 11 cr per summer term])

SECOND TERM

1001. INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES. (388827) (4 cr, §1001H, §3001; not open to jrs, srs; 1030-1130 MTWThF; Bleg 155) Staff Western European civilization to 1715. Meets with 1001H and 3001.

1001H. HONORS COURSE: INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES. (289002) (4 cr, §1001, §3001; not open to jrs, srs; prereq #; 1030-1130 MTWThF; Bleg 155) Staff See 1001. Meets with 1001 and 3001.

1053. ANCIENT CIVILIZATION. (291526) (4 cr; §3053; 0915-1015 MTWThF; BlegH 330) Evans J. History of civilization of the ancient world, 146 B.C. to A.D. 337. Meets with 3053.

1302. AMERICAN HISTORY. (789182) (4 cr, §1302H; 1030-1130 MTWThF; BlegH 110) Staff Modern America from 1880 to the present. Meets with 1302H.

1302H. HONORS COURSE: AMERICAN HISTORY. (589183) (4 cr, §1302; prereq #; 1030-1130 MTWThF; BlegH 110) Staff See 1302. Meets with 1302.

3001. INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES. (188828) (4 cr, §1001, 1001H; 1030-1130 MTWThF; BlegH 155) Staff For description see 1001. Meets with 1001, 1001H.

3053. ANCIENT CIVILIZATION. (191527) (4 cr; §1053; 0915-1015 MTWThF; BlegH 330) Evans J. See 1053 for description. Meets with 1053.

3348. WOMEN IN MODERN AMERICA: 1890-1980. (890260) (4 cr; 1030-1130 MTWThF; BlegH 330) Staff Women in the United States from the late Victorian era to the present: changes in labor force participation, family patterns, sexuality, education, feminism, images of women from Gibson girl to a feminine mystique.

3722. EUROPE IN THE ERA OF WORLD WAR II. (991528) (4 cr, §3224; 0900-1100 TWTh, BlegH 260) Munholland Rise of fascism and totalitarian movements in Europe; political and military origins of World War II, course of the war; and impact on European Society.

3823. UNITED STATES IN THE 20TH CENTURY: 1960 TO THE PRESENT. (791529) (4 cr; 1030-1130 MTWThF, BlegH 135) Spear

The conflicts of the 1960s; the New Frontier and Great Society, the black struggle for freedom; the Vietnam War; the new left and counterculture; the women's movement and gay liberation; Watergate and the uncertainties of the 1970s; the Reagan counterrevolution.

3844. AMERICAN ECONOMIC HISTORY, COLONIAL PERIOD TO CIVIL WAR. (191530) (4 cr; 0915-1015, MTWThF, BlegH 210) Green Economic development, regional specialization, and early industrialization. Slavery and southern development. The role of railroads and government policies. Economic impact of the Civil War.

3970. DIRECTED STUDIES. (187016) (1-15 cr; prereq #, Δ, □) See First Term.

3990. DIRECTED RESEARCH. (087017) (1-15 cr; prereq #, Δ, □) See First Term.

5381. MINNESOTA HISTORY WORKSHOP: The shores of Gitche Gummi—July 21-August 3. (985664) (5 cr; students repeating workshop register for 5970, sec. 2; limited to 50 students. Held in Duluth)

Designed for upper elementary and secondary teachers, the Minnesota History Workshop is a two-week introduction to state and local history and to the collections of the Minnesota Historical Society. See box.

5473. FAMILY, SCHOOL, AND WORK IN MODERN JAPANESE HISTORY. (991531) (4 cr; 1145-1245 MTWThF, BlegH 260) Marshall Impact of industrialization on family, life, economic role of women, educational opportunities and curriculum, and the work ethic, and the Japanese employment system in the 19th and 20th centuries.

5970. DIRECTED STUDIES. (prereq #, Δ, CLA approval)

Sec 1, (085087) (1-15 cr) See First Term.

Sec 2, (785665) (5 cr; for students who are repeating Hist 5381, Minnesota History Workshop, Duluth, MN, July 21-August 3)

5990. DIRECTED RESEARCH. (887018) (1-15 cr; prereq #, Δ, CLA approval) See First Term.

8777. THESIS CREDITS: MASTERS. (789988) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589989) (1-36 cr [max 11 cr per summer term])

History of Medicine (HMed)

510 Diehl Hall. 624-4416
Medical School

FIRST TERM

8777. THESIS CREDITS: MASTERS. (889741) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (689742) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (989990) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (789991) (1-36 cr [max 11 cr per summer term])

History of Science and Technology (HSci)

342 Physics. 624-7069
College of Liberal Arts

FIRST TERM

8888. THESIS CREDITS: DOCTORAL. (789750) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8888. THESIS CREDITS: DOCTORAL. (189994) (1-36 cr [max 11 cr per summer term])

Home Economics Education (HEEd)

325 Vocational/Technical Building,
St. Paul. 624-3010
(Vocational and Technical Education)
College of Education

FIRST TERM

5027. PRACTICUM: PLACEMENT FOR EXTENSION EXPERIENCES. (087423) (2-9 cr [max 9 cr], \$HEEd 3605, \$AgEd 5027; hrs ar, VoTech 325 M, S-N optional) Smith

Observation of the activities of county extension staff; familiarization with staff, program planning and development, county committee, youth activities, and office activities; opportunity to participate in functions of an extension educator.

5300. HOME ECONOMICS CURRICULUM—June 11-21. (891232) (3 cr; limited to 25 students 0900-1200 MTWThF; VoTech R370; A-F only)

Pearson
Examination of research and literature; development of units of study and programs at elementary and secondary levels; production and evaluation of materials.

5320. ADULT EDUCATION IN HOME ECONOMICS—July 1-12. (186576) (3 cr; limited to 25 students; 0900-1200 MTWThF; VoTech R370; A-F only) Ernst

Planning a community program; teaching procedures; special problems.

5404. INTRODUCTION TO EARLY CHILDHOOD FAMILY EDUCATION PROGRAM—June 19. (089186) (1 cr; 0800-1700 W; VoTech R390; A-F only) Cooke

Concept and philosophy of such programs as a basis for program implementation.

5406. SPECIAL TOPICS IN PARENT AND FAMILY EDUCATION: Parent Education for Families at Risk—June 20-22 & Ar. (691233) (1-6 cr; limited to 20 students; Ar ThFs; VoTech R390; S-N opt) McClelland
Study of issues and current literature focused on emerging topics relevant to parent and family education. This offering for 2 credits. This course is offered concurrently with AdEd 5103.

5407. FAMILY LIFE EDUCATION—June 17-28. (786444) (1-4 cr [max 12 cr]; limited to 25 students; 1300-1545 MTWThF; VoTech R380; A-F only) Rossmann
Objectives, content, curriculum development, methods, materials, and evaluation approaches for teaching diverse groups of youth and adults family life concepts including current research in communication, relationships, sexuality, self-esteem, and decision making. This offering for 3 credits.

5409. GROUP METHODS FOR PARENT AND FAMILY EDUCATION—July 1-5. (485546) (2 cr; limited to 25 students; 1300-1730 MTWThF; VoTech R380; A-F only) Bowman
Methods and theories applied to development of skills for leading parent and family education groups.

5900. READINGS: HOME ECONOMICS EDUCATION. (1-3 cr [max 12 cr]; prereq #; hrs ar; A-F only) Independent study under tutorial guidance.

Sec 22, (988788) Rossmann
Sec 23, (090239) McClelland

5920. DIRECTED STUDIES. (1-6 cr; prereq #; hrs ar; S-N optional) Opportunity for individualized learning experience not covered by regular courses.

Sec 22, (788789) Rossmann
Sec 23, (390240) McClelland

8777. THESIS CREDITS: MASTERS. (989729) (1-16 cr [max 11 cr per summer term])

8900. PROBLEMS: HOME ECONOMICS EDUCATION. (1-9 cr; prereq 8300, #; hrs ar) Independent study of current educational problems.

Sec 22, (188790) Rossmann
Sec 23, (190241) McClelland

SECOND TERM

5027. PRACTICUM: PLACEMENT FOR EXTENSION EXPERIENCES. (988791) (2-9 cr [max 9 cr], \$HEEd 3605, \$AgEd 5027; hrs ar; S-N optional) Smith
See First Term.

5315. EVALUATION: THEORETICAL AND TECHNICAL ASPECTS—August 5-16. (491234) (3 cr; limited to 25 students; 0900-1145 MTWThF; VoTech R380; A-F only) Plihal
Collecting and interpreting evidence related to achievement of objectives, emphasizing higher levels of cognition and affective behaviors.

5405. CHILD DEVELOPMENT AND PARENT EDUCATION—July 22-August 2. (889190) (1-4 cr [max 12 cr]; limited to 25 students; 0830-1205, MTWThF; VoTech R380; A-F only) Cutting
Objectives, content, curriculum organization, teaching methods, materials, and evaluation approaches for teaching youth and adults about social, cultural, psychological, economic, and technical aspects of child development, parenting, and parent-child interaction. This offering for 4 credits.

5510. ORIENTATION TO TEACHING HOME ECONOMICS—July 29-August 19. (490245) (3 cr; limited to 20 students; prereq Post BA student in HEEd or #; 1300-1545 MWF; VoTech R370; A-F only) Thomas
Critical analysis of home economics and the teaching of home economics; identification of practical problems encountered by families; development of a personal orientation towards becoming a home economics teacher.

5900. READINGS: HOME ECONOMICS EDUCATION. (1-3 cr [max 12 cr]; prereq #; hrs ar; A-F only) See First Term.

Sec 24, (688980) Thomas
Sec 25, (291235) Plihal

5920. DIRECTED STUDIES. (1-6 cr; prereq #; S-N optional) See First Term.

Sec 24, (488981) Thomas
Sec 25, (191236) Plihal

8777. THESIS CREDITS: MASTERS. (289985) (1-16 cr [max 11 cr per summer term])

8900. PROBLEMS: HOME ECONOMICS EDUCATION. (1-9 cr; prereq 8300, #; hrs ar) See First Term.

Sec 24, (288982) Thomas
Sec 25, (991237) Plihal

Honors Seminar (HSem)

115 Johnston Hall. 624-5522
(Honors Program)
College of Liberal Arts

FIRST TERM

3010. THE CHANGING NATURE OF REVOLUTIONARY CHANGE. (891165) (4 cr; limited to 15 students; prereq jr or sr, reg CLA Honors div; 1030-1330 TTh; HHHctr 20) Raymond Duvall
Analysis of influential theories of why revolutions occur and application of these theories to recent revolutions to see the fit between theory and actual events.

3970. HONORS SEMINAR: DIRECTED STUDIES. (987477) (1-5 cr; prereq jr, sr, honors div regis, #, Δ) For additional research related to a seminar topic.

SECOND TERM

3970. HONORS SEMINAR: DIRECTED STUDIES. (285533) (1-5 cr; prereq jr, sr, honors div regis, #, Δ) For additional research related to a seminar topic.

Horticultural Science (Hort)

305 Alderman Hall, St. Paul. 624-5300
College of Agriculture

FIRST TERM

3097. HORTICULTURAL PRACTICUM. (187470) (4 cr; prereq upper division horticulture emphasis or sequence, Δ) Approved field, laboratory, or greenhouse experiences in application of horticultural information and practices.

5000. PROFESSIONAL EXPERIENCE PROGRAM. (190935) (4 cr; prereq #; S-N only; free elective for Hort undergrads, not for grad; Extension regis only) Professional experience in horticulture firms or government agencies through supervised practical work evaluation of reports, and consultations with faculty advisers and employers.

5091. DIRECTED STUDIES. (287475) (2-6 cr; prereq 8 cr upper division hort course, Δ) Opportunities for in-depth exploration of concepts, technology, materials, or prgrams in specific area to expand professional competency and self-confidence. Planning, organizing, implementing, and evaluating knowledge obtained from formal education and experience.

8051. ADVANCED PROBLEMS IN HORTICULTURAL CROP BREEDING. (885303) (3-9 cr; prereq #)

8052. ADVANCED PROBLEMS IN PHYSIOLOGY OF HORTICULTURAL CROPS. (988192) (3-9 cr; prereq #)

8777. THESIS CREDITS: MASTERS. (289744) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (789747) (1-36 cr [max 11 cr per summer term])

SECOND TERM

3097. HORTICULTURAL PRACTICUM. (487488) (4 cr; prereq upper division horticulture emphasis or sequence, Δ) See First Term.

5091. DIRECTED STUDIES. (887486) (2-6 cr; prereq 8 cr upper division hort course, Δ) See First Term.

8007. EXTENSION HORTICULTURE PRACTICUM. (085350) (1-5 cr, max 6 cr; prereq 12 grad cr)

8051. ADVANCED PROBLEMS IN HORTICULTURAL CROP BREEDING. (685304) (3-9 cr; prereq #)

8052. ADVANCED PROBLEMS IN PHYSIOLOGY OF HORTICULTURAL CROPS. (788193) (3-9 cr; prereq #)

8777. THESIS CREDITS: MASTERS. (589992) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (389993) (1-36 cr [max 11 cr per summer term])

Workshops for teachers...

Industrial Education Workshop: Recent Technological Innovations—Ind 5306, offered for 3 credits, June 11-21. Students will visit industrial sites where personnel in charge of technological innovation will describe recent innovations in their industries. Students will be allowed to view the innovations and the impact they have had on the industry. They will produce curriculum materials that they can use in their teaching incorporating new technological concepts into their curricula. The instructor will be Dr. James Benson, President of Dunwoody Institute.

Industrial Course Construction—Ind 5330, offered for 3 credits, June 11 and arranged. This course will be taught as a distance delivery course focusing on the development of performance-based instruction for education and/or industry. Students will attend class the first day and then work independently on an instructional program of their choice using a computerized tutorial.

Industrial Education Workshop: Implementing Technology Education—Ind 5306, offered for 3 credits, July 18-30. This course is designed for people who are converting industrial arts curriculum to industrial technology curriculum and for people in the post baccalaureate program preparing for industrial technology teacher licensure.

Industrial Education Workshop: Technical Training in Industry—Ind 5306, offered for 3 credits, July 18-30. This course will acquaint participants with alternative technical training techniques and how they are implemented in industry. Participants will visit a variety of training sites to observe and receive an orientation on how technical training is conducted. Each participant will prepare a paper summarizing the various techniques and how they might be implemented in a training setting of her/his choice.

Housing (Hsg)

240 McNeal Hall, St. Paul. 624-9700
(Design, Housing and Apparel)
College of Home Economics

FIRST TERM

3880. INTERNSHIP IN HOUSING. (485479) (5-15 cr [max 15]; prereq 3870, completion of half of professional sequence, #; S-N only 1145-1245 MWF; McNH 363) Franklin International, intercultural, or other directed work in a community that offers a variety of housing experiences.

5888. DIRECTED STUDY IN HOUSING. (186747) (1-4 cr [max 4]; prereq #) Goetz Independent study in housing.

8880. DIRECTED STUDY IN HOUSING. (885480) (1-4 cr [max 8]; prereq #: A-F only) Goetz Independent study in housing.

SECOND TERM

3880. INTERNSHIP IN HOUSING. (685481) (5-15 cr [max 15]; prereq 3870, completion of half of professional sequence, #; S-N only 1145-1245 MWF; McNH 363) Franklin See First Term.

5888. DIRECTED STUDY IN HOUSING. (890211) (1-4 cr [max 4]; prereq #) Goetz Independent study in housing.

8880. DIRECTED STUDY IN HOUSING. (890212) (1-4 cr [max 8]; prereq #: A-F only) Goetz Independent study in housing.

Humanities (Hum)

314 Ford Hall. 624-5553
College of Liberal Arts

FIRST TERM

#1001. HUMANITIES IN THE MODERN WORLD I. (391534) (4 cr, 5Rhet 1301; limited to 70 students; 1030-1250 TTh; FordH 120) Thomas Eighteenth-century Europe. Old Regime through French Revolution and Napoleon; new science, Enlightenment, cult of sensibility; rococo, neoclassicism, incipient romanticism. Integrative study of works by creative figures such as Pope, Voltaire, Rousseau, Diderot, Goethe, Watteau, Boucher, Hogarth, David, Goya, Mozart, Haydn.

#1003. HUMANITIES IN THE MODERN WORLD III. (191535) (4 cr, 5Rhet 1303; limited to 70 students; 0800-1020 TTh; FordH 120) 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.

#1005. HUMANITIES IN THE MODERN WORLD V. (791532) (4 cr; limited to 70 students; 1030-1300 MW; FordH 155) Kliger The Western world since 1945. Existentialism, "the absurd"; searches for identity, commitment; religious trends; influence of oriental spiritual traditions. Integrative study of works by such creative figures as Camus, Sartre, Genet, Ionesco, Buber, Bultmann, Hesse, Watts, Pollock, Warhol, Stockhausen, Cage, LeCorbusier.

#1301. DISCOURSE AND SOCIETY: (588812) (4 cr; limited to 30 students; 0800-1030 MW; FordH 120) Eng General introduction to modes of expression (e.g., verbal, visual, musical) through representative works. Analysis of discourse in relation to social structures, examining its role in creating and contesting social borders, replicating cultures, and attaching differential privilege to various practices.

#3458. THE BODY AND THE POLITICS OF REPRESENTATION. (591533) (4 cr; limited to 45 students; 0800-1020 TTh; FordH 115) Leppert Western representation of the human body, Renaissance to 1900, considering both Western and non-Western peoples. Body's appearance as site/sight for production of sociocultural difference (race, ethnicity, class, gender). Visual arts, medical treatises, courtesy books, travel literature, ethnographies, erotica.

3970. DIRECTED STUDIES. (885088) (Cr ar; prereq #, Δ) Guided individual reading or study.

5970. DIRECTED STUDIES. (885026) (Cr ar; prereq jr or sr or grad student, #, Δ) Guided individual reading or study.

SECOND TERM

#1002. HUMANITIES IN THE MODERN WORLD II. (891537) (4 cr, 5Rhet 1302; limited to 70 students; 1030-1300 TTh; FordH 120) Archer Romanticism, liberalism, socialism; Industrial Revolution, materialism, cult of the individual and some counterstatements; realism, naturalism. Integrative study of works by creative figures such as Wordsworth, Byron, Adam Smith, Bentham, Marx, Mill, Stendhal, Flaubert, Ibsen, Dostoevsky, Delacroix, Courbet, Daumier, Beethoven, Berlioz, Liszt.

#1302. TEXT AND CONTEXT. (691538) (4 cr; limited to 30 students; 0800-1030 TTh; FordH 120) Horne Examination of varied historically grounded case studies, in order to explicate ways in which social and political tensions of particular moments and local milieus find representation in specific items of discourse. Relation of cultural discourses to the sociohistorical conditions of their emergence.

#3176. CINEMATIC DISCOURSE AND CULTURAL POLITICS. (091536) (4 cr; limited to 70 students; prereq 1301 or ArH 1921; 0800-1030 MW; FordH 155) Mowitt Examination of the way film texts and the social institutions of cinema both contribute to and resist the reproduction of social relations in modern Western countries. Particular attention to class, race, and gender as sites of sociocultural conflict.

3701. COMEDY: TEXT AND THEORY. (989228) (4 cr; limited to 70 students; 1030-1300 TTh; FordH 155) Thomas

Interdisciplinary study of comedy and comic theory through time and across world cultures in philosophy, psychology, literature, drama, film, folk tale, play, and social convention.

3970. DIRECTED STUDIES. (488544) (Cr ar; prereq #, Δ) See First Term.

5910. TOPICS IN HUMANITIES: SEMIOTICS OF CULTURE. (891974) (4 cr; limited to 15 students; SCSDS 5910, prereq jr or sr or grad stu; 1030-1300 MW; FordH 40) Fiske
Theories of European semiotics and structuralism in the analysis of contemporary mass media and popular culture. Emphasis on the role of culture in the politics of gender, race, and class. Meets with CSDS 5910.

5970. DIRECTED STUDIES. (288187) (Cr ar; prereq jr or sr or grad student, #, Δ) See First Term.

Industrial Education (Ind)

425 Vocational/Technical Building, St. Paul 624-3004

(Vocational and Technical Education) College of Education

FIRST TERM

3200. TECHNICAL DEVELOPMENT: ADVANCED. (091262) (1-9 cr; max 33 cr; prereq Ind 1000, 1001, #; hrs ar; A-F only) Miletich
Individualized advanced technical development in areas of construction, graphic communication, manufacturing, power and energy, and transportation.

5000. OCCUPATIONAL EXPERIENCE. (891263) (1-5 cr, max 15 cr; prereq #; hrs ar; A-F only) Miletich
Structured and supervised employment in industry. Credits allowed will be derived from a ratio of 100 clock hours of supervised work experience to each credit given to the student.

5200. TECHNICAL DEVELOPMENT: SPECIALIZED. (691264) (1-9 cr, max 24 cr; prereq #; hrs ar; A-F only) Miletich
Integration of specialized technical instruction in advanced and emerging areas into courses in industrial education.

5306. INDUSTRIAL EDUCATION WORKSHOP: Recent Technological Innovations—June 11-21. (491265) (1-6 cr; prereq tchg exper, #; 1630-1930 MTWThF; VoTech R280; A-F only)
Students will visit industrial sites where personnel in charge of technological innovation will describe recent innovations in their industries. Students will be allowed to view the innovations and the impact they have had on the industry. They will produce curriculum materials that they could use in their teaching incorporating those new technological concepts into their curricula. This offering for 3 credits.

5330. INDUSTRIAL COURSE CONSTRUCTION—June 11 and ar. (685514) (3 cr; limited to 20 students; prereq education or grad student; 0915-1215, 1330-1630 T; VoTech 135; (addnl hrs ar) A-F only) Pucel
Principles and techniques; experience in planning, organizing, and building a teaching guide. (Students who will be doing their work outside the 9 county metro area must obtain a letter from 210 VoTech Bldg in order to waive the student services fee for this course.)

5900. SCHOOL-BASED PROJECT IN INDUSTRIAL EDUCATION. (1-6 cr [max 12 cr]; prereq 5305, 5325, MEd students only; hrs ar; S-N optional) Independent or team project designed to study, improve, evaluate, or develop curriculum or instructional materials to improve quality of instruction.

Sec 23, (186473) Miletich
Sec 25, (087440) Pucel

5901. INDEPENDENT STUDY. (1-6 cr; prereq Δ; hrs ar; A-F only) Independent inquiry into topics to permit in-depth study of areas in education or supplementation of areas not covered in regular course structure.

Sec 23, (788792) Miletich
Sec 25, (588793) Pucel

8777. THESIS CREDITS: MASTERS. (289758) (1-16 cr [max 11 cr per summer term])

8900. RESEARCH PROBLEMS. (3-6-9 cr per qtr; prereq approval of candidacy; hrs ar) Individual conferences.

Sec 23, (986474) Miletich
Sec 25, (887441) Pucel

8901. RESEARCH PROBLEMS. (3-6-9 cr per qtr; prereq approval of candidacy; hrs ar) Individual conferences.

Sec 23, (786475) Miletich
Sec 25, (687442) Pucel

SECOND TERM

5306. INDUSTRIAL EDUCATION WORKSHOP. (1-6 cr; prereq tchg exper, #; A-F only)

Sec 1, Implementing Technology Education—July 18-30. (291266) 0915-1215 MTWThF, VoTech R280, Lewis

For people who are converting industrial arts curriculum to industrial technology curriculum and for people in the post baccalaureate program preparing for industrial technology teacher licensure. This offering for 3 credits.

Sec 2, Technical Training in Industry—July 18-30. (191267) 1630-1930 MTWThF, VoTech R280) Alternative technical training techniques and their implementation in industry. Participants will visit a variety of training sites to observe and receive an orientation to technical training. Each participant will prepare a paper summarizing the various techniques and how they might be implemented in a training setting of her/his choice. This offering for 3 credits.

5900. SCHOOL-BASED PROJECT IN INDUSTRIAL EDUCATION. (1-6 cr [max 12 cr]; S-N optional; prereq 5305, 5325, MEd students only; hrs ar) See First Term.

Sec 25, (290246) Pucel

5901. INDEPENDENT STUDY. (1-6 cr; prereq Δ; hrs ar; A-F only) See First Term.

Sec 25, (991268) Pucel

8777. THESIS CREDITS: MASTERS. (689997) (1-16 cr [max 11 cr per summer term])

8900. RESEARCH PROBLEMS. (3-6-9 cr per qtr; prereq approval of candidacy; hrs ar) See First Term.

Sec 25, (190247) Pucel

8901. RESEARCH PROBLEMS. (3-6-9 cr per qtr; prereq approval of candidacy; hrs ar) See First Term.

Sec 25, (990248) Pucel

Industrial Engineering/Operations Research (IEOR)

125 Mechanical Engineering, 625-0705 (Mechanical Engineering) Institute of Technology

FIRST TERM

3000. INTRODUCTION TO INDUSTRIAL ENGINEERING ANALYSIS. (685531) (4 cr; limited to 40 students; prereq IT student; 0800-1000 MWThF 3 lect and 1 rec hrs per wk; MechE 102)

Scientific management, mathematical models, methods engineering, worker satisfaction and participation, wage payment plans, break-even analysis, incremental costs, the time value of money and the present value concept; cost quality in inventory control; production scheduling, plant locations, and layout; linear programming, PERT, and the systems approach to management problems.

5040. INTRODUCTION TO OPERATIONS RESEARCH. (886385) (4 cr; limited to 30 students; prereq Math 1241; IT or grad... IEOR 3000 recommended; 1145-1345 MWThF; MechE 102)

Linear programming, algebra and geometry of linear models, simplex method, sensitivity testing, and duality; network models, network algorithms, and dynamic models.

8410. INDUSTRIAL ENGINEERING RESEARCH. (186500) (3-5 cr; limited to 10 students; hrs ar; prereq #)

8411. INDUSTRIAL ENGINEERING RESEARCH. (086501) (3-5 cr; limited to 10 students; hrs ar; prereq 8410)

8412. INDUSTRIAL ENGINEERING RESEARCH. (886502) (3-5 cr; limited to 10 students; hrs ar; prereq 8411)

8777. THESIS CREDITS: MASTERS. (189753) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (689756) (1-36 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

5180. APPLIED INDUSTRIAL ENGINEERING. (086384) (3-5 cr [1-2 cr term paper option]; limited to 20 students; prereq [3000, 5010, 5020, 5030 and 5040], Δ) Industrial engineering surveys and programs. Case problems, studies in local plants.

SECOND TERM

5020. ENGINEERING COST ACCOUNTING, ANALYSIS AND CONTROL. (188983) (4-5 cr; limited to 30 students; prereq 3000; IT student or grad... ME 3900 recommended; 0800-1000 MWThF, MechE 102) Barnett

Basic accounting concepts, financial statements, analysis and control of current assets such as cash, receivables, and inventory; income tax planning, cost analysis, standard cost for product costing, time value of money, quantification of risk and uncertainty, utility theory, cost of capital and capital structure, capital budgeting under capital rationing, management decisions, and investment decisions.

5050. ENGINEERING ECONOMIC ANALYSIS. (485532) (4 cr; limited to 30 students; prereq IT student or grad, 3000 or #; 1145-1345 MWThF; MechE 102)

Fundamental principles and techniques of economic analysis of engineering projects including economic measures of effectiveness, time value of money, cost estimation, depreciation, taxes, breakeven, replacement and investment analysis.

8410. INDUSTRIAL ENGINEERING RESEARCH. (686503) (3-5 cr; limited to 10 students; hrs ar; prereq #)

8411. INDUSTRIAL ENGINEERING RESEARCH. (486504) (3-5 cr; limited to 10 students; hrs ar; prereq 8410)

8412. INDUSTRIAL ENGINEERING RESEARCH. (286505) (3-5 cr; limited to 10 students; hrs ar; prereq 8411)

8777. THESIS CREDITS: MASTERS. (089995) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (889996) (1-36 cr [max 11 cr per summer term])

Industrial Relations (IR)

537 Management/Economics Building, 624-2500
Carlson School of Management

Refer to registration instructions for undergraduate Carlson School of Management courses on pages 11, 14.

FIRST TERM

3002. PERSONNEL AND INDUSTRIAL RELATIONS. (285418) (4 cr, \$8002; limited to 35 students; prereq Econ 1001, 1002, Psy 1001; 0800-1015 MTWTh; BlegH 235)

An introduction to the human resource management function in organizations. The labor market, recruitment, selection, training, compensation, and

88 Industrial Relations—Italian

labor relations. The changing nature of the world of work, emerging legal issues, discrimination in pay and employment, comparable worth, work performance and its assessment, and the effects of technological change on jobs and employment. Lecture presentations, discussion, case studies, and simulation exercises. Meets with 8002.

8002. AN INTRODUCTION TO INDUSTRIAL RELATIONS. (185419) (4 cr, \$3002; limited to 15 students; prereq Econ 1001, 1002, Psy 1001, IR grad student or Δ ; 0800-1015 MTWTh; BlegH 235)
See 3002. Meets with 3002.

8003. STAFFING, TRAINING AND DEVELOPMENT. (790218) (4 cr; prereq 8002 or $\#$ and IR grad student or Δ ; 1730-2100 TTh; HHHctr 15)
Introduction to processes of recruiting, selecting, training, and developing employees in complex organizations. Cost-benefit analysis of individual selection and training strategies, management of special employee problems, and emerging training techniques.

8005. EMPLOYEE COMPENSATION AND REWARD. (691541) (4 cr; limited to 15 students; prereq 8002 or $\#$ and IR grad student or Δ ; 1730-2100 MW; HHH Ctr 15)
Introduction to systems of employee compensation and reward in organizations. Concepts, models, and theories relating to processes of compensation designed to influence worker behavior and performance within constraints. Wage structuring, fringe benefits, individual appraisal and reward, employee motivation, and compensation controls.

8777. THESIS CREDITS: MASTERS. (691975) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189762) (1-36 cr [max 11 cr per summer term])

SECOND TERM

3002. PERSONNEL AND INDUSTRIAL RELATIONS. (086479) (4 cr, \$8002; limited to 45 students; prereq Econ 1001, 1002, Psy 1001; 0800-1015 MTWTh; BlegH 120)
See First Term. Meets with 8002.

8002. INTRODUCTION TO INDUSTRIAL RELATIONS. (288545) (4 cr, \$3002; limited to 15 students; prereq Econ 1001, 1002, Psy 1001; IR grad student or Δ ; 0800-1015 MTWTh; BlegH 120)
See 3002 First Term. Meets with 3002.

8004. ORGANIZATIONAL THEORY AND ANALYSIS. (491539) (4 cr; limited to 15 students; prereq 8002 or $\#$, IR grad student or department approval; 1730-2100 TTh; HHHctr 15)
Introduction to micro and macro organizational issues, application to administrative issues of organizational structuring, coordination, control, job design, organizational decision making, leadership, and organizational development.

8007. COLLECTIVE BARGAINING IN THE PUBLIC AND PRIVATE SECTORS. (288836) (4 cr; limited to 15 students; prereq 8002 or $\#$ and IR grad student or Δ ; 1730-2100 MW; HHH Ctr 15)
Introduction to collective bargaining and administration. Legal frameworks imposed on public and private sector negotiators.

8023. TRAINING AND DEVELOPMENT. (190216) (4 cr; limited to 15 students; prereq 8003 or $\#$ and IR grad student or Δ ; 1730-2100 MW; BlegH 435)
Integration of appropriate learning principles and organizational objectives into training programs. Design implementation and evaluation of training systems to effect development, utilization, and conservation of human resources.

8777. THESIS CREDITS: MASTERS. (489998) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (289999) (1-36 cr [max 11 cr per summer term])

Information and Decision Sciences (IDSc)

395 Humphrey Center. 624-8030
Carlson School of Management

Refer to registration instructions for undergraduate Carlson School of Management courses on pages 11, 14.

FIRST TERM

8990. READINGS IN INFORMATION AND DECISION SCIENCES. (490228) (Cr ar; $\$$ DSci 8990, MIS 8990; prereq PhD student and $\#$; A-F only)

8995. GRADUATE RESEARCH IN INFORMATION AND DECISION SCIENCES. (290229) (Cr. ar; $\$$ DSci 8995, MIS 8995; prereq PhD student and $\#$; A-F only)

FIRST AND SECOND TERMS: 10-WEEK COURSES (Register once in Term I)

1010. FUNDAMENTALS OF INFORMATION DEVELOPMENT AND USE. (4 cr; $\$$ MSci 1010; prereq 30 cr; Math 1111 or $\#$ 1111; limited to 45 students; A-F only) Lect 1, 0900-1015 MW; BlegH 130
Lab 1, (090225) 0800-0900 F, BlegH 90

Meeting information needs of managers. Sources of data, data collection methods, data organization, and presentation. Descriptive statistical analysis methods. Lab instruction to provide skill development in word processing and spreadsheet analysis on personal computers.

8101. MIS: THE MANAGEMENT OF INFORMATION TECHNOLOGY IN ORGANIZATIONS. (890226) (4 cr, $\$$ MIS 8100 or 8300; limited to 15 students; prereq MBA 8025 or $\#$; A-F only; 1730-2100 W, BlegH 340)
The role of information in organizations. Strategic uses of information technology. Planning and evaluation of information systems. The politics of information and information systems. Roles and perspectives of top management, functional management, and MIS management.

SECOND TERM

8990. READINGS IN INFORMATION AND DECISION SCIENCES. (590222) (Cr ar; $\$$ DSci 8990, MIS 8990; prereq PhD student and $\#$; A-F only)

8995. GRADUATE RESEARCH IN INFORMATION AND DECISION SCIENCES. (390223) (Cr ar; prereq PhD student and $\#$; A-F only)

Interdepartmental Study (ID)

220 Johnston Hall. 624-7577
College of Liberal Arts

FIRST TERM

3970. DIRECTED STUDIES. (985860) (1-15 cr; prereq consult with Office for Special Learning Opportunities, JohH 220, \square)
Individual projects, readings, and research in areas that cross departmental lines.

SECOND TERM

3970. DIRECTED STUDIES. (785195) (1-15 cr; prereq consult with Office for Special Learning Opportunities, JohH 220, \square)
See First Term.

Interdisciplinary Medicine (InMd)

Box 33 UMHC. 625-3622
Medical School

Contact college office for information regarding summer courses.

International Relations (IntR)

214 Social Sciences. 624-9007
College of Liberal Arts

FIRST TERM

3840. FRENCH LANGUAGE TEXTBOOKS IN INTERNATIONAL RELATIONS. (491976) (4 cr; prereq IntR maj or $\#$, completion of college language requirement in language of course; 0915-1130 TTh; BlegH 335; A-F only) Murrell

3960. FIELD STUDIES/INTERNSHIP IN INTERNATIONAL STUDIES. (887326) (1-8 cr [8 cr max for international relations majors]; prereq Δ Staff Internship with government/community/international organization or field study in international relations. Activities must have an international focus.

3970. DIRECTED STUDIES. (285273) (1-15 cr; prereq $\#$, Δ , \square) Staff Guided individual reading or study.

3990H. HONORS COURSE: SUPERVISED RESEARCH PAPER. (185534) (1-5 cr; prereq sr honors candidate in international relations, Δ)

5900. TOPICS IN INTERNATIONAL RELATIONS. (4 cr; each section limited to 40 students; prereq 12 cr in social sciences)

Sec 1, Peace Studies: Western Europe (391341) 0915-1015 MTWThF; BlegH 225, Erb
Forty five years without war in western Europe, the central location of two world wars, is a remarkable record. This course examines the European Community with reference to selected peace studies concepts that pertain to this post World War II success and may be relevant elsewhere.

Sec 2, Peace Studies: The Middle East (591340) 0915-1130 TTh; HHHctr 60, Hinnebusch
Focuses on the Persian Gulf situation and the Israeli/Palestinian situation, with reference to selected peace studies concepts and ideas.

SECOND TERM

3960. FIELD STUDIES/INTERNSHIP IN INTERNATIONAL STUDIES. (985535) (1-8 cr [8 cr max for international relations majors]; prereq Δ) Staff See First Term.

3970. DIRECTED STUDIES. (785536) (1-15 cr; prereq $\#$, Δ , \square) Staff See First Term.

3990H. HONORS COURSE: SUPERVISED RESEARCH PAPER. (585537) (1-5 cr; prereq sr honors candidate in international relations, Δ) Job

5900. TOPICS IN INTERNATIONAL RELATIONS: Peace Studies: The Gender Dimension. (091343) (4 cr; limited to 40 students; prereq 12 cr in social sciences; 0915-1130 TTh; BlegH 250) Knudson
Examines the role played by gender in the global quest for peace as an alternative to conflict. Topics addressed will include: the historical participation of men and women in military activities including battlefield and behind the scenes roles and in peace movements; attitudinal variation (the gender gap) towards war and peace; theoretical explanations of gender differences suggested by contemporary social science literature of relevant disciplines.

Italian (Ital)

200 Folwell Hall. 624-4308
(French and Italian)
College of Liberal Arts

FIRST TERM

1104. INTERMEDIATE ITALIAN. (191270) (5 cr; limited to 20 students; prereq 1103 or equiv; 1030-1245 MTWThF; FolH 50)
Consolidation of basic structures and development of oral fluency through readings and discussions.

3970. DIRECTED READINGS. (685013) (1-5 cr; prereq undergrad, $\#$, Δ , \square) Staff Guided individual reading or study.

8777. THESIS CREDITS: MASTERS. (789764) (1-16 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSE (Register once in Term I)

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 enroll for all three courses and may not enroll in other summer courses.** Prospective students should talk to an adviser before registering for intensive language courses.

1101-1102-1103. BEGINNING ITALIAN. (15 cr for both terms; limited to 20 students; 0915-1245 MTWThF; sec 5, KolH S139, sec 6, KolH S137) A course with speaking objectives based on an audiolingual approach. Students learn to understand and express fundamental structures of the language. Includes audiovisual aids.

- 1101, Sec 5, (185847) June 11-July 3, 5 cr, Martinez
- 1101, Sec 6, (290960) June 11-July 3, 5 cr
- 1102, Sec 5, (085848) July 5-30, 5 cr
- 1102, Sec 6, (190961) July 5-30, 5 cr
- 1103, Sec 5, (885849) July 31-August 21, 5 cr
- 1103, Sec 6, (990962) July 31-August 21, 5 cr

SECOND TERM

1105. INTERMEDIATE ITALIAN. (791269) (5 cr; limited to 20 students; prereq 1104; 1030-1245 MTWThF; FolH 214) Literary and cultural readings, leading to introductory knowledge of Italian literature and civilization.

8777. THESIS CREDITS: MASTERS. (090001) (1-16 cr [max 11 cr per summer term])

Japanese (Jpn)

105 Folwell Hall. 624-0007 (East Asian Studies) College of Liberal Arts

FIRST TERM

3164. MODERN JAPANESE LITERATURE IN ENGLISH TRANSLATION. (391548) (4 cr; limited to 30 students; 0915-1015 MTWThF; PeikH 315) Monnet Twentieth-century Japanese literature examined in context of traditional expression. Knowledge of Japanese not required.

3970. DIRECTED STUDIES. (285256) (1-15 cr; prereq #, Δ, □) Staff

5970. DIRECTED STUDIES IN JAPANESE. (585344) (1-15 cr; prereq #, Δ, CLA approval) Staff

8777. THESIS CREDITS: MASTERS. (189770) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (889772) (1-36 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS:

TEN-WEEK COURSES (Register once in Term I)

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 enroll for all three courses and may not enroll in other summer courses.** Prospective students should talk to an adviser before registering for these courses.

1011-1012-1013. BEGINNING JAPANESE. (15 credits for both terms; limited to 28 students per recitation section; daily lecture, recitation and labs with English and Japanese speaking instructors; 0800-1220 MTWThF; AmundH 156)

- 1011, Sec 5, (490293) June 11-July 3, 5 cr Jacobsen
- 1012, Sec 5, (190295) July 5-30, 5 cr Jacobsen/Copeland
- 1013, Sec 5, (790297) July 31-August 21, 5 cr Copeland

SECOND TERM

3970. DIRECTED STUDIES. (985275) (1-15 cr; prereq #, Δ, □) Staff

5970. DIRECTED STUDIES IN JAPANESE. (285368) (1-15 cr; prereq #, Δ, CLA approval) Staff

8777. THESIS CREDITS: MASTERS. (990007) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (190014) (1-36 cr [max 11 cr per summer term])

Jewish Studies (JwSt)

178 Klaeber Court. 624-0060 College of Liberal Arts (Classical and Near Eastern Studies) (See also Hebrew; ANE; Religious Studies)

FIRST TERM

1034. INTRODUCTION TO JUDAISM. (789229) (4 cr, §3034, §ReIS 1034, §ReIS 3034; 0915-1130 TTh; NichH 213) Zahavy Concepts, movements, and institutions in the development of classical Judaism, as manifested in the literature and festivals of the Jewish people from Second Commonwealth times to the present. Meets with 3034 and ReIS 1034 and 3034.

3034. INTRODUCTION TO JUDAISM. (189230) (4 cr, §1034, §ReIS 1034, §ReIS 3034; 0915-1130 TTh; NichH 213) Zahavy Additional written assignments and reading. Meets with 1034 and ReIS 1034 and 3034.

5970. DIRECTED STUDIES. (488818) (1-12 cr [max 12 cr]; prereq #, Δ, CLA approval) Guided individual reading or study.

Journalism and Mass Communication (Jour)

111 Murphy Hall. 625-9824 College of Liberal Arts

Departmental consent for courses marked with a delta (Δ) must be obtained in 15 Murphy Hall, 625-0120. When a keyboarding prereq is listed, testing must be arranged through 15 Murphy Hall. Students must abide by the course prerequisites that were in force at the time they filed an official journalism program with the School of Journalism and Mass Communication's Coordinator of Advising. For 5000-level courses, inquire about graduation credit at the time of registration, or by calling 625-4054.



FIRST TERM

1002. VISUAL COMMUNICATION. (891280) (2 cr; 1030-1245 MWF; MurH 105; A-F only) Study of form, content, and meaning in visual communication. Introduction to basic visual elements and techniques. Issues in perception, picture use, and the sources of visual conventions. Attention to the organization and production of visual media. Applications to photography, film, television, advertising, and documentary work.

3308. MASS COMMUNICATION PROCESSES AND STRUCTURE. (691281) (4 cr; limited to 72 students; prereq 1001, Δ; 0915-1015 MTWThF; MurH 308; A-F only) Chang Analysis of a variety of communication theories as they relate to mass communication processes; examination of major structural aspects of mass communication systems as they impact on mass communication processes.

3776. MASS COMMUNICATION LAW. (491282) (4 cr; 0915-1015 MTWThF; Phys 210; A-F only) Brief historical background, First Amendment rights, basic law of defamation, free press and fair trial, access to news, access to press, privacy, contempt, obscenity, regulation of broadcasting and advertising, antitrust controls, legal and ethical rules affecting journalistic practice.

3970. PROJECTS IN JOURNALISM. (585246) (1-8 cr per term; prereq grad major or minor students, #, Δ, □) Staff Independent study; projects.

5611. DEVELOPMENT OF AMERICAN BROADCASTING. (391761) (4 cr; limited to 32 students; 0915-1200 TTh; MurH 311; A-F only) Fang Historical and economic development of radio and television in United States; government regulation, industry self-regulation, forms of social control; issues in contemporary broadcasting; the journalist as broadcaster.

5801. INTERNATIONAL COMMUNICATION. (291283) (4 cr; limited to 72 students; prereq 16 cr in social sciences; 1145-1245 MTWThF; MurH 308; A-F only) Chang Structures, processes and consequences of international mass communication. Problems in free flow of information. Roles of international organizations, journalism. Mass communication in social, political, economic development; implications for conflict resolution.

5970. ADVANCED PROJECTS IN JOURNALISM. (785861) (1-8 cr [max 8 cr]; prereq major status for prof jour, mass comm students, B avg, #, Δ, CLA approval) Staff Independent study; projects.

5970H. ADVANCED PROJECTS IN JOURNALISM. (290778) See 5970.

8777. THESIS CREDITS: MASTERS. (189767) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (089768) (1-36 cr [max 11 cr per summer term])

8970. ADVANCED PROJECTS IN MASS COMMUNICATION. (585862) (1-4 cr [max 8 cr]; prereq grad major or minor in mass comm, #, Δ; A-F only) Staff Individual research.

SPECIAL COURSES IN KINESIOLOGY

Topics in Kinesiology: Early Childhood Adapted Physical Education—June 27-July 16. KIN 5720, sec 1, is a 3 credit lecture course that offers an in-depth view of service models, assessment procedures, and instructional strategies related to the provision of adapted physical education or developmental movement activities for children with disabilities from birth to 5 years, as mandated by PL 99-457. Taught by Allen Burton, Assistant Professor.

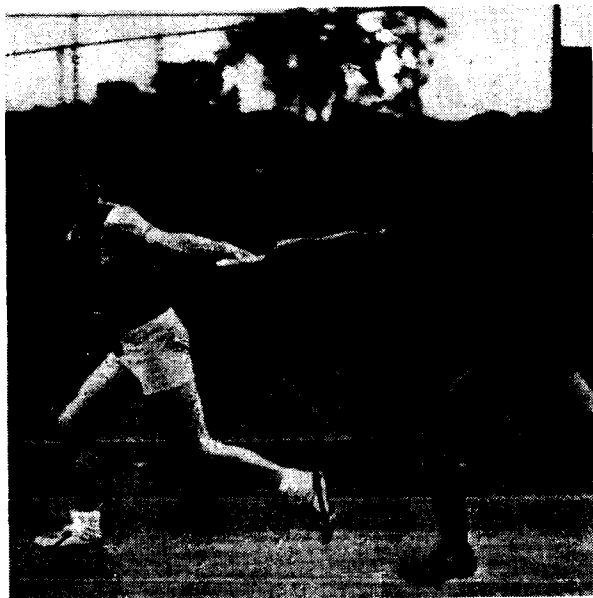
Topics in Kinesiology: Technology Applications in Sport and Physical Education—June 11-21. KIN 5720, sec 2, is a 3 credit workshop that will explore computer and video technology applications in sport and physical education including materials development and evaluation of equipment, software, and new applications. Taught by Lela June Stoner, Professor.

Pedagogy in Physical Education I. KIN 5521, is a new 6 credit course that is designed to focus on the planning, structuring, communicating, class management, and evaluating role of the contemporary K-middle school physical educator in diverse settings. Taught by Mary Lampe.

Topics in Kinesiology: Systematic Observation in Physical Education—July 18-August 7. KIN 5720 is a 3 credit lecture course offered second term that explores a variety of observational techniques and systems useful to physical educators.

Coaching of Individual, Dual, or Team Sports: Soccer—July 22-August 9. KIN 5740, is a 3 credit lecture and demonstration course offered second term that is appropriate for coaches and teachers of soccer. Instruction is at the advanced level, including analyses of skills, game strategies, techniques of coaching, and methods of training and conditioning. Taught by March Krotee, Associate Professor.

Pedagogy in Physical Education II. KIN 5522 is a new, 6 credit course offered second term that focuses on the planning, structuring, communicating, class management, and evaluating role of the contemporary middle school through 12th grade physical educator in diverse settings. Taught by Elizabeth Spletzer.



FIRST AND SECOND TERMS: TEN-WEEK COURSES

#1003. PRODUCING MASS MEDIA MESSAGES. (4 cr; each section limited to 12 students; prereq formal pre-jour professional or pre-mass comm status, 1001, freshman composition or exemption, Δ; A-F only) Huntzicker
Lect 0800-0900, MW, MURH 105
Lab 1 (591984) 0915-1015 M, MurH 435
Lab 2 (391985) 1020-1130 M, MurH 435
Lab 3 (191986) 0915-1015 T, MurH 435

Examination and analysis of mass media messages; practice, under instruction, in writing factual and persuasive messages. Emphasis on message attributes, style, structure, formula, constraints, techniques and conventions. Applications to news, advertising, documentary and interpretive writing for print, film and video. Typed assignments required. Lecture meets with 1003H lecture.

#1003H. PRODUCING MASS MEDIA MESSAGES. (4 cr; limited to 12 students; prereq formal pre-jour professional or pre-mass comm status, 1001, freshman composition or exemption, regis honors div, #, Δ; lec 0800-0900 MW, MurH 105, lab (091990) 1030-1130 W, MurH 435; A-F only) Huntzicker
See 1003 for description. Lecture meets with 1003 lecture.

SECOND TERM

1001. INTRODUCTION TO MASS COMMUNICATION. (191284) (2 cr; 1115-1245 MW; MurH 105; A-F only) Babcock
Nature, functions, and responsibilities of communication media and agencies from professional point of view. News, opinion, entertainment, and persuasion functions; current trends. Specialized communication; aspects of advertising.

#3101. REPORTING. (991285) (4 cr; limited to 16 students; prereq professional maj status, grad students must pass 30 wpm, Δ; 0800-1100 MTWTh; MurH 212; A-F only) Babcock
Fact gathering and journalistic writing. Problems in judgment and handling of news and news features.

3201. PRINCIPLES OF ADVERTISING. (791286) (4 cr; 0915-1200 TTh; MurH 105; A-F only) Soley
Theory, principles, and functions of advertising; its role in economic, social, and marketing structure. Newspapers, magazines, radio, television as advertising media.

#3796. MASS MEDIA AND POLITICS. (591287) (4 cr; limited to 72 students; prereq 1001 or Pol 1001 or #; 0915-1200 MW; MurH 308; A-F only) Soley
Analysis of role of mass media in politics; emphasis on television and electoral campaigns; news coverage vs. newsmaking. Free press in democracy.

3970. PROJECTS IN JOURNALISM. (385247) (1-8 cr per qtr; prereq major status for prof jour, mass comm students, #, Δ, □) Staff
Independent Study; projects.

#5251. PSYCHOLOGY OF ADVERTISING. (891991) (4 cr; limited to 72 students; prereq Psy 1001; 0945-1230 TTh; MurH 308; A-F only) Faber
Psychological principles, research techniques and applications in advertising and selling. Consumer attitudes and behavior. Psychological mechanisms upon which effectiveness of advertisements and commercials depends.

5970. ADVANCED PROJECTS IN JOURNALISM. (687019) (1-8 cr (max 8 cr); prereq major status for prof jour, mass comm students, B avg, #, Δ, CLA approval; A-F only) Staff
Independent study projects.

8777. THESIS CREDITS: MASTERS. (690003) (1-16 cr (max 11 cr per summer term))

8888. THESIS CREDITS: DOCTORAL. (490004) (1-36 cr (max 11 cr per summer term))

8970. ADVANCED PROJECTS IN MASS COMMUNICATION. (087020) (1-4 cr (max 8 cr); prereq grad major or minor in mass comm, #, Δ; A-F only) Staff
Individual research.

Kinesiology (Kin)

224 Cooke Hall. 625-1007
(School of Physical Education and Recreation)
College of Education

Courses are offered at the undergraduate and graduate levels for progress in Kinesiology and for Physical Education Licensure (PEL). Courses which apply to State of Minnesota licensure in physical education teaching, adapted physical education, and/or athletic coaching are designated as Physical Education Licensure.

Courses applicable toward requirements in various programs that are offered this summer include the following:

1. Kinesiology—3110, 3111, 3115, 3625, 5141, 5385, 5460, 5720, 5980, 5981, 5983, 8777, 8888, 8981
2. Adapted Physical Education Licensure—5152, 5385, 5720
3. State of Minnesota Coaching Licensure—3110, 3111, 3115, 3143, 5136, 5740
4. Post Baccalaureate Teaching Licensure—5521, 5522, 5720
Elementary School Majors—Kin 3327 is offered to accommodate elementary education majors and classroom teachers.

FIRST TERM

3110. HUMAN ANATOMY. (391663) (3 cr; \$PE 3110; 0800-0900 MTWTh; CookeH 214; A-F only; Physical Education Licensure) Serfass
Emphasizes bones, nerves, and muscles and their significance in physical education.

3327. TEACHING PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOL. (191664) (3 cr; \$PE 3327; prereq elem education major; limited to 35 students; 0800-0900 MTWThF; NorrisH 3, M153A, M153; A-F only; Physical Education Licensure) Lampe
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.

3625. SUPERVISED PRACTICAL EXPERIENCE. (091665) (1-12 cr [max 12 cr]; \$PE 3625; prereq Δ; S-N only) Stoner
On-the-job experience under a specialist in the practical area of study.

5152. CURRICULUM DEVELOPMENT—June 11-26. (891666) (3 cr; \$PE 5152; prereq 5151 or #; educ or grad stud; limited to 30 students; 1145-1400 MTWThF; CookeH 214; A-F only; Physical Education Licensure) Trends, issues, and problems at selected levels of interest; elementary, secondary, junior college; for experienced teachers.

5385. EXERCISE FOR SPECIAL POPULATIONS—June 11-26. (991951) (3 cr; prereq undergrad level physiology or biology; limited to 30 students; 0915-1130 MTWThF; CookeH 214; A-F only) Burton
Problems associated with physical activity for a variety of special populations, such as women and children, persons who are elderly or obese, or person with diabetes or cancer. Recommended exercise prescriptions and the potential benefits for the special populations.

5521. PEDAGOGY IN PHYSICAL EDUCATION I. (xxxxxx) (6 cr; prereq #; 0915-1115 MTWThF; Norris M153, M153A; A-F only; Physical Education Licensure) Lampe
The planning, structuring, communicating, class management, and evaluating role of the contemporary K-middle school physical educator in diverse settings.

5720. TOPICS IN KINESIOLOGY. (1-12 cr [max 12 cr]; \$PE 5720; prereq #; A-F only)

Sec 1, (691667) Early Childhood Adapted Physical Education—June 27-July 16. 3 cr, 1300-1500 MTWThF, CookeH 214, Physical Education Licensure, Burton
Sec 2, (491668) Technology Applications in Sport and Physical Education—June 11-21. 3 cr, 1300-1615 MTWThF, CookeH 400, Stoner

See special course description, above.

5981. PROBLEMS. (Cr and hrs ar; \$PE 5981; prereq MEd candidate, #; A-F only)
Focus on teaching of physical education.

Sec 21, (291669) Serfass
Sec 22, (691670) Stoner
Sec 23, (491671) Burton
Sec 25, (291672) Wade

5983. READINGS: KINESIOLOGY. (Cr ar [max 9 cr]; \$PE 5983; prereq education or graduate student; A-F only)
Sec 21, (191673) Serfass
Sec 22, (991674) Stoner
Sec 23, (791675) Burton
Sec 25, (591676) Wade

8777. THESIS CREDITS: MASTERS. (191754) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (991755) (1-36 cr [max 11 cr per summer term])

8981. RESEARCH PROBLEMS. (Cr and hrs ar; \$PE 8981; prereq 8980 or #; S-N only)
Individual problems.
Sec 21, (391677) Serfass
Sec 22, (191678) Stoner
Sec 23, (091679) Burton
Sec 25, (391680) Wade

SECOND TERM

3111. MECHANICS OF MOVEMENT. (191681) (3 cr; \$PE 3111; prereq CBN 1027, 0800-0900 MTWThF; NorrisH 3; A-F only; Physical Education Licensure) Greer
Structure of the body; principles and mechanics of bodily movements.

3115. PHYSIOLOGICAL APPLICATION TO SPORTS. (091682) (3 cr, \$PE 3385, 3386, PE 3115, PE 3385, PE 3386; limited to 40 students; prereq Phs1 3051 or #; 0915-1015 MTWThF; CookeH 215; A-F only; Physical Education Licensure) Greer
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, pre-game meals, and ergogenic aids in athletics.

3143. ORGANIZATION AND MANAGEMENT OF SPORT—July 22-August 9. (891683) (3 cr; \$PE 3143; prereq 2 cr coaching course; 1030-1230 MTWThF; CookeH 206; A-F only; Physical Education Licensure) Krotee
Principles, policies, and procedures involved in the coaching of interscholastic sports.

3327. TEACHING PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOL—July 18-August 14. (691684) (3 cr; \$PE 3327; prereq elementary education major; 0800-0930 MTWThF; NorrisH 3, 153, 153A; A-F only) Wiese
See First Term.

5136. PSYCHOLOGY OF COACHING—July 18-August 14. (491685) (3 cr; limited to 30 students; 1030-1200 MTWThF; CookeH 215; A-F only; Physical Education Licensure) Wiese
Psychological aspects of coaching at the elementary, secondary, and college levels.

5541. NUTRITION FOR EXERCISE AND PHYSICAL PERFORMANCE—July 18-August 14. (291686) (3 cr; SHEd 5412, PE 5141; limited to 30 students; prereq 3115 or FScn 1612 or equiva; 1300-1430 MTWThF; CookeH 214, 215) Serfass
Application of basic nutritional principles to active populations, current issues related to dietary modifications for the possible improvement of physical performance, and strategies for educating clientele about nutrition and physical performance.

5460. FOUNDATIONS OF SPORT MANAGEMENT—July 18-August 2. (191687) (3 cr; \$PE 5460, \$REC 5460; limited to 30 students; prereq Recreation or Kin/PE major or #; 0915-1130 MTWThF; CookeH 206; A-F only) Kane
Introduction to the fundamental principles of the sport management and fitness areas. Meets with Rec 5460.

5522. PEDAGOGY IN PHYSICAL EDUCATION II. (xxxxxx) (6 cr; prereq #; 0915-1115 MTWThF; CookeH 400, 325, Fieldhouse; A-F only; Physical Education Licensure) Spletzer
This course focuses on the planning, structure, communicating, class management and evaluating role of the contemporary middle school through 12th grade physical educator in diverse settings.

5720. TOPICS IN KINESIOLOGY. (991688) (1-12 cr [max 12 cr]; \$PE 5720; prereq #; A-F only)
Sec 1, Systematic Observation in Physical Education—July 18-August 7. (3 cr, limited to 30 students, 1300-1500 MTWThF, CookeH 400, Physical Education Licensure)
Observational techniques and systems useful to physical educators.

5740. WORKSHOP: COACHING OF INDIVIDUAL, DUAL, OR TEAM SPORTS: Soccer—July 22-August 9. (791689) (1-12 cr [max 12 cr]; \$PE 5740; limited to 40 students; 1300-1500 MTWThF; CookeH 206, 215, 325; A-F only; Physical Education Licensure) Krotee
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.

5980. RESEARCH METHODOLOGY. (191690) (3 cr; \$PE 5980; prereq education or grad student; 1300-1400 MTWThF; CookeH 214; A-F only) Kane
Methods and design for research in health, physical education, and recreation.

5981. PROBLEMS. (Cr and hrs ar; \$PE 5981; prereq MEd candidate, #; A-F only)
See First Term.

Sec 21, (991691) Greer
Sec 22, (791692) Krotee
Sec 23, (591693) Kane
Sec 24, (391694) Wade
Sec 25, (191695) Wiese

5983. READINGS: KINESIOLOGY. (Cr ar [max 9 cr]; \$PE 5983; prereq education or graduate student; A-F only)
See First Term.

Sec 21, (091696) Greer
Sec 22, (891697) Krotee
Sec 23, (691698) Kane
Sec 24, (491699) Wade
Sec 25, (191700) Wiese

8777. THESIS CREDITS: MASTERS. (791756) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (591757) (1-36 cr [max 11 cr per summer term])

8981. RESEARCH PROBLEMS. (Cr and hrs ar; \$PE 8981; prereq 8980 or #; S-N only)
See First Term.

Sec 21, (091701) Greer
Sec 22, (891702) Krotee
Sec 23, (691703) Kane
Sec 24, (491704) Wade
Sec 25, (291705) Wiese

L

Laboratory Medicine and Pathology (LaMP)

3-155 Jackson Hall, 625-1488
(Laboratory Medicine and Pathology)
Medical School

Courses for Medical and Undergraduate Students

SPECIAL TERMS: THREE- OR SIX-WEEK COURSES

5119. FORENSIC PATHOLOGY—Medical Examiner's Office, Hennepin County Medical Center. (989553) (9 cr; prereq year 3 or 4) Peterson
The function of a medical examiner's office in determining the cause and manner of types of death.

5125. CHRONOBIOLOGY. (286892) (Cr ar; prereq 3rd or 4th yr medical student, #) Halberg

5141. PROBLEMS IN EXPERIMENTAL PATHOLOGY. (186893) (Cr ar; prereq 3rd or 4th yr medical student, #) Staff

5152. ANATOMIC PATHOLOGY IN A HOSPITAL SETTING: (Veterans Administration Hospital). (586896) (Cr ar; prereq 3rd or 4th yr medical student) Posalaky

5158. CARDIAC PATHOLOGY (Miller Hospital). (186898) (Cr ar; prereq 3rd or 4th yr medical student, #) Titus, Edwards

5192. LABORATORY MEDICINE FOR PRIMARY CARE (Virginia). (386902) (Cr ar; prereq 4th yr medical student, #) Knabe

5193. CLINICAL PATHOLOGY EXTERNSHIP (Hibbing Hospital). (186903) (Cr ar; prereq #) Eilers

92 Laboratory Medicine and Pathology—Linguistics

5194. COMPUTER APPLICATIONS IN MEDICINE. (488480) (Cr ar; prereq #) Ellis

5195. COMPUTER APPLICATIONS IN MEDICAL RESEARCH. (288481) (Cr ar; prereq #) Ellis

5203. CLINICAL BLOOD BANK IMMUNOLOGY (Minneapolis War Memorial Blood Bank). (086904) (Cr ar; prereq #) Polesky

5210. SURGICAL PATHOLOGY FOR POST-MDs. (888847) (1-10 cr; prereq regis med fellow spec, #)

5211. AUTOPSIES FOR POST-MDs. (688848) (1-10 cr; prereq regis med fellow spec, #)

5212. ADVANCED NEUROPATHOLOGY FOR POST-MDs. (488849) (1-5 cr; prereq regis med fellow spec, #) Sung

5213. LABORATORY MEDICINE FOR POST-MDs. (888850) (1-10 cr; prereq regis med fellow spec, #)

SPECIAL TERMS: SIX-WEEK COURSES

5113. SURGICAL PATHOLOGY: UNIVERSITY HOSPITALS. (286889) (9 cr; prereq 3rd or 4th yr medical student) Snover

5114. SURGICAL PATHOLOGY (Hennepin County Medical Center). (686890) (9 cr; prereq 3rd or 4th yr medical student) Anderson

5115. SURGICAL PATHOLOGY (Veterans Administration Hospital). (486891) (9 cr; prereq 3rd or 4th yr medical student) Ewing

5150. ANATOMIC PATHOLOGY IN A HOSPITAL SETTING: (University Hospitals). (986894) (9 cr; prereq 3rd or 4th year medical student) Burke

5151. ANATOMIC PATHOLOGY IN A HOSPITAL SETTING (Hennepin County Medical Center). (786895) (9 cr) Anderson, Strom

5153. ANATOMIC PATHOLOGY IN A HOSPITAL SETTING (St. Paul-Ramsey Medical Center). (386897) (9 cr; prereq 3rd or 4th yr medical student) Posalaky

5181. LABORATORY AND CLINICAL HEMATOLOGY. (086899) (9 cr; prereq #) Bruning

5182. LABORATORY STUDIES OF GENETIC DISORDERS. (786900) (9 cr; prereq #) Eaton

5184. IMMUNOHEMATOLOGY IN BLOOD BANKING. (586901) (9 cr; prereq #) McCullough

5186. LABORATORY MEDICINE IN A COMMUNITY HOSPITAL. (785052) (9 cr; prereq 4th yr medical student, #) Bandt

Landscape Architecture (LA)

205 North Hall, St. Paul. 625-8285
(Architecture and Landscape Architecture)
College of Agriculture, Institute of Technology

FIRST TERM

3098. INDEPENDENT STUDY IN DESIGN. (485045) (1-4 cr; hrs ar; prereq landscape architecture student, #; A-F only) Pitt

5132. DIRECTED STUDIES IN LANDSCAPE ARCHITECTURE DESIGN. (985308) (1-6 cr; prereq third yr landscape architecture student, Δ; A-F only) Pitt

5140. INTERDISCIPLINARY STUDIES IN LANDSCAPE ARCHITECTURE. (385619) (2-6 cr [max 18 cr]; prereq #; A-F only) Staff

8500. LANDSCAPE ARCHITECTURE RESEARCH PROJECT. (992002) (1-6 cr; prereq 8283 cr #; A-F only) Pitt

8777. THESIS CREDITS: MASTERS. (489774) (1-16 cr [max 11 cr per summer term])

SECOND TERM

3098. INDEPENDENT STUDY IN DESIGN. (088264) (1-4 cr; hrs ar; prereq landscape architecture student, #; A-F only) Pitt

5134. DIRECTED STUDIES IN EMERGING AREAS FOR LANDSCAPE ARCHITECTURE. (185064) (1-6 cr; hrs ar; prereq third yr landscape architecture student, Δ; A-F only) Pitt

5140. INTERDISCIPLINARY STUDIES IN LANDSCAPE ARCHITECTURE. (187333) (2-6 cr [max 18 cr]; prereq #; A-F only) Staff

8500. LANDSCAPE ARCHITECTURE RESEARCH PROJECT. (792003) (1-6 cr; prereq 8283 cr #; A-F only) Pitt

8777. THESIS CREDITS: MASTERS. (090015) (1-16 cr [max 11 cr per summer term])

Latin (Lat)

309 Folwell Hall. 625-5353
(Classical and Near Eastern Studies)
College of Liberal Arts

FIRST TERM

3001. BEGINNING LATIN: INTENSIVE. (085820) (10 cr, \$1101-1102; 0915-1245 MTWThF; FolH 234) Sheets
Grammar, syntax, composition, and reading.

8777. THESIS CREDITS: MASTERS. (989777) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589779) (1-36 cr [max 11 cr per summer term])

SECOND TERM

3002. LATIN READINGS. (185539) (5 cr, \$1103; continuation of 3001 for 3rd quarter of beg Latin; 1030-1130 MTWThF; FolH 426) Erickson
Reading of selected Latin authors, development of reading proficiency. Meets with 8120.

8120. LATIN TEXT COURSE. (486972) (4 cr; prereq 3052 or Δ; restricted to students in depts other than Classics; 1030-1130 MTWThF; FolH 426) Erickson
For nonmajors who wish text work in Latin for a minor or related field. Supplementary work at the discretion of the instructor. Meets with 3002.

8777. THESIS CREDITS: MASTERS. (290019) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (490021) (1-36 cr [max 11 cr per summer term])

Law School (Law)

285 Law. 625-1000
Law School

Calendar

May 28
First day of summer session classes

July 24
Last day of summer session classes

July 25, 26
Final Examination Period for summer session

Admission and Registration

Students must have completed one year at an approved law school and submit a letter of good standing from a dean of an approved law school. The tuition is \$181.88 per credit*. Students not currently enrolled in the University of Minnesota Law School must submit a nonrefundable application fee. Last day to register without a late fee is May 24, 1991. Information is available in the college office, 290 Law Building, 229 19th Avenue South, University of Minnesota, Minneapolis, MN 55455 or call 612/625-5005.

SPECIAL TERM: EIGHT WEEK COURSES, May 28-July 26

5109. CREDITORS' REMEDIES/SECURED TRANSACTIONS. (190765) (4 cr; prereq Δ; 0745-0915 MTWThF; Law 50, 65) Nickles
Attachment, garnishment execution, supplementary proceedings creditors' bills, judicial sales, fraudulent conveyance and exemptions, all matters of almost daily concern to practicing lawyers. Legal problems of personal property security in retail installment buying and in financing commercial business.

5219. EVIDENCE. (786508) (4 cr; prereq Δ; 1030-1200 MTWThF; Law 50, 65) Marshall
Study of relevance, admission and exclusion of evidence, direct and cross-examination, judicial notice, hearsay, expert testimony, burdens of proof and presumptions, privileged communications.

5600. PROFESSIONAL RESPONSIBILITIES. (188232) (2 cr; prereq Δ; 0800-0900 MTWTh; Law 50, 65) Cound

Lawyer's responsibilities to clients, the profession, the administration of justice and society; content and role of formal standards of professional ethics.

5604. FAMILY LAW. (591662) (4 cr; 1205-1320 MTWTh; Law 50, 65) Younger

A study of the law governing de jure and de facto families including marriage, divorce, and relations of family members to one another and to the state.

Learning and Academic Skills (LASK)

104 EddyH. 624-7546
College of Liberal Arts

1303. INTERNSHIP EXPERIENCE FOR DISABLED STUDENTS. (189462) (2 cr; prereq 1302 or equiv; 1300-1515 Th; VinH 1)

Linguistics (Ling)

142 Klaeber Court. 624-3528
(Linguistics)
College of Liberal Arts

FIRST TERM

3001. INTRODUCTION TO LINGUISTICS. (385863) (5 cr, \$3005, \$5001; 1300-1515 MWF, 1300-1400 TTh; NichH 209)
Survey of phonetics, phonology, morphology, syntax, semantics, and historical-comparative linguistics; language learning and the psychology of language; linguistic universals; language in society. Meets with 5001.

3970. DIRECTED STUDIES. (187476) (1-5 cr; prereq linguistics major, #, Δ, □)
Guided individual reading or study.

5001. INTRODUCTION TO LINGUISTICS. (185864) (5 cr, \$3001, \$3005; prereq grad standing or #; 1300-1515 MWF, 1300-1400 TTh; NichH 209)
See 3001. Meets with 3001.

5731. A CONTRASTIVE APPROACH TO MODERN ENGLISH. (688851) (4 cr; prereq 3001 or 5001 or #; does not fulfill degree requirements for majors in Ling or ESL; 1530-1745 MWF; BuH 120)
Linguistic structures of standard English and contrastive analysis of these structures with those of another language. Implications for learning English as a second language.

5970. DIRECTED STUDIES. (488852) (1-5 cr; prereq Ling or ESL major, #, Δ, CLA approval)

8777. THESIS CREDITS: MASTERS. (789781) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589782) (1-36 cr [max 11 cr per summer term])

8900. INDEPENDENT STUDY. (288853) (1-5 cr; prereq Ling major, #)

*Tuition is subject to change.

SECOND TERM

5732. A CONTRASTIVE APPROACH TO MODERN ENGLISH. (188854) (4 cr; prereq 5731; does not fulfill degree requirements for majors in Ling or ESL; 1300-1515 MWF; BuH 125) Linguistic structures of standard English and contrastive analysis of these structures with those of another language. Implications for learning English as a second language. NOTE: This course is the second in a two-course sequence.

5970. DIRECTED STUDIES. (98855) (1-5 cr; prereq Ling or ESL major, #, Δ, CLA approval)

8777. THESIS CREDITS: MASTERS. (990024) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (790025) (1-36 cr [max 11 cr per summer term])

8900. INDEPENDENT STUDY. (788856) (1-5 cr; prereq Ling major, #)

Logistics Management (LM)

1235 Mgmt/Econ. 624-5055
Carlson School of Management

Refer to registration instructions for undergraduate Carlson School of Management courses on pages 11, 14.

FIRST TERM

8990. READINGS IN LOGISTICS MANAGEMENT. (586509) (Cr ar; prereq consent of advisor, #, Grad School of Mgmt approval; A-F only)

8995. GRADUATE RESEARCH IN LOGISTICS MANAGEMENT. (986510) (Cr ar; prereq Grad School of Mgmt approval; A-F only)

SECOND TERM

8990. READINGS IN LOGISTICS MANAGEMENT. (786511) (Cr ar; prereq consent of advisor, #, Grad School of Mgmt approval; A-F only)

8995. GRADUATE RESEARCH IN LOGISTICS MANAGEMENT. (586512) (Cr ar; prereq Grad School of Mgmt approval; A-F only)

M

Management (Mgmt)

735 Management/Economics Building.
624-5232
Carlson School of Management

Refer to registration instructions for undergraduate Carlson School of Management courses on pages 11, 14.

FIRST TERM

3001. FUNDAMENTALS OF MANAGEMENT. (4 cr, \$8001; each section limited to 40 students; A-F only) 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, (285421) 0900-1130 MW,
BlegH 335

3004. BUSINESS POLICY: STRATEGY FORMULATION AND IMPLEMENTATION. (5 cr; limited to 35 students; prereq sr and completion of business core or § final core course; A-F only) 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.

Sec 1, (185422) 1030-1245 MTW;
HHHctr 25, Erickson

8990. READINGS IN MANAGEMENT THEORY AND ADMINISTRATION. (985423) (Cr ar; prereq 2nd yr grad stu, consent of advisor and #, Grad Sch Mgmt approval, requisite introductory courses) Staff Readings involve intensive research into a particular subject and normally require preparation of a major term paper.

8995. RESEARCH IN MANAGEMENT THEORY AND ADMINISTRATION. (785424) (Cr ar; prereq consent of advisor, Grad Sch Mgmt approval, #, 2nd-yr grad student and requisite introductory courses) Staff Special research projects on a specific problem completed in cooperation with a business firm.

FIRST AND SECOND TERMS:
TEN-WEEK
COURSE

(Register once in Term I)

8006. PSYCHOLOGY IN MANAGEMENT. (490763) (4 cr; \$3002; prereq grad mgmt student or Grad Sch Mgmt approval; limited to 20 students; 1730-2100 T; BlegH 435) Concepts, theories, and empirical research relevant to diagnosis, prediction, and control of human behavior in complex organizations. Models and techniques for analyzing group processes, leadership styles, and organizational structure, change, and environment. Students prepare papers based on their own research or on secondary analysis of existing literature.

SECOND TERM

3001. FUNDAMENTALS OF MANAGEMENT. (186481) (4 cr, \$8001; limited to 45 students; 0900-1130 MW; BlegH 425 A-F only) See First Term.

8990. READINGS IN MANAGEMENT THEORY AND ADMINISTRATION. (086482) (Cr ar; prereq consent of advisor, Grad Sch Mgmt approval, and #, 2nd-yr grad student and requisite introductory courses) Staff See First Term.

8995. RESEARCH IN MANAGEMENT THEORY AND ADMINISTRATION. (886483) (Cr ar; prereq consent of advisor and #, Grad Sch Mgmt approval, 2nd-yr grad student and requisite introductory courses) Staff See First Term.

Marketing (Mktg)

1235 Management/Economics Building.
624-5055
Carlson School of Management

Refer to registration instructions for undergraduate Carlson School of Management courses on pages 11, 14.

FIRST TERM

3000. PRINCIPLES OF MARKETING. (585425) (4 cr, \$8000; limited to 35 students; prereq Econ 1101; A-F only; 0915-1115 MWF; BlegH 250) Ruekert 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.

3010. BUYER BEHAVIOR AND MARKETING ANALYSIS. (385426) (4 cr; limited to 35 students; prereq 3000 and OMS 1020 or equiv.; 0915-1115 MWF; BlegH 105) Childers 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.

8990. READINGS IN MARKETING. (185427) (Cr ar; prereq MBA core courses, or MBA 8045 and Δ...and consent of advisor, #, and Grad Sch Mgmt approval) Readings useful to the student's program and objectives that are not available in regular course offerings.

8995. GRADUATE RESEARCH IN MARKETING. (085428) (Cr ar; prereq MBA core courses, or MBA 8045, Δ, consent of advisor, #, Grad Sch Mgmt approval) Individual research on an approved topic that is appropriate to the student's program and objectives.

FIRST AND SECOND TERMS:
TEN-WEEK COURSE (Register once in Term I)

8072. INTERNATIONAL MARKETING. (791370) (4 cr; limited to 15 students; prereq MBA core courses, or MBA 8045, or Δ, Grad Mgmt student or Grad Sch Mgmt approval; 1730-2100 T; BlegH 340) Hansen

8078. MARKETING COMMUNICATIONS. (689207) (4 cr; limited to 15 students; prereq either MBA core courses, or MBA 8045, grad Mgmt student or Grad School Mgmt approval; 1730-2100 W; BlegH 425) Ross

The communication function as a facet of marketing strategy; integrating advertising, public relations, sales promotion, and other elements into the communications mix; design and evaluation of marketing communications; selection of media; advertiser-agency relationships.

SECOND TERM

3020. MARKETING OPERATIONS MANAGEMENT. (286486) (4 cr; limited to 35 students; prereq 3010; 0915-1115 MWF; BlegH 340) Rao 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.

8990. READINGS IN MARKETING. (986488) (Cr ar; prereq MBA core courses, or MBA 8045, Δ consent of advisor, #, Grad Sch Mgmt approval) See First Term.

8995. GRADUATE RESEARCH IN MARKETING. (186490) (Cr ar; prereq MBA core courses or MBA 8045, Δ consent of advisor, #, Grad Sch Mgmt approval) See First Term.

MATHEMATICS EDUCATION (MthE)

- 5102 Workshop: Mathematics Education (June 19-July 3)
 5311 Teaching and Supervision of Mathematics in the Elementary School (June 11-July 12)
 5312 Teaching and Supervision of Mathematics in the Secondary School (June 11-July 12)
 5366 Computer-Assisted Mathematics Instruction (June 11-July 12)
 5101 Workshop: Elementary School Mathematics July 18-26; August 8-10
 5153 Geometry in the Intermediate Grades (July 18-26, August 8-10)

MUSIC EDUCATION

- 5214 Psychological Foundations (June 24-July 8)
 5613 Teaching Music Literature (June 11-28)
 5666 Microcomputers in the Music Classroom (June 11-21)
 5657 Techniques and Materials: Instrumental Conducting (July 18-31)
 5750 Workshop: Music Education
 Sec 1, Music Therapy Procedures for At-Risk Preschoolers (July 18-August 7)
 Sec 2, Relating the Visual Arts to Music Education (July 18-24)

The Minnesota MBA Programs

The Carlson School of Management offers a fulltime Advanced Placement MBA for students with a business undergraduate background and the Minnesota MBA, designed for students with no or limited business coursework.

For further details about the MBA programs, admission requirements, and application deadlines, contact the Curtis L. Carlson Graduate School of Management, 295 Hubert H. Humphrey Center, University of Minnesota, 271 19th Avenue South, Minneapolis, MN 55455, 612/624-0006.

Master of Business Administration (MBA)

295 Hubert H. Humphrey Center.
 624-0006
 Carlson School of Management

FIRST TERM

- **5100. MANAGEMENT TOPICS—June 10-July 13.** (589426) (Cr ar; limited to 10 students; prereq #: Lyon, France)
 ■ **8005. COMPUTER ACCESS AND PROGRAMMING FOR BUSINESS ANALYSIS.** (1 cr; MBA students only; limited to 50 students; S-N only) Provides computer access and use information necessary for MBA courses. Covers introduction to computer terminology and computing at Minnesota, plus programming in BASIC.
 Sec 1, (885429) 1500-1700 M, BlegH 90

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

- **8015. HUMAN RESOURCES MANAGEMENT.** (4 cr; MBA students only; sec 1 limited to 15 students; sec 2 limited to 60 students)
 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.
 Sec 1, (185430) 1730-2100 T, HHHctr 25
 Sec 2, (786668) 1000-1145 TTh, BlegH 425
 ■ **8020. BUSINESS STATISTICS: DATA SOURCES, PRESENTATION, AND ANALYSIS.** (189395) (4 cr; MBA students only; limited to 30 students; A-F only; 1730-2100 Th; HHHctr 25)

A managerial view of the Statistical Problem Solving Process and the most frequently encountered statistical methods; Descriptive Statistics for summarizing data; analysis of survey data; regression analysis; material covered using statistical software and computer-stored data sets.

■ **8025. DECISION SCIENCES AND INFORMATION SYSTEMS.** (085431) (4 cr; MBA students only; limited to 50 students; A-F only; 1300-1445 MW; HHHctr 25)
 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.

■ **8030. FINANCIAL ACCOUNTING.** (789232) (4 cr; MBA students only; limited to 15 students; A-F only; 1730-2100 T; BlegH 415)
 Understanding, interpreting, and analyzing financial statements of business enterprises.

■ **8035. MANAGERIAL ACCOUNTING.** (589233) (4 cr; MBA students only; limited to 60 students; A-F only; 1000-1145 TTh; BlegH 435)
 Use of accounting data in management decisions; accounting systems to generate accounting data, including study of planning and control; transfer pricing, performance evaluation, cost behavior, cost allocation, and standard costs.

■ **8040. FINANCIAL MANAGEMENT.** (885432) (4 cr; MBA students only; each section limited to 60 students; A-F only; 0800-0945 TTh; BlegH 425)
 Gahlon
 Analytical introduction to the theory and practice of finance. Applies the basic financial concepts of risk, return, and valuation to the decisions that a person in a small business or a corporate financial officer must make about the sources and uses of funds during times of changing financial markets.

■ **8045. MARKETING MANAGEMENT.** (690423) (4 cr; MBA students only; limited to 20 students; A-F only; 1730-2100 W; BlegH 415)
 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 or #; limited to 60 students; A-F only)
 The operations function in different types of organizations and its relationship to business decision. Topics include: operations strategy, process management, JIT, scheduling, inventory control, and quality improvement.
 Sec 1, (685433) 1300-1445 TTh, BlegH 425

■ **8060. STRATEGY AND POLICY.** (690938) (4 cr; limited to 12 students; MBA students only, 1730-2100 T; HHHctr 30; A-F only)
 Emphasis on development of skills necessary for effective oral presentation, written presentation, and oral attack and defense of alternative positions. Focuses on strategy, planning, and control systems.

Materials Science (MatS)

151 Amundson Hall. 625-1313
 (Chemical Engineering and Materials Science)
 Institute of Technology

FIRST TERM

■ **3400. MECHANICAL PROPERTIES OF MATERIALS.** (686372) (4 cr; prereq 2nd-year IT student; limited to 125 students; 0800-0955 MWF; AmundH B75) Sivertsen
 Structure and properties of metals, alloys, and polymers; heat treatment; alloy selection and metal processing.

5481, 5482, 5483. SPECIAL PROBLEMS IN PHYSICAL METALLURGY AND MATERIALS SCIENCE. (486373)(286374)(186375) (Cr ar; prereq sr)

8480, 8481, 8482. SELECTED TOPICS IN MATERIALS SCIENCE AND ENGINEERING. (986376) (786377) (586378) (Cr ar)

8777. THESIS CREDITS: MASTERS. (489788) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (689790) (1-36 cr [max 11 cr per summer term])

SECOND TERM

5481, 5482, 5483. SPECIAL PROBLEMS IN PHYSICAL METALLURGY AND MATERIALS SCIENCE. (587031) (387032) (187033) (Cr ar; prereq sr)

8480, 8481, 8482. SELECTED TOPICS IN MATERIALS SCIENCE AND ENGINEERING. (087034) (887035) (687036) (Cr ar)

8777. THESIS CREDITS: MASTERS. (190028) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (090029) (1-36 cr [max 11 cr per summer term])

Mathematics (Math)

127 Vincent Hall. 625-7575
Institute of Technology
(See also General College)

FIRST TERM

■1005. INTRODUCTION TO ELEMENTARY MATHEMATICS.

(986393) (4 cr; prereq pre-elem educ stu, 1111 or equiv; May not be applied toward any CLA degree; limited to 30 students; 1145-1245 MTTh, 1030-1245 WF; VinH 206) Harper

For pre-elementary education students. Elementary computer programming (BASIC), progressions, financial mathematics, counting problems and other selected topics.

■1008. TRIGONOMETRY. (786394) (4 cr, \$1201; prereq plane geometry, 2 yrs high school algebra or ■1111, grade of C or better in GC 0631; limited to 35 students; 0915-1015 MWF; 0915-1130 TTh; VinH 209)

Analytic trigonometry, identities, equations, and properties of trigonometry functions; right and oblique triangles.

■1111. COLLEGE ALGEBRA AND ANALYTIC GEOMETRY.

(5 cr, \$1201; prereq plane geometry, 2 yrs high school algebra or plane geometry, grade of C or better in GC 0631; each section limited to 40 students)

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, (586395) 0800-1015 MTWThF, VinH 20

Sec 2, (386396) 0915-1130 MTWThF, VinH 313

Sec 3, (990461) 1030-1245 MTWThF, VinH 20

■1131. FINITE MATHEMATICS.

(186397) (5 cr; prereq 3 1/2 yrs high school math or grade of C or better in 1111, pre-bus or soc and behav sci students; limited to 40 students; 1030-1245 MTWThF; VinH 6)

For students in pre-business administration and the social and behavioral sciences. Elementary computer programming, financial math, probability, linear algebra, linear programming, Markov chains.

■1142. SHORT CALCULUS.

(5 cr, \$1211, \$1411H; prereq 3 1/2 yrs of high school math or grade of C or better in 1111 or 1181 or 1201; each section limited to 40 students)

For students requiring a minimal amount of calculus. Derivatives, integrals, differential equations, maxima and minima, partial differentiation, applications.

Sec 1, (086398) 0800-1015 MTWThF, VinH 364

Sec 2, (886399) 1030-1245 MTWThF, VinH 364

■1201. PRE-CALCULUS.

(586400) (5 cr, \$1008, \$1111; prereq 4 yrs high school math including trigonometry; limited to 30 students; 0800-1015 MTWThF, VinH 314)

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.

■1211. CALCULUS I. (5 cr, \$1142, \$1411H; prereq 4 yrs high school math including trigonometry . . . or grade of C or better in [1201 or 1191] or [1008, 1111]; each section limited to 40 students)

Analytic geometry and calculus of functions of one variable, applications.

Sec 1, (186402) 0800-1015 MTWThF, VinH 6

Sec 2, (086403) 0915-1130 MTWThF, VinH 2

Sec 3, (790462) 1030-1245 MTWThF, VinH 16

■1221. CALCULUS II.

(5 cr, \$1421H; prereq grade of C or better in [1211]; each section limited to 50 students) See 1211.

Sec 1, (886404) 0800-1015 MTWThF, Arch 35

Sec 2, (686405) 1030-1245 MTWThF, VinH 1

■1241. LINEAR AND NONLINEAR MULTIVARIABLE ANALYSIS I.

(5 cr; each section limited to 35 students; \$1231, \$3142, \$3211, \$3511; prereq grade C or better in 1221 or equiv) Linear algebra, geometry, and linear transformations in two, three, and more generally n-dimensional space; curves; limits and continuity in the multi-variable setting.

Sec 1, (891585) 0800-1015 MTWThF, VinH 16

Sec 2, (691586) 1030-1245 MTWThF, Phys 133

■1342. INTRODUCTION TO LINEAR ALGEBRA.

(186408) (4 cr, \$3213, \$3221, \$3511; prereq grade of C or better in 1221 or equiv; limited to 50 students; 0915-1015 MWF, 0915-1130 TTh; FordH 130) Vectors, systems of linear equations, matrices, determinants, eigenvalues, applications. Techniques and some proofs of theorems.

■3311. LINEAR AND NONLINEAR MULTIVARIABLE ANALYSIS II.

(5 cr; \$1231, \$3142, \$3211, \$3511; each section limited to 35 students; prereq grade of C or better in 1241) Differentiation, extreme values, and integration of functions of several variables.

Sec 1, (491587) 0800-1015 MTWThF, VinH 207

Sec 2, (291588) 1030-1245 MTWThF, VinH 314

■3321. DIFFERENTIAL EQUATIONS AND GENERAL VECTOR SPACES.

(191589) (5 cr; limited to 35 students; \$3066, \$3142, \$3212, \$3221, \$3511H; prereq grade of C or better in 1241 or equiv; 1030-1245 MTWThF; VinH 207) Vector spaces, especially vector spaces of functions; linear transformations and eigenvalues; first order differential equations; linear differential equations and linear differential systems. Recommended that 3311 be taken first.

■3331. INFINITE SEQUENCES AND SERIES; VECTOR INTEGRAL

CALCULUS. (491590) (5 cr; limited to 35 students; \$1231, \$1431H; prereq 3311; 0800-1015 MTWThF; Arch 40) Convergence issues and calculational techniques for infinite sequences and series; line and surface integrals, the divergence theorem and the theorems of Green and Stokes. Recommended that 3321 be taken first.

■5081. FUNDAMENTAL TOPICS IN ANALYSIS.

(291591) (4 cr; limited to 30 students; prereq 3531 or 3211 or 3311; 0915-1015 MWF, 0915-1130 TTh; VinH 113)

Primarily for prospective secondary teachers to develop analytic abilities and to broaden perspective on and enhance interest in mathematics. May include real number systems, theory of sets, continuous functions, and properties of limits.

■5209. THEORY OF NUMBERS.

(186411) (4 cr; prereq 3211 or #; limited to 30 students; 1145-1245 MTTh, 1030-1245 WF; VinH 209)

A rigorous introduction to the elementary theory of numbers up to the classical results concerning congruences to a prime modulus (e.g. Fermat's theorem). Usually covers one or more advanced topics such as continued fractions, Gaussian integers, or quadratic reciprocity.

■5242. LINEAR ALGEBRA WITH APPLICATIONS.

(4 cr, \$5232-5233, \$5264, \$5284 prereq 3521H or 3213 or 3142 or 3221 or equiv; each section limited to 40 students)

Systems of linear equations, finite dimensional linear spaces, bases, linear transformations, matrices, determinants, eigenvalues, reduction to canonical forms, quadratic and bilinear forms, applications.

Sec 1, (986412) 0915-1015 MWF, 0915-1130 TTh, VinH 301

Sec 2, (590463) 1145-1245 MWF, 1030-1245 WF, VinH 301

■5457. METHODS OF APPLIED MATHEMATICS.

(786413) (4 cr; prereq 3211-3212-3213 or 3511-3521-3531 or equiv; limited to 35 students; 0915-1015 MWF, 0915-1130 TTh; VinH 311)

Modern analytic tools used in applications of mathematics; emphasis on technique. Linear algebra, ordinary and partial differential equations, calculus of variations, Fourier series, complex variables, optimization, numerical methods.

■5512. DIFFERENTIAL EQUATIONS WITH APPLICATIONS I.

(785097) (4 cr; prereq 3521H or 3213 or [3211, 3066] or [3211, 3221] or equiv; limited to 35 students; 0915-1015 MWF; 0915-1130 TTh; VinH 211)

Applications, review of special techniques, and numerical approximation for first-order equations. Euler and Runge-Kutta methods with error analysis. Applications and power series solutions for second-order equations.

■5567. FOURIER SERIES AND BOUNDARY VALUE PROBLEMS.

(088555) (4 cr, \$5571; prereq 3521H or 3213 or [3211, 3066] or [3211, 3221] or equiv or #; limited to 30 students; 1145-1245 MTTh, 1030-1245 WF; VinH 311)

Partial differential equations of theoretical physics. Fourier Series, proof of convergence, orthogonal systems, Sturm-Liouville systems, solution of boundary value problems by separation of variables, applications.

■5606. ADVANCED CALCULUS: A RIGOROUS APPROACH.

(489256) (4 cr; prereq 3211-3212-3213 or 3411-3431 or 3511-3521-3531; limited to 35 students; 1145-1245 MTTh, 1030-1245 WF; VinH 211)

Basic analysis course at a more concrete level than 5612-5613-5614.

Foundations of analysis: completeness of the line, limits, convergence, continuity, integration. Analysis on the line and in Euclidean space. Other topics of the instructor's choice.

■5900. TUTORIAL COURSE IN ADVANCED MATHEMATICS.

(789036) (Cr ar; limited to 10 students; prereq #)

8777. THESIS CREDITS: MASTERS.

(189784) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL.

(089785) (1-36 cr [max 11 cr per summer term])

8990. READING AND RESEARCH.

(587479) (Cr ar)

SECOND TERM

■1008. TRIGONOMETRY. (4 cr, \$1201; prereq plane geometry, 2 yrs high school algebra or ■1111, grade of C or better in GC 0631; each section limited to 30 students) See First Term.

Sec 1, (487037) 0915-1015 MWF, 0915-1130 TTh, VinH 209

Sec 2, (287038) 1145-1245 MTTh, 1030-1245 WF, VinH 209

■1111. COLLEGE ALGEBRA AND ANALYTIC GEOMETRY.

(5 cr, \$1201; prereq plane geometry, 2 yrs high school algebra or plane geometry, grade of C or better in GC 0631; each section limited to 40 students) See First Term.

Sec 1, (187039) 0800-1015 MTWThF, VinH 1

Sec 2, (487040) 1030-1245 MTWThF, VinH 6

■1142. SHORT CALCULUS.

(5 cr, \$1211, \$1411H, prereq 3 1/2 yrs high school math or grade of C or better in 1111 or 1181 or 1201; each section limited to 40 students) See First Term.

Sec 1, (287041) 0800-1015 MTWThF, Phys 210

Sec 2, (187042) 1030-1245 MTWThF, Phys 210

96 Mathematics—Mechanical Engineering

1201. PRE-CALCULUS. (987043) (5 cr, \$1008, \$1111; prereq 4 yrs high school math including trigonometry; limited to 30 students; 1030-1245 MTWThF; VinH 301)
See First Term.

1211. CALCULUS I. (5 cr, \$1142, \$1411H; prereq 4 yrs high school math including trigonometry or grade of C or better in 1201 or 1191 [1008 and 1111]; limited to 40 students)
See First Term.

Sec 1, (787044) 0800-1015
MTWThF, VinH 20
Sec 2, (587045) 1030-1245
MTWThF, VinH 20

1221. CALCULUS II. (5 cr, \$1421H; prereq grade of C or better in 1211; each section limited to 50 students)
See 1211 First Term.

Sec 1, (387046) 0800-1015
MTWThF, AmundH B75
Sec 2, (187047) 1030-1245
MTWThF, BlegH 145

1241. LINEAR AND NONLINEAR MULTIVARIABLE ANALYSIS I. (5 cr; each section limited to 35 students; \$1231, \$3142, \$3211, \$3511; prereq grade C or better in 1221 or equiv)
See First Term

Sec 1, (191592) 0800-1015
MTWThF, VinH 16
Sec 2, (991593) 1030-1245
MTWThF, VinH 16

3311. LINEAR AND NONLINEAR MULTIVARIABLE ANALYSIS II. (5 cr; each section limited to 35 students; \$1231, \$3142, \$3211, \$3511; prereq grade C or better in 1241)
See First Term.

Sec 1, (791594) 0800-1015
MTWThF, CivMinE 212
Sec 2, (591595) 1030-1245
MTWThF, FordH 130

3321. DIFFERENTIAL EQUATIONS AND GENERAL VECTOR SPACES. (5 cr; each section limited to 35 students; \$3066, \$3142, \$3212, \$3221, \$3511H; prereq grade of C or better in 1241 or equiv)
See First Term.

Sec 1, (391596) 0800-1015
MTWThF, KoltH 5134
Sec 2, (191597) 1030-1245
MTWThF, VinH 1

3331. INFINITE SEQUENCES AND SERIES; VECTOR INTEGRAL CALCULUS. (091598) (5 cr; limited to 35 students; \$1231, \$1431H; prereq 3311; 1030-1245 MTWThF; VinH 311)

5243. LINEAR ALGEBRA WITH APPLICATIONS. (4 cr, prereq 5242; each section limited to 30 students)
See 5242 First Term.

Sec 1, (887052) 0915-1015 MWF,
0915-1130 Th, MechE 221
Sec 2, (190465) 1145-1245 MTTh,
1030-1245 WF, VinH 207

5458. METHODS OF APPLIED MATHEMATICS. (687053) (4 cr; prereq 5457; limited to 35 students; 0915-1015 MWF; 0915-1130 TTh; VinH 211)
See 5457 First Term.

5607. ADVANCED CALCULUS: A RIGOROUS APPROACH. (089253) (4 cr; prereq 5606; limited to 35 students; 1145-1245 MTTh; 1030-1245 WF; CivMinE 212)
See 5606 First Term.

5679. PROBABILITY. (585098) (4 cr, \$5681 \$Stat 5131; prereq 3521H or 3211 or 3311 or equiv; limited to 35 students; 1145-1245 MTTh, 1030-1245 WF; VinH 211)
Elementary principles of probability, total and compound probability, expectation, repeated trials, and topics from the following: Stirling's formula, the probability integral, geometrical probability, probability of causes, Bayes' theorem, errors of observation, principle of least squares.

5900. TUTORIAL COURSE IN ADVANCED MATHEMATICS. (589037) (Cr ar; limited to 10 students prereq #)

8777. THESIS CREDITS: MASTERS. (590026) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (390027) (1-36 cr [max 11 cr per summer term])

8990. READING AND RESEARCH. (088281) (Cr ar)

Mathematics Education (MthE)

125 Peik Hall, 625-6372
(Curriculum and Instruction)
College of Education

FIRST TERM

5081. TEACHING SECONDARY SCHOOL ARITHMETIC. (391291) (2 cr; limited to 24 students; prereq math ed major or minor, Math 5081 or #5081 or #; 1300-1515 TTh; PeikH 375; A-F only) Stochl
Survey of concepts, principles, and processes of secondary school pre-algebra curriculum; learning difficulties, teaching strategies and alternatives; mathematical foundations or pre-algebra topics.

5102. WORKSHOP: MATHEMATICS EDUCATION: Learning Mathematics Through Modeling—June 19-July 3. (385460) (1-12 cr [max 12 cr]; limited to 24 students; 1300-1600 W, EdHan 54; A-F only) Post, Smith
Issues, materials, and instructional techniques, focusing on a single current topic of particular relevance to secondary school and college mathematics teachers. Will focus on modeling, problem formulation and representation, the development of heuristics for learning and teaching modeling, and the importance of problem selection and active learning strategies for involving students in the modeling process. Provides the opportunity for cross-disciplinary cooperation by three professors in disparate areas. Appropriate for intermediate, middle school and junior high school teachers. This offering for 2 credits.

5311. TEACHING AND SUPERVISION OF MATHEMATICS IN THE ELEMENTARY SCHOOL—June 11-July 12. (891294) (3 cr; limited to 12 students; prereq Elem 3391 or #; 1030-1245 MWF; PeikH 375; A-F only) House
Present practices and trends in methods, evaluation, and diagnosis; objectives, psychology, and philosophy related to improvement of instruction. Meets with 5312.

5312. TEACHING AND SUPERVISION OF MATHEMATICS IN THE SECONDARY SCHOOL—June 11-July 12. (691295) (3 cr; limited to 12 students; prereq mathematics tchg exper or #; 1030-1245 MWF; PeikH 375; A-F only) House
Methods, materials, and curriculum development; principles of learning; review of research; preparation and evaluation of tests, units, and materials of instruction. Meets with 5311.

5313. TEACHING AND SUPERVISION OF MATHEMATICS IN THE MIDDLE SCHOOL. (491296) (4 cr; limited to 24 students; prereq elem or secondary licensure; 0915-1015 MTWThF; PeikH 375; A-F only) House
Mathematics objectives, concepts and principles, skills and processes; instructional alternatives including calculators and microcomputers; applications of mathematics to individual differences; evaluation techniques to improve instruction and learning in the middle school.

5355. MATHEMATICS FOR SLOW LEARNING CHILDREN. (291297) (3 cr, limited to 24 students; prereq 5311 or Elem 3391 or #; 0800-0900 MTWThF; PeikH 375; A-F only)
Units of instruction emphasizing mathematical concepts essential for vocational competence; experimental materials and methods designed to improve performance of low achievers.

5366. COMPUTER-ASSISTED MATHEMATICS INSTRUCTION—June 11-July 12. (191292) (3 cr; limited to 24 students; prereq 5312 or SeEd 3365, SeEd 3366 or ClSy 5006, one year of calculus or #; 1300-1630 TTh; PeikH 355; A-F only) House
The computer as an instructional resource in the mathematics classroom; programming and problem solving using the computer as a means of teaching and learning concepts, principles, and skills of mathematics; design of lessons; evaluation of software.

5980. DIRECTED STUDIES. (3-9 cr [max 9 cr]; prereq #; A-F only)
Survey of recent literature; design and preparation of reports on special problems.

Sec 21, (685092) Stochl
Sec 22, (091293) Post
Sec 23, (485093) House
Sec 25, (290411) Jackson

8980. PROBLEMS: MATHEMATICS EDUCATION. (Cr ar; prereq 8500 or 8570)

Sec 21, (985471) Stochl
Sec 22, (591290) Post
Sec 23, (785472) House
Sec 25, (990413) Jackson

SECOND TERM

5101. WORKSHOP: ELEMENTARY SCHOOL MATHEMATICS—July 18-26; August 8-10. (686579) (1-12 cr [max 12 cr]; prereq #; not open to mathematics education majors; limited to 24 students; 0800-1015 MTWThF; PeikH 375; A-F only) Jackson
Modern trends, methods, and materials used to convey mathematical ideas. This offering for 3 credits.

5153. GEOMETRY IN THE INTERMEDIATE GRADES—July 18-26; August 8-10. (191289) (1-3 cr [max 3 cr]; limited to 24 students; prereq educ grad or student or #; 1145-1400 MTWThF; PeikH 375; A-F only) Jackson
Instructional approaches and physical materials relating to teaching of information and intuitive geometric concepts in intermediate and middle school grades. Fundamental concepts of measurements and geometric relationships in 1, 2, and 3 dimensions, measurement systems, estimation, geometric figures and their properties, transformational and symmetry, congruence and similarity. This offering for 3 credits.

5680. PRACTICUM IN MATHEMATICS EDUCATION. (188546) (3-9 cr [max 9 cr]; prereq #; A-F only) Jackson

5980. DIRECTED STUDIES. (988547) (3-9 cr [max 9 cr]; prereq #; A-F only) Jackson

8680. INTERNSHIP: MATHEMATICS EDUCATION. (788548) (Cr ar) Jackson

8980. PROBLEMS: MATHEMATICS EDUCATION. (588549) (Cr ar; prereq 8500 or 8570) Jackson

Mechanical Engineering (ME)

125 Mechanical Engineering, 625-0705
(Mechanical Engineering)
Institute of Technology

FIRST TERM

3201. MECHANICAL ENGINEERING SYSTEMS ANALYSIS. (186389) (4 cr, \$AEM 3401; limited to 45 students; prereq AEM 3036, mech engr or aerosp engr maj; 1300-1500 TWThF; MechE 212)
Determination of response of engineering systems utilizing transfer function representation. Analogies between engineering systems based upon transfer function equivalence.

3301. THERMODYNAMICS. (286391) (4 cr; limited to 50 students; prereq 1T or ForP stu, Chem 1014 or Phys 1281, Math 3221 or equiv; 1030-1230 MTWThF; MechE 212)
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.

3702. BASIC MEASUREMENTS LABORATORY II. (2 crs; each section limited to 16 students; prereq mech engr upper div, 3701; lect 0915-1015 MW; MechE 212)
Treatment of experimental data, analysis and study of experimental systems via the computer. Static and

dynamic characteristics of measurement systems. Fundamental principles of measurement and calibration. Measurement of temperature, pressure, vacuum, humidity, density, viscosity, heating values, speed, power, force, stress-strain, and radioactivity.

Lab 1, (788551) 1030-1230 MW, MechE 370
Lab 2, (588552) 1415-1615 TTh, MechE 370

#8770. MECHANICAL ENGINEERING RESEARCH. (085297) (prereq Δ ; Cr and hrs ar; limited to 10 students)

#8771. MECHANICAL ENGINEERING RESEARCH. (388178) (prereq 8770, Δ ; Cr and hrs ar; limited to 10 students)

#8772. MECHANICAL ENGINEERING RESEARCH. (885298) (prereq 8771, Δ ; Cr and hrs ar; limited to 10 students)

8777. THESIS CREDITS: MASTERS. (289792) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (989794) (1-36 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS:

TEN-WEEK COURSES (Register once in Term I)

#3741. INDUSTRIAL ASSIGNMENT. (486390) (2 cr per qtr; limited to 90 students; prereq regis in intern program) Marple

Industrial work assignment in engineering intern program. Evaluation based on formal written report accomplished by student covering the work assignment.

#3742. INDUSTRIAL ASSIGNMENT. (388553) (2 cr; limited to 90 students; prereq 3741) Marple
See 3741.

#3743. INDUSTRIAL ASSIGNMENT. (585277) (2 cr; limited to 90 students; prereq 3742) Marple
See 3741.

#5190. ADVANCED ENGINEERING PROBLEMS. (186392) (2-4 cr; limited to 20 students; open to upper division students; prereq submission of approved deptl permission form) Special investigations in various fields of mechanical engineering and related areas including an independent study project.

#5460. INTERNAL COMBUSTION ENGINES. (591550) (4 cr; limited to 30 students; prereq IT student or grad, 3301; 1030-1130 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.

#5741. INDUSTRIAL ASSIGNMENT AND DESIGN PROJECT. (285077) (4 cr; limited to 80 students; 5741-5742t prereq, 3742) Marple

Solution of system design problems that require the development of criteria, the evaluation of alternatives and generation of a preliminary design. Final report emphasizes design communication and describes the design decision process, analysis, and final recommendations.

#5742. INDUSTRIAL ASSIGNMENT AND DESIGN PROJECT. (188554) (4 cr; limited to 80 students; 5741-5742t prereq, 5741) Marple
See 5741.

SECOND TERM

#3205. ENGINEERING SYSTEMS DESIGN. (389234) (4 cr; limited to 45 students; prereq mech engr upper div, AEM 3016; 1030-1230 TWThF; MechE 212)

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.

#3303. APPLIED THERMODYNAMICS. (987236) (4 cr, \$3305; limited to 30 students; prereq ME or aerosp upper div, 3301 or equiv; 1300-1500 MTWThF; MechE 212) 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; each section limited to 12 students; prereq mech engr upper div, Phys 1291, Chem 1014, AEM 3016, MatS 3400, CSci 3101 or a similar course in an engr computer lang (FORTRAN), safety glasses required; lect 0915-1050 MWF; AmundH 240) Introduction to materials and processing including physical and metallurgical properties, consolidation, etc. Material processing including machining, welding, and deformation processes.

Lab 1, (387239) 1100-1255 MW, MechE 70

Lab 2, (787240) 0800-0955 TTh, MechE 70

Lab 3, (385362) 1030-1225 TTh, MechE 70

Lab 4, (589054) 1415-1610 TTh, MechE 70

#5342. HEAT TRANSFER. (187243) (4 cr; limited to 50 students; prereq IT upper div or grad or ForP stu, 3301 and CE 3400 or AEM 3200; 1300-1500 MTWThF; Phys 210) 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; radioactive properties of black bodies and real surfaces.

#8770. MECHANICAL ENGINEERING RESEARCH. (185341) (prereq Δ ; Cr and hrs ar; limited to 10 students)

#8771. MECHANICAL ENGINEERING RESEARCH. (985342) (prereq 8770, Δ ; Cr and hrs ar; limited to 10 students)

#8772. MECHANICAL ENGINEERING RESEARCH. (785343) (prereq 8771, Δ ; Cr and hrs ar; limited to 10 students)

8777. THESIS CREDITS: MASTERS. (390030) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (190031) (1-36 cr [max 11 cr per summer term])

Medical Technology (MedT)

15-170 Phillips-Wangenstein Building, 625-9490
Medical School

FIRST TERM

5082. APPLIED CLINICAL CHEMISTRY. (489242) (4 cr; prereq 5113; S-N only) Application of basic methods and techniques in chemistry in the clinical laboratory.

5084. APPLIED CLINICAL VIROLOGY. (789246) (1 cr; prereq 5100, 5102; S-N only) Application of basic methods and techniques in the virology laboratory.

5085. APPLIED CLINICAL HEMATOLOGY. (289243) (4 cr; prereq 5077, 5078, 5765, CLS 5765; S-N only) 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. (189244) (4 cr; prereq 5064, 5065; S-N only) 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. (989245) (4 cr; prereq 5100, 5102; S-N only) Identification of bacteria by microscopic techniques. Correlation with clinical cases. Identification of parasites and fungi.

5090. SPECIAL LABORATORY METHODS. (886905) (2 cr; prereq #) Special assignment on an individual basis in a special area of experience within the clinical laboratory; field experience.

5120. SEMINAR. (286732) (1-3 cr)

SECOND TERM

5082. APPLIED CLINICAL CHEMISTRY. (889237) (4 cr; prereq 5113; S-N only) See First Term.

5084. APPLIED CLINICAL VIROLOGY. (689241) (1 cr; prereq 5100, 5102; S-N only) See First Term.

5085. APPLIED CLINICAL HEMATOLOGY. (689238) (4 cr; prereq 5077, 5078, 5765, CLS 5765; S-N only) See First Term.

5086. APPLIED CLINICAL IMMUNOHEMATOLOGY. (489239) (4 cr; prereq 5064, 5065; S-N only) See First Term.

5088. APPLIED DIAGNOSTIC MICROBIOLOGY. (889240) (4 cr; prereq 5100, 5102; S-N only) See First Term.

5090. SPECIAL LABORATORY METHODS. (987592) (2 cr; prereq #) See First Term.

5120. SEMINAR. (191298) (1-3 cr)

Medicinal Chemistry (MedC)

8-101 Health Sciences Unit F, 624-9919
College of Pharmacy

FIRST TERM

8777. THESIS CREDITS: MASTERS. (589796) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (389797) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (090032) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (890033) (1-36 cr [max 11 cr per summer term])

Medicinal Chemistry, Undergraduate (MChM)

Pharmacy Student Affairs Office, 5-110 Health Sciences Unit F, 624-9490
College of Pharmacy

FIRST TERM

5970. DIRECTED STUDIES. (790266) (1-5 cr; prereq #)

5999. SPECIAL PROBLEMS. (590267) (Cr ar; prereq #)

SECOND TERM

5970. DIRECTED STUDIES. (390268) (1-5 cr; prereq #)

5999. SPECIAL PROBLEMS. (190269) (Cr ar; prereq #)

Medicine (Med)

14-110A Phillips-Wangenstein Building, 625-9975
Medical School

Elective Courses for Graduate Students

8201. CLINICAL MEDICINE. (886936) (Cr and hrs ar) Ferris, staff

8202. CLINICAL CONFERENCE. (886937) (1 cr; hrs ar) Ferris, staff

8203. CLINICAL RADIOLOGY CONFERENCE. (486938) (1 cr; hrs ar) Ferris, staff

8204. PATHOLOGY CONFERENCE. (286939) (1 cr; hrs ar) Ferris, staff

SECOND TERM

8201. CLINICAL MEDICINE. (688882) (cr and hrs ar) Ferris, staff

8202. CLINICAL CONFERENCE. (488883) (1 cr; hrs ar) Ferris, staff

8203. CLINICAL RADIOLOGY CONFERENCE. (288884) (1 cr; hrs ar) Ferris, staff

8204. PATHOLOGY CONFERENCE. (188885) (1 cr; hrs ar) Ferris, staff

98 Medieval Studies—Music

Medieval Studies (MeSt)

304 Walter Library. 626-0805
College of Liberal Arts

FIRST TERM

3970. DIRECTED STUDIES. (590687) (1-5 cr; prereq #)
Guided individual reading or study in some area of medieval studies.

5970. DIRECTED STUDIES. (390688) (1-5 cr; prereq #)
Qualified senior and graduate students may register for work on a tutorial basis; guided individual reading or study.

SECOND TERM

3970. DIRECTED STUDIES. (590270) (1-5 cr; prereq #)
Guided individual reading or study in some area of medieval studies.

5970. DIRECTED STUDIES. (589555) (1-5 cr; prereq #)
Qualified senior and graduate students may register for work on a tutorial basis; guided individual reading or study.

Metallurgical Engineering (MeE)

MRRC. 625-3344
Institute of Technology

FIRST TERM

5940. SPECIAL PROBLEMS IN EXTRACTIVE METALLURGICAL ENGINEERING. (586557) (1-6 cr; prereq sr)

8923. RESEARCH IN EXTRACTIVE METALLURGICAL ENGINEERING. (386558) (cr ar; prereq #, A-F only)

SECOND TERM

5940. SPECIAL PROBLEMS IN EXTRACTIVE METALLURGICAL ENGINEERING. (785066) (1-6 cr; prereq sr)

8923. RESEARCH IN EXTRACTIVE METALLURGICAL ENGINEERING. (685061) (cr ar; prereq #, A-F only)

Microbial Engineering (MicE)

1460 Mayo Memorial Building.
624-6190
Medical School

FIRST TERM

8777. THESIS CREDITS: MASTERS. (589801) (1-16 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (290036) (1-16 cr [max 11 cr per summer term])

Microbiology (MicB)

1460 Mayo. 624-6190
Medical School

FIRST TERM

5970. DIRECTED STUDIES. (888556) (Cr ar; prereq #, Δ) Rogers, staff

5990. DIRECTED RESEARCH. (688557) (Cr ar; prereq #, Δ) Rogers, staff

8777. THESIS CREDITS: MASTERS. (089799) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (789800) (1-36 cr [max 11 cr per summer term])

8990. RESEARCH IN MICROBIOLOGY. (486955) (Cr and hrs ar; prereq microbiol grad stu or #) Schlievert, staff
Graduate students with the requisite preliminary training may elect research project outside their thesis work.

SECOND TERM

5970. DIRECTED STUDIES. (488558) (Cr ar; prereq #, Δ) Rogers, staff

5990. DIRECTED RESEARCH. (288559) (Cr ar; prereq #, Δ) Rogers, staff

8777. THESIS CREDITS: MASTERS. (690034) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (490035) (1-36 cr [max 11 cr per summer term])

8990. RESEARCH IN MICROBIOLOGY. (587594) (Cr and hrs ar; prereq microbiol grad stu or #) Schlievert, staff
See First Term.

Middle Eastern Studies (MidE)

192 Klaeber Court. 624-7030
(South Asian and Middle Eastern Studies)
College of Liberal Arts
See also Religious Studies

FIRST TERM

3213. THE QUR'AN AS LITERATURE. (391551) (4 cr; limited to 15 students; \$Arab 3213, RelS 3213; 1115-1315 TTh, BlegH 415) AshShareef
Texts and commentaries in translation. Knowledge of Arabic not required. Meets with Arab 3213 and RelS 3213.

3505. SURVEY OF THE MIDDLE EAST. (191552) (4 cr, \$5505, Hist 3505; 0900-1130 MW, BlegH 330) Farah
Cultural, religious, and scholarly achievements of Middle Eastern peoples from pre-Islamic times to the present. Meets with 5505, Hist 3505.

5505. SURVEY OF THE MIDDLE EAST. (091553) (4 cr, \$3505, Hist 3505; 0900-1130 MW, BlegH 330) Farah
See description for 3505. Meets with 3505, Hist 3505.

SECOND TERM

1536. THE RELIGION OF ISLAM. (490777) (4 cr, \$RelS 1036; 1000-1230 TTh; FolH 326) Barker
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; Bahai and Black Muslim component; Reformist movements and change, Activism and Revivalism in Muslim world today. Meets with RelS 1036.

Military Science (Mil)

108 Armory. 624-7300

FIRST TERM

3970. DIRECTED STUDIES. (085333) (prereq #, Δ; 1-3 cr; hrs ar; A-F only)

SECOND TERM

3970. DIRECTED STUDIES. (288061) (prereq #, Δ; 1-3 cr; hrs ar; A-F only)

Mining Engineering

122 Civil and Mineral Engineering.
625-5522
(Civil and Mineral Engineering)
Institute of Technology

FIRST TERM

8777. THESIS CREDITS: MASTERS. (089804) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (689806) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (190037) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (990038) (1-36 cr [max 11 cr per summer term])

Mortuary Science (Mort)

A275 Mayo. 624-6464

FIRST TERM

3080. FUNERAL SERVICE PRACTICUM. (987673) (8 cr; prereq have completed all requirements for graduation with the exception of 3080, Δ; S-N only) Kroshus, Burger, Mathews, Stroud
Practical experience in a funeral home as assigned by the program.

3090. INDEPENDENT STUDY. (685657) (1-3 cr; prereq regis in mortuary science;) Burger, Stroud, others

SECOND TERM

3080. FUNERAL SERVICE PRACTICUM. (186559) (7 cr; prereq have completed all requirements for graduation with the exception of 3080, Δ; S-N only) Kroshus, Burger, Mathews, Stroud
See First Term.

3090. INDEPENDENT STUDY. (485658) (1-3 cr; prereq regis in mortuary science;) Burger, Stroud, others

Music (Mus)

100 Ferguson Hall. 624-5740
(School of Music)
College of Liberal Arts

FIRST TERM

1001. FUNDAMENTALS OF MUSIC. (291302) (4 cr; limited to 126 students; prereq non-music majors; 1145-1400 MWF; FergH 225) Damschroder
Basic musical elements, functional relationships and structures. Systems of musical notation and analysis. Musical practices of various times and styles.

1021. INTRODUCTION TO MUSIC.

(191303) (5 cr, \$3021; 0915-1130 MWF; FergH 225) Baldwin.
Music in the repertory of our culture—forms and styles from 17th to 20th centuries. Aural analyses, relationships of large units of musical form.

1051. PIANO CLASS FOR NONMUSIC MAJORS. (2 cr; each section limited to 10 students)
For non-music majors with little or no keyboard background. Functional skills such as reading, harmonizing, playing by ear, and improvising; basic technique and elementary repertoire.
Sec 1 (991304) 1030-1200 TTh, FergH 259
Sec 2 (391890) 1300-1430 TTh, FergH 259

1160. VOICE: CLASS LESSONS. (791305) (2 cr; limited to 10 students; 1530-1730 MTh; FergH 90) Ware.
Fundamentals of vocal production—posture, respiration, phonation, articulation.

1804. WORLD MUSIC. (591306) (4 cr; limited to 10 students; 1415-1630; MTh, 1415-1515 T; FergH 225) Kagan
Music in universal perspective. Traits distinguishing styles and cultural factors that influence musical creativity. Music of different cultures are compared to examine forms and traits, to develop listening abilities and an understanding of human musical expressions.

3970. DIRECTED STUDIES. (885866) (1-15 cr; prereq #, Δ, □; hrs ar; FergH 100) Staff
Independent research and study under faculty guidance. Subjects selected according to strengths and interests of individual students.

5372. DICTION FOR SINGERS. (191308) (2 cr; limited to 15 students; prereq 5371; 0915-1045 TTh; FergH 225) Weller
International Phonetic Association alphabet is used in singing pronunciation of German.

5385. CHORAL CONDUCTING. (091309) (4 cr; prereq #; must register concurrently with 5490; 1030-1130 MTWThF; FergH 90) Lancaster
Choral conducting—hand techniques, sound control, articulation, breath control, intonation.

5399. PERFORMANCE IN CONDUCTING. (590897) (4 cr; prereq 5388 or 5385, #; hrs ar) Lancaster
Preparation and conducting, with documentation of an ensemble program.

5490. CHAMBER SINGERS. (386561) (1 cr; prereq audition; 1145-1245 MTWThF; FergH 90) Lancaster Mixed chorus of 16 to 20 voices. Performances each term.

5531. FORM AND STRUCTURE OF TONAL MUSIC. (391307) (3 cr; prereq 3531, 3511, or 1508, 1518, or placement exam; 1300-1415 MWF; FergH 149) Cherlin Formal and structural analysis of the sonata, rondo, variation, minuet, and other standard categories of tonal composition. Exploration of text-music relationships in song, of nineteenth-century character pieces, and of motivic coherence in music. Advanced harmonic and contrapuntal procedures.

5602. HISTORY OF OPERA. (391310) (3 cr; prereq 9 cr in history of music, art, theatre or European history from 1600 or #; 1030-1245 TWTh; FergH 149) Sutton Origins of opera; development as a musiodramatic form through analysis of libretto and music of representative masterpieces. Baroque and classical.

5644. STUDIES IN TWENTIETH-CENTURY AMERICAN MUSIC. (890792) (4 cr; limited to 25 students; prereq 3606, 5532, or #; A-F only; 1415-1630 MTTh; FergH 149) Hepokoski

Competing concepts of musical style and purpose in 20th century America; some stylistic and cultural bases of both "art" and "popular" music and their (often uneasy) inter-relationships. Areas covered typically include Ives, Copland, Carter, 1920's jazz. Broadway and popular song.

5970. DIRECTED STUDIES. (386740) (1-5 cr; prereq #, Δ, CLA approval)

8777. THESIS CREDITS: MASTERS. (489807) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (289808) (1-36 cr [max 11 cr per summer term])

8990.* SPECIAL PROBLEMS. (685867) (2-12 cr; prereq Δ; hrs ar; FergH 100) Staff

SECOND TERM

1001. FUNDAMENTALS OF MUSIC. (991299) (4 cr; limited to 126 students; prereq non-music majors; 0915-1130 MWF; FergH 225) Anderson Basic musical elements, functional relationships, and structures. Systems of musical notation and analysis. Musical practices of various times and styles.

3045. THE AVANT-GARDE—July 22 to August 5. (291977) (4 cr; prereq upper-division non-music major or #; July 22-August 2 1030-1245 and 1415-1630, and August 5 [dress rehearsal and performance] 1700-2200; FergH 123; A-F only) Lubet. Trends in composition from 1945-1970, focusing on the line of development that begins with John Cage's works of the post-WWII period and continues through the works of Steve Reich and Phillip Glass. Listening, reading and writing about music, and participating in its performance.

3970. DIRECTED STUDIES. (190894) (1-15 cr; prereq #, Δ, □; hrs ar) Staff

5757. HISTORY OF THE SYMPHONY. (691300) (4 cr; prereq 3606, 3532; A-F only; 1030-1230 TWTh; FergH 149) Jackson

The symphony from Pergolesi to Liszt. Analysis of representative compositions; readings from relevant primary and secondary source materials.

5950. TOPICS IN MUSIC: J.S. Bach. (491301) (4 cr; 1300-1515 MTh, 1300-1400 T; FergH 115) McClary Critical examination of selected works (vocal and instrumental) of Bach: his uses of Baroque conventions and the strategies of particular compositions.

5970. DIRECTED STUDIES. (188974) (1-5 cr; prereq #, Δ, CLA approval; A-F only)

8777. THESIS CREDITS: MASTERS. (790039) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (190040) (1-36 cr [max 11 cr per summer term])

8990.* SPECIAL PROBLEMS. (088975) (2-12 cr; prereq Δ; hrs ar; FergH 100) Staff

Music Education (MuEd)

100 Ferguson Hall. 624-0191
College of Education

FIRST TERM

13011. TEACHING MUSIC IN THE ELEMENTARY SCHOOL. (385474) (4 cr; prereq Mus 1001, elementary educ major; limited to 30 students; 1030-1130 MTWThF; FergH 107; A-F only) Borg

For non-music majors; methods and materials in teaching singing, rhythm, music reading, creativity, classroom instruments, fundamentals, appreciation in K-6.

5112. RESEARCH IN MUSIC EDUCATION: TECHNIQUES. (389251) (3 cr; A-F only; 0800-0900 MTWThF; FergH 107) Haack Methods and techniques employed in investigating and reporting music education problems; review of significant research.

5214. PSYCHOLOGICAL FOUNDATIONS—June 24-July 8. (891554) (3 cr; prereq #; A-F only; 0915-1230 MTWThF; FergH 151) Furman

Analysis and interpretation of psychologies of music and education as applied to the teaching of music.

5613. TEACHING MUSIC LITERATURE—June 11-June 28. (691555) (3 cr; prereq #; 1300-1500 MTWThF; FergH 107; A-F only) Borg Principles, methods, and materials for teaching music history (appreciation) in grades K-12.

5666. MICROCOMPUTERS IN THE MUSIC CLASSROOM—June 11-21. (485661) (3 cr; limited to 12 students; 0915-1230 MTWThF; FergH 113; A-F only) Schultz

Using the microcomputer to enhance instruction in music; materials for theory, ear training, composition, electronic music; developing a data base for music libraries, instrument inventories, budgets.

5970. INDEPENDENT STUDY. (1-4 cr; prereq education or graduate student; hrs ar; FergH 100; A-F only) An independent study project organized by the student with the appropriate instructor.

Sec 21, (390724) Borg
Sec 22, (985793) Schultz
Sec 23, (488172) Furman
Sec 24, (289338) Haack

8990. RESEARCH PROBLEMS. (1-12 cr; prereq knowledge of elem statistics; hrs ar; FergH 100)

Sec 21, (785794) Borg
Sec 22, (585795) Schultz
Sec 23, (288173) Furman
Sec 24, (189339) Haack

SECOND TERM

5657. TECHNIQUES AND MATERIALS: INSTRUMENTAL CONDUCTING—July 18-31. (191891) (3 cr; A-F only; 0800-1100 MTWThF; FergH 85) Schultz Basic conducting and rehearsal techniques for school bands and orchestras; selection of instrumental materials; organization of school ensembles, elementary and secondary.

5750. WORKSHOP: MUSIC EDUCATION.

Sec 1, Music Therapy Procedures for At-Risk Preschoolers—July 18-August 7 (490780) (3 cr; 0915-1130 MTWThF; FergH 151, Furman

Definition of, special populations and preschool students at risk; use of music as a teaching tool; adaptation of teaching strategies to music activities; effective music strategies for optimum outcomes; role of therapists/educators parents in carryover of programming..

Sec 2, Relating the Visual Arts to Music Education—July 18-24. (xxxxxx) 1 cr; 1145-1345 MTWThF; FergH 107; A-F only; Haack Understanding, developing and using visual arts materials in the teaching of musical concepts.

5970. INDEPENDENT STUDY. (1-4 cr; prereq education or graduate student; hrs ar; FergH 100; A-F only) An independent study project organized by the student with the appropriate instructor.

Sec 21, (190725) Borg
Sec 22, (090726) Schultz
Sec 23, (890727) Furman
Sec 24, (690728) Haack

8990. RESEARCH PROBLEMS. (1-12 cr; prereq knowledge of elem statistics; hrs ar)

Sec 21, (489340) Borg
Sec 22, (289341) Schultz
Sec 23, (189342) Furman
Sec 24, (989343) Haack

Courses in Applied Music

Offerings in applied music are classified according to nine modes: elective (with or without credit), principal, major, secondary required, secondary elective, principal beyond requirement, major beyond requirement; transfer student, and minor, as well as 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 she or he 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 School of Music, 100 Ferguson 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: \$100 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 MM and D.M.A. students taking applied music at the 83xx level. Majors at the x5xx, x6xx, or x7xx level pay \$40 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.

Call numbers for courses in applied music must be listed on the Course Request form and are available in 100 Ferguson Hall.

FIRST
AND SECOND
TERM COURSES
IN
APPLIED MUSIC
(MusA)

Instrument	Elective	Principal	Major	Secondary Required	Secondary Elective	Principal Beyond Requirement	Major Beyond Requirement	Transfer Student	Minor	Instructor
Fee	\$100	—	—	—	\$ 40	\$ 40	\$ 40		\$ 40	
Piano	1101	1201	1301	1401	1501	1601	1701	1901		Ar
Harpsichord	1102	1202	1302	1402	1502	1602	1702	1902		Ar
Organ	1103	1203	1303	1403	1503	1603	1703	1903		Ar
Voice	1104	1204	1304	1404	1504	1604	1704	1904		Ar
Violin	1105	1205	1305	1405	1505	1605	1705	1905		Ar
Viola	1106	1206	1306	1406	1506	1606	1706	1906		Ar
Cello	1107	1207	1307	1407	1507	1607	1707	1907		Ar
Double Bass	1108	1208	1308	1408	1508	1608	1708	1908		Ar
Flute	1109	1209	1309	1409	1509	1609	1709	1909		Ar
Oboe	1111	1211	1311	1411	1511	1611	1711	1911		Ar
Clarinet	1112	1212	1312	1412	1512	1612	1712	1912		Ar
Saxophone	1113	1213	1313	1413	1513	1613	1713	1913		Ar
Bassoon	1114	1214	1314	1414	1514	1614	1714	1914		Ar
French Horn	1115	1215	1315	1415	1515	1615	1715	1915		Ar
Trumpet	1116	1216	1316	1416	1516	1616	1716	1916		Ar
Trombone	1117	1217	1317	1417	1517	1617	1717	1917		Ar
Baritone	1118	1218	1318	1418	1518	1618	1718	1918		Ar
Tuba	1119	1219	1319	1419	1519	1619	1719	1919		Ar
Percussion	1121	1221	1321	1421	1521	1621	1721	1921		Ar
Harp	1122	1222	1322	1422	1522	1622	1722	1922		Ar
Guitar	1123	1223	1323	1423	1523	1623	1723	1923		Ar
Accordion					1524					Ar
Sitar					1525					Ar
Piano	3101	3201	3301	3401	3501	3601	3701		3801	Ar
Harpsichord	3102	3202	3302	3402	3502	3602	3702		3802	Ar
Organ	3103	3203	3303	3403	3503	3603	3703		3803	Ar
Voice	3104	3204	3304	3404	3504	3604	3704		3804	Ar
Violin	3105	3205	3305	3405	3505	3605	3705		3805	Ar
Viola	3106	3206	3306	3406	3506	3606	3706		3806	Ar
Cello	3107	3207	3307	3407	3507	3607	3707		3807	Ar
Double Bass	3108	3208	3308	3408	3508	3608	3708		3808	Ar
Flute	3109	3209	3309	3409	3509	3609	3709		3809	Ar
Oboe	3111	3211	3311	3411	3511	3611	3711		3811	Ar
Clarinet	3112	3212	3312	3412	3512	3612	3712		3812	Ar
Saxophone	3113	3213	3313	3413	3513	3613	3713		3813	Ar
Bassoon	3114	3214	3314	3414	3514	3614	3714		3814	Ar
French Horn	3115	3215	3315	3415	3515	3615	3715		3815	Ar
Trumpet	3116	3216	3316	3416	3516	3616	3716		3816	Ar
Trombone	3117	3217	3317	3417	3517	3617	3717		3817	Ar
Baritone	3118	3218	3318	3418	3518	3618	3718		3818	Ar
Tuba	3119	3219	3319	3419	3519	3619	3719		3819	Ar
Percussion	3121	3221	3321	3421	3521	3621	3721		3821	Ar
Harp	3122	3222	3322	3422	3522	3622	3722		3822	Ar
Guitar	3123	3223	3323	3423	3523	3623	3723		3823	Ar
Accordion					3524					Ar
Piano	5101	5201	5301	5401	5501	5601	5701			Ar
Harpsichord	5102	5202	5302	5402	5502	5602	5702			Ar
Organ	5103	5203	5303	5403	5503	5603	5703			Ar
Voice	5104	5204	5304	5404	5504	5604	5704			Ar
Violin	5105	5205	5305	5405	5505	5605	5705			Ar
Viola	5106	5206	5306	5406	5506	5606	5706			Ar
Cello	5107	5207	5307	5407	5507	5607	5707			Ar
Double Bass	5108	5208	5308	5408	5508	5608	5708			Ar
Flute	5109	5209	5309	5409	5509	5609	5709			Ar
Oboe	5111	5211	5311	5411	5511	5611	5711			Ar
Clarinet	5112	5212	5312	5412	5512	5612	5712			Ar
Saxophone	5113	5213	5313	5413	5513	5613	5713			Ar
Bassoon	5114	5214	5314	5414	5514	5614	5714			Ar
French Horn	5115	5215	5315	5415	5515	5615	5715			Ar
Trumpet	5116	5216	5316	5416	5516	5616	5716			Ar
Trombone	5117	5217	5317	5417	5517	5617	5717			Ar
Baritone	5118	5218	5318	5418	5518	5618	5718			Ar
Tuba	5119	5219	5319	5419	5519	5619	5719			Ar
Percussion	5121	5221	5321	5421	5521	5621	5721			Ar
Harp	5122	5222	5322	5422	5522	5622	5722			Ar
Guitar	5123	5223	5323	5423	5523	5623	5723			Ar
Accordion					5524					Ar
Sitar					5525					Ar

N

Natural Resources and Environmental Studies (NRES)

439 Borlaug Hall, St. Paul. 625-1244
115 Green Hall, St. Paul, 624-3400
College of Agriculture
College of Natural Resources

FIRST TERM

3050. EXPERIENCE AND TRAINING IN A FIELD SETTING. (790901) (prereq jr or sr, #; 4 cr, arranged; A-F only) Soil Science and Forest Resources staff. Students are required to obtain professional experience in a field setting.

3225. DIRECTED STUDY EXPERIENCE. (191978) (prereq fr or soph, 1-5 cr, arranged) Soil Science and Forest Resources staff. The student develops, in consultation with the advisor for the project, a prospectus and completes progress reports and a final report on his or her project.

5225. DIRECTED STUDY EXPERIENCE. (991979) (prereq jr or sr or grad stu, 1-5 cr, arranged) See 3225.

SECOND TERM

3050. EXPERIENCE AND TRAINING IN A FIELD SETTING. (590902) See First Term.

3225. DIRECTED STUDY EXPERIENCE. (291980) See First Term.

5225. DIRECTED STUDY EXPERIENCE. (191981) See First Term.

Neurology (Neur)

12-100 Phillips-Wangenstein Building.
625-9900
Medical School

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

5122. PEDIATRIC NEUROLOGY: HEALTH CARE PSYCHOLOGY INTERNS. (288254) (Cr and hrs ar; prereq #)

8200. CLINICAL NEUROLOGY. (586963) (Cr ar) Price, staff

8201. CLINICAL PEDIATRIC NEUROLOGY. (386964) (Cr ar) Swaiman, staff

8202. RESEARCH IN NEUROLOGY. (186965) (Cr ar) Price, staff

8203. APPLIED ELECTROENCEPHALOGRAPHY. (086966) (Cr ar) Torres

8204. APPLIED ELECTROMYOGRAPHY. (886967) (Cr ar) Kennedy

8205. APPLIED NEUROPATHOLOGY. (686968) (Cr ar) Sung

8236. RESEARCH IN NEUROPATHOLOGY. (486969) (Cr ar) Sung

8705. NEUROLOGICAL-NEUROSURGICAL CONFERENCE. (886970) (1 cr, \$Rad 0124, \$Surg 8318) Staff

8777. THESIS CREDITS: MASTERS. (189809) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (289811) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (990041) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (790042) (1-36 cr [max 11 cr per summer term])

Neuroscience (NSc)

6-255 Millard Hall. 624-7660
Graduate School

FIRST TERM

#5100. INTRODUCTORY NEUROBIOLOGY LABORATORY AT ITASCA—June 11-June 29. (390271) (5 cr; limited to 12 students; prereq junior or senior in biological or physical sciences; introductory biology and chemistry; instructor consent required; A-F only; hrs ar; taught at Lake Itasca Forestry and Biological Station) Designed for biological or physical sciences undergraduate students with an interest in the neurosciences. Provides an introduction to concepts in cellular neurosciences in a laboratory environment. Emphasis on understanding the basis of membrane properties, including ionic and molecular mechanisms of resting potentials, action potentials, and synaptic potentials. Students will work with state-of-the-art equipment and contemporary techniques to examine the experimental evidence for these concepts. This is a 3-week, full-time, intensive course. Financial aid will be available. See page 34.

8888. THESIS CREDITS: DOCTORAL. (989813) (1-36 cr [max 11 cr per summer term])

SECOND TERM

#5550. ITASCA CELL AND MOLECULAR NEUROBIOLOGY LABORATORY—July 28-August 30. (885785) (6 cr; limited to 12 students; prereq enrolled in neurosci grad prog or consent of neurosci prog; S-N only; hrs ar; taught at Itasca) Intensive laboratory course introducing cellular and molecular research techniques and topics in contemporary neuroscience. Electrophysiological studies of neuronal properties, neuropharmacological assays of transmitter action, and immunohistochemical identification of transmitters. Concepts and techniques studied in the context of a number of preparations including the neuromuscular junction, leech nervous system, the hippocampal slice, retina, frog oocyte, and the nervous system of the gut. Course is designed for entering or 1st year graduate students in the neurosciences or closely related fields. See page 34

8888. THESIS CREDITS: DOCTORAL. (590043) (1-36 cr [max 11 cr per summer term])

Neurosurgery (NSu)

B-590 Mayo. 624-6666
Medical School

FIRST TERM

8777. THESIS CREDITS: MASTERS. (589815) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189817) (1-36 cr [max 11 cr per summer term])

SPECIAL TERMS: THREE- AND SIX-WEEK COURSES

Elective Courses for Undergraduate Students

5531. ADVANCED NEUROPSYCHOLOGICAL SEMINAR. (487457) (2 cr; hr ar; prereq psych fellow spec or #) Meier

5532. CLERKSHIP IN NEUROPSYCHOLOGICAL ASSESSMENT. (287458) (1-4 cr; hr ar; prereq psych fellow spec or #) Meier

5533. CASE CONFERENCE IN NEUROPSYCHOLOGY. (187459) (1 cr; hr ar; prereq psych fellow spec or #; S-N only) Meier

5534. INTRODUCTION TO NEUROPSYCHOLOGICAL ASSESSMENT. (487460) (3 cr; hr ar; prereq psych fellow spec or #; S-N only) Meier

5535. CASE CONFERENCE IN CLINICAL PSYCHOLOGY. (287461) (1-2 cr; hr ar; prereq psych fellow spec) Meier

5536. SEMINAR IN CLINICAL PSYCHOLOGY. (187462) (1-2 cr; prereq psych fellow spec) Meier

5537. PSYCHOLOGY INTERNSHIP. (987463) (4-8 cr; prereq psych fellow spec) Meier

5550. NEUROPHYSIOLOGICAL LITERATURE SEMINAR. (186982) (1 cr; prereq Medical School course in physiology #; hrs ar) Ebner 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 (Register once in Term I)

Required Courses for Graduate Students

8305. NEUROSURGICAL DIAGNOSIS. (086983) (4 cr; MTWThF; Mayo B524) Heros, Seljeskog, Erickson, Maxwell, Haines, Hall, Cox Neurosurgical fellow assists in instruction of clinical clerks and interns, studies problems in diagnosis at University and affiliated hospitals.

8308. NEUROSURGICAL PROBLEMS AND MANAGEMENT. (886984) (4 cr; MTWThF; Mayo B401) Heros, Seljeskog, Erickson, Maxwell, Haines, Hall, Cox Neurosurgical fellow acts as house surgeon at University and affiliated hospitals.

8311. OPERATIVE NEUROSURGERY. (686985) (4 cr; MTWThF; Mayo B401) Heros, Seljeskog, Erickson, Maxwell, Haines, Hall, Cox Neurosurgical fellow acts as first assistant for operations at University and affiliated hospitals and later may be permitted to operate.

8316. NEUROSURGICAL RESEARCH. (286987) (6 cr; MTWThF; Diehl F109-110 and G134-144) Ebner Problems in experimental or clinical surgery.

8318. NEURORADIOLOGICAL CONFERENCE. (186988)

(1 cr; 1325-1415 F; Mayo C231-Todd Amph) Heros, Seljeskog, Erickson, Maxwell, Haines, Cox A review of X-ray films and case histories on neurosurgical service.

8320. NEUROSURGICAL CONFERENCE. (186991) (2 cr; 0800-1100 Sat) Heros, Seljeskog, Ebner, Erickson, Maxwell, Haines, Hall, Cox In-depth review of selected topics in basic and clinical neurosurgery.

8322. NEUROSURGERY-OPHTHALMOLOGY SEMINAR—PART I. (686999) (1 cr; 0800-0850 T; offered Su and W; Sta 51, Mayo B524) Staff Review and discussion of topics.

8323. NEUROSURGERY-OPHTHALMOLOGY SEMINAR—PART II. (886998) (1 cr; prereq 8322; T; offered F and S) Staff Advanced review and discussion of topics.

8330. NEUROSURGERY LITERATURE SEMINAR. (386995) (2 cr; 1st and 2nd Th evenings) Heros, Haines, Seljeskog, Ebner, Erickson, Maxwell, Hall, Cox Review and discussion of current literature relating to neurosurgery and the neurosciences.

SECOND TERM

8777. THESIS CREDITS: MASTERS. (390044) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (190045) (1-36 cr [max 11 cr per summer term])

Nursing (Nurs)

6-101 Health Sciences Unit F.
624-9600

FIRST TERM

5240. CORE CONCEPTS IN CRITICAL CARE. (790347) (6 cr; prereq 5140, 5141, 5142; 0800-1015 MTWTF; 0800-1245 Th; MoosT 2620) Stenberg Provides core knowledge underlying nursing of critically ill children or adults, including technological life support.

5450. INTRODUCTION TO COMMUNITY HEALTH. (388925) (3 cr; prereq nursing student or Δ ; 1030-1245 MWTF; MoosT 2620) Study of concepts and theories foundational to community health.

5799. SELF-DIRECTED STUDY AS A MEANS OF ACCOMPLISHING NURSING ELECTIVES. (787674) (Cr ar; prereq #) Staff Opportunity for students to engage in learning experiences not provided for in established nursing elective courses.

102 Nursing—Operations and Management Sciences

5820. DECISION MAKING IN HEALTH CARE. (991545) (3 cr; limited to 15 students; prereq grad stu in health related major; 0915-1215 W, 1315-1615 W; HSUnitF 4155/4157) Corcoran-Perry
Comparison of selected conceptual models of decision making.
Development of plans for assessing, evaluating, teaching, or assisting others (health professionals, patients, families) in making decisions about health care.

8001. SPECIAL EDUCATIONAL EXPERIENCES IN NURSING. (387757) (Cr ar; prereq Δ) Staff
Various learning experiences planned to meet individual needs.

8009. SPECIAL TOPICS. (087759) (Cr ar; prereq #) Staff

8060. ADVANCED CLINICAL NURSING. (786752) (3-9 cr; prereq #, Δ) Staff

8509. SPECIAL TOPICS: NURSING EDUCATION. (586753) (Cr ar; prereq #) Staff

8609. SPECIAL TOPICS IN NURSING SUPERVISION. (386754) (Cr ar; prereq #) Staff

8777. THESIS CREDITS: MASTERS. (089818) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (889819) (1-36 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

5799. SELF-DIRECTED STUDY AS A MEANS OF ACCOMPLISHING NURSING ELECTIVES. (487779) (Cr ar; prereq #) Staff

8014. RESEARCH IN NURSING. (189252) (3 cr; prereq inferential statistics; limited to 25 students; 1645-2030 W; HSUnitF 4150/4176) Bull
Research processes and methodologies appropriate to nursing. Analysis of research reports.

8030. NURSING INTERVENTION MODELS. (8 cr; prereq 8011 or 8011, 8012, #)
Developing, providing and evaluating nursing intervention with a specified client population.

Sec 1, (390349) 1300-1745 T, HSUnitF 4155/4157, Gordon, (Psych cln ar)

8050. PROBLEMS IN NURSING. (1-9 cr; prereq #; S-N only) Staff
Individual study of a problem.

Sec 1, (287766) ar, Bull
Sec 2, (086580) ar, Burns
Sec 3, (886581) ar, Corcoran-Perry
Sec 4, (686582) ar, Crisham
Sec 5, (486583) ar, De Hart
Sec 6, (286584) ar, Donaldson
Sec 7, (186585) ar, Duckett
Sec 8, (986586) ar, Edwardson
Sec 9, (786587) ar, Egan
Sec 10, (586588) ar, Fahy
Sec 11, (386589) ar, Feldman
Sec 12, (786590) ar, Gordon
Sec 13, (685576) ar, Gross
Sec 14, (485577) ar, Gustafson
Sec 15, (285578) ar, Pederson
Sec 16, (185579) ar, Kjervik

Sec 18, (285581) ar, Newman
Sec 19, (185582) ar, Rode
Sec 20, (985583) ar, Ryden
Sec 21, (785584) ar, Sime
Sec 22, (585585) ar, Snyder
Sec 23, (385586) ar, Sodergren
Sec 24, (790350) ar, Tomlinson
Sec 25, (791546) ar, Ar

8111. MORAL AND ETHICAL DEVELOPMENT IN NURSING SCIENCE. (788923) (4 cr; prereq 8011 or equivalent, Δ ; 0915-1400 Th; HSUnitF 4150/4176) Crisham
Study of the interactions among research and theory in moral judgment and behavior, applied ethics, and nursing.

8315. NURSE-MIDWIFERY MANAGEMENT: INTRAPARTAL AND POSTPARTAL. (588924) (8-10 cr; prereq 8314; 0915-1400 W; HSUnitF 4150/4176) 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.

SECOND TERM

5241. PRACTICUM: CRITICALLY ILL INFANTS, CHILDREN, OR ADULTS. (7 cr; prereq 5240)
Provides experience in caring for critically ill children or adults under supervision of a preceptor.

Lect 0800-0955 F, Owre 2210
Sem 1010-1205 F, UnitF 4151, 4153, 4155, 4157, 4150, 4176, 4154, 4172

Clinical 1, (590351) ar
Clinical 2, (390352) ar
Clinical 3, (190353) ar
Clinical 4, (090354) ar
Clinical 5, (890355) ar
Clinical 6, (690356) ar
Clinical 7, (490357) ar
Clinical 8, (290358) ar

5799. SELF-DIRECTED STUDY AS A MEANS OF ACCOMPLISHING NURSING ELECTIVES. (991562) (Cr ar; prereq #) Staff
See First Term.

8001. SPECIAL EDUCATIONAL EXPERIENCES IN NURSING. (187882) (Cr ar; prereq Δ) Staff
See First Term.

8009. SPECIAL TOPICS. (787884) (Cr ar; prereq #) Staff

8051. SPECIAL TOPICS IN NURSING RESEARCH. (188160) (1-9 cr) Staff
Seminar and/or individual study in nursing research.

8060. ADVANCED CLINICAL NURSING. (788033) (3-9 cr; prereq Δ , #) Staff

8509. SPECIAL TOPICS: NURSING EDUCATION. (588034) (Cr ar; prereq #) Staff

8609. SPECIAL TOPICS IN NURSING SUPERVISION. (388035) (Cr ar; prereq #) Staff

8777. THESIS CREDITS: MASTERS. (090046) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (890047) (1-36 cr [max 11 cr per summer term])

Nutrition (Nutr)

225 Food Science and Nutrition, St. Paul. 624-1290
(Food Science and Nutrition)
Colleges of Agriculture and Human Ecology

FIRST TERM

8777. THESIS CREDITS: MASTERS. (889822) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (689823) (1-36 cr [max 11 cr per summer term])

8990. GRADUATE RESEARCH. (288755) (2-5 cr; prereq #)

SECOND TERM

8777. THESIS CREDITS: MASTERS. (690048) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (490049) (1-36 cr [max 11 cr per summer term])

8990. GRADUATE RESEARCH. (688753) (2-5 cr; prereq #)

O

Obstetrics and Gynecology (Obst)

12-280 Moos Tower. 626-3503
Medical School

SPECIAL TERMS: JUNE 12-JULY 20 AND JULY 23-AUGUST 31

Elective Courses for Undergraduate Students

5520. OBSTETRICS AND GYNECOLOGY EXTERNSHIP IN CLINICAL PRACTICE. (187011) (4.5 cr; prereq regis med) Twigg, 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. The student must obtain a letter from the desired community proctor stating the rotation is acceptable, and this must be received in the coordinator's office and approved prior to beginning the rotation.

5540. ADVANCED EXTERNSHIP IN OBSTETRICS AND GYNECOLOGY. (987012) (Cr ar; prereq 5500) Twigg
Full-time clinical experience as acting intern on obstetrical and gynecological service at Hennepin County Medical Center, St. Paul-Ramsey Medical Center, University Hospitals and Waconia Clinic. Rotations in general obstetrics and gynecology (HCMC), high risk obstetrics (HCMC, UMH), gynecologic endocrinology and infertility (UMH), or gynecologic oncology (UMH) are available.

5560. RESEARCH IN REPRODUCTION. (787013) (Cr ar; prereq 5500) Twigg, staff
Topics selected for each student, or chosen by the student.

5575. GYNECOLOGICAL PATHOLOGY AND DIAGNOSTIC CYTOLOGY. (587014) (9 cr; prereq 5500) 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. (387015) (9 cr; prereq 5500) Twigg
Full-time preceptorship in clinical obstetrics and gynecology, offered by AHCC. Similar to 5520

Courses for Graduate Students

8222. GYNECOLOGICAL ONCOLOGY. (087129) (Cr ar; prereq 8221) Twigg, staff

8223. GYNECOLOGICAL ONCOLOGY. (187131) (Cr ar; prereq 8222) Twigg, staff

8224. GYNECOLOGICAL ENDOCRINOLOGY—PART I. (887133) (Cr ar; prereq 8223) Twigg, staff

8225. GYNECOLOGICAL ENDOCRINOLOGY—PART II. (287136) (Cr ar; prereq 8224) Twigg, staff

8230. RESEARCH IN REPRODUCTION. (187145) (Cr ar; prereq 8229) Twigg, staff

8777. THESIS CREDITS: MASTERS. (789828) (1-16 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (490052) (1-16 cr [max 11 cr per summer term])

Operations and Management Sciences (OMS)

332 Management/Economics Building. 624-7010
Carlson School of Management

Refer to registration instructions for undergraduate Carlson School of Management courses on pages 11, 14.

FIRST TERM

3000. INTRODUCTION TO OPERATIONS MANAGEMENT. (590379) (4 cr; limited to 60 students; A-F only; 1300-1430 MTWTh; BlegH 130)

Concepts and principles related to the management of operations functions, including operations strategy, process design, just-in-time, forecasting inventory management, principles of scheduling, and quality improvement. Examples from service industries, nonprofit organizations, and manufacturing stressing the relationships between operations and the environment from a managerial perspective.

8990. READINGS IN OPERATIONS MANAGEMENT. (990380) (Cr ar; prereq #, grad SMgmt approval; A-F only)

8995. GRADUATE RESEARCH IN OPERATIONS AND MANAGEMENT SCIENCE. (790381) (Cr ar; prereq #, grad SMgmt approval; A-F only)

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

1020. DATA ANALYSIS AND STATISTICAL INFERENCE FOR MANAGERS. (4 cr, SMSCI 1020, DSCI 1050; prereq IDSc 1010, Math 1111, Math 1131 recommended; limited to 45 students, A-F only)
Lect 1, 0900-1015 TTH, BlegH 130
Lab 1, (790378) 0915-1015 F, BlegH 130

Introduction to probabilistic and statistical techniques for decision making, including data analysis, sampling, estimation, and hypothesis testing and regression. Using computer software and computer-stored data in statistical analysis. Introduction to modeling and linear programming.

SECOND TERM

3000. INTRODUCTION TO OPERATIONS MANAGEMENT. (190384) (4 cr; limited to 60 students; A-F only; 1300-1430 MTWTh; BlegH 130)
See First Term.

8990. READINGS IN OPERATIONS MANAGEMENT. (890386) (Cr ar; prereq #, grad SMgmt approval; A-F only)

8995. GRADUATE RESEARCH IN OPERATIONS AND MANAGEMENT. (690387) (Cr ar; prereq #, grad SMgmt approval; A-F only)
See First Term.

Ophthalmology (Oph)

9th floor, Phillips-Wangensteen Building, 625-4400
Medical School

FIRST TERM

8777. THESIS CREDITS: MASTERS. (589829) (1-16 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

5100. INTRODUCTION TO ANATOMY, HISTOLOGY, AND EMBRYOLOGY. (887147) (1 cr; prereq physician or vet med student; 0715-0830 Th; PWB 9335) Cameron

8101. CLINICAL OPHTHALMOLOGY. (487149) (8 cr; 0800-1700 MTWThF; PWB 9100) Knobloch, staff

8106. STRABISMUS MANAGEMENT. (089026) (1 cr; prereq grad physician or grad in veterinary science; 0730-0830 M; PWB 9339) Letson

8131. PRACTICAL OCULAR SURGERY. (887150) (3 cr; 0800-1200 MTWThF) Knobloch, staff

8142. OPHTHALMIC PATHOLOGY LABORATORY. (487152) (2 cr; 1330-1530 M; PWB 9335) Cameron

8152. OPHTHALMOLOGY LABORATORY. (287153) (15 cr) Knobloch

8155. SPECIAL TOPICS IN OPHTHALMOLOGY. (987155) (1-3 cr; prereq #) Staff

SECOND TERM

8777. THESIS CREDITS: MASTERS. (290053) (1-16 cr [max 11 cr per summer term])

Oral and Maxillofacial Surgery (OSur)

7-174 Moos Tower, 624-7133
School of Dentistry

FIRST TERM

5257. AMBULATORY GENERAL ANESTHESIA. (186795) (1 cr)

A clinical rotation involving experience in outpatient management utilizing intravenous sedation and general anesthesia.

5270. ORAL AND MAXILLOFACIAL RADIOLOGY REVIEW. (791255) (1 cr)
Weekly review and discussion of radiographs taken at University Hospitals relating to oral surgery procedures.

5275. ORAL PATHOLOGY REVIEW. (588129) (1 cr)
Evaluation and microscopic interpretation of diagnostic tissue from oral and peri-oral areas. Other diagnostic information such as clinical appearance, history, and radiologic films is utilized. Course is based on individual participation in a seminar format.

5276. MEDICINE FOR THE ORAL SURGEON. (591256) (2 cr; prereq participation in oral surgery residency program)
Rotation at Mt. Sinai Hospital on medical service under direction of University's Internal Medicine Department. Rotation involves workup and admission, and daily management of patients on medical service.

5280. ADVANCED ORAL SURGERY FOR POSTGRADUATE DENTAL FELLOWS. (291994) (1 cr; S-N only)
Basic principles of dental alveolar surgery and the introduction of advanced concepts and principles of oral and maxillofacial surgery for the general dentist. Instruction is provided in differential diagnosis of odontogenic infections, case and risk assessment, drug therapy in contemporary practice. Topics include preprosthetic surgery procedures, biopsy, surgical extraction of erupted and impacted teeth, root recovery, the management of intraoperative and postoperative complications, orthognathic and TMJ surgery, implants, facial trauma, etc.

8250. ADVANCED ORAL AND MAXILLOFACIAL SURGERY. (986796) (cr ar)
Assigned clinics in University Hospitals, Veterans Administration Medical Center, Hennepin County Medical Center, and School of Dentistry.

8251. SEMINAR: ORAL SURGERY. (991254) (1 cr)
Topics in oral surgery.

8252. RESEARCH IN ORAL AND MAXILLOFACIAL SURGERY. (786797) (Cr ar)
Research in fields related to oral and maxillofacial surgery.

8253. PROBLEMS IN ORAL AND MAXILLOFACIAL SURGERY. (586798) (cr ar)
Current literature review.

8255. GENERAL SURGERY. (386799) (cr ar)
Clinical rotation on the general surgical service at Fairview Hospital, Minneapolis. Includes seminars, clinics, and operating room experience.

8258. ANESTHESIA II SEMINAR. (186800) (1 cr)

Outpatient general anesthesia topics and related subjects.

8280. ORAL AND MAXILLOFACIAL SURGERY CLINICAL PATHOLOGY CONFERENCE. (391257) (1 cr)

Evaluation and discussion of clinical, radiographic, and microscopic aspects of oral and perioral diseases and neoplasms. Individual participation in seminar format.

SECOND TERM

5257. AMBULATORY GENERAL ANESTHESIA. (387564) (1 cr)
See First Term.

5270. ORAL AND MAXILLOFACIAL RADIOLOGY REVIEW. (091259) (1 cr)
See First Term.

5275. ORAL PATHOLOGY REVIEW. (988130) (1 cr)
See First Term.

5276. MEDICINE FOR THE ORAL SURGEON. (391260) (2 cr)
See First Term.

5277. PHYSICAL DIAGNOSIS FOR ORAL AND MAXILLOFACIAL SURGERY RESIDENTS. (586736) (1 cr; prereq participation in oral and maxillofacial surgery residency program)
Six-week didactic course coupled with evaluation of patients at University Hospital under direction of Department of Medicine and its faculty.

5280. ADVANCED ORAL SURGERY FOR POSTGRADUATE DENTAL FELLOWS. (191995) (1 cr; S-N only)
See First Term.

8250. ADVANCED ORAL AND MAXILLOFACIAL SURGERY. (187565) (cr ar)
See First Term.

8251. SEMINAR ORAL SURGERY. (191258) (1 cr)
See First Term.

8252. RESEARCH IN ORAL AND MAXILLOFACIAL SURGERY. (087566) (Cr ar)
See First Term.

8253. PROBLEMS IN ORAL AND MAXILLOFACIAL SURGERY. (887567) (cr ar)
See First Term.

8255. GENERAL SURGERY. (687568) (1 cr)
See First Term.

8258. ANESTHESIA II SEMINAR. (487569) (1 cr)
See First Term.

8280. ORAL AND MAXILLOFACIAL SURGERY CLINICAL PATHOLOGY CONFERENCE. (191261) (1 cr)
See First Term.

Oral Biology (OBio)

17-252 Moos Tower, 624-9123
School of Dentistry

FIRST TERM

8001. RESEARCH IN ORAL BIOLOGY. (686792) (Cr ar)

8002. TUTORIAL IN ORAL BIOLOGY. (486793) (Cr ar [may be repeated for cr]; 2 hrs per wk = 1 cr)

8024. TOPICS IN ORAL BIOLOGY. (990265) (1-3 cr [may be repeated for cr]; prereq #)

8777. THESIS CREDITS: MASTERS. (289825) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (989827) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8001. RESEARCH IN ORAL BIOLOGY. (987561) (Cr ar)

8002. TUTORIAL IN ORAL BIOLOGY. (787562) (Cr ar [may be repeated for cr]; 2 hrs per wk = 1 cr)

8777. THESIS CREDITS: MASTERS. (890050) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (690051) (1-36 cr [max 11 cr per summer term])

Oral Pathology (OPat)

16-206 Moos Tower, 624-2463
School of Dentistry

FIRST TERM

5017. ORAL PATHOLOGY CLINIC. (690390) (Cr ar)
Resident participates in management of Oral Pathology Clinic patients at the School of Dentistry and serves as oral pathology consultant with designated staff in school's screening facilities.

8001. RESEARCH IN ORAL PATHOLOGY. (386673) cr ar

8004. HISTOPATHOLOGY. (286794) (2 cr)
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. (490391) (1 cr)
Seminars on a variety of research problems, topics, and areas of special interest between graduate students and oral pathology faculty. Students expected to determine both subjects for discussion and nature of discussions.

8011. SURGICAL ORAL PATHOLOGY. (490729) (Cr ar)
Residents and graduate students participate as staff assistants in diagnosis of oral diseases. Histopathologic, frozen section, clinical, cytologic, cytogenetic, microbiologic, hematologic, radiologic, and other diagnostic means are utilized.

SECOND TERM

5017. ORAL PATHOLOGY CLINIC. (889559) (Cr ar)
See First Term.

8001. RESEARCH IN ORAL PATHOLOGY. (186674) cr ar

8004. HISTOPATHOLOGY. (587563) (2 cr)
See First Term.

104 Oral Pathology—Pediatrics

8006. CURRENT LITERATURE REVIEW. (190393) (1 cr)
See First Term.

8011. SURGICAL ORAL PATHOLOGY. (890730) (Cr ar)
See First Term.

Orthodontics (Otho)

6-320 Moos Tower. 625-5110
School of Dentistry

FIRST TERM

Required Courses for Graduate Students

5004. CLINICAL ORTHODONTICS. (986801) (Cr ar)

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.

8001. RESEARCH IN ORTHODONTICS. (389010) (Cr ar)

8203. GROWTH AND DEVELOPMENT. (786802) (Cr ar)
Head growth, development, osteology and myology. Includes both normal and abnormal morphology and function; cephalometric methods.

8207. ORTHODONTIC DIAGNOSIS AND TREATMENT PLANNING. (586803) (Cr ar)

Etiology, treatment, and prognosis of clinical orthodontic patients.

8211. ORTHODONTIC SEMINAR. (386804) (Cr ar)

Review of current literature and discussion of current research and its implications.

8219. TOPICS IN ORTHODONTICS. (186805) (Cr ar)

Studies in special topics for advanced students.

SECOND TERM

5004. CLINICAL ORTHODONTICS. (687571) (Cr ar)

See First Term.

8001. RESEARCH IN ORTHODONTICS. (689093) (Cr ar)

8203. GROWTH AND DEVELOPMENT. (487572) (Cr ar)
See First Term.

8207. ORTHODONTIC DIAGNOSIS AND TREATMENT PLANNING. (287573) (Cr ar)

See First Term.

8211. ORTHODONTIC SEMINAR. (187574) (Cr ar)

See First Term.

8219. TOPICS IN ORTHODONTICS. (987575) (Cr ar)

See First Term.

Orthopaedic Surgery (OrSu)

Bridge Area, 5th floor Boynton Health Service. 625-1177
Medical School

FIRST TERM

8777. THESIS CREDITS: MASTERS. (689594) (1-16 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register Once in Term I)

Required Courses for Graduate Students

8401. ORTHOPAEDIC CONFERENCE. (187176) (3 cr) Thompson, Bradford, House, Premer, Robinson, Hunter, Craig, Ogilvie

Review of X-ray films and case histories of patients on the orthopaedic inpatient or outpatient service.

8403. FRACTURES. (789411) (5 cr) Gustilo, staff

Orthopaedic fellow acts as house surgeon on the fracture service at Hennepin County Medical Center.

8405. ORTHOPAEDIC DIAGNOSIS. (887181) (3 cr) Thompson, Bradford, House, Robinson, Hunter, Craig, Ogilvie, Arendt

Orthopaedic 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 ORTHOPAEDICS. (487183) (5 cr) Staff

Orthopaedic fellow acts as house surgeon at Gillette Children's Hospital.

8408. ORTHOPAEDIC PROBLEMS AND MANAGEMENT. (287184) (5 cr) Thompson, Bradford, House, Premer, Robinson, Hunter, Craig, Ogilvie, Arendt

Orthopaedic fellow acts as house surgeon at University and Veterans Hospitals.

8409. ORTHOPAEDIC PROBLEMS AND MANAGEMENT. (787187) (5 cr) Aamoth

Orthopaedic fellow acts as house surgeon on the orthopaedic service at Fairview Hospital.

8410. ORTHOPAEDIC PATHOLOGY. (387189) (2 cr) Thompson, Bradford, House, Premer, Robinson, Hunter, Craig, Ogilvie, Arendt

Seminar for systematic review of pathology of ossified tissues and soft tissues of the extremities.

8411. ORTHOPAEDIC OPERATIVE SURGERY. (187193)

(5 cr) Thompson, Bradford, House, Premer, Robinson, Hunter, Craig, Ogilvie, Arendt
Orthopaedic fellow acts as first assistant at operations at University and affiliated hospitals and later may be permitted to operate.

8412. ORTHOPAEDIC ANATOMY. (487197) (2 cr) House

Orthopaedic fellow dissects upper and lower extremities and aids in instruction of medical students in anatomy of the extremities.

8416. ORTHOPAEDIC RESEARCH. (187199) (5 cr) Thompson, Bradford, House, Robinson, Hunter, Craig, Ogilvie, Arendt

Problems in experimental or clinical surgery, University Hospitals.

SECOND TERM

8777. THESIS CREDITS: MASTERS. (389685) (1-16 cr [max 11 cr per summer term])

Otolaryngology (Otol)

8-240 Phillips-Wangensteen Building. 625-3200
Medical School

SPECIAL TERMS: THREE-, SIX-, AND TWELVE-WEEK COURSES

5970. DIRECTED STUDIES. (485482) (Cr ar; prereq #)

8250. ADVANCED BIOCHEMISTRY OF THE AUDITORY SYSTEM. (790395) (2 cr; prereq MdBc 5100, MdBc 5101 or #) Juhn

FIRST TERM

8777. THESIS CREDITS: MASTERS. (489595) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (289596) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (089690) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (489693) (1-36 cr [max 11 cr per summer term])

P

Pathobiology (Path)

D-242 Mayo. 625-9171
(Laboratory Medicine and Pathology)
Medical School

FIRST TERM

8888. THESIS CREDITS: DOCTORAL. (189597) (1-36 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

Courses for Graduate Program

5141. PROBLEMS IN EXPERIMENTAL AND CLINICAL CHRONOBIOLOGY. (887231) (Cr ar; prereq #) Halberg

8201. RESEARCH. (687232) (Cr ar; prereq #) Staff
Students with the necessary preliminary training may elect research either as a major or minor in pathobiology.

SECOND TERM

8888. THESIS CREDITS: DOCTORAL. (789697) (1-36 cr [max 11 cr per summer term])

Pediatric Dentistry (Pedo)

6-150 Moos Tower. 624-2161
School of Dentistry

FIRST TERM

5414. ADVANCED CLINICAL PEDODONTICS. (086806) (Cr ar; prereq #)
Assignment of patients for treatment of difficult or unusual pedodontic problems under direct faculty supervision.

8001. RESEARCH. (886807) (Cr ar)

8290. HOSPITAL PEDODONTICS I. (686808) (Cr ar; S-N only)

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. (486809) (Cr ar; S-N only)

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.

8292. PEDODONTIC LITERATURE. (588986) (2 cr)

In-depth literature review and seminar discussion of specific pedodontic topics.

8294. PEDODONTIC DIAGNOSIS AND TREATMENT PLANNING. (886810) (Cr ar)

Systematic approach to diagnosis and treatment planning for various pedodontic problems.

SECOND TERM

5414. ADVANCED CLINICAL PEDODONTICS. (587577) (Cr ar)

See First Term.

8001. RESEARCH. (387578) (Cr ar)

8290. HOSPITAL PEDODONTICS I. (587580) (Cr ar; S-N only)

See First Term.

8291. HOSPITAL PEDODONTICS II. (387581) (Cr ar; S-N only)

See First Term.

8293. ADVANCED PEDODONTIC TECHNIQUES. (187582) (Cr ar)

Description and exercises in advanced pedodontic skills and techniques.

8295. INDEPENDENT PEDODONTIC STUDY. (887584) (Cr ar)

Review of pertinent literature and preparation of a position paper on an assigned topic.

8298. INTERDISCIPLINARY CARE OF THE CLEFT PALATE PATIENT. (087437) (1 cr S-N only)

Comprehensive surgical, dental, and speech and hearing evaluation and management of patients with cleft lip and palate.

Pediatrics (Ped)

13-107 Phillips-Wangensteen Building. 624-4477
Medical School

FIRST TERM

8777. THESIS CREDITS: MASTERS. (489600) (1-16 cr [max 11 cr per summer term]) Clawson

SECOND TERM

8777. THESIS CREDITS: MASTERS. (889707) (1-16 cr [max 11 cr per summer term]) Clawson

Periodontics (Pero)

7-368 Moos Tower. 625-2418
School of Dentistry

FIRST TERM

8220. TOPICS IN CONSCIOUS SEDATION. (590284) (2 cr)
Seminar course designed to evaluate current literature in areas of conscious sedation. Topics to be covered include patient selection and evaluation, approaches in oral, inhalation, and intravenous sedation, and management of medical emergencies for dental patients.

8250. SUPPORTING STRUCTURES OF THE TEETH. (089009) (Cr ar)
Gingival tissues, cementum, periodontal ligament, and alveolar bone discussed from a histological, physiological, and pathological point of view.

**FIRST AND SECOND TERMS:
TEN-WEEK COURSES (Register once in Term I)**

8000. ADVANCED CLINICAL PERIODONTOLOGY. (686811) (Cr ar)
Clinical training in examination, diagnosis, treatment planning, and various phases of prevention and treatment of patients with periodontal disease.

8200. LECTURES. (486812) (Cr ar)
Clinical cases are discussed from a diagnostic, treatment planning, and therapeutic viewpoint.

**8300. SEMINAR:
PERIODONTOLOGY.** (286813) (Cr ar)
Discussion of assigned weekly literature reviews. Preparation of assigned formal literature reviews.

SECOND TERM

8220. TOPICS IN CONSCIOUS SEDATION. (989018) (2 cr)
See Term I

Pharmaceutics (Phm)

9-105 Health Sciences Unit F.
624-0646
College of Pharmacy

FIRST TERM

8200. RESEARCH PROBLEMS. (185038) (cr ar; prereq #)

8777. THESIS CREDITS: MASTERS. (589605) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (389606) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (189745) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589748) (1-36 cr [max 11 cr per summer term])

**Pharmaceutics,
Undergraduate (Phmc)**

Pharmacy Student Affairs Office,
5-110 Health Sciences Unit F.
624-9490
College of Pharmacy

FIRST TERM

5970. DIRECTED STUDIES. (487443) (1-5 cr; prereq #)

5999. SPECIAL PROBLEMS. (287444) (Cr and hrs ar; prereq #)

SECOND TERM

5970. DIRECTED STUDIES. (187445) (1-5 cr; prereq #)

5999. SPECIAL PROBLEMS. (987446) (Cr and hrs ar; prereq #)

Pharmacognosy (Phcg)

FIRST TERM

8777. THESIS CREDITS: MASTERS. (190062) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (090063) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (890064) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (690065) (1-36 cr [max 11 cr per summer term])

Pharmacology (Phcl)

3-249 Millard Hall. 625-9997
Medical School

FIRST TERM

5109. PROBLEMS IN PHARMACOLOGY. (187260) (Cr and hrs ar; prereq grad or upper div stu or #)
Loh, staff

8777. THESIS CREDITS: MASTERS. (289601) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189602) (1-36 cr [max 11 cr per summer term])

SECOND TERM

5109. PROBLEMS IN PHARMACOLOGY. (887603) (Cr and hrs ar; prereq grad or upper div stu or #)
Loh, staff

8777. THESIS CREDITS: MASTERS. (189731) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (789733) (1-36 cr [max 11 cr per summer term])

Pharmacy Practice (Phar)

Pharmacy Student Affairs Office,
5-110 Health Sciences Unit F.
624-9490
College of Pharmacy

FIRST TERM

5290. SPECIALTY CLERKSHIPS. (085042) (1-16 cr)
Practice experience with specialized populations.

5291. SPECIALTY EXTERNSHIP.

(590396) (1-12 cr)
Advanced or specialty drug distribution or pharmacy management experience conducted at participating practice sites.

5970. DIRECTED STUDIES. (785035) (1-5 cr; prereq #)

5999. SPECIAL PROBLEMS. (585036) (Cr ar; prereq #)

SPECIAL TERM: JUNE 17-SEPTEMBER 8

5550. PHARMACY PRACTICE CLERKSHIP: ACUTE CARE. (387449) (4-12 cr; prereq Pharm.D. IV student; S-N only)

5551. PHARMACY PRACTICE CLERKSHIP: CLINICAL PHARMACOKINETICS. (787450) (4 cr; prereq Pharm.D. IV student; S-N only)

5552. PHARMACY PRACTICE CLERKSHIP: PEDIATRICS. (587451) (4 cr; prereq Pharm.D. IV student; S-N only)

5553. PHARMACY PRACTICE CLERKSHIP: CLINICAL ELECTIVE I. (387452) (4-12 cr; prereq Pharm.D. IV student; S-N only)

5554. PHARMACY PRACTICE CLERKSHIP: SPECIAL ELECTIVE I. (187453) (4-12 cr; prereq Pharm.D. IV student; S-N only)

5555. PHARMACY PRACTICE CLERKSHIP: CLINICAL ELECTIVE II. (188904) (4-12 cr; prereq Pharm.D. IV student; S-N only)

5556. PHARMACY PRACTICE CLERKSHIP: CLINICAL ELECTIVE III. (988905) (4-12 cr; prereq Pharm.D. IV student; S-N only)

5557. PHARMACY PRACTICE CLERKSHIP: SPECIAL ELECTIVE II. (788906) (4-12 cr; prereq Pharm.D. IV student; S-N only)

5558. PHARMACY PRACTICE CLERKSHIP: SPECIAL ELECTIVE III. (588907) (4-12 cr; prereq Pharm.D. IV student; S-N only)

NINE-WEEK COURSES

(Register once in Term I)

5391. PHARM.D. COMMUNITY EXTERNSHIP— June 17-August 11. (787447) (4-8 cr; prereq Pharm.D. III student; S-N only)

5393. PHARM.D. HOSPITAL EXTERNSHIP— June 17-August 11. (587448) (4-8 cr; prereq Pharm.D. III student; S-N only)

SECOND TERM

5290. SPECIALTY CLERKSHIPS. (185041) (Cr ar)
See First Term.

5291. SPECIALTY EXTERNSHIP. (190403) (1-12 cr)
See First Term.

5970. DIRECTED STUDIES. (185033) (1-5 cr; prereq #)

5999. SPECIAL PROBLEMS. (985034) (Cr ar; prereq #)

Philosophy (Phil)

355 Ford Hall. 625-6563
College of Liberal Arts

FIRST TERM

1001. INTRODUCTION TO LOGIC. (285953) (5 cr; 0915-1015 MTWThF; BlegH 220) Dahl
Application of formal techniques for evaluating arguments.

1002. INTRODUCTION TO PHILOSOPHY. (289260) (5 cr; 1145-1325 TWTh, EE/CSci 3125) Wallace

Problems, principal methods, and schools of philosophy; historical and contemporary views.

1003. INTRODUCTION TO ETHICS. (791563) (5 cr; 1030-1210 TWTh; Amund 124) Anderson
Problems that arise when human beings attempt to think systematically about conduct and value.

3302. MORAL PROBLEMS OF CONTEMPORARY SOCIETY. (591564) (5 cr; 1030-1210 TWTh; Arch 15) Root
Selected problems of current interest.

3970. DIRECTED STUDIES. (185954) (1-5 cr; prereq #, Δ, □) Staff

5970. DIRECTED STUDIES AND RESEARCH. (785956) (1-5 cr; prereq #, Δ, CLA approval) Staff

8777. THESIS CREDITS: MASTERS. (989603) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (789604) (1-36 cr [max 11 cr per summer term])

8970. DIRECTED STUDY AND RESEARCH. (185959) (1-4 cr; prereq passed written prelim exam for the PhD in philosophy) Staff

SECOND TERM

1001. INTRODUCTION TO LOGIC. (187064) (5 cr; 0915-1015 MTWThF; Arch 35) Hanson
See First Term.

1002. INTRODUCTION TO PHILOSOPHY. (388908) (5 cr; 1030-1130 MTWThF; AmundH 124) Lewis
Problems, principal methods, and schools of philosophy; historical and contemporary views.

3003. GENERAL HISTORY OF WESTERN PHILOSOPHY. (391565) (5 cr; 1030-1210 TWTh; EE/CSci3115) Gunderson

3305. MEDICAL ETHICS. (089270) (5 cr, \$PubH 5623; 0840-1015 TWTh EE/CSci 3115) Hopkins
Moral problems confronting physicians, patients, and others concerned with medical treatment, research, and public health policy. A section will be included on moral issues in mental health treatment—controversies over the extensive use of psychotropic medications and of electroconvulsive therapy. It will also examine various criteria for ascribing mental competency and will ask about present-day safeguards on involuntary commitment. Besides references to such technical works as Buchanan and Brock's *Deciding for Others: The Ethics of Surrogate Decision Making* there will be some considerations of autobiographies such as Kate Millet's *The Loony-Bin Trip*.

3970. DIRECTED STUDIES. (987074) (1-5 cr; prereq #, Δ, □) Staff

5970. DIRECTED STUDIES AND RESEARCH. (787075) (1-5 cr; prereq #, Δ, CLA approval) Staff

8777. THESIS CREDITS: MASTERS. (089737) (1-16 cr [max 11 cr per summer term])

106 Philosophy—Physical Medicine and Rehabilitation

PHYSICAL EDUCATION (PE)

All undergraduate, graduate and professional licensure courses for physical education, adapted physical education and athletic coaching are listed under *Kinesiology (Kin)*

- 5385 Exercise for Special Populations (June 11-June 26)
 5720 Topics in Kinesiology
 Sec 1 Early Childhood Adapted Physical Education (June 27-July 16)
 Sec 2 Technology Applications in Sport and Physical Education (June 11-21)
 3143 Organization and Management of Sport (July 22-August 9)
 3327 Teaching Physical Education in the Elementary School (July 18-August 14)
 5136 Psychology of Coaching (July 18-August 14)
 5141 Nutrition for Exercise and Physical Performance (July 18-August 14)
 5460 Foundations of Sport Management (July 18-August 2)
 5720 Topics in Kinesiology: Systematic Observation in Physical Education (July 18-August 7)
 5740 Workshop: Coaching of Individual, Dual, or Team Sports-Soccer (July 22-August 9)

PHYSICS (Phys)

- 5940 Physics for High School Teachers: Experimental Foundations and Historical Perspectives (June 24-July 19)

8888. THESIS CREDITS: DOCTORAL. (689739) (1-36 cr [max 11 cr per summer term])

8970. DIRECTED STUDY AND RESEARCH. (387077) (1-4 cr; prereq passed written prelim exam for the PhD in philosophy) Staff

Physical Education (PE)

224 Cooke Hall. 625-1007
 (School of Physical Education and Recreation)
 College of Education

Courses listed are for students interested in taking physical activity classes for elective credit.

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.

All undergraduate, graduate, and professional licensure courses for physical education, adapted physical education, and athletic coaching are listed under **KINESIOLOGY (KIN)**.

FIRST TERM

1107. SWIMMING. (385796) (1 cr; limited to 22 students; prereq nonswimmer; 0915-1015 MTWTh; NorrisH 58)
 Course for nonswimmers includes aquatic breathing, floating, bobbing, treading, finning, human stroke, elementary backstroke, sidestroke, front crawl.

1014. CONDITIONING. (185808) (1 cr; each section limited to 40 students;)
 Sec 1, (185808) 0800-0900 MTWTh, St. Paul Gym
 Sec 2, (191566) 0915-1015 MTWTh, Fieldhouse
 Improvement of physical fitness through running, circuit training, and progressive exercises.

1015. WEIGHT TRAINING. (1 cr; each section limited to 30 students)
 Fundamentals including techniques, theory, and individualized exercise prescription.
 Sec 1, (185797) 0915-1015 MTWTh; St. Paul Gym
 Sec 2, (188795) 1030-1130 MTWTh, StadN 205

1038. TENNIS. (1 cr; each section limited to 24 students)
 Fundamental strokes of service, forehand and backhand, drives and volley; court positions and strategy for singles and doubles; rules, terminology, and etiquette.
 Sec 1, (985809) 0800-0900 MTWTh, Fieldhouse, Tennis Courts
 Sec 2, (285810) 1030-1130 MTWTh, Fieldhouse, Tennis Courts
 Sec 3, (185811) 1300-1400 MTWTh, Fieldhouse, Tennis Courts

1048. BOWLING. (1 cr; moderate intensity; each section limited to 32 students)
 For the beginning student. Fundamentals of the stance, approach, and delivery; scoring; bowling terminology, and etiquette.
 Sec 1, (987365) 0800-0900 MTWTh, CMU B55
 Sec 2, (085588) 0915-1015 MTWTh, CMU B55

1050. GOLF. (1 cr; moderate intensity; each section limited to 21 students)
 Fundamentals; stance, and swing; etiquette and rules.
 Sec 1, (985812) 0915-1015 MTWTh, StadS 267, Golf Course
 Sec 2, (585814) 1030-1130 MTWTh, StadS 267, Golf Course

1074. VOLLEYBALL. (290361) (1 cr; limited to 36 students; 1030-1130 MTWTh; CookeH 325)
 Fundamental skills and rules of volleyball; basic team play and strategy.

1107. SWIMMING. (885589) (1 cr; limited to 24 students; prereq ability to swim 100 yards; 1030-1130 MTWTh; NorrisH 58)
 Deep water skills, elementary back stroke, side stroke, front crawl, back crawl, elementary diving, and distance swimming.

1138. TENNIS. (091567) (1 cr; prereq 1038 or equiv; limited to 16 students; 0915-1015 MTWTh, St. Paul Tennis Cts.)
 Improvement of basic skills with increased emphasis on single and doubles strategy and competitive play.

SECOND TERM

1007. SWIMMING—July 18-August 14. (1 cr; prereq nonswimmer; each section limited to 22 students)
 See First Term.

 Sec 1, (786766) 0800-0900 MTWThF, NorrisH 58
 Sec 2, (090368) 1030-1130 MTWThF, NorrisH 58

1014. CONDITIONING—July 18-August 14. (1 cr; limited to 40 students; 0800-0900 MTWThF; Field Hse)
 See First Term.

1015. WEIGHT TRAINING—July 18-August 14. (1 cr; limited to 30 students; 0915-1015 MTWThF; StadN 205)
 See First Term.

1038. TENNIS—July 18-August 14. (1 cr; each section limited to 24 students)
 See First Term.

 Sec 1, (386768) 0800-0900 MTWThF, Fieldhouse, Tennis Courts
 Sec 2, (186769) 0915-1015 MTWThF, Fieldhouse, Tennis Courts
 Sec 3, (586770) 1030-1130 MTWThF, Fieldhouse, Tennis Courts

1041. CYCLING—July 18-August 14. (891571) (1 cr; limited to 25 students; prereq supply own bicycle; 1300-1400 MTWThF; St. Paul Gym).
 Basic skills; physiological and mechanical principles; maintenance, safety, training.

1050. GOLF—July 18-August 14. (1 cr; moderate intensity; each section limited to 21 students)
 Sec 1, (587367) 0915-1015 MTWThF, StadS 267, Golf Course
 Sec 2, (388794) 1030-1130 MTWThF, StadS 267, Golf Course
 See First Term.

1067. BASKETBALL—July 18-August 14. (190376) (1 cr; limited to 30 students; 0915-1015 MTWThF; Fieldhouse)
 Fundamentals of offense and defense; elementary team play and game strategy.

1073. SOFTBALL—July 18-August 14. (289257) (1 cr; limited to 40 students; 1030-1130 MTWThF; Field Hse, BFAB Field)
 Fundamental skills and tactics; throwing, catching, batting, running, basic conditioning and game play.

1107. SWIMMING—July 18-August 14. (486616) (1 cr; limited to 24 students; prereq ability to swim 100 yards; 0915-1015 MTWThF; NorrisH 58)
 See First Term.

1138. TENNIS—July 18-August 14. (286617) (1 cr; limited to 24 students; prereq 1038 or equiv; 1300-1400 MTWThF; Fieldhouse, Tennis Courts)
 See First Term.

1205. SCUBA AND SKIN DIVING. (986619) (1 cr; limited to 18 students; prereq 1107 or equiv; 0800-1000 TTh; CookeH 15, 214) Whorntenbury

Physical Medicine and Rehabilitation (PMed)

860 Mayo. 626-5961
 Medical School

FIRST TERM

5396. FIELD WORK EDUCATION IN OCCUPATIONAL THERAPY. (187266) (Cr ar; prereq regis OT; S-N only)
 Berkeland, Meyers

5397. FIELD WORK EDUCATION IN OCCUPATIONAL THERAPY. (787268) (Cr ar; prereq 5396; S-N only)
 Berkeland, Meyers

5398. FIELD WORK EDUCATION IN OCCUPATIONAL THERAPY. (187436) (1 cr; prereq regis OT; S-N only) Meyers

5410. ADULT REHABILITATION MEDICINE. (288190) (Cr ar; prereq regis med)

5414. PHYSICAL MEDICINE AND REHABILITATION FOR THE FAMILY PHYSICIAN. (385023) (Cr ar; prereq regis med)

5415. PRIVATE PRACTICE IN PHYSICAL MEDICINE AND REHABILITATION. (485269) (4.5-9 cr; prereq regis med)

5416. PHYSICAL MEDICINE AND REHABILITATION AT ST. PAUL RAMSEY. (885270) (Cr ar; prereq regis med)

5441. ADULT PHYSICAL MEDICINE AND REHABILITATION: HEALTH CARE PSYCHOLOGY INTERNS. (085302) (Cr ar; prereq #)

5817. SPECIAL TOPICS IN PHYSICAL THERAPY. (185484) (1-3 cr) Amundsen, Allison

8103. CLINIC. (587269) (Cr ar; prereq regis PT) Ellingham

8130. SEMINAR: CURRENT LITERATURE IN PHYSICAL THERAPY. (788484) (1 cr) Scudder, Amundsen

8170. SPECIAL TOPICS IN PHYSICAL THERAPY. (187249) (1 cr; prereq #) Amundsen, staff

8185. PROBLEMS IN PHYSICAL THERAPY. (287251) (Cr ar; prereq regis PT) Amundsen, staff

8193. RESEARCH PROBLEMS IN PHYSICAL THERAPY. (987253) (Cr ar; prereq 8192 or #) Amundsen, Allison

8195. RESEARCH IN PHYSICAL THERAPY. (587255) (Cr ar; prereq #) Amundsen, staff

8200. PHYSICAL MEDICINE AND REHABILITATION SERVICE. (887262) (Cr and hrs ar) Awad, staff

8205. READINGS IN PHYSICAL MEDICINE AND REHABILITATION. (487264) (1-2 cr [max 2 cr]; 0900-0955 M) Benninghoff

8206. CONFERENCE ON PHYSICAL MEDICINE AND REHABILITATION. (585196) (2 cr; 0800-0900 F) Benninghoff

8207. BASIC AND APPLIED PHYSIATRY. (988161) (2 cr; 0800-0900 M) Staff

8210. RESEARCH IN PHYSICAL MEDICINE. (085011) (ar cr; limited to 10 students)

8212. ELECTROMYOGRAPHY. (885012) (Cr and hrs ar; limited to 10 students; prereq #) Benninghoff

8214. READINGS IN ELECTROMYOGRAPHY. (387399) (1 cr; max 3 cr; prereq #; 0900-1000 F) Benninghoff

8220. SEMINAR IN PHYSICAL MEDICINE AND REHABILITATION. (385197) (Cr ar; 0800-0900 W) Benninghoff

8777. THESIS CREDITS: MASTERS. (989682) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589684) (1-36 cr [max 11 cr per summer term])

SECOND TERM

5255. CLINICAL EDUCATION IN PHYSICAL THERAPY. (988483) (Cr ar; regis PT) Ellingham
Five weeks of supervised practice at affiliated hospitals.

5817. SPECIAL TOPICS IN PHYSICAL THERAPY. (985485) (1-3 cr) Amundsen, Allison

8103. CLINIC. (687604) (Cr ar; prereq regis PT) Ellingham

8130. SEMINAR: CURRENT LITERATURE IN PHYSICAL THERAPY. (188482) (1 cr) Scudder, Amundsen

8170. SPECIAL TOPICS IN PHYSICAL THERAPY. (487605) (1 cr; prereq #) Amundsen, staff

8185. PROBLEMS IN PHYSICAL THERAPY. (287606) (Cr ar; prereq regis PT) Amundsen, staff

8193. RESEARCH PROBLEMS IN PHYSICAL THERAPY. (187607) (Cr ar; prereq 8192 or #) Amundsen, Allison

8195. RESEARCH IN PHYSICAL THERAPY. (987608) (Cr ar; prereq #) Amundsen, staff

8777. THESIS CREDITS: MASTERS. (189860) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (989861) (1-36 cr [max 11 cr per summer term])

Physics (Phys)

148 Physics. 624-7375
Institute of Technology

FIRST TERM

1041. INTRODUCTORY PHYSICS. (288576) (4 cr [no cr for IT students except arch, pre-arch, environmental design], Sother introductory physics courses; prereq high school algebra and plane geometry; 0800-1015 MWF, 0800-0900 TTh; Phys 170; limited to 140 students)

Lectures and problem sessions. Primarily for students interested in topics useful in technical areas. Mechanics, fluids and gases, heat, waves.

1045. INTRODUCTORY PHYSICS LABORATORY. (1 cr [no cr for IT students except arch, pre-arch, environmental design]; prereq 1041 or 11041; 4 lab hrs per wk; S-N only; each section limited to 16 students)
Laboratory experiments offered in conjunction with 1041.

lab 1, (188577) 1030-1245 MF
lab 2, (590740) 1300-1515 MF
lab 3, (390741) 0915-1130 TTh
lab 4, (190742) 1145-1400 TTh

3970. DIRECTED STUDIES. (685027) (1-5 cr; prereq #, Δ)
Independent directed study in areas arranged by the student and a faculty member.

5124. EXPERIMENTAL PROJECT. (387483) (Cr ar; prereq 5123, #)
Research project in some aspect of contemporary physics. Project must be approved by faculty coordinator prior to registration.

5940. PHYSICS FOR HIGH SCHOOL TEACHERS: Experimental Foundations and Historical Perspectives—June 24-July 19. (686565) (4 cr; [no cr for physics grad students or grad minors in physics]; prereq general physics, #; may be repeated for credit. Qualified students may register for graduate credit at the University of Minnesota; 0800-1600 MTWThF; offered at Bakken Library.)
An in-depth examination of a conceptual theme in physics and its experimental foundations and historical perspectives. This summer's theme: acoustics and hearing.

5970. DIRECTED STUDIES. (185288) (1-5 cr; prereq #, Δ)
Independent, directed study in physics in areas arranged by the student and a faculty member.

5990. DIRECTED RESEARCH.

(588146) (Cr ar; prereq 3rd yr, Δ)
Problems, experimental or theoretical, of special interest to students. Written reports.

8500. PLAN B PROJECT. (490424) (4 cr [no cr toward PhD]; prereq #; S-N only)

May be taken once to satisfy project requirement for Plan B master's program. May appear on master's program but does not count toward 20-credit minimum in major field. Project topic to be arranged between student and instructor. Written report required.

8777. THESIS CREDITS: MASTERS. (889609) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189610) (1-36 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

1271. GENERAL PHYSICS I. (386415) (4 cr; prereq Math 1221 or 11221 0800-0900 MTWThF; Phys 133; limited to 140 students)
Calculus-level general physics course. Mechanics. Associated lab is 1275.

1275. GENERAL PHYSICS LABORATORY I. (1 cr; prereq 1271 or 1311 or 11271 or 11311; 2 lab hrs per wk; S-N only; each section limited to 16 students)
Laboratory exercises in mechanics.
lab 1, (385099) 0915-1130 M
lab 2, (990749) 1300-1515 T
lab 3, (290750) 0915-1130 Th
lab 4, (190751) 1300-1515 Th

1281. GENERAL PHYSICS II. (186416) (4 cr; prereq 1271, Math 1241 or 11241; 0915-1015 MTWThF; Phys 133; limited to 140 students)
Calculus-level general physics course. Heat and electricity. Associated lab is 1285.

1285. GENERAL PHYSICS LABORATORY. (1 cr; prereq 1275, 1281 or 1331 or 11281 or 11331; 2 lab hrs per wk; S-N only; each section limited to 16 students)
Laboratory exercises in heat and electricity.
lab 1, (185100) 1030-1245 M
lab 2, (790753) 1300-1515 T
lab 3, (590754) 1030-1245 Th
lab 4, (390755) 1300-1515 Th

1291. GENERAL PHYSICS III. (086417) (4 cr; prereq 1281; may be taken with or without lab 1295; 1030-1130 MTWThF; Phys 170; limited to 140 students)
Calculus-level general physics course. Magnetism and optics.

1295. GENERAL PHYSICS LABORATORY III. (1 cr; prereq 1285, 1291 or 1341 or 11291 or 11341; 2 lab hrs per wk; S-N only; each section limited to 16 students)
Laboratory exercises in magnetism and optics.

lab 1, (991576) 1300-1515 M
lab 2, (090757) 0800-1015 T
lab 3, (890758) 1300-1515 T
lab 4, (690759) 1300-1515 Th
lab 5, (090760) 0800-1015 F

SECOND TERM

1042. INTRODUCTORY PHYSICS. (988578) (4 cr [no cr for IT students except arch, pre-arch, environmental design], Sother introductory physics courses; prereq 1041, high school algebra and plane geometry; 0800-1015 MWF, 0800-0900 TTh; Phys 170; limited to 140 students)
Lectures and problem sessions. Primarily for students interested in topics useful in technical areas. Electricity and magnetism, light, optical instruments, atoms and spectra, nuclei, radioactivity.

1046. INTRODUCTORY PHYSICS LABORATORY. (1 cr; [no cr for IT students except arch, pre-arch, environmental design]; prereq 1042 or 11042, 1045; 4 lab hrs per wk; S-N only; each section limited to 16 students)

Laboratory experiments offered in conjunction with 1042.

lab 1, (788579) 1030-1245 MF
lab 2, (890744) 1300-1515 MF
lab 3, (690745) 0915-1130 TTh
lab 4, (490746) 1145-1400 TTh

3970. DIRECTED STUDIES. (485028) (1-5 cr; prereq #, Δ)
See First Term.

5124. EXPERIMENTAL PROJECT. (486566) (Cr ar; prereq 5123, #)
See First Term.

5970. DIRECTED STUDIES. (985289) (1-5 cr; prereq #, Δ)
See First Term.

5990. DIRECTED RESEARCH. (788145) (Cr ar; prereq 3rd yr, Δ)
See First Term.

8500. PLAN B PROJECT. (290425) (4 cr [no cr toward PhD]; prereq #; S-N only)
See First Term

8777. THESIS CREDITS: MASTERS. (789845) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (389847) (1-36 cr [max 11 cr per summer term])

Physiology (Phs)

6-255 Millard Hall. 625-5902
Medical School

FIRST TERM

5113. PROBLEMS IN PHYSIOLOGY. (187257) (Cr and hrs ar; prereq #) Staff
Topics assigned for laboratory study; conferences and readings.

5552. READINGS IN PHYSIOLOGY. (887259) (Cr and hrs ar) Staff
Topics selected for each student; written reviews prepared and discussed.

5553. RESEARCH IN PHYSIOLOGY. (087261) (Cr and hrs ar) Staff

8113. PROBLEMS IN PHYSIOLOGY. (687263) (Cr and hrs ar; prereq #) Staff
Topics assigned for laboratory study; conferences and readings.

8202. READINGS IN PHYSIOLOGY. (987267) (Cr and hrs ar) Staff
Topics selected for each student; written reviews prepared and discussed.

8203. RESEARCH IN PHYSIOLOGY. (287265) (Cr and hrs ar) Staff

108 Physiology—Political Science

8777. THESIS CREDITS: MASTERS. (189607) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (089608) (1-36 cr [max 11 cr per summer term])

SECOND TERM

5552. READINGS IN PHYSIOLOGY. (188036) (Cr and hrs ar) Staff
See First Term.

5553. RESEARCH IN PHYSIOLOGY. (088037) (Cr and hrs ar) Staff

8202. READINGS IN PHYSIOLOGY. (888038) (Cr and hrs ar) Staff
See First Term.

8203. RESEARCH IN PHYSIOLOGY. (688039) (Cr and hrs ar) Staff

8777. THESIS CREDITS: MASTERS. (589751) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (089754) (1-36 cr [max 11 cr per summer term])

Plant Biology (PBio)

220 Biological Science, St. Paul.
625-1234
College of Biological Science

(See also Itasca Biology Program on page 34.)

FIRST TERM

5890. RESEARCH PROBLEMS. (090306) (1-5 cr per qtr; prereq Δ)
Individual research for undergraduates and graduates. Taught at Itasca, see page 34.

5970. DIRECTED STUDIES. (190305) (Cr ar; prereq #, Δ)
Staff

5990. DIRECTED RESEARCH. (390304) (Cr ar; prereq #, Δ)
Staff

Laboratory or field investigation of selected areas of research.

8777. THESIS CREDITS: MASTERS. (089673) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (289842) (1-36 cr [max 11 cr per summer term])

8990. RESEARCH PROBLEMS. (590303) (Cr ar; prereq #, Δ) Staff

SECOND TERM

5970. DIRECTED STUDIES. (890307) (Cr ar; prereq #, Δ) Staff

5990. DIRECTED RESEARCH. (690308) (Cr ar; prereq #, Δ) Staff
See First Term.

8777. THESIS CREDITS: MASTERS. (189776) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (989908) (1-36 cr [max 11 cr per summer term])

8990. RESEARCH PROBLEMS. (490309) (Cr ar; prereq #) Staff

Plant Breeding (PIBr)

411 Borlaug Hall, St. Paul. 625-7773
(Agronomy and Plant Genetics)
College of Agriculture

FIRST TERM

8777. THESIS CREDITS: MASTERS. (089611) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (889612) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (089849) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189851) (1-36 cr [max 11 cr per summer term])

Plant Pathology (PIPa)

495 Borlaug Hall, St. Paul. 625-8200
College of Agriculture

FIRST TERM

3090. RESEARCH IN PLANT PATHOLOGY. (985339) (Cr ar; prereq 1001 or equiv or #) Staff

8090. ADVANCED PROCEDURES AND RESEARCH IN PLANT PATHOLOGY. (685397) (Cr ar) Staff
Special assignment in laboratory and field problems in pathological research.

8095. ADVANCED PROCEDURES AND RESEARCH IN MYCOLOGY. (888251) (1-6 cr) Stewart
Special assignment of work in laboratory and field problems in mycological research.

8777. THESIS CREDITS: MASTERS. (689613) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (489614) (1-36 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

5000. PROFESSIONAL EXPERIENCE PROGRAM. (988774) (4 cr; prereq #; ar) Percich

5650. FIELD PLANT PATHOLOGY. (791238) (2 cr; prereq 5002 or #; A-F only; 0900-1630 Th, BorH 491) French, staff
Plant disease in field situations; disease control strategies within the context of current cropping practices. Participation required in at least 6 of 8 field trips.

SECOND TERM

3090. RESEARCH IN PLANT PATHOLOGY. (285340) (Cr ar; prereq 1001 or equiv or #) Staff

8090. ADVANCED PROCEDURES AND RESEARCH IN PLANT PATHOLOGY. (186562) (Cr ar) Staff
See First Term.

8095. ADVANCED PROCEDURES AND RESEARCH IN MYCOLOGY. (087325) (1-6 cr) Stewart
See First Term.

8777. THESIS CREDITS: MASTERS. (689854) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (289856) (1-36 cr [max 11 cr per summer term])

Plant Physiology (PIPh)

220 Biological Sciences Center.
625-4222
Agriculture

FIRST TERM

8777. THESIS CREDITS: MASTERS. (289615) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189616) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (989858) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (789859) (1-36 cr [max 11 cr per summer term])

Political Science (Pol)

1414 Social Sciences. 624-4144
College of Liberal Arts

FIRST TERM

1001. AMERICAN GOVERNMENT AND POLITICS. (885978) (5 cr; 0800-0930 MTWThF; AndH 270) Maltzman

Principles, organization, processes, functions of government, and the interplay of political forces in the United States. Attention throughout to current issues.

1025. WORLD POLITICS. (586591) (4 cr; 1030-1130 MTWThF; BlegH 220) Freeman
Contemporary international relations; forms of state interaction; problem of conflict and cooperation.

1026. AMERICAN FOREIGN POLICY. (091374) (4 cr; 0915-1015 MTWThF; BlegH 10) Beck
Institutions and processes that determine American foreign policy; major developments in U.S. foreign policy since World War II; contemporary issues of U.S. policy.

1054. INTRODUCTION TO COMPARATIVE POLITICS. (590382) (4 cr; limited to 100 students; 0900-1040 TWTh; AndH 350) Strom
Politics of democratic, communist, and Third World nations; examines the causes and consequences of different forms of political life.

3070. DIRECTED FIELD STUDIES. (185307) (1-4 cr; prereq #, Δ)

3080. INTERNSHIP. (285046) (4 cr [max 8 cr]; prereq Δ ; S-N only)
Internship with government or community organizations, arranged by the department and awarded competitively.

3110H. HONORS WORK IN SELECTED FIELDS. (088233) (1-6 cr [6 cr max]; open only to political science honors program majors; prereq 3109H)
Individual research and writing of departmental honors thesis.

3310. TOPICS IN AMERICAN POLITICS: Mass Media and Politics. (189266) (4 cr; prereq 1001 or equiv or #; 0915-1015 MTWThF; BlegH 155) Flanigan
Analysis of role of mass media in politics; emphasis on television and electoral campaigns; news coverage versus newsmaking, Free press in democracy.

3477. POLITICAL DEVELOPMENT. (891375) (4 cr; prereq 1054 or 3051 or #; 1145-1245 MTWThF; BlegH 350) Laffey
Political processes and problems associated with economic development processes; the political economy of underdevelopment and development; problems of state building and the development of political institutions.

3659. AMERICAN POLITICAL THOUGHT. (691376) (4 cr; limited to 60 students; 0915-1015 MTWThF; BlegH 110) Gerenscer
From colonial times to present; Puritanism; Revolution; Constitution; utopianism; sectionalism and pluralism; anarchist, socialist, populist, and syndicalist thought; social Darwinism; conservatism; political thought in law and literature.

3739. THE POLITICS OF ETHNIC COMMUNITIES. (491377) (4 cr; limited to 75 students; prereq 6 cr in social sciences; 1145-1245 MTWThF; AndH 330) Nimitz
Cross-cultural study of politics of ethnic communities; emphasis on politics of black communities in the United States. Internal community politics and their local and national political systems.

3835. THE INTERNATIONAL SYSTEM. (291378) (4 cr; 1030-1130 MTWThF; BlegH 350) Sylvan
Structure of international system; balance of power, bi-polar and other international systems; theories of stability, change, conflict, and cooperation.

3970. DIRECTED STUDIES. (185332) (1-6 cr; prereq #, Δ , □)

5738. AMERICAN POLITICAL CAMPAIGNS AND ELECTIONS. (191379) (4 cr; prereq 1001 or equiv or #; 0915-1015 MTWThF; BlegH 350) Backstrom
National, state, and local campaigns and elections; research in local political parties and campaigns.

8777. THESIS CREDITS: MASTERS. (989617) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (789618) (1-36 cr [max 11 cr per summer term])

SECOND TERM

1025. WORLD POLITICS. (987401) (4 cr; 1030-1130 MTWThF; BlegH 440) Duvall
See First Term.

1041. CONTEMPORARY POLITICAL IDEOLOGIES. (491380) (4 cr; 0915-1015 MTWThF; BlegH 155) Chabot
Major modern ideologies such as liberalism, democracy, conservatism, socialism, communism, fascism, nationalism, imperialism, racism. Adequacy of alternative ideologies for analysis and solution of political and social problems.

3051. INTRODUCTION TO POLITICAL ANALYSIS. (291381) (5 cr; limited to 175 students; 0845-1030 MTWThF; AndH 210) Mattern
Formation of political communities, political participation, policymaking, compliance, legitimacy, political development, types of political systems. Empirical and normative problems. Comparisons among major countries.

3070. DIRECTED FIELD STUDIES. (785309) (1-4 cr; prereq #, Δ)

3080. INTERNSHIP. (885057) (4 cr [max 8 cr]; prereq Δ; S-N only)
See First Term.

3110H. HONORS WORK IN SELECTED FIELDS. (787402) (1-6 cr [6 cr max]; open only to political science honors program majors; prereq 3109H)
See First Term.

3309. JUDICIAL PROCESS. (191382) (4 cr; limited to 60 students; prereq 1001 or equiv or #; 1030-1130 MTWThF; BlegH 220) Healy
Structure of American judiciary; selection of judges; process of litigation; influences on judicial decisions; impact of and compliance with decisions; role of Supreme Court in American political system.

3323. CIVIL LIBERTIES IN AMERICA. (991383) (4 cr; limited to 75 students; prereq 1001 or equiv or #; 0915-1015 MTWThF; AndH 330) Sullivan
Political importance of civil liberties in American society. Tolerance as a social phenomenon; issues such as free speech, religion, media control, and effects of campaigning.

3836. FOREIGN POLICY DECISION MAKING. (791384) (4 cr; \$5876; limited to 60 students; 1145-1245 MTWThF; BlegH 220) Tuchman
Theories and examples of foreign policy decision-making processes, including policy formation and implementation. Examples drawn from various foreign policy issues.

5461. WESTERN EUROPEAN GOVERNMENT AND POLITICS. (591385) (5 cr; limited to 60 students; prereq 3051 or non-political science grad or #; 0800-0930 MTWThF; BlegH 435) Erb
Political institutions in their social settings; power and responsibility; governmental stability; political decision making, government and economic order.

8777. THESIS CREDITS: MASTERS. (789862) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589863) (1-36 cr [max 11 cr per summer term])

Portuguese (Port)

34 Folwell Hall. 625-5858
(Spanish and Portuguese)
College of Liberal Arts

FIRST TERM

5970. DIRECTED READINGS. (585764) (1-5 cr per qtr [15 cr max]; prereq #, Δ, □) Staff
Guided individual reading or study.

5990. DIRECTED RESEARCH. (791241) (1-5 cr per qtr; prereq #, Δ, CLA approval)

8777. THESIS CREDITS: MASTERS. (589619) (1-16 cr [max 11 cr per summer term])

8970. DIRECTED READINGS IN ROMANCE LANGUAGES. (188831) (Cr. ar) Staff
Rigorously supervised readings in aspects of Luso-Brazilian language, literature, and cultural history. Readings dependent on student needs and generally do not duplicate material of regular courses.

FIRST AND SECOND TERMS: TEN-WEEK COURSE (Register once in Term I)

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 enroll in all three courses and may not enroll in other summer courses.** Prospective students should talk to an adviser before registering for intensive language courses.

1001-1002-1003. BEGINNING PORTUGUESE. (15 cr for both terms; limited to 23 students; 0800-1130 MTWThF; FolH 116)
Emphasis on speaking and understanding Portuguese; pronunciation (Brazilian speech stressed); gradual introduction to writing and reading skills; basic grammar, cultural aspects of language and civilizations of Portuguese-speaking world.

1001, Sec 5, (386513) June 11-July 3, 5 cr

1002, Sec 5, (186514) July 5-29, 5 cr

1003, Sec 5, (086515) July 30-August 21, 5 cr

SECOND TERM

5970. DIRECTED READINGS. (385765) (1-5 cr per qtr [15 cr max]; prereq #, Δ, □) Staff
See First Term.

5990. DIRECTED RESEARCH. (991240) (1-5 cr per qtr; prereq #, Δ, CLA approval)

8777. THESIS CREDITS: MASTERS. (389864) (1-16 cr [max 11 cr per summer term])

8970. DIRECTED READINGS IN ROMANCE LANGUAGES. (388830) (Cr. ar) Staff
See First Term.

Prosthodontics (Pros)

9-176 Moos Tower. 625-6969
School of Dentistry

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

5100. ART FOR THE PROSTHODONTIST. (690311) (1 cr; S-N only)
For Prosthodontic residents interested in learning basic principles of art as related to prosthodontics. It will include understanding of color concepts, manipulating of light and its effect on color, physical principals of color theory and practical application using the vehicle of oil painting in still life settings.

8006. ADVANCED CLINICAL PROSTHODONTICS II. (186814) (Cr ar [may be repeated for cr]; prereq #)
Experience in prosthodontic treatment of patients having systemic complications.

8034. ADVANCED CLINICAL MAXILLOFACIAL PROSTHETICS. (986815) (Cr ar; prereq 8030, 8032, #)
Factors involved in diagnosis and organization of a treatment plan for the maxillofacial patient and practical experience in associated clinical and laboratory procedures.

Psychology (Psy)

N-218 Elliott Hall. 625-4042
College of Liberal Arts

FIRST TERM

1001. INTRODUCTION TO PSYCHOLOGY. (986149) (5 cr; 0800-1000 MTWThF; BlegH 5)
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; 1004-1005†; 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, (286150) 0915-1215 MF, 0915-1115 W, EltH 150
Sec 2, (186151) 0915-1215 MF, 0915-1115 W, EltH 160
Sec 3, (986152) 1300-1600 MF, 1300-1500 W, EltH 150
Sec 4, (887424) 1300-1600 MF, 1300-1500 W, EltH 160

3011. INTRODUCTION TO PSYCHOLOGY OF LEARNING. (786153) (4 cr; prereq 1001; 1145-1245 MTWThF; EltH N119) Peterson
Basic methods in study of learning. Fundamental concepts and principles governing the learning process.

3051. INTRODUCTION TO COGNITIVE PSYCHOLOGY. (386592) (4 cr; prereq 1001; 1030-1130 MTWThF; EltH N119)
Discussion of the basic research problems and theoretical concepts in the study of cognitive factors in perception and memory.

3061. INTRODUCTION TO PHYSIOLOGICAL PSYCHOLOGY. (591998) (4 cr; \$5061; prereq 1005 or Biol 1009 or #; 1300-1400 dMTWThF, EltH N119) Chapman
Neural mechanisms of motivation, emotion, sleep-wakefulness cycle, learning, and communication in animals and humans.

3101. INTRODUCTION TO PERSONALITY. (790686) (4 cr, \$5101; prereq 1001; 0915-1015 MTWThF; EltH N227)
Concepts and issues in personality, personality theory, personality research, and personality assessment.

3604. INTRODUCTION TO ABNORMAL PSYCHOLOGY. (885561) (4 cr, \$5604; prereq 1001; 0915-1015 MTWThF; WulH 230)
Surveys the field of abnormal psychology. Etiologies of behavioral disorders; available treatment.

3617. INTRODUCTION TO CLINICAL PSYCHOLOGY. (685562) (4 cr; prereq 3604 or 5604H, 3801; 1145-1245 MTWThF; BuH 120) Grove
Survey of historical developments and contemporary issues in clinical psychology. Focuses upon relevant research and clinical trends in psychological assessment methods and various prevention and intervention strategies.

3801. INTRODUCTION TO MEASUREMENT AND STATISTICAL METHODS. (888833) (4 cr; prereq 1001; 0915-1015 MTWThF; EltH N119)
Quantification in research problems in psychology. Descriptive and inferential statistics, hypothesis testing, nonparametric statistics. Examples from various areas in psychology.

3970. DIRECTED STUDIES. (988998) (1-8 cr; prereq #, Δ, □)

3990. DIRECTED RESEARCH. (788999) (1-8 cr; prereq #, Δ, □)

School of Public Health

Ninth Annual Occupational Health and Safety Institute—This intensive, interdisciplinary course of study is designed for professionals currently or soon-to-be practicing in the field of occupational health and safety. This year's Institute will be held September 9-20 on the Minneapolis campus. Fourteen individual, graduate level courses will be offered over the two-week period. Courses include: Administrative and Legal Issues in Workers' Compensation, Environmental and Occupational Toxicology, Ergonomics in Occupational Health, Hazardous Waste Management, Industrial Hygiene Engineering, Introduction to Occupational Safety, Occupational Health Seminar, Overview of Engineering Principles Related to Injury Prevention (Advanced Engineering Problems), Principles in Occupational Epidemiology, Principles of Management in Health Services Organizations, Risk Assessment and Risk Management, Theory and Practice of Occupational Health Nursing, Topics in Occupational Medicine, Ventilation Control of Occupational Hazards. These fourteen courses are accredited (Category I) through the American College of Preventive Medicine for the AMA Physicians Recognition Award; the American Board of Industrial Hygiene and approved for Nursing contact. For further information contact; Jeanne Ayers, Director, Program in Continuing Education, Midwest Center for Occupational Health and Safety, St. Paul-Ramsey Medical Center, 640 Jackson Street, St. Paul, MN 55101, 612/221-3992.

5205. APPLIED SOCIAL PSYCHOLOGY. (189003) (4 cr; limited to 20 students; prereq 3201 or grad student, or #; 1030-1130 MTWThF; EltH 225) Gonzales
Overview of field. Applications of social psychology research and theory to the criminal justice system, media, behavioral medicine, desegregation, advertising, victimology, juvenile delinquency, institutions, and energy conservation programs.

5901H. HONORS PROJECT. (388732) (4-8 cr; prereq sr, #; A-F only) Staff
Critical literature review or empirical study.

8519. PRACTICUM IN REHABILITATION COUNSELING. (586154) (3 cr; prereq 8503 or #; hrs ar) Staff
Counseling experience with physically and emotionally disabled clients in approved public and private rehabilitation agencies.

8560. INTERNSHIP IN COUNSELING PSYCHOLOGY. (386155) (1-12 cr; prereq #; hrs ar)

8620. PRACTICUM IN CLINICAL PSYCHOLOGY. (186156) (1-6 cr; prereq #; hrs ar)
Field experience in professional work in clinical settings.

8670. INTERNSHIP IN CLINICAL PSYCHOLOGY. (086157) (2-4 cr; prereq PhD candidate in clinical psychology program and consent of director of clinical psychology training program; hr ar)

8777. THESIS CREDITS: MASTERS. (989620) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (789621) (1-36 cr [max 11 cr per summer term])

8990. RESEARCH PROBLEMS. (689062) (prereq #; 1-6 cr). Staff

TEN-WEEK COURSE

3902. MAJOR PROJECT IN PSYCHOLOGY. (986670) (4 cr; prereq 1005, 3801, jr or sr psychology major; 1315-1500 Th; Elt N227)

SECOND TERM

1001. INTRODUCTION TO PSYCHOLOGY. (087082) (5 cr; 0800-1000 MTWThF; BlegH 5)
See First Term.

1005. INTRODUCTORY LABORATORY PSYCHOLOGY. (4 cr; each section limited to 24 students; 1004-1005†; prereq soph, 1004)
See 1004 First Term.

Sec 1, (687084) 0915-1215 MF, 0915-1115 W, EltH 50
Sec 2, (487085) 0915-1215 MF, 0915-1115 W, EltH 60
Sec 3, (287086) 1300-1600 MF, 1300-1500 W, EltH 60

3201. INTRODUCTION TO SOCIAL PSYCHOLOGY. (391999) (4 cr; prereq 1001; 1300-1400 MTWThF; SmithH 231) Fleming

Theories and research in social psychology. Effects upon the individual's attitudes and behavior of other persons, mass communications, and group membership.

3607. SURVEY OF CLINICAL INTERVENTION METHODS. (990427) (4 cr; limited to 30 students; prereq 3604 or 5604) 1145-1245 MTWThF, WullH 130)

Introduction to therapeutic procedures for dealing with abnormal behavior in children and adults with focus on the theory and philosophy underlying the particular schools of therapy rather than emphasizing specific methods of behavior change.

3801. INTRODUCTION TO MEASUREMENT AND STATISTICAL METHODS. (186593) (4 cr; prereq 1001; 1300-1400 MTWThF; EltH N119)

Quantification in research problems in psychology. Descriptive and inferential statistics, hypothesis testing, nonparametric statistics. Examples from various areas in psychology.

3970. DIRECTED STUDIES. (689000) (1-8 cr; prereq #, Δ, □)

3990. DIRECTED RESEARCH. (489001) (1-8 cr; prereq #, Δ, □)

5011. THEORIES OF LEARNING AND COGNITION. (190426) (4 cr; limited to 40 students; prereq 3011 or #; 1030-1130 MTWThF; EltH N119) Peterson
Major theories of learning and contemporary theories of information processing and cognition.

5014. PSYCHOLOGY OF HUMAN LEARNING AND MEMORY. (488835) (4 cr; prereq 1005 or 3011 or 3051 or #, except student in honors sequences, grads; 0830-1015 July 18-August 8 MTWThF; EltH N227) Fox, Edwall
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.

5054. PSYCHOLOGY OF LANGUAGE. (091603) (4 cr; prereq 3011, except for students in honors sequence and grad students; 1145-1245 MTWThF; EltH N227) Fletcher
Theories and experimental evidence in past and present conceptions of psychology of language.

5202. ATTITUDES AND SOCIAL BEHAVIOR. (689272) (4 cr; prereq 3201 or #; 1145-1245 MTWThF; EltH N119)
Survey of 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; attitude change.

5901H. HONORS PROJECT. (188733) (4-8 cr; prereq sr, #; A-F only) Staff
See First Term.

8519. PRACTICUM IN REHABILITATION COUNSELING. (987088) (3 cr; prereq 8503 or #; hrs ar) See First Term.

8560. INTERNSHIP IN COUNSELING PSYCHOLOGY. (987091) (1-12 cr; prereq #; hrs ar)

8620. PRACTICUM IN CLINICAL PSYCHOLOGY. (587093) (1-6 cr; prereq #; hrs ar)
See First Term.

8670. INTERNSHIP IN CLINICAL PSYCHOLOGY. (387094) (2-4 cr; prereq PhD candidate in clinical psychology program and consent of director of clinical psychology training program; hrs ar)

8777. THESIS CREDITS: MASTERS. (089866) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (689868) (1-36 cr [max 11 cr per summer term])

8990. RESEARCH PROBLEMS. (889061) (1-6 cr; prereq #) Staff

Public Affairs (PA)

230 Humphrey Center. 625-9505
Humphrey Institute of Public Affairs

FIRST TERM

8910. INDEPENDENT STUDY. (686517) (Cr ar; prereq #)
Individual reading or research project.

SPECIAL TERM: AUGUST 12-SEPTEMBER 13

Econ 3101. MICROECONOMIC THEORY. (4 cr; limited to 60 students; prereq Econ 1001, 1002, 1 qtr calculus, Public Affairs and Planning majors or #) Kudrle
Microeconomics with a public policy emphasis. For incoming graduate students in public affairs. Course is a prerequisite to the school's core sequence in policy analysis.

Sec 5, (986989) 0915-1015 MTWThF, HHHctr 25

5902. QUANT START. (XXXXXX) (2 cr; limited to 60 students; prereq Public Affairs and Planning majors or #; 1145-1245 MTWThF; HHHctr 25)
The goal of Quant Start is to prepare students to better understand the material in the core curriculum of quantitative analysis courses (Quantitative Methods I and II). The course is designed primarily for students who either: (1) have had virtually no exposure to statistical analysis, or (2) have not recently had a course in statistics and would like an opportunity to review this material. The course will review relevant mathematical functions, discuss common research designs, and introduce you to methods of summarizing and analyzing data.

SECOND TERM

8910. INDEPENDENT STUDY. (286519) (Cr ar; prereq #)
See First Term.

Public Health (PubH)

A302 Mayo. 624-6669
School of Public Health

FIRST TERM**#3001. PERSONAL AND COMMUNITY HEALTH.** (987513)

(3 cr, §3004, 5022, 5023, §GC 3114; meets with 3003, 3004, 5022, 5023; limited to 150 students; 1030-1245 MWF; MoosT 2650) Rothenberger
Fundamental principles of health conservation and disease prevention.

#3003. FUNDAMENTALS OF ALCOHOL AND DRUG ABUSE. (387385)

(2 cr, §3004, 5003, 5023; meets with 3001, 3004, 5003, 5023; limited to 150 students; 1030-1245 TTh; MoosT 2650) Rothenberger
Lecture, discussion, and readings on the scientific, sociocultural, and attitudinal aspects of alcohol and other drug abuse problems. Emphasis on incidence, prevalence, high risk populations, prevention, and intervention.

#3004. BASIC CONCEPTS IN PERSONAL AND COMMUNITY HEALTH. (787514)

(5 cr, §3001, §3003, 5003, 5022, 5023, §GC 3114; meets with 3001, 3003, 5003, 5022, 5023; limited to 186 students; 1030-1245 MTWThF; MoosT 2650) 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.

#3034. TOPICS IN ALCOHOL AND DRUG PROBLEMS. (189087)

(cr ar; limited to 10 students; prereq #) Staff
Selected readings in alcohol and drug use and problems, and evaluation of student's mastery of the assigned study.

#5003. FUNDAMENTALS OF ALCOHOL AND DRUG ABUSE. (189521)

(2 cr; §3003, 3004, 5023; meets with 3001, 3003, 3004, 5022, 5023; limited to 25 students; 1030-1245 TTh; MoosT 2650) Rothenberger
Lecture, discussion, and special readings on the scientific, socio-cultural, and attitudinal aspects of alcohol and other drug abuse problems, with special emphasis on incidence, prevalence, high risk populations, prevention, and intervention.

5004. FIELD INSTRUCTION IN PUBLIC HEALTH. (285029)

(Cr ar; prereq #)
Generalized, function-oriented or discipline-oriented community experience under academic and professional supervision. Emphasis on application of acquired knowledge and skills relevant to health issues and problems.

5005. TOPICS IN PUBLIC HEALTH. (587515)

(Cr ar; prereq advance proposal and #) Staff
Individualized, directed instruction. Selected readings in public health with discussion based on these readings.

5015. TOPICS IN INTERDISCIPLINARY STUDIES. (387516)

(Cr ar; prereq #) Staff
Individualized, directed instruction. Selected readings in interdisciplinary studies with discussion based on these readings.

#5022. PERSONAL AND COMMUNITY HEALTH. (989519)

(3 cr, §3001, 3004, 5023, GC 3114; meets with 3001, 3003, 3004, 5003, 5023; limited to 25 students; 1030-1245 MWF; MoosT 2650) Rothenberger
Fundamental principles of health conservation and disease prevention.

#5023. BASIC CONCEPTS IN PERSONAL AND COMMUNITY HEALTH. (289520)

(5 cr, §3001, 3003, 3004, 5003, 5022, GC 3114; meets with 3001, 3003, 3004, 5003, 5022; limited to 25 students; 1030-1245 MTWThF; MoosT 2650) Rothenberger
Introduction to scientific, sociocultural, and attitudinal aspects of communicable and degenerative diseases, environmental and occupational health hazards, and alcohol and drug problems. Emphasis on role of education in health conservation, disease control, and drug abuse.

5084. INTERNSHIP IN HEALTH EDUCATION PRACTICE I. (785598)

(Cr ar; prereq health educ maj and community health educ maj or #; S-N only) Staff
Supervised health education internship in a health or public health setting under academic and professional supervision. Emphasis on application of acquired health education knowledge and skills to relevant health issues and problems.

5085. INTERNSHIP IN HEALTH EDUCATION PRACTICE II. (585599)

(Cr ar; prereq health educ maj and community health educ maj or #; S-N only) Staff
See 5084.

5090. RESEARCH TOPICS IN HEALTH EDUCATION. (488169)

(2-8 cr; prereq health education student and community health educ maj or #) Staff
Scholarly review of health education research and experience in a selected area for a Plan B project.

5096. TOPICS: RESEARCH. (888170)

(Cr ar; prereq health education student and community health educ maj or #) Staff
Original research in or secondary analysis of data sets related to health education.

5097. TOPICS: SELECTED READINGS. (688171)

(Cr ar; prereq health science grad student) Staff
Study of a topic in health education not covered in available courses.

5150. TOPICS: ENVIRONMENTAL AND OCCUPATIONAL HEALTH. (Cr ar; prereq #)

Sec 1, (887522) Staff
Sec 2, (191907) McGovern
Sec 3, (091908) Olson

5154. PRACTICUM IN ENVIRONMENTAL AND OCCUPATIONAL HEALTH. (286598)

(1-6 cr; prereq env health maj; S-N only) Staff
Assignments to work with organizations with environmental health concerns under the joint supervision of a faculty adviser and staff of the organization.

5155. ISSUES IN ENVIRONMENTAL AND OCCUPATIONAL HEALTH—June 17-21. (490732)

(2 cr; Public Health or Grad Student or #; 0800-1015 MTWThF; Mayo 1250) Stauffer
The field, the current issues and the principles and methods of environmental and occupational health protection. Independent field visits to observe, review and analyze environmental health programs is required.

5166. EMPLOYEE HEALTH SERVICES AND COST CONTAINMENT. (891909)

(3 cr; §5592; prereq occupational health nursing stu; 1145-1515 TTh, Mayo 1250) McGovern
Examine trends in corporate health cost containment for implications regarding planning and financing of health care for employees and families. Analyze associated role development of occupational health nurse specialists.

5197. TOPICS: INJURY PREVENTIVE IN THE WORKPLACE, COMMUNITY, AND HOME. (191910)

(1-3 cr; §5597; prereq #) Gerberich
Selected projects: Students pursue projects relevant to injury problems.

5326. RESEARCH IN ANIMAL/HUMAN HEALTH. (985146)

(Cr ar; prereq VPH major Epi major or #) Staff
Research in the relationship of animal health to human health.

5330. EPIDEMIOLOGY I. (188988)

(4 cr; prereq basic courses in microbiology and statistics, preferably biostatistics; lec 1145-1340 MWF; lab 1400-1540 MW; MoosT 2530) Staff
Basic epidemiologic principles applicable to infectious and noninfectious disease; host-agent-environment complex; factors underlying spread of infectious disease; laboratory applications of statistical and epidemiologic methods.

#5391. INTRODUCTION TO BEHAVIOR EPIDEMIOLOGY. (189518)

(3 cr; limited to 20 students; prereq public health or health science student, professional in health-related discipline, grad student in social or behavioral science or #; 0915-1200 TTh; MoosT 2580) Pirie
Theoretical measurement and research issues in behavioral epidemiology. Lifespan patterns in the development, change, and maintenance of behaviors related to major chronic diseases. Examines risk-related behaviors from an epidemiological perspective using the concepts of prevalence, incidence, risk, and trends.

5450. BIOSTATISTICS I. (390416)

(4 cr; prereq Math 1111 or 1201; limited to 45 students; 0830-1000 MTWThF; MoosT 2581, 2585) Kjelsberg
Descriptive statistics; Gaussian probability models; point and interval estimation for means and proportions; hypothesis testing, including t-tests and chi-square tests; regression and correlation techniques; one way analysis of variance; applications in the health sciences using output from statistical packages.

5456. BIOSTATISTICS CONSULTING SEMINAR. (187517)

(Cr ar; prereq biostatistics students or #; A-F only) Böen, 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 BIOSTATISTICS. (087518)

(Cr ar; prereq #) Staff
Selected readings with discussion based on these readings.

5510. RESEARCH METHODOLOGY IN PUBLIC HEALTH NURSING. (1-3 cr; prereq #; S-N only) Staff

Guidance in development of study design, implementation, and analysis.

Sec 1, (187386) Aroskar
Sec 2, (087387) Berkseth
Sec 3, (887388) Ostwald
Sec 4, (687389) McGovern
Sec 5, (087390) Spradley
Sec 6, (887391) Froberg
Sec 7, (186599) Olson

5530. PUBLIC HEALTH NURSING PRACTICUM. (1-4 cr; prereq #; hr ar; S-N only) Staff

Guided application of education and/or management concepts and theories to the delivery of indirect public health nursing services in community-based settings.

Sec 1, (185145) Aroskar
Sec 2, (089396) Berkseth
Sec 3, (889397) Ostwald
Sec 4, (689398) McGovern
Sec 5, (489399) Spradley
Sec 6, (189400) Froberg
Sec 7, (089401) Olson

5575. TOPICS: PUBLIC HEALTH NURSING. (787531)

(Cr ar; prereq #) Staff
Individualized learning experiences arranged with Public Health Nursing faculty.

5614. FIELD EXPERIENCE IN MATERNAL AND CHILD HEALTH. (Cr ar; prereq MCH grad student; S-N only)

Field experiences are selected by the student to meet career goals.

Sec 1, (987527) Alexander
Sec 2, (585666) Berkseth
Sec 3, (385667) Brown
Sec 4, (185668) Froberg
Sec 5, (085669) Himes
Sec 6, (385670) Leland
Sec 7, (988838) Leonard
Sec 8, (190417) Lia-Hoagberg
Sec 9, (891912) Patterson
Sec 10, (691913) Story
Sec 11, (491914) ten Benschel

5621. MATERNAL AND CHILD HEALTH STUDENT/FACULTY SEMINAR. (591919)

(1-3 cr; prereq MCH grad student; S-N only)
Weekly discussion group allowing interaction between MCH students and faculty. MCH faculty members act as resource persons.

5648. TOPICS IN MATERNAL AND CHILD HEALTH. (790918)

(cr ar; prereq #)
New course offerings, selected readings or individualized directed instruction.

5649. MATERNAL AND CHILD HEALTH RESEARCH. (Cr ar; prereq #; S-N only) Staff

Selected readings in maternal and child health with discussion based on these readings.

- Sec 1, (787528) Alexander
- Sec 2, (088197) Berkseth
- Sec 3, (185671) Brown
- Sec 4, (085672) Froberg
- Sec 5, (885673) Himes
- Sec 6, (788839) Leland
- Sec 7, (090418) Leonard
- Sec 8, (889402) Lia-Hoagberg
- Sec 9, (291915) Patterson
- Sec 10, (191916) Story
- Sec 11, (991917) ten Benschel

5703. PUBLIC HEALTH ADMINISTRATION CLERKSHIP. (587529) (1-12 cr; prereq student in public health administration or #; S-N only)

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. (1-12 cr; prereq student in the public health administration or #; S-N only) Staff
Supervised field experience at a management level in selected community or public health agencies and institutions.

- Sec 1, (987530) Block
- Sec 2, (185713) Dornblaser
- Sec 3, (985714) Gordon
- Sec 4, (785715) Johnson
- Sec 5, (585716) Litman
- Sec 6, (385717) Ostwald
- Sec 7, (185718) Resnick
- Sec 8, (085719) Spradley
- Sec 9, (385720) Veninga
- Sec 10, (185721) Weckwerth

5707. INDEPENDENT STUDY: PUBLIC HEALTH ADMINISTRATION. (1-12 cr; prereq public health administration student or #; S-N only)
Independent study under tutorial guidance of selected problems and current issues in public health administration.

- Sec 1, (885141) Block
- Sec 2, (691605) Ostwald
- Sec 3, (991903) Spradley
- Sec 4, (791904) Veninga
- Sec 5, (591905) Staff

5723. ADMINISTRATIVE RESIDENCY. (888573) (Cr ar; prereq public health administration student or #; S-N only)
Ten months of field work in approved health care planning or operating organization, rotation through departments, solution of management problems, special projects. Preparation of thesis and formal reports.

5738. TOPICS: ADULT HEALTH. (391906) (1-3 cr; \$5513, prereq #; S-N only) Ostwald

5739. TOPICS: PUBLIC HEALTH ADMINISTRATION. (685142) (Cr ar; prereq student in public health administration or #) Staff
Selected readings with discussion based on these readings.

5758. HOSPITAL AND OTHER HEALTH CARE ORGANIZATIONS FINANCIAL STATEMENT ANALYSIS—June 17-July 5. (285144) (4 cr; prereq 5757; 1700-2200 TTh; MoosT 2520) 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.

5770. TOPICS: HOSPITAL AND HEALTH CARE ADMINISTRATION. (2 cr; prereq hospital administration student or #) Weckwerth, staff
Selected readings in hospital and health care with discussion based on these readings.

- Sec 1, (685139) 1315-1700 TTh, MoosT 2520 (June 17-July 5), Weckwerth, staff
- Sec 2, (688719) ar

5774. ADMINISTRATIVE AND PROFESSIONAL RELATIONSHIPS WITHIN THE AMBULATORY CARE FACILITY—July 8-19. (188742) (15 cr; prereq 5773; 0800-1700 MTWThF) Weckwerth, staff

A 12-month program of on-campus and independent study that includes periodic seminars and monthly sessions with clinical preceptors. Change theory, ethics, epidemiology, prepaid systems, legal aspects, planning.

5776. ADMINISTRATIVE AND PROFESSIONAL RELATIONSHIPS WITHIN THE HEALTH CARE FACILITY—July 8-19. (085140) (15 cr; prereq 5775; 0800-1700 MTWThF) Weckwerth, staff

A 12-month program consisting of an on-campus residential session 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.

5779. MANAGING MULTIPLE FORCES: INTERNAL AND EXTERNAL ASPECTS OF PATIENT CARE ADMINISTRATION—July 8-19. (287525) (15 cr; prereq present employment as administrator of patient care [director of nursing or equivalent], 5778 or #; 0800-1700 MTWThF) Weckwerth, Madden, staff

A 12-month program of an on-campus and independent study which begins with a two-week introductory residential session. 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.

5786. ADMINISTRATIVE AND PROFESSIONAL RELATIONSHIPS WITHIN MENTAL HEALTH RELATED ORGANIZATIONS—July 8-19. (985177) (15 cr; prereq 5785; 0800-1700 MTWThF) 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.

5906. FIELD EXPERIENCE: PUBLIC HEALTH NUTRITION. (890419) (1-8 cr; prereq public health nutrition maj; S-N only) Krinke
Placement in an approved agency with opportunity for experience in nutritional aspects of public health programs.

5909. TOPICS IN PUBLIC HEALTH NUTRITION. (1-12 cr; prereq public health nutrition student or #) Independent study in research topic related to public health nutrition.

- Sec 1, (489063) Brown
- Sec 2, (289064) Splett
- Sec 3, (189065) Krinke
- Sec 4, (989066) Buzzard
- Sec 5, (585781) Story
- Sec 6, (385782) Kushi
- Sec 7, (689403) Himes
- Sec 8, (292000) Staff

5933. NUTRITION: HEALTH/DISEASE RELATIONSHIPS—June 17-July 5. (486731) (3 cr; prereq normal and clinical nutrition, fundamentals of epidemiology, statistics, biochem; 1015-1200 MTWThF; Mayo 270) Kushi

Advanced course is designed for individuals with background in the principles of nutrition and epidemiology. Intent is to present a scientific approach to critical analysis of emerging issues and controversies in nutrition. The relationship of nutrition to heart disease, cancer, hypertension, diabetes, obesity and other disease will be discussed with an emphasis on current nutrition research and its application to public health practice.

8150. RESEARCH: ENVIRONMENTAL AND OCCUPATIONAL HEALTH. (687523) (1-6 cr; prereq #) Staff

Opportunities for qualified students to pursue research in the importance of environmental stresses on human health.

8191. RESEARCH: INJURY PREVENTION IN THE WORKPLACE, COMMUNITY, AND HOME. (091911) (3-6 cr; prereq #) Gerberich

8330. RESEARCH: EPIDEMIOLOGY. (487524) (1-8 cr; prereq epidemiology maj) Staff
Opportunities offered by the School of Public Health and various cooperating organizations for qualified students to pursue research work.

8332. READINGS IN EPIDEMIOLOGY. (789294) (1-4 cr; prereq Epi major and #) Staff
Readings in current research studies in epidemiology.

8400. SEMINAR IN BIOSTATISTICS. (887519) (Cr ar; prereq biostat major #) Staff

8449. TOPICS IN BIOSTATISTICS. (187520) (Cr ar; prereq 5450 #) Staff
Studies in special topics for advanced students.

8450. RESEARCH IN BIOSTATISTICS. (087521) (Cr ar) Staff
Opportunities for qualified students to pursue research work.

8763. EXTERNAL FORCES AFFECTING HEALTH SERVICES DELIVERY. (687392) (3 cr; prereq PhD students in hospital administration or health services research and policy or #; A-F only) Weckwerth

Development of concepts, models, and principles of financing, social policy making, organizing, and human resource development for health services delivery, including written papers, oral presentations, and cross examination.

8764. RESEARCH APPLICATIONS TO HEALTH SERVICES DELIVERY. (487393) (3 cr; prereq 8763; S-N only) Weckwerth

Tutorial guidance and supervised course development covering research design, application, analysis, and presentation in health services delivery.

8777. THESIS CREDITS: MASTERS. (589622) (1-16 cr [max 11 cr per summer term])

8782. RESEARCH PRACTICUM. (3 cr; prereq PhD student in hospital administration or health services research and policy or #) Litman, Weckwerth, Staff
Field experience in health care research. Supervised independent and team research on selected topics and problems in the field of health care.

- Sec 1, (785312) Litman, Weckwerth
- Sec 2, (287394) Weckwerth, Litman

8796. TOPICS IN HEALTH ECONOMICS—June 17-July 5. (187526) (3 cr; limited to 35 students; prereq hospital administration student or #; 0800-1205 MWF; MoosT 2-520) Dahl
General principles of health economics applied to current issues in health. Implications for health policy derived and discussed.

8888. THESIS CREDITS: DOCTORAL. (389623) (1-36 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register Once in Term I)

5746. CLERKSHIP. (485143) (3 cr for 10 wks; prereq 5744, hospital administration student) Miller, staff
Survey and solution of management problem within a local health services organization and preparation of formal report.

SECOND TERM

8304. TOPICS IN ALCOHOL AND DRUG PROBLEMS. (089088) (cr ar; limited to 10 students; prereq #) Staff
See First Term.

5004. FIELD INSTRUCTION IN PUBLIC HEALTH. (485031) (Cr ar; prereq #) Staff
See First Term.

5005. TOPICS IN PUBLIC HEALTH. (587532) (Cr ar; prereq advanced proposal and #; limited to 20 students) Staff
See First Term.

5015. TOPICS IN INTERDISCIPLINARY STUDIES. (387533) (Cr ar; prereq #) Staff
See First Term.

5084. INTERNSHIP IN HEALTH EDUCATION PRACTICE I. (285600) (Cr ar; prereq health educ maj and community health educ maj or #; S-N only) Staff
See First Term.

5085. INTERNSHIP IN HEALTH EDUCATION PRACTICE II. (185601) (Cr ar; prereq health educ maj and community health educ maj or #; S-N only) Staff
See First Term.

5090. RESEARCH TOPICS IN HEALTH EDUCATION. (187369) (2-8 cr; prereq health education student and community health educ maj or #) Staff
See First Term.

5096. TOPICS: RESEARCH. (587370) (Cr ar; prereq health education student and community health educ maj or #) Staff
See First Term.

5097. TOPICS: SELECTED READINGS. (288271) (Cr ar; limited to 5 students; prereq health science grad student) Staff
See First Term.

5150. TOPICS: ENVIRONMENTAL AND OCCUPATIONAL HEALTH. (Cr ar; prereq #)

- Sec 1, (687540) Staff
- Sec 2, (391923) McGovern
- Sec 3, (191924) Olson

See First Term.

5154. FIELD EXPERIENCE IN ENVIRONMENTAL AND OCCUPATIONAL HEALTH. (286603) (1-6 cr; prereq env health maj; S-N only) Staff
See First Term.

5197. TOPICS: INJURY PREVENTION IN THE WORKPLACE, COMMUNITY, AND HOME. (091925) (1-3 cr; \$5597; prereq #) Gerberich

5326. RESEARCH IN ANIMAL/HUMAN HEALTH. (087552) (Cr ar; prereq VPH maj or, Epi major or #) Staff
See First Term.

5456. BIOSTATISTICS CONSULTING SEMINAR. (087535) (Cr ar; prereq biostatistics major) Boen
See First Term.

5470. TOPICS IN BIOSTATISTICS. (887536) (Cr ar; prereq #) Staff
See First Term.

5510. RESEARCH METHODOLOGY IN PUBLIC HEALTH NURSING. (1-3 cr; prereq #; S-N only) Staff

- Sec 1, (387371) Aroskar
- Sec 2, (187372) Berkseth
- Sec 3, (886628) Ostwald
- Sec 4, (887374) McGovern
- Sec 5, (687375) Spradley
- Sec 6, (487376) Froberg
- Sec 7, (287377) Olson

See First Term.

5531. PUBLIC HEALTH NURSING PRACTICUM. (1-4 cr; prereq #; hr ar; S-N only)
See First Term.

- Sec 1, (187534) Aroskar
- Sec 2, (489404) Berkseth
- Sec 3, (289405) Ostwald
- Sec 4, (189406) McGovern
- Sec 5, (989407) Spradley
- Sec 6, (789408) Froberg
- Sec 7, (589409) Olson

5575. TOPICS: PUBLIC HEALTH NURSING. (187551) (Cr ar; prereq #) Staff
See First Term.

5614. FIELD EXPERIENCE IN MATERNAL AND CHILD HEALTH. (Cr ar; prereq MCH grad student; S-N only)
See First Term.

- Sec 1, (387547) Alexander
- Sec 2, (485675) Berkseth
- Sec 3, (285676) Brown
- Sec 4, (185677) Froberg
- Sec 5, (985678) Himes
- Sec 6, (785679) Leland
- Sec 7, (588843) Leonard
- Sec 8, (388844) Lia-Hoagberg
- Sec 9, (691927) Patterson
- Sec 10, (491928) Story
- Sec 11, (291929) ten Bensel

5621. MATERNAL AND CHILD HEALTH STUDENT/FACULTY SEMINAR. (791935) (1-3 cr; prereq MCH grad student; S-N only)
See First Term.

5648. TOPICS IN MATERNAL AND CHILD HEALTH. (991934) (cr ar; #)
See First Term.

5649. TOPICS: MATERNAL AND CHILD HEALTH. (Cr ar; prereq #)
See First Term.

- Sec 1, (187548) Alexander
- Sec 2, (888198) Berkseth
- Sec 3, (185680) Brown
- Sec 4, (985681) Froberg
- Sec 5, (785682) Himes
- Sec 6, (188845) Leland
- Sec 7, (088846) Lia-Hoagberg
- Sec 8, (989410) Leonard
- Sec 9, (691930) Patterson
- Sec 10, (491931) Story
- Sec 11, (291932) ten Bensel

5703. PUBLIC HEALTH ADMINISTRATION CLERKSHIP. (087549) (1-12 cr; prereq student in public health administration or #; S-N only)
See First Term.

5704. FIELD EXPERIENCE: PUBLIC HEALTH ADMINISTRATION. (1-12 cr; prereq student in public health administration or #; S-N only) Staff
See First Term.

- Sec 1, (387550) Block
- Sec 2, (885723) Dornblaser
- Sec 3, (685724) Gordon
- Sec 4, (485725) Johnson
- Sec 5, (285726) Litman
- Sec 6, (185727) Ostwald
- Sec 7, (985728) Resnick
- Sec 8, (785729) Spradley
- Sec 9, (185730) Veninga
- Sec 10, (985731) Weckwerth

5707. INDEPENDENT STUDY: PUBLIC HEALTH ADMINISTRATION. (1-12 cr; prereq public health administration student or #; S-N only)
See First Term.

- Sec 1, (585148) Block
- Sec 2, (291607) Ostwald
- Sec 3, (991920) Spradley
- Sec 4, (791921) Veninga
- Sec 5, (591922) Staff

5723. ADMINISTRATIVE RESIDENCY. (488575) (Cr ar; prereq public health administration student or #; S-N only)
See First Term.

5738. TOPICS: ADULT HEALTH. (191933) (1-3 cr; \$5513, prereq #; S-N only) Ostwald

5739. TOPICS: PUBLIC HEALTH ADMINISTRATION. (385149) (Cr ar; prereq student in public health administration or #) Staff
See First Term.

5770. TOPICS: HOSPITAL AND HEALTH CARE ADMINISTRATION. (885351) (Cr ar; prereq hospital administration student or #)
See First Term.

5773. MANAGEMENT AND ORGANIZATION WITHIN THE AMBULATORY CARE FACILITY—July 14-26. (988743)

(15 cr; prereq current employment as ambulatory care administrator and #; limited to 40 students; 0800-1700 MTWThF) Weckwerth, staff
A 12-month program of on-campus and independent study that includes periodic seminars and monthly sessions with clinical preceptors. Management, organizational behavior, problem solving, executive role, personnel management, financial management, governance, clinicians, productivity, and efficiency.

5775. MANAGEMENT AND ORGANIZATION IN HOSPITAL AND HEALTH CARE FACILITIES—July 14-26. (787545) (15 cr; prereq current employment as health care facility administrator or #; limited to 40 students; 0800-1700 MTWThF) Weckwerth, staff

A 12-month program consisting of an on-campus residential session 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.

5777. EXTERNAL FORCES AFFECTING HEALTH CARE DELIVERY—August 5-16. (587546) (25 cr; prereq 5774, 5776, 5786, 5788 or #; 0800-1700 MTWThF) Weckwerth

A 10-month program consisting of an on-campus residential session and off-campus independent study that includes 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.

5778. PATIENT CARE MANAGEMENT AND ORGANIZATION WITHIN THE HOSPITAL AND HEALTH CARE ORGANIZATION—July 14-26. (785147) (15 cr; prereq present employment as administrator of patient care [director of nursing or equivalent] or #; limited to 40 students; 0800-1700 MTWThF) Madden, staff
A 12-month program consisting of an on-campus residential session in the summer, one week in March, and independent study that includes periodic seminars and monthly sessions with clinical preceptors. Management, organizational behavior, problem solving, executive role, personnel management, financial management, governance, labor relations, and patient care services.

5785. MANAGEMENT AND ORGANIZATION WITHIN MENTAL HEALTH RELATED ORGANIZATIONS—July 14-26. (785178) (15 cr; prereq current employment as mental health administrator or #; 0800-1700 MTWThF) 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.

5906. FIELD EXPERIENCE: PUBLIC HEALTH NUTRITION. (587482) (1-8 cr; prereq public health nutrition maj; S-N only) Krinke
Placement in an approved agency with opportunity for experience in nutritional aspects of public health programs.

5909. TOPICS IN PUBLIC HEALTH NUTRITION. (1-12 cr; prereq public health nutrition student or #) See First Term.

- Sec 1, (688574) Brown
- Sec 2, (585683) Splett
- Sec 3, (385684) Krinke
- Sec 4, (185685) Buzzard
- Sec 5, (085686) Story
- Sec 6, (885687) Kushi
- Sec 7, (088989) Himes
- Sec 8, (192001) Staff

5936. MANAGEMENT AND ORGANIZATION OF NUTRITION PROGRAMS—July 14-26. (685688) (25 cr; prereq present employment in nutrition mgmt program or #; A-F only) Splett

A 12-month program consisting of on-campus residential (two weeks) and off-campus independent study that includes a fall seminar and monthly classes under program preceptors. Theoretical and conceptual basis for management and its application to nutrition program delivery. Topics include management process, organizational behavior, nutrition executive, problem solving, computers, financial management, human resource management, quality assurance, nutrition service delivery and communications.

Workshops for Teachers...

RECREATION, PARK AND LEISURE (Rec)

- 5460 Foundations of Sport Management (July 18-August 2)
 5900 Workshop: Contemporary Issues in Leisure Services: Legal Aspects of Sport and Physical Activity

5937. FORCES AFFECTING NUTRITION PROGRAM ADMINISTRATION—July 8-19. (485689) (15 cr; prereq 5936; A-F only) Splett
 A 12-month program consisting of on-campus residential (two weeks) and off-campus independent study that includes a spring seminar and monthly classes under program preceptors. Examines nutrition programs as a part of the health care system. Food and nutrition policy, legislation, management of change, marketing, evaluation, finance, strategic planning, grantsmanship, public relations and applied nutrition research are addressed.

8150. RESEARCH: ENVIRONMENTAL AND OCCUPATIONAL HEALTH. (487541) (1-6 cr; prereq #) Staff

8191. RESEARCH: INJURY PREVENTION IN THE WORKPLACE, COMMUNITY, AND HOME. (891926) (3-6 cr; prereq #) Gerberich

8330. RESEARCH: EPIDEMIOLOGY. (287542) (1-8 cr; prereq epidemiology maj) Staff
 See First Term.

8332. READINGS IN EPIDEMIOLOGY. (889089) (1-4 cr; limited to 10 students; prereq Epi major and #) Staff
 See First Term.

8400. SEMINAR IN BIOSTATISTICS. (687537) (Cr ar; prereq biostat maj or #) Staff

8449. TOPICS IN BIOSTATISTICS. (487538) (Cr ar; prereq 5450 and #) Staff
 See First Term.

8450. RESEARCH IN BIOSTATISTICS. (287539) (Cr ar) Staff
 See First Term.

8763. EXTERNAL FORCES AFFECTING HEALTH SERVICES DELIVERY. (187378) (3 cr; prereq PhD students in hospital administration or health services research and policy or #; A-F only) Weckwerth
 See First Term.

8764. RESEARCH APPLICATIONS TO HEALTH SERVICES DELIVERY. (987379) (3 cr; prereq 8763; S-N only) Weckwerth
 See First Term.

8777. THESIS CREDITS: MASTERS. (889870) (1-16 cr [max 11 cr per summer term])

8782. RESEARCH PRACTICUM. (3 cr; prereq PhD student in hospital administration or health services research and policy or #) Litman, Weckwerth, Staff
 See First Term.

Sec 1, (185369) Litman, Weckwerth
 Sec 2, (287380) Weckwerth, Litman

8888. THESIS CREDITS: DOCTORAL. (489872) (1-36 cr [max 11 cr per summer term])

R

Radiology (Rad)

2-349 UMHC. 626-5529
 Medical School

FIRST TERM

8777. THESIS CREDITS: MASTERS. (189624) (1-16 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (189874) (1-16 cr [max 11 cr per summer term])

Recreation, Park, and Leisure Studies (Rec)

203 Cooke Hall. 625-5300
 (School of Physical Education and Recreation)
 College of Education

FIRST TERM

3700. SENIOR INTERNSHIP. (186439) (1-15 cr; prereq sr, recreation major or minor, Δ; hrs ar; S-N only) Schultz
 Supervised experiences in selected agencies.

5630. PRACTICUM: THERAPEUTIC RECREATION. (486440) (3-9 cr; prereq recreation MEd or graduate student; hrs ar; S-N only) Schultz
 Supervised experiences in program operation; administrative and supervisory duties.

5640. PRACTICUM: LEISURE SERVICES. (286441) (3-9 cr; prereq recreation MEd or graduate student; hrs ar; S-N only) Schultz
 Supervised experiences in program operation; administrative and supervisory duties.

5900. WORKSHOP: CONTEMPORARY ISSUES IN LEISURE SERVICES: Legal Aspects of Sport and Physical Activity. (285483) (1-12 cr [max 12 cr]; prereq Δ; 0915-1015 MTWThF; Cooke Hall 206; A-F only) Schultz
 Contemporary issues emphasizing administrative and supervisory functions for recreation and allied professionals. This offering for 3 credits. See box on page 114.

5983. READINGS: RECREATION. (186442) (1-3 cr; prereq MEd or grad student or Δ; hrs ar; A-F only) Schultz
 Independent study under tutorial guidance.

8777. THESIS CREDITS: MASTERS. (089625) (1-16 cr [max 11 cr per summer term])

8981. RESEARCH PROBLEMS. (490312) (Cr ar; prereq 8980 or #; S-N only) Schultz.
 Individual problems.

SECOND TERM

3700. SENIOR INTERNSHIP. (286780) (1-15 cr; prereq sr, recreation major or minor, Δ; hrs ar; S-N only) Schleien
 See First Term.

3900. DIRECTED STUDY. (989262) (3 cr [max 9 cr]; S-N optional; prereq recreation majors only and Δ) Schleien
 Self-directed study preceded by classroom study and possession of basic competence.

5460. FOUNDATIONS OF SPORT MANAGEMENT—July 18-August 2. (291249) (3 cr, \$PE 5460; prereq Rec or Kin major or #; 0915-1130 MTWThF; Cooke Hall 206; A-F only) Kane
 Principles of sport management and fitness including theories and techniques related to the marketing, administration, and management of sport enterprises. Organizational theory and policy, with practical examples of sport management skills and strategies. Meets with Kin 5460.

5630. PRACTICUM: THERAPEUTIC RECREATION. (186781) (3-9 cr; prereq recreation MEd or graduate student; hrs ar; S-N only) Schleien
 See First Term.

5640. PRACTICUM: LEISURE SERVICES. (986782) (3-9 cr; prereq recreation MEd or graduate student; hrs ar; S-N only) Schleien
 See First Term.

5981. PROBLEMS. (789263) (cr ar; prereq MEd or MA student or Δ; A-F only) Schleien
 Focus on conduct of recreation programs.

5983. READINGS: RECREATION. (786783) (1-3 cr; prereq MEd or grad student or Δ; hrs ar; A-F only) Schleien
 See First Term.

8777. THESIS CREDITS: MASTERS. (789876) (1-16 cr [max 11 cr per summer term])

8981. RESEARCH PROBLEMS. (088796) (cr ar; prereq 8980 or #; S-N only) Schleien
 Individual problems.

Religious Studies (RelS)

314 Ford Hall. 624-5553
 College of Liberal Arts
 (See also Middle Eastern Studies and South and Southwest Asian Studies)

FIRST TERM

1001. INTRODUCTION TO RELIGIOUS STUDIES. (589264) (4 cr, 1145-1400 TTh; FolH 306) Zahavy
 Individual and social religious behavior; methodologies for studying it; emergence of modern religious studies. Theistic Western religions (Judaism, Christianity, Islam) and nontheistic Buddhism.

1031. INTRODUCTION TO THE RELIGIONS OF SOUTH ASIA. (191650) (4 cr, \$SoA 1504; 0900-1130 TTh; FolH 138) Malandra
 Introduction to Hinduism, Buddhism, and Jainism. Meets with SoAs 1504.

1034. INTRODUCTION TO JUDAISM. (389265) (4 cr; \$J034, \$JwSt 1034, \$JwSt 3034; 0915-1130 TTh; NichH 213) Zahavy
 Concepts, movements, and institutions in the development of classical Judaism, as manifested in the literature and festivals of the Jewish people from Second Commonwealth times to the present. Meets with 3034 and JwSt 1034, 3034.

3034. INTRODUCTION TO JUDAISM. (091651) (4 cr, \$I034, \$JwSt 1034, \$JwSt 3034; 0915-1130 TTh; NichH 213) Zahavy
 Additional written assignments and reading. Meets with 1034 and JwSt 1034, 3034.

3213. THE QUR'AN AS LITERATURE. (592004) (4 cr; limited to 15 students; \$Arab 3213, MidE 3213; 1115-1315 TTh, BlegH 415) AshShareef
 Texts and commentaries in translation. Knowledge of Arabic not required. Meets with Arab 3213 and MidE 3213.

3501. ANCIENT ISRAEL. (190460) (4 cr; \$ANE 3501; 0915-1145 MW; NichH 209) Paradise
 Study of Biblical civilization which places Israel in the cultural, historical, and religious milieu of its origins. Impact of Egypt, Canaan, and Mesopotamia on the Ancient Hebrews; the Bible's indebtedness to pagan literature, religion, and law; unique aspects of Israelite civilization. Meets concurrently with ANE 3501.

8777. THESIS CREDITS: MASTERS. (889626) (1-16 cr [max 11 cr per summer term])

SECOND TERM

1036. THE RELIGION OF ISLAM. (690776) (4 cr, \$Mid 1536; 1000-1230 TTh; FolH 326) Barker
 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; Black Muslim component; Reformist movements and change. Activism and Revivalism in Muslim world today. Meets with MidE 1536.

8777. THESIS CREDITS: MASTERS. (189879) (1-16 cr [max 11 cr per summer term])

Rhetoric (Rhet)

202 Haecker Hall, St. Paul. 624-3445
College of Agriculture

FIRST TERM

1104. LIBRARY RESEARCH METHODS. (188859) (1 cr; limited to 30 students; S-N only; microcomputer card required; lab 1030-1130 T; CentLib 2) Richardson
On-site and interactive video instruction in information retrieval techniques designed to strengthen skills in using the library. Students work independently but must satisfactorily complete all exercises and problem-solving assignments to receive credit. Students must attend an initial orientation session of one hour. Computer assisted instruction.

1151. WRITING IN YOUR MAJOR. (487328) (4 cr; limited to 18 students; computer assisted instruction; prereq soph, completion of fr communication requirements, 1104 [or for College of Natural Resources student only; FR 1104 or ForP 1104 or FW 1104]; 0915-1100 MWF; HckrH 302; **) Walzer
Students investigate and write on subjects related to their majors. Emphasis on gathering, evaluating, synthesizing, and summarizing information; adapting it for various audiences. Assignments such as literature review, abstract, fact sheet, instructions, and feature article.

1222. PUBLIC SPEAKING. (4 cr; each section limited to 18 students; prereq completion of fr communication requirements;) Sec 1, (485398) 1030-1230 TWTh, CentLib 4, Bennett
Sec 2, (492013) 1030-1230 MTW, CentLib 6

A practical course in the fundamentals of effective speechmaking. Emphasis on researching and organizing a speech and communicating with an audience.

3374. SPECIAL PROBLEMS IN HUMANITIES. (388262) (1-2 cr; prereq #, Δ) Ferguson, Scanlan, Walzer, others
Primarily for supervised reading and research on topics not covered in regularly scheduled humanities offerings.

3562. WRITING IN YOUR PROFESSION. (4 cr; each section limited to 20 students; prereq jr or sr, completion of fr communication requirements, 1151; A-F only; **) Projects in writing professional reports. Analysis of audience and situation; writing to meet the needs of particular readers. Assignments such as instructions, feasibility report, proposal, memorandum, letter of application, and resume.

Sec 1, (285399) 0800-0900
MTWThF, HckrH 111, Ferguson
Sec 2, (188165) 0915-1015
MTWThF, CentLib 6, Scanlan

5100. TECHNICAL COMMUNICATION: SPECIAL PROBLEMS. (385281) (Cr ar; prereq #, Δ) McDowell, others
Designed for supervised reading, research, and work on advanced technical communication projects not covered in regularly scheduled courses.

5180. INTERNSHIP IN TECHNICAL COMMUNICATION. (185282) (2-6 cr; prereq #, Δ) McDowell, others
Designed to give technical communication majors on-the-job experience at the University or in industry or government.

8180. DESIGN PROJECT. (189056) (8 cr req, 4 cr per qtr; prereq MS student in tech comm plan B) Mikelonis, others
Extended problem-solving situation in business, government, or industry in which student acts as consultant to explore a problem, identify possible solutions, introduce solution, and apply it. Scheduled workshops provide guidance, support, and research findings.

8777. THESIS CREDITS: MASTERS. (689627) (1-16 cr [max 11 cr per summer term])

SECOND TERM

1104. LIBRARY RESEARCH METHODS. (588860) (1 cr; S-N only; limited to 30 students microcomputer card required; 1030-1130 T; CentLib 2; **) Richardson
See First Term.

1222. PUBLIC SPEAKING. (889268) (4 cr; limited to 18 students; prereq completion of fr communication requirements; 1030-1230 TWTh, CentLib 4) Bennett
See First Term.

3266. COMMUNICATION, DISCUSSION IN SMALL GROUP DECISION-MAKING. (091388) (4 cr; limited to 20 students; prereq 1222 or #; 0915-1130 TWTh; CentLib 6) Baumgartner-Brady
Role of communication techniques in the small group decision-making process. Emphasis on problem-solving discussion requiring some kind of formal outcome.

3374. SPECIAL PROBLEMS IN HUMANITIES. (487331) (1-2 cr; prereq #, Δ) Horberg, others
See First Term.

3562. WRITING IN YOUR PROFESSION. (4 cr; prereq jr or sr; **) completion of fr communication requirements, 1151) Sec 1, (588163) limited to 20 students, 0915-1100 MTW, HckrH 312 Plomondon
Sec 2, (388164) limited to 20 students, 1030-1130 MTWThF, HckrH 111, Horberg

5100. TECHNICAL COMMUNICATION: SPECIAL PROBLEMS. (085283) (Cr ar; prereq #, Δ) Schuelke, others
See First Term.

5170. MANAGERIAL COMMUNICATIONS. (191390) (4 cr; limited to 30 students; prereq freshman communication or equiv or grad status; 0930-1145 MWF; HckrH 100) Wharton
Analysis of manager's position in an organizational communication network. Focus on the possible forms, contexts, and functions of manager's communication. Assessing and developing personal competence and confidence in managerial communication. Lectures, discussions, readings, experiential exercises, and field research.

5180. INTERNSHIP IN TECHNICAL COMMUNICATION. (885284) (2-6 cr; prereq #, Δ) McDowell, others
See First Term.

8180. DESIGN PROJECT. (089057) (8 cr req, 4 cr per qtr; prereq MS students in tech comm plan B) Mikelonis
See First Term.

8777. THESIS CREDITS: MASTERS. (389881) (1-16 cr [max 11 cr per summer term])

Russian (Russ)

253 Elliott Hall. 625-9870
(Russian and East European Studies)
College of Liberal Arts

FIRST TERM

8777. THESIS CREDITS: MASTERS. (489628) (1-16 cr [max 11 cr per summer term])

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

A concentrated program of study permitting students to earn 15 hours of credit for the beginning course and 12 hours of credit for the intermediate course; each equivalent of a full year's sequence in language. **Students must enroll in all three courses and may not enroll in other summer courses.** Prospective students should talk to an adviser before registering for intensive language courses.

1101-1102-1103. BEGINNING RUSSIAN. (15 cr for both terms; each section limited to 60 students; 0800-1100 MTWThF; AmundH 116) staff
Speaking, reading, and understanding Russian through acquisition of basic patterns of speech.

1101, Sec 5, (586249) June 11-July 3, 5 cr
1102, Sec 5, (986250) July 5-29, 5 cr
1103, Sec 5, (786251) July 30-August 21, 5 cr

1104-1105-1106. INTERMEDIATE RUSSIAN. (12 cr for both terms; 0800-1100 MTThF; NichH 109)
Expansion of experience in speaking, reading, and understanding Russian; reading contemporary texts.

1104, Sec 5, (388990) June 11-July 3, 4 cr
1105, Sec 5, (188991) July 5-29, 4 cr
1106, Sec 5, (088992) July 30-August 21, 4 cr

SECOND TERM

8777. THESIS CREDITS: MASTERS. (889884) (1-16 cr [max 11 cr per summer term])

SECONDARY EDUCATION (SeEd)

- 5145 Classroom Management (August 5-21)
- 5151 School Based Projects in Social Studies Education
- 5153 New Perspectives in the Social Studies: Multicultural Gender-Fair Curriculum (July 19-August 16)
- 5185 School and Professional Based Experiences in Second Languages and Cultures
- 5227 Teaching about the Newspaper in the Classroom (June 17-July 2)
- 5322 Teaching Writing (June 11-July 9)
- 5323 Diagnosing and Assessing Writing in Secondary Schools (June 11-July 9)
- 5344 Teaching Reading in Content Areas (July 22-August 14)
- 5350 Current Developments in English Education (July 23-August 15)
- 5390 Current Developments in Secondary School Science Teaching (June 17-July 2)
- 5395 School Based Projects in Science Education
- 5404 Language, Culture, and Education
- 5659 School-Related Projects in Language Arts

SOCIAL AND PHILOSOPHICAL FOUNDATIONS OF EDUCATION (SPFE) *For course listings see EdPA*

SOCIAL WORK (SW)

- 5010 Seminar: Special Topics
 - Sec 1 Physical Abuse of Women (June 17-21)
 - Sec 2 Social Work Practice with the Elderly (June 24-28)
 - Sec 3 Issues and Interventions in Child Sexual Abuse (July 8-12)

5186. ALTERNATIVES IN SECOND LANGUAGE EDUCATION. (590429) (3 cr; 0915-1245 MW; PeikH 215; A-F only) Jorstad
 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.

5227. TEACHING ABOUT THE NEWSPAPER IN THE CLASSROOM—June 17-July 2. (790431) (1-3 cr [max 4 cr], \$Elem 5227; limited to 10 students; 1300-1630 MTWThF; ClaOff B45; A-F only) Mackey
 Institution of the newspaper; articulation of a series of useful instructional strategies, curriculum development techniques, and teaching materials. This 3 credit offering meets with Elem 5227.

5322. TEACHING WRITING—June 11-July 9. (191616) (3 cr; limited to 25 students; 0915-1030 MTWTh; PeikH 40; A-F only) Beach
 Historical and contemporary context; analysis of composing processes; pre-writing and revision; audience analysis; comprehension and coherence; selected problems in assigning and evaluating writing. Concurrent registration in SeEd 5323 is recommended.

5323. DIAGNOSING AND ASSESSING WRITING IN SECONDARY SCHOOL—June 11-July 9. (091617) (3 cr; limited to 25 students; education jr or sr or grad student; 1100-1215 MTWTh; PeikH 40; A-F only) Beach
 Application of theory and research on composition instruction to analysis of diagnosis of writing samples; evaluation of writing using written or conference feedback; large group writing assessment using different rating scales; development of assignments and curriculum materials for writing instruction. Concurrent registration in SeEd 5322 recommended.

5351. DIRECTED STUDY. (Cr ar [max 6 cr]; prereq education or graduate student; S-N optional)
 Sec 21, (690437) Mackey
 Sec 22, (188174) Jorstad
 Sec 23, (288156) Lange
 Sec 25, (591614) Avery
 Sec 26, (392005) Beach
 Sec 27, (391615) Piché

5390. CURRENT DEVELOPMENTS IN SECONDARY SCHOOL SCIENCE TEACHING—June 17-July 2. (891618) (3 cr; prereq 3356, 3357 or equiv undergrad courses or exper in tchg science; 0830-1115 MTWThF; PeikH 365; A-F only) Finley
 Curricula, methods, materials of instruction, evaluation,

5395. SCHOOL BASED PROJECTS IN SCIENCE EDUCATION. (1-12 cr [max 12 cr]; prereq Med student in science education; A-F only)
 Individual or group work on curricular, instructional, or evaluation problems and projects applicable to school situations.

Sec 22, (691619) Finley

5404. LANGUAGE, CULTURE, AND EDUCATION. (088572) (4 cr, \$Spch 5404; limited to 20 students; 0900-1145 TTh; PeikH 48; A-F only) Piche
 Psychological and social-psychological perspectives for the study of language-communication; dimensions of language variation (dialects, codes, registers); implications for program development and instructional practices. Meets with Spch 5404.

5659. SCHOOL-RELATED PROJECTS IN LANGUAGE ARTS. (1-6 cr [max 6 cr]; A-F only; prereq MEd student in English education)
 Individual or group work on curricular, instructional, or evaluation problems and projects applicable to school situations.

Sec 22, (489273) Piche
 Sec 23, (190434) Kegler
 Sec 24, (091620) Beach

8801. PROBLEMS: TEACHING SOCIAL STUDIES. (3-9 cr; prereq 5150, 5152, 5156, 8104 or #; hrs ar)
 Individual research.

Sec 21, (391629) Mackey
 Sec 22, (891621) Avery

8871. PROBLEMS: CURRICULUM CONSTRUCTION. (Cr and hrs ar; prereq #)

Sec 22, (691622) Finley

8894. PROBLEMS: SECOND LANGUAGES AND CULTURES EDUCATION. (Cr ar [max 8 cr])
 Individual research.

Sec 21, (688154) Jorstad
 Sec 22, (988158) Lange

8895. READINGS IN ENGLISH EDUCATION. (1-3 cr)
 Readings in secondary school English curriculum and instruction.

Sec 22, (289274) Piche
 Sec 23, (090435) Kegler
 Sec 24, (291624) Beach

8896. PROBLEMS: TEACHING ENGLISH. (Cr and hrs ar)

Sec 22, (189275) Piche
 Sec 23, (890436) Kegler
 Sec 24, (191625) Beach

8898. READINGS IN SECOND LANGUAGES AND CULTURES EDUCATION. (1-3 cr)
 Readings in development, research, curriculum, instruction, evaluation, culture, teacher education, as needed by the student.

Sec 21, (488155) Jorstad
 Sec 22, (788159) Lange

S

Scandinavian (Scan)

200 Folwell Hall. 625-9887
 (Scandinavian Studies)
 College of Liberal Arts

FIRST TERM

3601. GREAT LITERARY WORKS OF SCANDINAVIA. (091391) (4 cr; limited to 25 students; 0915-1030 MTWTh; CivMinE 213) Mishler
 Major literary works from the Middle Ages to the present.

3970. DIRECTED STUDIES. (287329) (1-5 cr; prereq #, Δ, □)

5970. DIRECTED STUDIES. (687330) (1-15 cr per qtr; prereq #, Δ, CLA approval)

8888. THESIS CREDITS: DOCTORAL. (189633) (1-36 cr [max 11 cr per summer term])

SECOND TERM

3970. DIRECTED STUDIES. (686520) (1-5 cr; prereq #, Δ, □)

5970. DIRECTED STUDIES. (486521) (1-15 cr; prereq #, Δ, CLA approval)

8888. THESIS CREDITS: DOCTORAL. (189891) (1-36 cr [max 11 cr per summer term])

Secondary Education (SeEd)

125 Peik Hall. 625-6372
 (Curriculum and Instruction)
 College of Education

FIRST TERM

3600. STUDENT TEACHING. (585473) (Cr ar; prereq Δ; S-N only) 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]; A-F only)
 Opportunity to work individually or in teams on curricular, instructional, or evaluation problems within the school.

Sec 21, (791627) Mackey
 Sec 22, (991609) Avery

5185. SCHOOL AND PROFESSIONAL BASED EXPERIENCES IN SECOND LANGUAGES AND CULTURES. (1-12 cr [max 12 cr]; prereq MEd students; A-F only)
 Opportunity for teachers to work together on curricular, instructional, or evaluation problems; internship experiences; participation in professional activities.

Sec 21, (888153) Jorstad
 Sec 22, (188157) Lange

¹Student teaching is open only to students in regular degree programs of the College of Education. Application must be made by May 1. Forms and instructions are available in 203 Burton Hall.

SECOND TERM

5145. CLASSROOM

MANAGEMENT—August 5-21. (990444) (3 cr; §Elem 5145; prereq secondary tchg or admin exper or #; 0800-1015 MTWThF; PeikH 155; A-F only) Bruning
For teachers, administrators, and support staff working in secondary school programs; focus on management of student behavior, of instruction as it relates to student behavior, and of teacher organizational tasks within the classroom.

5151. SCHOOL-BASED PROJECTS IN SOCIAL STUDIES EDUCATION.

(591645) (1-12 cr [max 12 cr]; limited to 8 students; A-F only) Avery
See First Term.

5153. NEW PERSPECTIVES IN SOCIAL STUDIES: Multicultural Gender-Fair Curriculum—July 19-August 16.

(190443) (1-3 cr [max 12 cr]; limited to 15 students; concurrent registration in SeEd 5351 sec 27 required; 1145-1515 MTWThF; PeikH 155; A-F only) Avery, Walker
Offered for teachers and administrators planning development and implementation of multicultural gender-fair perspective in elementary and secondary classrooms. Explores individual teacher goals and professional issues related to multicultural gender-fair curricula, and the acquisition of resources and teaching strategies that allow for successful exploration of new perspectives. (A follow-up course, to allow implementation of goals and directions that teachers will have developed for their own classrooms, is tentatively planned for next winter.) This offering for 3 credits. Meets with Elem 5101 and SeEd 5351 sec 27.

5185. SCHOOL AND PROFESSIONAL BASED EXPERIENCES IN SECOND LANGUAGES AND CULTURES.

(1-12 cr [max 12 cr]; prereq MEd students; A-F only)
See First Term.

Sec 22, (888797) Lange
Sec 23, (091634) Walker

5344. TEACHING READING IN CONTENT AREAS—July 22-August 14.

(891635) (3 cr; limited to 35 students; 0900-1245 MW; off campus location to be announced; A-F only) Graves
Methods of accommodating student abilities and facilitating reading in regular content classes.

5350. CURRENT DEVELOPMENTS IN ENGLISH EDUCATION—July 23-August 15.

(491637) (1-6 cr [max 12 cr]; limited to 30 students; 0900-1245 TH; off campus location to be announced; A-F only) Graves
New instructional approaches, new materials, current issues, and problems in English and language arts education. Each offering will focus on a single topic or issue. This offering for 3 credits.

5351. DIRECTED STUDY.

(Cr ar [max 6 cr]; S-N optional; prereq education or graduate student)
Sec 21, (490441) Bruning
Sec 24, (089284) Lange
Sec 26, (690440) Avery
Sec 27, (191639) July 19-August 16; limited to 30 students registered in 5153 or Elem 5101 only, this offering for 3 credits, Avery, Walker
Sec 28, (192006) Graves

5659. SCHOOL-RELATED PROJECTS IN LANGUAGE ARTS.

(1-6 cr [max 6 cr]; prereq MEd student in English education; A-F only)

See First Term.
Sec 22, (790445) Kegler
Sec 23, (491640) Graves

8801. PROBLEMS: TEACHING

SOCIAL STUDIES. (290442) (3-9 cr; prereq 5150, 5152, 5156, 8104 or #) Avery
See First Term.

8894. PROBLEMS: SECOND LANGUAGES AND CULTURES EDUCATION.

(Cr ar [max 8 cr])
See First Term.
Sec 22, (688798) Lange
Sec 23, (291641) Walker

8895. READINGS IN ENGLISH EDUCATION.

(1-3 cr)
Sec 22, (590446) Kegler
Sec 23, (191642) Graves

8896. PROBLEMS: TEACHING ENGLISH.

(Cr and hrs ar)
Sec 22, (390447) Kegler
Sec 23, (991643) Graves

8898. READINGS IN SECOND LANGUAGES AND CULTURES EDUCATION.

(1-3 cr)
See First Term.
Sec 22, (488799) Lange
Sec 23, (791644) Walker

Small Animal Clinical Sciences (SACS)

C-339 *Veterinary Hospital, St. Paul.*
625-7744
College of Veterinary Medicine

FIRST TERM

5000. CLINICAL SMALL ANIMAL MEDICINE. (386611) (6 cr; prereq #; S-N only; arranged MTWThFS; VetTchHo) Hardy, Klausner, Polzin, S. Johnston, Osborne, Ogburn, others
Laboratories devoted to the application of principles and techniques of the basic and clinical medical sciences to the diagnosis, prognosis, treatment, prevention, and eradication of disease in companion animals.

5002. CLINICAL SMALL ANIMAL SURGERY. (186612) (8 cr; prereq #; S-N only; arranged MTWThFS; VetTchHo) Wallace, Caywood, Lipowitz, others
The application of principles and techniques of the basic and surgical sciences used in the University Veterinary Teaching Hospitals for the diagnosis, prognosis, and surgical management of certain diseases of the body systems in companion animals.

5004. CLINICAL SMALL ANIMAL SPECIALTIES.

(686615) (6 cr; prereq #; S-N only; arranged MTWThFS; VetTchHo) Bistner, McKeever, others
Laboratories devoted to the application of principles and techniques of the basic and clinical medical sciences with emphasis in cardiology, dermatology, and ophthalmology.

5006. CLINICAL ANESTHESIOLOGY.

(086613) (4 cr; prereq #; S-N only; arranged MTWThFS; VetTchHo) E. Robinson, Raffe, others
Laboratories devoted to the application of principles and techniques of the basic and clinical medical sciences in anesthesiology.

5008. CLINICAL RADIOLOGY.

(886614) (4 cr; prereq #; S-N only; arranged MTWThFS; VetTchHo) Feeney, G. Johnston, Walter
Laboratories devoted to the application of principles and techniques of the basic and clinical medical sciences in radiology.

5257. A CLINICIAN'S ANALYSIS OF URINALYSIS—June 17-July 15.

(087454) (1 cr; prereq completion of first 3 years of veterinary curriculum; A-F only; 1300-1450 M; AnScVM 125) Osborne

An overview of proper interpretation of urinalysis findings in patients with a variety of disorders of various body systems.

5398. INDEPENDENT RESEARCH IN VETERINARY ANESTHESIOLOGY.

(185783) (1-6 cr; prereq regis vet med or grad student or #; limited to 10 students) Raffe, E. Robinson
Special problems course for evaluating research methods. Controlled study, prospective, and retrospective models of evaluation defined, critiqued, and used for experimental design and data collection. Analysis of data collection to validate research methods.

5454. ROENTGENOLOGY BONE—LARGE ANIMALS—June

17-July 15. (685707) (1 cr; prereq regis vet med, 3rd or 4th yr or grad student or #; S-N only; 1500-1650 M; AnScVM 135) Walter, Feeney, G. Johnston
Roentgen signs of common bone diseases of large animals. Primary emphasis on the horse.

5455. ROENTGENOLOGY BONE—SMALL ANIMALS—July

22-August 19. (185749) (1 cr; prereq regis vet med, 3rd or 4th yr or grad student or #; 1500-1650 M; AnScVM 135) Walter, Feeney, G. Johnston
Roentgen signs of common bone diseases of small animals.

8197.* ADVANCED DERMATOLOGIC CLINICS.

(086420) (4 cr; prereq grad student, #; A-F only) McKeever
In-depth clinical study of dermatologic disease states, diagnosis and therapy in animals.

8198.* PROBLEMS IN VETERINARY COMPARATIVE DERMATOLOGY.

(886421) (Cr ar; prereq grad student, #) McKeever
Individual study involving a research study of a selected dermatologic problem.

8200. DIRECTED STUDIES IN VETERINARY COMPARATIVE

DERMATOLOGY. (689286) (2 cr; prereq grad, #; A-F only) McKeever
Assigned readings and literature review of veterinary comparative dermatology.

8291. ADVANCED DIAGNOSIS AND THERAPEUTICS OF ANIMAL DISEASES.

(789067) (1 cr; prereq 5172, LACS 5162, #) Staff
Detailed examination, discussions, and treatment of cases of animal diseases.

8293. MEDICAL CONFERENCE.

(585697) (Cr ar; prereq 5172, LACS 5162, #) Staff
Medical, surgical, or obstetrical cases supported by anatomic, bacteriologic, pathologic, physiologic, pharmacologic, and radiologic evaluations whenever applicable.

8390. SEMINAR: VETERINARY SURGERY.

(587398) (Cr ar; prereq 5360, 5365, or equiv, and #) Caywood, Lipowitz, Wallace

8391. ADVANCED SMALL ANIMAL SURGERY.

(686422) (Cr ar; prereq CVM 5350 or equiv, #) Caywood, Lipowitz, Wallace
Surgery of the various systems in small animals with preoperative and postoperative evaluation and treatment.

8394. SURGERY OF THE GASTROINTESTINAL SYSTEM.

(388150) (Cr ar; prereq LACS 5160 or #) Lipowitz, Caywood

8398. RESEARCH IN VETERINARY ANESTHESIA.

(086739) (2-4 cr; prereq grad of professional veterinary curriculum, 8396, LACS 8397 or equiv, #) Raffe, E. Robinson
A special problems course designed to evaluate research methods in veterinary anesthesia. Controlled study prospective and retrospective models of evaluation will be defined, critiqued, and used for experimental design and data collection. Analysis of data collection will validate research methods selected and used.

8410. SURGICAL PHYSIOLOGY.

(188151) (2 cr; prereq 8391, #) Wallace
Macro and micro physiological changes that occur in the animal body as the result of surgical disease and intervention.

8420. NEUROSURGERY.

(088152) (3 cr; prereq 8391 or equiv, #; A-F only) Wallace
Treatment of surgical diseases of animal nervous system, including pathophysiology of these animals.

8430. THORACIC AND CARDIOVASCULAR SURGERY.

(385040) (3 cr; prereq 8391, #; lect 0800-1300 MTWThF, Vet Tch Hos 350; lab 1400-1700 MTWThF, VetTchHos 350) Caywood, Ogburn

8490. ADVANCED VETERINARY RADIOLOGY.

(486423) (1-2 cr; prereq 5450, 5451, 5452 or equiv, #; A-F only) Feeney, others
Advanced radiological procedures and modalities and their interpretation or application to veterinary medicine.

8491. FUNDAMENTALS OF NUCLEAR MEDICINE. (590950) (1 cr; prereq #) Feeney, Jessen, G. Johnston, Walter
Lecture and laboratory exercises to orient the graduate student in medical sciences to principles and applications of radiotopes in medicine.

SECOND TERM

5398. INDEPENDENT RESEARCH IN VETERINARY ANESTHESIOLOGY. (085784) (1-6 cr; prereq regis vet med or grad student or #) Raffe, E. Robinson
See First Term.

8197.* ADVANCED DERMATOLOGIC CLINICS. (287492) (4 cr; prereq grad student, #; A-F only) McKeever
See First Term.

8198.* PROBLEMS IN VETERINARY COMPARATIVE DERMATOLOGY. (187493) (Cr ar; prereq grad student, #) McKeever
See First Term.

8200. DIRECTED STUDIES IN VETERINARY COMPARATIVE DERMATOLOGY. (489287) (2 cr; prereq grad, #; A-F only) McKeever
See First Term.

8293. MEDICAL CONFERENCE. (785696) (Cr ar; prereq 5172, LACS 5162, #) Staff
See First Term.

8390. SEMINAR: VETERINARY SURGERY. (187395) (Cr ar; prereq 5360, 5365, or equiv, #) Caywood, Lipowitz, Wallace

8391. ADVANCED SMALL ANIMAL SURGERY. (987494) (Cr ar; prereq CVM 5350 or equiv, #) Lipowitz, Wallace, Caywood
See First Term.

8394. SURGERY OF THE GASTROINTESTINAL SYSTEM. (388147) (Cr ar; prereq LACS 5160 or #) Lipowitz, Caywood, Wallace

8399. SEMINAR: VETERINARY ANESTHESIA. (189560) (1 cr; prereq grad of professional vet curriculum, 8396, LACS 8397, or equiv, #; A-F only) Raffe, E. Robinson
Topics in veterinary anesthesia and critical care in large and small animal species.

8410. SURGICAL PHYSIOLOGY. (188148) (2 cr; prereq 8391 #) Wallace
See First Term.

8420. NEUROSURGERY. (088149) (3 cr; prereq 8391 or equiv, #; A-F only) Wallace
See First Term.

8430. THORACIC AND CARDIOVASCULAR SURGERY. (787397) (3 cr; prereq 8391, #; lect 0800-1300 MTWThF, Vet Tch Hos 350; lab 1400-1700 MTWThF, Vet Tch Hos 350) Caywood

8490. ADVANCED VETERINARY RADIOLOGY. (787495) (1-2 cr; prereq 5450, 5451, 5452 or equiv, #; A-F only) Feeney, others
See First Term.

8491. FUNDAMENTALS OF NUCLEAR MEDICINE. (390951) (1 cr; prereq #) Feeney, Jessen, G. Johnston, Walter
See First Term.

Social, Administrative and Hospital Pharmacy (SAHP)

*Pharmacy Student Affairs Office, 5-110 Health Sciences Unit F, 624-9490
College of Pharmacy*

FIRST TERM

5210. TERMINOLOGY OF THE HEALTH SCIENCES. (388911) (2 cr, §HSU 5210) McKennell
A modern programmed learning course with the most current usage and traditional components; the language of health care delivery. For information go to rm 5120 HSUnit F before first day of class.

5970. DIRECTED STUDIES. (188912) (1-5 cr; prereq #)

5999. SPECIAL PROBLEMS. (088913) (Cr ar; prereq #)

SECOND TERM

5210. TERMINOLOGY OF THE HEALTH SCIENCES. (888914) (2 cr, §HSU 5210) McKennell
A modern programmed learning course with the most current usage and traditional components; the language of health care delivery. For information go to rm 5120 HSUnit F before first day of class.

5970. DIRECTED STUDIES. (688915) (1-5 cr; prereq #)

5999. SPECIAL PROBLEMS. (488916) (Cr ar; prereq #)

Social and Administrative Pharmacy (SAPh)

*7-115 Health Sciences Unit F, 624-2112
College of Pharmacy*

FIRST TERM

8200. RESEARCH PROBLEMS. (288142) (Cr ar) Staff

8280. ADMINISTRATIVE CLERKSHIP. (187355) (Cr ar) Staff

8400. SPECIAL CLINICAL PROBLEMS. (185291) (Cr ar) Staff

8777. THESIS CREDITS: MASTERS. (289629) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (689630) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8200. RESEARCH PROBLEMS. (885348) (Cr ar) Staff

8280. ADMINISTRATIVE CLERKSHIP. (087356) (Cr ar) Staff

8400. SPECIAL CLINICAL PROBLEMS. (985292) (Cr ar) Staff

8777. THESIS CREDITS: MASTERS. (289887) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189888) (1-36 cr [max 11 cr per summer term])

Social and Philosophical Foundations of Education (SPFE)

*275 Peik Hall, 624-1006
(Educational Policy and Administration)
College of Education
See also EdPA*

FIRST TERM

8777. THESIS CREDITS: MASTERS. (489645) (1-16 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (089916) (1-16 cr [max 11 cr per summer term])

Social Work (SW)

*400 Ford Hall, 624-5888
College of Human Ecology*

FIRST TERM

85010. SEMINAR: SPECIAL TOPICS. (3 cr each section)

Sec 1, Physical Abuse of Women—June 17-21. (985566) 3 cr, limited to 25 students, 0900-1630 MTWThF, FordH 175, Edleson
Current theories, research and social work practice in the area of physical abuse of women.

Sec 2, Social Work Practice with the Elderly—June 24-28. (090452) 3 cr, limited to 30 students, 0900-1630 MTWThF, FordH 175, Quam

Clinical practice issues in working with older clients individually, with their families, and in groups; differences between work with the well elderly and with the frail elderly.

Sec 3, Issues and Interventions in Child Sexual Abuse—July 8-12. (289288) 3 cr, limited to 30 students, 0900-1630 MTWThF, McNH 22, Gilgun

Overview of the major issues and interventions involved in child sexual abuse. Perceptions of victims, perpetrators, mothers, and other family members on the abuse; family dynamics; interviewing, the justice system; child protection; rural and urban treatment programs; prevention. Development of knowledge and skills in working with sexually abused children and their families through lecture, guest speakers, readings, small group discussion, role play, in-class exercises, and audio-visual material.

85601. ETHNO-CULTURAL CONCEPTS IN SOCIAL WORK PRACTICE. (891649) (3 cr for grad, 4 cr undergrad students; limited to 20 students; 1300-1600 MW; FordH 160) McAdoo

Relation of ethno-cultural concepts to the development of social welfare policies and services, and social work practice. Critical examination of commonalities of principle and cross-ethnic issues that integrate ethnocultural dimensions and identification of significant orientations toward welfare issues and practices among the four major ethnic minority groups of color (American Indian, Asian American, African American, Hispanic). The contribution of each to effective interpersonal and intra-group relationships with the social service delivery system will be discussed.

8020. FIELD INSTRUCTION II. (386253) (4 cr or cr ar by #; prereq 8010; seminar meets weekly for 69 cr. students; S-N only) Johnston

8030. FIELD INSTRUCTION IN SOCIAL WORK III. (785567) (Cr ar; prereq 8020; hrs ar; S-N only) Johnston

8888. THESIS CREDITS: DOCTORAL. (189650) (1-36 cr [max 11 cr per summer term])

SECOND TERM

85010. SEMINAR: SPECIAL TOPICS.

Sec 1. Social Work Practice: Psychopathology and Intervention. (887357) 3 cr, limited to 20 students, 0915-1215 MW, FordH 175, Abramson
Roles and intervention strategies of social workers in a variety of service settings. Emphasis on problems frequently presented, treatment alternatives, interdisciplinary practice, and ethical issues.

Sec 2. Social Group Work. (191647) 3 cr, limited to 30 students, 1300-1600 MW, FordH 175

Principles of social group work practice applicable to a variety of task and treatment groups. Small groups as a social process to achieve task and treatment goals, communication in groups, decision-making, self-help, and therapeutic groups. Stages of group development and termination.

Sec 3. Supervision and Practice in Social Work Consultation. (091648) 3 cr, limited to 20 students, 0915-1630 Th, ForH 175, Sullivan
Examination of principles and practice of the three aspects of first-line supervision in direct practice systems—administration, education, and support. Consideration of principles and methods of consultation and staff development.

8020. FIELD INSTRUCTION II. (787111) (4 cr or cr ar by #; prereq 8010; seminar meets weekly for 69 cr. students; S-N only) Johnston

8030. FIELD INSTRUCTION IN SOCIAL WORK III. (285564) (Cr ar; prereq 8020; hrs ar; S-N only) Johnston

8888. THESIS CREDITS: DOCTORAL. (589927) (1-36 cr [max 11 cr per summer term])

Sociology (Soc)

909 Social Sciences. 624-4300
College of Liberal Arts

FIRST TERM

1001. INTRODUCTION TO SOCIOLOGY. (286312) (4 cr; limited to 125 students; 0915-1015 MTWThF; AndH 330) Brustein
The scientific study of social behavior. Overview of major theories, methods, concepts, and research findings. Characteristics of the basic social units (social relations, groups, organizations, institutions, society) and their patterns of interrelation and processes of change.

3101. INTRODUCTION TO AMERICAN CRIMINAL JUSTICE. (186604) (4 cr, §CJS 3101; limited to 125 students; 1030-1130 MTWThF; AndH 230) Staff
Components and dynamics as well as philosophical underpinnings of the criminal justice system.

3401. PRINCIPLES OF SOCIAL ORGANIZATION. (5 cr; limited to 20 students; prereq 1001, 3801; 0800-0900 MTWThF; BlegH 210) Nelson
How and why social organization is possible. Major concepts and theories of social structure, primary forms of social organization (groups, communities, networks, formal organizations), basic social processes (integration, differentiation, regulation, change), and how social organization evolves from individual decision making. Course content varies.

Lab 1, (691314) 0915-1015 MW, BlegH 210

3411. UNDERSTANDING FORMAL ORGANIZATIONS. (990458) (4 cr; prereq 1001; limited to 40 students; 1145-1245 MTWThF; BlegH 340) Knoke
Formal organizations as major social actors in our work lives, personality development, social change, and conflict. Life-course analysis of enterprises, bureaucracies, and voluntary organizations. Emphasis on organizational control, conflict, coordination, and interorganizational sets and relationships.

3501. THE FAMILY SYSTEM. (489290) (4 cr; prereq 1001 or #; limited to 60 students; 0800-0900 MTWThF; BlegH 110) Staff
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 norms of human sexuality.

3970. DIRECTED STUDIES. (186313) (1-15 cr per term; prereq #, Δ, □) Staff
Guided individual reading or study.

5162. CRIMINAL PROCEDURE IN AMERICAN SOCIETY. (191311) (4 cr, §CJS 5102; limited to 60 students; 0915-1015 MTWThF; HHHCr 25) Samaha
Power of the state to intrude into lives of citizens and deprive them of life, liberty, and property in order to enforce criminal laws; topics such as arrest, search and seizure, pretrial practices, and prisoners' rights. Suggested limits on discretionary power of police, prosecutors, judges, and corrections authorities.

5311. SOCIOLOGY OF CONFLICT. (092007) (4 cr; prereq 3401 or 5401 or equiv or #; limited to 60 students; 1030-1130 MTWThF; BlegH 440) Cooperman
Theoretical, empirical study of group conflict. Methods and models. Animal conflict. Aggression and conflict. Types of conflict: feuds, community, ecologies of urban conflict, racial, internal war, revolution. Conflict and organization: relation of stratification, industrial, and social change to conflict.

5711. ELEMENTS OF SOCIOLOGICAL ANALYSIS. (019312) (4 cr; limited to 50 students; prereq 8 cr in social science or #; 1030-1130 MTWThF; BlegH 230) Leik
Premises upon which social theories are developed. Construction of social theory.

5970. DIRECTED STUDIES. (986314) (1-15 cr per term; prereq #, Δ, CLA approval) Staff
Guided individual reading or study.

8090. TOPICS IN SOCIOLOGY. (885172) (Cr ar; prereq #) Staff

8777. THESIS CREDITS: MASTERS. (389637) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189638) (1-36 cr [max 11 cr per summer term])

SECOND TERM

1001. INTRODUCTION TO SOCIOLOGY. (587112) (4 cr; limited to 125 students; 1030-1130 MTWThF; BlegH 10) Reiss
See First Term.

1003. SOCIAL PROBLEMS. (785570) (4 cr; limited to 45 students; 1030-1130 MTWThF; BlegH 255) Fulton
Sociological analysis of major contemporary problems; theory behind the causes, discussion of methods for studying them, and analysis of potential solutions. Problems may include poverty, racial discrimination, inequality, sex roles, crime, drugs, population problems, and pollution.

3102. INTRODUCTION TO CRIMINAL BEHAVIOR AND SOCIAL CONTROL. (986605) (4 cr, §3103; prereq 3101; limited to 48 students; 1145-1245 MTWThF; BlegH 115) Ward
Basic issues in criminology and the sociology of law and social control organizations.

3456. WESTERN EUROPEAN SOCIETIES. (491315) (4 cr; limited to 48 students; 0915-1015 MTWThF; BlegH 105) Brustein
Comparative analysis of Western European societies. Examination of current socioeconomic trends with regard to population composition, ethnic patterns, economic organization and social structure, class, mobility and status, family and gender, city life, and culture.

3524. AMERICA'S SEXUAL CRISIS. (189289) (4 cr; limited to 60 students; 1145-1245 MTWThF; BlegH 440) Reiss
Explanation of why American society has difficulty in resolving sexual problems such as AIDS, pregnancy, rape, and child sexual abuse. Analysis of current trends in our societal ways of coping with sexual problems.

3970. DIRECTED STUDIES. (387113) (1-15 cr per term; prereq #, Δ, □) Staff
See First Term.

5161. CRIMINAL LAW IN AMERICAN SOCIETY. (291316) (4 cr, §CJS 5101; limited to 60 students; 0915-1015 MTWThF; BlegH 415) Samaha
Purposes and principles of criminal law; proper limits of criminal sanction and suggested reforms in existing criminal law.

5970. DIRECTED STUDIES. (487118) (1-15 cr per term; prereq #, Δ, CLA approval) Staff
See First Term.

8090. TOPICS IN SOCIOLOGY. (287119) (Cr ar; prereq #) Staff

8777. THESIS CREDITS: MASTERS. (089897) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (089902) (1-36 cr [max 11 cr per summer term])

Soil Science (Soil)

439 Borlaug Hall, St. Paul. 625-1244
College of Agriculture

FIRST TERM

5114.* SPECIAL PROBLEMS IN SOILS. (085400) (1-5 cr per qtr [max 10 cr]; prereq 1122 or #) Adams, Baker, Bloom, Malzer, Graham, Rust, Grigal, Cooper
Research, readings, instruction.

8124.* RESEARCH PROBLEMS IN SOILS. (885401) (2-5 cr; hrs ar) Adams, Baker, Bloom, Dowdy, Graham, Malzer, Molina, Rust, 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.

8777. THESIS CREDITS: MASTERS. (089639) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (389640) (1-36 cr [max 11 cr per summer term])

SECOND TERM

5114.* SPECIAL PROBLEMS IN SOILS. (186464) (1-5 cr per qtr [max 10 cr]; prereq 1122 or #) Adams, Baker, Bloom, Malzer, Graham, Rust, Grigal
See First Term.

8124.* RESEARCH PROBLEMS IN SOILS. (086465) (2-5 cr; hrs ar) Adams, Baker, Bloom, Graham, Malzer, Rust, Grigal
See First Term.

8777. THESIS CREDITS: MASTERS. (289906) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189907) (1-36 cr [max 11 cr per summer term])

South Asian Studies (SoAS)

192 Klaeber Court. 624-7030
(South Asian and Middle Eastern Studies)
College of Liberal Arts

FIRST TERM

1504. INTRODUCTION TO THE RELIGIONS OF SOUTH ASIA. (691250) (4 cr, §ReIS 1031; 0900-1130 TTh; FolH 138) Malandra
Introduction to Hinduism, Buddhism, and Jainism. Meets with ReIS 1031.

3501. THE HERITAGE OF INDIA. (289291) (4 cr, 0915-1015 MTWThF; FolH 114) Staneslow
Contemporary civilization in light of its development. Hindu, Muslim, and Buddhist contributions to society and culture.

3607. TRADITION AND MODERNITY IN INDIAN CULTURE. (4911251) (4 cr; 1000-1230 TTh; FolH 214) Junghare
Traditional cultures of India and their effects on modernity.

8777. THESIS CREDITS: MASTERS. (989634) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (589636) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (989892) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (389895) (1-36 cr [max 11 cr per summer term])

120 Spanish

Spanish (Span)

34 Folwell Hall. 625-5858
(Spanish and Portuguese)
College of Liberal Arts

FIRST TERM

■ **1101. BEGINNING SPANISH.** (5 cr, degree credit granted only if entrance standard met; each section limited to 23 students)

Basic listening, speaking, reading, and writing skills. Stress on the development of communicative competence. Some culture readings.

Sec 1, (786315) 0800-1015

MTWThF, CivMinE 212

Sec 2, (185752) 0800-1015

MTWThF, AkerH 215

Sec 3, (189292) 0800-1015

MTWThF, AmundH 124

■ **1102. BEGINNING SPANISH.**

(586316) (5 cr, degree credit granted only if entrance standard met; limited to 23 students; prereq 1101; 0800-1015 MTWThF FordH 40)
See 1101.

■ **1103. BEGINNING SPANISH.**

(386317) (5 cr, degree credit granted only if entrance standard met; limited to 23 students; prereq 1102; 0915-1130 MTWThF; AmundH 120)
See 1101.

■ **1104. INTERMEDIATE SPANISH.** (5

cr; each section limited to 23 students; prereq 1103 or 3 yrs high school Spanish)

Speaking and comprehension; development of reading and writing skills based on materials from Spain and Spanish America. Grammar review; compositions and short presentations.

Sec 1, (186318) 0915-1130

MTWThF; FolH 326

Sec 2, (990508) 0915-1130

MTWThF; FolH 340

■ **1106. INTERMEDIATE SPANISH.**

(390884) (5 cr; limited to 23 students; prereq 1105 or 5 years high school Spanish; 0800-1015 MTWThF; Bleg 115) Reis
See 1104.

■ **3104. THE ART OF READING**

LITERARY TEXTS. (088930) (4 cr; limited to 15 students; §LAS 3104, Spn3104; prereq 3002; 0915-1200 TTh; FolH 142) Zahareas

Critical reading of Spanish and Spanish-American texts; works representing principal genres—novel, drama, poetry, essay; diverse approaches to literature. Terminology of criticism; literary problems and techniques.

■ **3512. SPANISH-AMERICAN**

CIVILIZATION: MODERN LATIN AMERICA. (989293) (5 cr; limited to 30 students; §LAS 3513; prereq 3002; 1300-1400 MTWThF; FolH 138) Ramos-Garcia

Spanish-American civilization from 1800 to the present. Impact of independence movements on literature, art, and music. Relationship between political development and cultural phenomena in the 19th and 20th centuries. Popular culture. Folklore and the oral tradition (ballads, corridos, folktales, the lyric, others.) The impact of 20th-century ideologies and technology on cultural development in Spanish-American republics.

3970. DIRECTED STUDIES. (087373)

(1-5 cr per term; prereq #, Δ, □)
Guided individual reading or study.

■ **3973. MAJOR PROJECT.** (688252) (2

cr; A-F only)
Guided individual project for Spanish majors. Used to fulfill graduation requirements. Office of Undergraduate Studies has details.

5732. SPANISH DIALECTOLOGY: REGIONAL AND SOCIAL DIALECTS OF MODERN SPANISH AMERICA.

(891604) (4 cr; prereq 5729 or #; 1300-1500 T, 1300-1600 Th; FolH 340) Klee

Major dialect areas in modern Hispanic America. Norm, speech, and language related to former political and religious divisions of Hispanic America and to new national boundaries.

5910. TOPICS IN SPANISH

PENINSULAR LITERATURE. (790509) (4 cr; prereq 3104 or SpPt 3104 or Δ; 1300-1500 T, 1300-1600 Th; FolH 419) Spadaccini

Important groups, movements, trends, methods, genres. Topics may include *conversos*; mysticism, *poesia tradicional*; essay and enlightenment; *novela realista*; and *avant-garde*.

5920. TOPICS IN SPANISH-AMERICAN LITERATURE.

(190510) (4 cr; prereq 3104 or SpPt 3104 or Δ; 1300-1500 M, 1300-1600 W; FolH 340) Vidal
Important groups, movements, trends, methods, genres.

5970. DIRECTED READINGS.

(086319) (1-5 cr per term [max 15 cr]; prereq #, Δ, CLA approval; 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.

5990. DIRECTED RESEARCH.

(391016) (1-5 cr per qtr; prereq #, Δ, CLA approval)

8777. THESIS CREDITS: MASTERS.

(189641) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL.

(089642) (1-36 cr [max 11 cr per summer term])

8970. DIRECTED READINGS IN ROMANCE LANGUAGES. (386320) (Cr

and hrs ar; prereq Δ; 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 (Register once in Term I)

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 enroll in all three courses and may not enroll in other summer courses.** Prospective students should talk to an adviser before registering for intensive language courses.

■ **1101-1102-1103. BEGINNING SPANISH.** (15 cr for both terms, degree credit granted only if entrance standard met; each section limited to 23 students; prereq Δ. Dept overrides available during registration period only; 0800-1130 MTWThF; section 5, KoltH S133, sec 6, KoltH S136, sec 7, SmithH 121)
See 1101 First Term.

■ **1101**, Sec 5, (186321) June 11-July 3, 5 cr

■ **1102**, Sec 5, (086322) July 5-29, 5 cr

■ **1103**, Sec 5, (886323) July

30-August 21, 5 cr

■ **1101**, Sec 6, (686324) June 11-July 3, 5 cr

■ **1102**, Sec 6, (486325) July 5-29, 5 cr

■ **1103**, Sec 6, (286326) July

30-August 21, 5 cr

■ **1101**, Sec 7, (589524) June 11-July 3, 5 cr

■ **1102**, Sec 7, (389525) July 5-29, 5 cr

■ **1103**, Sec 7, (189526) July

30-August 21, 5 cr

■ **1104-1105-1106. INTERMEDIATE SPANISH.** (15 cr for both terms, limited to 23 students; 0800-1130 MTWThF; KoltH S135)
See 1104 First Term

■ **1104**, Sec 5 (485594) June 11-July 3, 5 cr

■ **1105**, Sec 5 (285595) July 5-29, 5 cr

■ **1106**, Sec 5 (185596) July

30-August 21, 5 cr

SECOND TERM

■ **1102. BEGINNING SPANISH.** (5 cr, degree credit granted only if entrance standard met; each section limited to 23 students; prereq 1101)
See 1101 First Term.

Sec 1 (487121) 0800-1015 MTWThF, AmundH 124

Sec 2 (589295) 0800-1015 MTWThF, Arch 20

■ **1103. BEGINNING SPANISH.**

(187123) (5 cr, degree credit granted only if entrance standard met; limited to 23 students; prereq 1102; 0800-1015 MTWThF; AmundH 120)
See 1101 First Term.

■ **1105. INTERMEDIATE SPANISH.** (5 cr; each section limited to 23 students; prereq 1104 or 4 yrs high school Spanish)
See 1104 First Term.

Sec 1 (387130) 0915-1130 MTWThF, Arch 45

Sec 2 (190515) 0915-1130 MTWThF, FolH 240

■ **3002. READING FOR SPEED AND COMPREHENSION.** (090516) (4 cr; limited to 30 students; prereq 1106 or equiv; 0915-1015 MTWThF; FolH 214) Jones
Sharpen reading skills, expand vocabulary, improve comprehension. Variety of practical and literary materials will be read; class time will focus on discussion of readings, brief student presentations; short papers to be written at home on topics related to readings.

■ **3005. ORAL COMMUNICATION: SPEAKING AND LISTENING.** (086563) (4 cr; limited to 15 students; prereq 1106 or equiv; 1030-1200 MTWThF; FolH 142) Ocampo
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.

■ **3104. THE ART OF READING LITERARY TEXTS.** (491606) (4 cr; limited to 15 students §LAS 3104, Spn 3104; prereq 3002; 1300-1400 MTWThF; FolH 138) Spadaccini
See First Term.

3970. DIRECTED STUDIES. (888265) (1-5 cr per term; prereq #, Δ, □)
Guided individual reading or study.

■ **3973. MAJOR PROJECT.** (488253) (2 cr; A-F only)
See First Term.

5015. METHODS OF TRANSLATION. (890517) (4 cr; prereq 10 cr from 3001-3005 series or #; 1300-1500 M, 1300-1600 W; FolH 419) 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.

5970. DIRECTED READINGS. (787139) (1-5 cr per qtr [max 15 cr]; prereq #, Δ, CLA approval; hrs ar) Staff
See First Term.

■ **5990. DIRECTED RESEARCH.** (189549) (1-5 cr per qtr; prereq #, Δ, CLA approval)

8777. THESIS CREDITS: MASTERS. (389909) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189910) (1-36 cr [max 11 cr per summer term])

8970. DIRECTED READINGS IN ROMANCE LANGUAGES. (987141) (Cr and hrs ar; prereq Δ; mainly for PhD candidates) Staff
See First Term.

Speech-Communication (Spch)

317 Folwell Hall. 624-5800
College of Liberal Arts

FIRST TERM

■ 1101. FUNDAMENTALS OF SPEECH COMMUNICATION: ORAL COMMUNICATION.

(4 cr; each section limited to 22 students)
Oral communication processes and elements. Criticism and response to oral discourse. Individual speaking.

Sec 1, (186327) 0800-0900
MTWThF, FolH 318

Sec 2, (986328) 0915-1015
MTWThF, FolH 318

■ 1313. ANALYSIS OF ORAL ARGUMENT.

(088166) (4 cr; limited to 22 students; 0800-0900 MTWThF; FolH 426)

Strategies for analyzing and evaluating arguments received aurally. Problems in listening and responding to argument.

3211. DETERMINANTS OF BROADCAST PROGRAMMING.

(690499) (4 cr; 0800-1015 MTW; FolH 50) Browne

Historical development and contemporary aspects of broadcast programming. Roles of governmental, industrial, and public organizations in influencing programming decisions. Problem areas in programming.

■ 3411. SMALL GROUP COMMUNICATION PROCESSES.

(4 cr, \$3641; each section limited to 22 students; prereq 1101 or #)

Cooperative thinking in task-oriented groups. Planning, preparing for, participating in, and leading private and public meetings.

Sec 1, (185573) 0800-1015 MTW;
FolH 419

Sec 2, (189051) 1030-1245 MTW;
FolH 419

■ 3431. THE ROLE OF PERSUASION IN THE MODERN WORLD.

(390500) (4 cr; soph standing rec; limited to 40 students; 1030-1130 MTWThF; FolH 306) Hayes

Persuasion in interpersonal, organizational, intracultural, and intercultural relationships. Contemporary persuasion, with occasional historical segments.

■ 3451. INTERCULTURAL COMMUNICATION: THEORY AND PRACTICE.

(888167) (4 cr, \$UC 3701; prereq planning an intercultural experience; limited to 20 students; 0915-1015 MTWThF; FolH 426)

Theories of intercultural communication; factors influencing intercultural communication for students wishing to become both knowledgeable and proficient in interaction across cultures.

3601. APPROACHES TO PUBLIC DISCOURSE.

(989309) (4 cr; prereq 1101; 0800-0900 MTWThF; FolH 306) Scott
Theoretical questions intended to explain or direct the creation of public discourse. Traditional rhetoric to contemporary perspectives. Using theory to explain the practice of public discourse.

3970. DIRECTED STUDIES.

(786329) (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.

(186330) (1-4 cr per term [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.

■ 5404. LANGUAGE, CULTURE, AND EDUCATION.

(188571) (4 cr, \$SeEd 5404; limited to 20 students; prereq 1102, 3401 or #; 0915-1145 TTh; PeikH 46) Piché
Psychological and social-psychological perspectives for study of language-communication; dimensions of language variation (dialects, codes, registers); implications for program development and instructional practices. Meets with SeEd 5404.

■ 5414. AUTHORITY AND POWER IN TASK-ORIENTED COMMUNICATION—June 11-23.

(189311) (4 cr; limited to 45 students; S-N only; prereq 3411 or #; 1615-1815 MTWThF; 0900-1700 Sat Sun; FolH 306) 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.

5617. HISTORY AND CRITICISM OF AMERICAN PUBLIC ADDRESS.

(591631) (4 cr; prereq 1101 or 1101H, Psy 1001; 1145-1245 MTWThF; FolH 426) Bormann
History and criticism of religious and reform speech in the United States, 1620 to 1920.

5970. DIRECTED READINGS.

(986331) (Cr ar; prereq 9 cr in 3xxx-5xxx-level speech courses, #, Δ, CLA approval)
Directed reading and preparation of reports on selected subjects.

8120. SEMINAR: ADVANCED SPEECH PROBLEMS.

(391632) (3 cr; prereq undergrad degree in speech-comm or equiv; 1300-1515 MW; FolH 419) Scott
Evaluation of research methods in speech and communication.

Small group communication workshops

Direct experience as a teaching-learning device in leadership/fellowship situations will be provided in Spch 5414, a workshop offered June 11-23. Experiences will deal with the nature of authority, power, and interpersonal and intergroup problems.

8501. INTRODUCTION TO SURVEY RESEARCH IN SPEECH-COMMUNICATION.

(890503) (3 cr; prereq Jour 8001 or #; 1415-1645 TTh; MurH 435) Tims
Research survey based projects in broadcasting and public address. Design and execution of small scale, research-based survey; problems in execution of studies.

8621. SEMINAR: HISTORY AND CRITICISM OF PUBLIC ADDRESS.

(191633) (3 cr; prereq 5617, 5618 or Δ; 1415-1630 TTh; FolH 426) Bormann
Methods of rhetorical criticism. Application of method in individually selected research projects.

8777. THESIS CREDITS: MASTERS.

(889643) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL.

(689644) (1-36 cr [max 11 cr per summer term])

8990. RESEARCH.

(786332) (Cr ar; prereq #, Δ)
Open to graduate students engaged in research on special problems.

SECOND TERM

■ 1101. FUNDAMENTALS OF SPEECH COMMUNICATION: ORAL COMMUNICATION.

(387144) (4 cr, limited to 22 students; 0800-0900 MTWThF; FolH 426)
See First Term.

1102. FUNDAMENTALS OF SPEECH COMMUNICATION: COMMUNICATION PROCESS.

(690504) (4 cr; 0915-1015 MTWThF; BuH 123) O'Dell
Introduction to communication theory and research focusing on interpersonal, intercultural, group, and family settings.

■ 1313. ANALYSIS OF ORAL ARGUMENT.

(688168) (4 cr; limited to 22 students; 0800-0900 MTWThF; FolH 419)
See First Term.

3401. THEORIES OF PERSON TO PERSON COMMUNICATION.

(189297) (4 cr; prereq 1102 or #, Psy 1001; 0915-1100 MTW; FolH 419) Hewes
Social scientific perspectives on talk. Review of variable analytic, covering-law, pragmatic and rule-based theories of conversation.

■ 3411. SMALL GROUP COMMUNICATION PROCESSES.

(4 cr each section \$3641; limited to 22 students; prereq 1101 or #)

Sec 1, (885575) 0800-1015 MTW;
FolH 312

Sec 2, (389542) 1030-1245 MTW;
FolH 312

See First Term.

■ 3441. COMMUNICATING IN ORGANIZATIONS.

(490505) (4 cr; prereq 1101 or 1102 or equiv; limited to 35 students; 0915-1130 MTWTh; FolH 138) Poole
Theory and practice of communicating in organizations. How communication creates, maintains, and changes organizational culture. Role of individual communicator in organizational culture.

■ 3451. INTERCULTURAL COMMUNICATION: THEORY AND PRACTICE.

(290506) (4 cr, \$UC 3701; prereq planning an intercultural experience; limited to 20 students; 0915-1015 MTWThF; FolH 426)
See First Term.

3970. DIRECTED STUDIES.

(387158) (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.

(587160) (1-4 cr per term [max 8 cr...cr does not count toward speech-communication major]; S-N only; prereq #, Δ, □)
See First Term.

■ 5441. COMMUNICATION IN HUMAN ORGANIZATIONS.

(191608) (4 cr; prereq 3401 or 8 cr in social science, 3441 or #; limited to 25 students; 1030-1245 MTW; FolH 318)
Communication in organizational settings. Organizational structure and dynamics and their effect upon the communication process. Individual projects.

5970. DIRECTED READINGS.

(187162) (Cr ar; prereq 9 cr in 3xxx-5xxx-level speech courses, #, Δ, CLA approval)
See First Term.

8110. SEMINAR: ADVANCED SPEECH PROBLEMS.

(291610) (3 cr; prereq undergrad degree in speech-comm or equiv; 1145-1400 MW; FolH 426) Hewes
Evaluation of research methods in speech and communication.

8777. THESIS CREDITS: MASTERS.

(789912) (1-16 cr [max 11 cr per summer term])

122 Speech Communication—Textiles and Clothing

8888. THESIS CREDITS: DOCTORAL. (389914) (1-36 cr [max 11 cr per summer term])

8990. RESEARCH. (487166) (Cr ar; prereq #, Δ)
See First Term.

Statistics (Stat)

270 Vincent Hall. 625-8046
College of Liberal Arts

FIRST TERM

3011. STATISTICAL ANALYSIS. (088927) (4 cr; limited to 50 students; prereq college algebra; 0915-1015 MWTh, 0915-1115 TF; LindH 305)
Descriptive statistics; elementary probability; estimation; one- and two-sample tests; introduction to regression and ANOVA.

3091. INTRODUCTION TO PROBABILITY AND STATISTICS. (285094) (4 cr, \$5121, \$5131; limited to 40 students; prereq differential and integral calculus; 1030-1230 MW, 1145-1245 TThF; VinH 113)
Elementary probability and probability distributions, sampling and elements of statistical inference.

5021. STATISTICAL ANALYSIS. (388570) (5 cr, \$3012; limited to 40 students; prereq college algebra; limited to 40 students; 0915-1015 MTWThF, 1100-1230 TTh; ClaOff B42)
Frequency distributions, descriptive statistics, elementary probability; binomial, Poisson, and normal distributions, estimation and testing, analysis of variance, multiple comparisons, linear regression.

5121. THEORY OF STATISTICS. (586333) (5 cr, \$5131; prereq Math 1241 or Math 1331 or Math 1621; 1030-1230 MWF, 1030-1130 TTh; Phys 210)
Univariate and multivariate distributions, law of large numbers, sampling, likelihood methods, estimation and hypothesis testing.

5302. APPLIED REGRESSION ANALYSIS. (691636) (5 cr, \$5161; prereq 3012 or 5021 or 5133 or #; limited to 40 students; 0910-1020 MTWThF, 1330-1430 TTh; ClaOff B25; **)

Simple, multiple, and polynomial regression. Estimation, testing, and prediction. Stepwise and other numerical methods; examination of residuals; weighted least squares; nonlinear models; response surface. Experimental research and economic applications.

5890. SENIOR PAPER. (588227) (2 cr; prereq sr statistics major; A-F only)
Satisfies senior project requirement for majors. Directed study. Paper on specified area, a consulting project, or original computer program.

8777. THESIS CREDITS: MASTERS. (289646) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189647) (1-36 cr [max 11 cr per summer term])

SECOND TERM

1001. INTRODUCTION TO IDEAS OF STATISTICS. (888928) (4 cr; limited to 40 students; prereq high school algebra; 0915-1015 MWF, 0915-1115 TTh; VinH 207)
Controlled vs. observational studies; presentation and description of data; correlation and causality; sampling, accuracy of estimates; tests.

3012. STATISTICAL ANALYSIS. (4 cr; sec 1 limited to 30 students; sec 2 limited to 20 students; prereq 3011; **) ANOVA; randomized blocks; multiple comparisons; factorial experiments; multiple regression; transformations; goodness of fit; nonparametric methods; contingency tables; selected topics.

Sec 1 (688929), 0915-1015 MWTh, 0915-1115 TF; VinH 206

Sec 2 (290957), 0915-1115 MW, 0915-1015 TThF; VinH 203

3091. INTRODUCTION TO PROBABILITY AND STATISTICS. (987169) (4 cr, \$5121, \$5131; limited to 40 students; prereq differential and integral calculus; 0915-1015 MWF, 0915-1115 TTh; VinH 113)
See First Term.

5122. THEORY OF STATISTICS. (587174) (5 cr; prereq 5121; limited to 35 students; 1145-1245 MTTh, 1030-1230 WF; VinH 113)
Confidence intervals, testing hypotheses, regression, analysis of variance and covariance, distribution-free methods.

5301. DESIGNING EXPERIMENTS. (291638) (5 cr, \$5163; limited to 30 students; limited to 40 students; prereq 3012 or 5021 or 5133 or #; 0910-1020 MTWThF, 1330-1430 TTh; ClaOff B35; **)
Control of variation, construction and analysis of complete and incomplete block, split plot, factorial, and groups of similar experiments. Confounding, crossover, and optimum seeking designs.

5890. SENIOR PAPER. (589569) (2 cr; prereq sr statistics major; A-F only)
Satisfies senior project requirement for majors. Directed study. Paper on specified area, a consulting project, or original computer program.

8777. THESIS CREDITS: MASTERS. (489919) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (889920) (1-36 cr [max 11 cr per summer term])

Surgery (Surg)

11-100 Phillips-Wangenstein Building.
625-1400
Medical School

**FIRST AND SECOND TERMS:
TEN-WEEK
COURSES (Register once in term I)**

Elective Courses for Undergraduate Students

5526. CLINICAL NUTRITION SEMINAR. (390738) (1 cr; prereq acceptance MS program NSS diet or Kellogg fellow; S-N only; 1300-1430 Th; PWB 11-157) Shrouts

5527. HOSPITAL NUTRITION SUPPORT. (190739) (9 cr; prereq acceptance to MS program NSS diet; S-N only) Shrouts

Required Courses for Graduate Students

8200. CLINICAL SURGICAL PROBLEMS AND MANAGEMENT. (187646) (5 cr; ar) Najarian, staff

8201. SURGERY-ROENTGENOLOGICAL CONFERENCE. (087647) (1 cr; 1600-1730 F; Mayo C321-Todd Amph) Najarian

8202. SURGICAL RESEARCH. (887648) (5 cr; ar; Sur Res Lab) Staff

8203. SURGERY COMPLICATIONS AND RESEARCH CONFERENCE. (687649) (1 cr; 1630-1730 T; PWB 11-157) Najarian, staff

8207. TRANSPLANTATION AND BONE MARROW CONFERENCE. (087650) (1 cr; 1630-1730 Th; PWB 11-157) Najarian

FIRST TERM

8777. THESIS CREDITS: MASTERS. (989648) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (789649) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (289923) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (989925) (1-36 cr [max 11 cr per summer term])

Swedish (Swed)

200 Folwell Hall. 625-9887
(Scandinavian Studies)
College of Liberal Arts

**FIRST AND SECOND TERMS:
TEN-WEEK COURSE (Registration once in Term I)**

A concentrated program of study permitting students to earn a total of 15 hours of credit, the equivalent of a full year's sequence in language. **Students must enroll in all three courses and may not enroll in other summer courses.** Prospective students should talk to an adviser before registering for intensive language courses.

1101-1102-1103. BEGINNING SWEDISH. (15 cr for both terms; limited to 20 students 0800-1130 MTWTh; KoltH 5140) G. Stockenström
For students with little or no knowledge of Swedish: fundamentals of grammar, correct pronunciation, reading, practice, conversation, and simple composition.

1101, Sec 5. (191317) June 11- July 5, 5 cr

1102, Sec 5. (991318) July 8- August 1, 5 cr

1103, Sec 5. (791319) August 2-21, 5 cr

T

Textiles and Clothing (TexC)

240 McNeal Hall, St. Paul. 624-9700
(Design, Housing, and Apparel)
College of Home Economics

FIRST TERM

5662. CLOTHING CONSUMPTION PROBLEMS—July 1-16. (191320) (3 cr; prereq 3621, AgEc 1101 or Econ 1002, Soc 1001, Psy 1001, or #; 0900-1200 MTWThF; McNH 180) Williams, G.
Clothing problems as part of the consumption process of individuals and families; consequences of personal and socioeconomic conditions; impact of technology and public and private policy on the planning, acquisition, use, maintenance, and discard of clothing.

8661. READINGS IN CLOTHING. (991321) (1-3 cr; prereq minimum 12 cr in textiles and clothing courses, #)
Independent study; survey of literature in selected areas related to human behavioral aspects of clothing and textiles. Written reports.

8663. PROBLEMS: CLOTHING AND TEXTILES. (791322) (3-9 cr per qtr [max 9 cr]; prereq #)
Independent study in the human behavioral aspects of clothing or textiles.

8666. AESTHETIC CONCEPTS RELATED TO APPAREL DESIGN—June 10-21. (591323) (3 cr; prereq 3662 or #; 1200-1500 MTWThF; McNH 180) DeLong, M.
Comprehensive survey and application of theory to the analysis of clothing design. Development of a methodology for visual perceptual evaluation.

Theatre Arts (Th)

208 Middlebrook Hall. 625-6699
College of Liberal Arts

FIRST TERM

#1102. DRAMA AND MEDIA—June 17-July 13. (289307) (4 cr; limited to 35 students; 1030-1245 MTWThF; Rarig 210) Neely

Study of dramatic form in contrasting media: theatre, film, and television. Lectures and film showings. Theatre attendance required.

#3513. TECHNICAL THEATRE PRODUCTION I. (091326) (5 cr; limited to 40 students; prereq 1504; 1030-1130 MTWThF; Rarig 130, 275) Brockman, Gwinup

Theory and practice in design and execution of stage scenery and properties. Laboratory.

#3701. INTRODUCTION TO DIRECTING. (191325) (4 cr; limited to 18 students; prereq 1101, 1301, or 1321 or major or minor; A-F only; 1030-1245 MTWTh; RarigC 185) Kanee
A creative approach to basic stage direction techniques, stressing elementary script analysis, rehearsal techniques, improvisation, blocking, and movement.

5100. THEATRE PRACTICUM. (386334) (1-6 cr; prereq written permission, #, Δ; A-F only) Staff
Arranged individual creative projects in production of approved plays. Playwriting, directing, acting, and design.

5110. THEATRE PERFORMANCE. (186335) (1 cr [9 cr max]); prereq written permission after casting and/or assignment to a production; credit awarded quarter performance takes place; S-N only) Staff
Participation in the rehearsals and performances of a major University Theatre production.

#5540. SCENE PAINTING TECHNIQUES. (585568) (4 cr; limited to 10 students; prereq 3513 or #; 0800-1015 MTWTh; RarigC 130) Brockman

Materials, layout, and painting techniques used in the theatre. Painting styles and texturing techniques.

5720. PLAYS IN PRODUCTION AND PERFORMANCE. (185095) (2-4 cr [max 6 cr for undergrads]; prereq 5712 and written permission) Staff

Work on campus or in the field with a community, high school, touring, or professional theatre group for experience in stage direction.

5760. ADVANCED STAGE MANAGEMENT. (985096) (1-3 cr [max 6 cr for undergrads]; prereq 5716 or #5716 and written permission) Staff
Practical experience in stage management for specific productions of the University Theatre with emphasis on rehearsal and performance.

5970. DIRECTED READINGS. (1-6 cr; prereq 9 cr in theatre, #, Δ, CLA approval) Staff
Directed reading and preparation of reports on selected subjects.

Sec 1, (886337)
Sec 2, (290988)

8777. THESIS CREDITS: MASTERS. (989651) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (789652) (1-36 cr [max 11 cr per summer term])

8990. RESEARCH. (086336) (Cr ar; prereq # and Δ) Staff
Open to graduate students engaged in research on special problems.

SECOND TERM

#3172. HISTORY OF THE THEATRE: NEO-CLASSICISM THROUGH REALISM. (891327) (4 cr; limited to 40 students; prereq 1101; theatre arts maj; 1030-1245 MW, 1030-1130 T RarigC 210) Kobialka
The history of western theatre and drama; theatrical practices, staging conventions, and dramatic structure of plays. Neo-classicism through realism.

3711. BEGINING STAGE DIRECTION. (690485) (4 cr; prereq 1504, 3701, jr or sr; 1030-1245 MTWTh; RarigC 185; A-F only) Adey
Theory of direction; concept and analysis. Blocking and production of short scenes.

8777. THESIS CREDITS: MASTERS. (189929) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (389931) (1-36 cr [max 11 cr per summer term])

Therapeutic Radiology (TRad)

M-10 Masonic Cancer Center.
626-6700
Medical School

FIRST TERM

3122. RADIATION PHYSICS. (985048) (3 cr; prereq 3121)

3151. RADIATION ONCOLOGY TREATMENT PLANNING. (785049) (4 cr; prereq #)

FIRST AND SECOND TERMS: TEN-WEEK COURSES (Register once in Term I)

5508. SPECIAL PROBLEMS IN RADIATION BIOLOGY. (487653) (Cr ar)

5512. DOSIMETRY OF INTERNAL AND EXTERNAL RADIATION. (287654) (1 cr; 0730-0830 W; UHosp 1243) Khan, Werner, Deibel, Gerbi

8310. FUNDAMENTALS OF RADIATION THERAPY. (787657) (1 cr; 1600-1700 M; UHosp 1243)

8315. RADIATION THERAPY PATHOLOGY. (587658) (1 cr)

8410. SEMINAR: RADIATION BIOLOGY. (387662) (1 cr; prereq #) Song, others

8450. RESEARCH IN RADIATION BIOLOGY. (187663) (Cr ar) Song, others

8550. RESEARCH OF RADIATION PHYSICS. (087664) (Cr ar) Khan

8777. THESIS CREDITS: MASTERS. (589653) (1-16 cr [max 11 cr per summer term])

SECOND TERM

3122. RADIATION PHYSICS. (185050) (3 cr; prereq 3121)

3151. RADIATION ONCOLOGY TREATMENT PLANNING. (985051) (4 cr; prereq #)

3152. RADIATION ONCOLOGY TREATMENT PLANNING. (485062) (4 cr; prereq 3151)

3170. RADIUM THERAPY. (285063) (4 cr; prereq #)

8777. THESIS CREDITS: MASTERS. (889934) (1-16 cr [max 11 cr per summer term])

Theriogenology (Tgen)

FIRST TERM

8777. THESIS CREDITS: MASTERS. (390058) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (190059) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (590060) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (390061) (1-36 cr [max 11 cr per summer term])

U

University College (UC)

12 Morrill Hall. 624-2022

FIRST TERM

3075. INDEPENDENT STUDY. (886418) (Cr ar; prereq Δ)

3211. DEGREE PLANNING. (085249) (12 cr; prereq student in Program for Individualized Learning, Δ; S-N only)

3251. DIRECTED INDIVIDUALIZED STUDY. (785486) (6 cr; prereq student in Program for Individualized Learning, Δ; S-N only)

3281. MAJOR PROJECT. (585487) (12 cr; prereq student in Program for Individualized Learning, Δ; S-N only)

3291. GRADUATION DOSSIER PREPARATION. (185251) (12 cr; prereq student in Program for Individualized Learning, Δ; S-N only)

3299. GRADUATION REVIEW. (385250) (6 cr; prereq student in Program for Individualized Learning, Δ; S-N only)

SECOND TERM

3075. INDEPENDENT STUDY. (487751) (Cr ar; prereq Δ)

3211. DEGREE PLANNING. (085252) (12 cr; prereq student in Program for Individualized Learning, Δ; S-N only)

3251. DIRECTED INDIVIDUALIZED STUDY. (385488) (6 cr; prereq student in Program for Individualized Learning, Δ; S-N only)

3281. MAJOR PROJECT. (185489) (12 cr; prereq student in Program for Individualized Learning, Δ; S-N only)

3291. GRADUATION DOSSIER PREPARATION. (885253) (12 cr; prereq student in Program for Individualized Learning, Δ; S-N only)

3299. GRADUATION REVIEW. (685254) (6 cr; prereq student in Program for Individualized Learning, Δ; S-N only)

Urban Studies (Urbs)

348 Social Sciences. 626-1626
College of Liberal Arts

SECOND TERM

3900. INTERNSHIP. (189308) (1-6 cr per term [max 12 cr]; prereq jr or sr and #; A-F only; 1730-1930 T; BlegH 350) DeMontille

A weekly seminar integrating the internship experience with the academic program. Should be taken during or immediately after the internship. This offering for 3 credits.

3970. DIRECTED STUDIES. (289310) (2-6 cr; prereq #, Δ, □) Martin

Urologic Surgery (Urol)

A-597 Mayo. 625-9933
Medical School

FIRST TERM

Required Courses for Graduate Students

8250. UROLOGICAL SURGERY. (687666) (4 cr; 0900-1200 MTThF; Mayo 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. (487667) (4 cr; 0800-1200 MTWThF; Cysto Suite) Fraley, others
Urological fellow performs cystoscopies and other diagnostic procedures.

8252. UROLOGICAL CONFERENCE. (287668) (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. (187669) (4 cr) Fraley, others
Problems in experimental and clinical surgery.

8254. UROLOGICAL SEMINAR. (487670) (3 cr) Fraley, others

124 Urologic Surgery—Veterinary Microbiology

8255. UROLOGICAL-RADIOLOGICAL CONFERENCE. (287671) (3 cr; 1300-1400 MTWThF; Mayo A503) Fraley, others

8256. UROLOGICAL-PATHOLOGICAL CONFERENCE. (187672) (3 cr; 1645-1745 W; Mayo A503) Fraley, others

8257. SELECTED TOPICS: GENITOURINARY SYSTEM. (388536) (2 cr) Li, Bronson

8777. THESIS CREDITS: MASTERS. (389654) (1-16 cr [max 11 cr per summer term])

SECOND TERM

Required Courses for Graduate Students

8250. UROLOGICAL SURGERY. (388052) (4 cr; 0900-1200 MTThF; Mayo OR-H) Fraley, others See First Term.

8251. CYSTOSCOPY AND UROLOGICAL DIAGNOSIS. (288058) (4 cr; 0800-1200 MTWThF; Cysto Suite) Fraley, others See First Term.

8252. UROLOGICAL CONFERENCE. (488043) (4 cr; 1600-1700 F, Ward Rds, Sta 57; 0900-1100 S, Sta 57 Conf Rm) Fraley, others See First Term.

8253. RESEARCH: UROLOGY. (388049) (4 cr) Fraley, others See First Term.

8254. UROLOGICAL SEMINAR. (188053) (3 cr) Fraley, others

8255. UROLOGICAL-RADIOLOGICAL CONFERENCE. (488057) (3 cr; 1300-1400 MTWThF; Mayo A503) Fraley, others

8256. UROLOGICAL-PATHOLOGICAL CONFERENCE. (888282) (3 cr; 1645-1745 W; Mayo A503) Fraley, others

8777. THESIS CREDITS: MASTERS. (289937) (1-16 cr [max 11 cr per summer term])

V

Veterinary Biology (VB)

295K Animal Science, St. Paul. 624-2700
College of Veterinary Medicine

FIRST TERM

5149.* TOPICS OF ORGANOLGY. (286424) (1-5 cr [may be repeated for cr]; prereq 5104 or equiv, #)
Lecture and laboratory presentation of selected organ systems of domestic and laboratory animals.

8111. HISTOLOGIC AND ULTRAHISTOLOGIC TECHNIQUES. (188255) (3 cr; prereq 5106, #)
Principles and methods in preparing animal tissues for histological and ultrahistological observation.

8112-8113-8114. RESEARCH PROPOSITIONS IN MORPHOLOGY. (186425) (986426) (786427) (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. (586428) (386429) (4 cr per qtr; prereq 5100, #) Fletcher, Beitz
Correlated studies of the central nervous system of domestic animals. Emphasis on relating neuroanatomy to neurophysiology.

8136. EXPERIMENTAL COMPARATIVE VETERINARY NEUROLOGY. (786430) (3 cr, \$N5c 8136; prereq 8135, #) Fletcher, Beitz
Principles, methods, and laboratory exercises in investigating the central nervous system of domestic animals.

8150. RESEARCH PROBLEMS IN VETERINARY ANATOMY. (586431) (1-5 cr; prereq 8149, #)
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.

8349. RESEARCH IN PHYSIOLOGY. (386432) (Cr ar; prereq #) Duke
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. (186433) (Cr ar; prereq 5401 or equiv, #) A. Larson, Brown

8550. SEMINAR: VETERINARY BIOLOGY. (786606) (1 cr; A-F only; prereq #) Gallant

8777. THESIS CREDITS: MASTERS. (189655) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (089656) (1-36 cr [max 11 cr per summer term])

SECOND TERM

5149.* TOPICS OF ORGANOLGY. (587496) (1-5 cr [may be repeated for cr]; prereq 5104 or equiv, #)
See First Term.

8111. HISTOLOGIC AND ULTRAHISTOLOGIC TECHNIQUES. (287332) (3 cr; prereq 5105, #)
See First Term.

8112-8113-8114. RESEARCH PROPOSITIONS IN MORPHOLOGY. (387497) (187498) (087499) (2 cr per qtr; prereq #) Staff
See First Term.

8134-8135. COMPARATIVE VETERINARY NEUROLOGY. (787500) (587501) (4 cr per qtr; prereq 5100, #) Fletcher, Beitz
See First Term.

8136. EXPERIMENTAL COMPARATIVE VETERINARY NEUROLOGY. (387502) (3 cr, \$N5c 8136; prereq 8135, #) Fletcher, Beitz
See First Term.

8150. RESEARCH PROBLEMS IN VETERINARY ANATOMY. (187503) (1-5 cr; prereq 8149, #) Staff
See First Term.

8349. RESEARCH IN PHYSIOLOGY. (087504) (Cr ar; prereq #) Duke
See First Term.

8448. PROBLEMS IN VETERINARY PHARMACOLOGY. (887505) (Cr ar; prereq 5401 or equiv, #) A. Larson, Brown

8550. SEMINAR: VETERINARY BIOLOGY. (586607) (1 cr; A-F only; prereq #) Gallant

8777. THESIS CREDITS: MASTERS. (189938) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (989939) (1-36 cr [max 11 cr per summer term])

Veterinary Diagnostic Investigation (VDI)

E-220 Veterinary Diagnostic Laboratories, St. Paul. 625-8787
College of Veterinary Medicine

FIRST TERM

5000. DIAGNOSTIC MEDICINE. (186618) (2 cr; prereq #; S-N only; arranged MTWThF5; VetTchHos) Staff
Laboratories devoted to the application of principles and techniques of the basic and clinical medical sciences to veterinary diagnostic medicine.

5521. SURGICAL PATHOLOGY. (188134) (3 cr; prereq #; A-F only) Barnes, others
Preparation and interpretation of surgical and necropsy specimens.

5522. DIAGNOSTIC PATHOLOGY. (088135) (5 cr; prereq #; A-F only) Barnes, others
History, necropsy lesions, laboratory results, and histopathology in the diagnosis of animal diseases.

85622. PROBLEMS IN DIAGNOSTIC VIROLOGY. (788775) (1-4 cr; limited to 10 students; prereq #; A-F only) Goyal
Laboratory techniques in diagnostic virology and viral research.

SECOND TERM

5521. SURGICAL PATHOLOGY. (588132) (3 cr; prereq #; A-F only) Barnes, others
See First Term.

5522. DIAGNOSTIC PATHOLOGY. (388133) (5 cr; prereq #; A-F only) Barnes, others
See First Term.

85622. PROBLEMS IN DIAGNOSTIC VIROLOGY. (588776) (1-4 cr; limited to 10 students; prereq #; A-F only) Goyal
See First Term.

Veterinary Medicine (CVM)

460 Veterinary Teaching Hospitals, St. Paul. 624-4747
College of Veterinary Medicine

FIRST AND SECOND TERM: TWELVE-WEEK COURSE

1809. INTERNSHIP IN ANIMAL HOSPITAL PRACTICE. (288769) (4 cr; prereq #; S-N only; 0800-1630 MTWThF; VetTchHos) Staff
Laboratories devoted to the principles and techniques of medical and surgical nursing care, examination, diagnosis and therapeutic procedures, and applied procedures in anesthesia and radiology. Rotations in Small Animal Medicine and Surgery, Large Animal Medicine and Surgery, Anesthesiology, Radiology, and Intensive Care.

Veterinary Medicine, Graduate (VMed)

FIRST TERM

8777. THESIS CREDITS: MASTERS. (889657) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (689675) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (289940) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (189941) (1-36 cr [max 11 cr per summer term])

Veterinary Microbiology (VMic)

295k Animal Science/Veterinary Medicine, St. Paul. 624-2700
(Veterinary Biology)
College of Veterinary Medicine

FIRST TERM

8777. THESIS CREDITS: MASTERS. (190000) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (890002) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (590012) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (390013) (1-36 cr [max 11 cr per summer term])

Veterinary Parasitology (VPar)

295k Animal Science/Veterinary Medicine, St. Paul. 624-2700 (Veterinary Biology)
College of Veterinary Medicine

FIRST TERM

8777. THESIS CREDITS: MASTERS. (290005) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (190006) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (890016) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (690017) (1-36 cr [max 11 cr per summer term])

Veterinary Pathobiology

(VPB)

205g Veterinary Science, St. Paul. 625-5255
College of Veterinary Medicine

FIRST TERM

5000. VETERINARY HOSPITAL NECROPSY. (986622) (2 cr; prereq #; S-N only; arranged MTWThFS; VetTchHos) Hayden, others
Necropsy techniques, examination of tissue for diagnosis, submission of tissue for laboratory analysis, and preparation of reports and records.

5001. CLINICAL HEMATOLOGY AND CYTOLOGY. (786623) (2 cr; prereq #; S-N only; arranged MTWThFS; VetTchHos) Perman, others
Laboratories devoted to the application of principles and techniques of the basic and clinical medical sciences in hematology and cytology.

5002. CLINICAL MICROBIOLOGY. (586624) (2 cr; prereq #; S-N only; arranged MTWThFS; VetTchHos) Ward
Laboratories devoted to the application of principles and techniques of veterinary clinical and diagnostic microbiology.

5523. PATHOLOGY OF SPONTANEOUS DISEASES OF LABORATORY ANIMALS. (585182) (2-3 cr; prereq #) Gunther
Gross and microscopic pathology of laboratory animals.

5709. PREVENTIVE AVIAN MEDICINE—June 17-July 15. (188479) (1 cr; prereq regis vet med, 4th year or grad student or #; A-F only; 1500-1650 M; VetS 145) Newman
Preventive avian disease programs and management practices. Visits to poultry and aviary establishments.

5748. PROBLEMS IN VETERINARY MICROBIOLOGY AND PUBLIC HEALTH. (385054) (Cr ar; prereq 5703 or equiv, #)

8531. HOSPITAL PATHOLOGY. (785553) (1-2 cr; prereq 5501, 5502, 5503, #) Hayden, others
Necropsy and surgical pathology techniques, examination of tissues for diagnosis, preparation of reports and records.

8533. PROBLEMS: PATHOLOGY. (086434) (Cr ar; prereq #) Johnson, others

8534. PROBLEMS: CLINICAL PATHOLOGY. (886435) (Cr ar; prereq #) Perman, Weiss

8648. PROBLEMS IN VETERINARY PARASITOLOGY. (686436) (Cr ar; prereq 5602 or equiv, #) Schlotthauer, Stromberg

8720. ADVANCED VETERINARY MICROBIOLOGY. (486437) (Cr ar; prereq #) Staff
Special topics, techniques, collateral reading, and conferences.

8724. ADVANCED VETERINARY DIAGNOSTIC MICROBIOLOGY. (286438) (Cr ar; prereq #) Ward
Lectures and laboratory in techniques of diagnostic mycology, bacteriology, virology, and serology.

SECOND TERM

5523. PATHOLOGY OF SPONTANEOUS DISEASES OF LABORATORY ANIMALS. (185355) (2 cr; prereq #) Gunther
See First Term.

5533. DIRECTED STUDIES IN VETERINARY PATHOBIOLOGY. (289565) (Cr ar; prereq regis vet med, 4th yr and #)
Principles, methods, and laboratory exercises in selected pathobiological research problems. Assigned research problems conducted under faculty direction.

8531. HOSPITAL PATHOLOGY. (585554) (1-2 cr; prereq 5501, 5502, 5503, #) Hayden, others
See First Term.

8533. PROBLEMS: PATHOLOGY. (687506) (Cr ar; prereq #) Johnson, others

8534. PROBLEMS: CLINICAL PATHOLOGY. (487507) (Cr ar; prereq #) Perman, Weiss

8648. PROBLEMS IN VETERINARY PARASITOLOGY. (287508) (Cr ar; prereq 5602 or equiv, #) Schlotthauer, Stromberg

8720. ADVANCED VETERINARY MICROBIOLOGY. (187509) (Cr ar; prereq #) Staff
See First Term.

8724. ADVANCED VETERINARY DIAGNOSTIC MICROBIOLOGY. (487510) (Cr ar; prereq #) Ward
See First Term.

8725. CELL CULTURE TECHNIQUES. (987334) (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.

Veterinary Pathology (VPth)

205g Veterinary Science, St. Paul. 625-5255
College of Veterinary Medicine

FIRST TERM

8777. THESIS CREDITS: MASTERS. (790008) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (590009) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (490018) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (690020) (1-36 cr [max 11 cr per summer term])

Veterinary Surgery, Radiology and Anesthesiology (VSRA)

C350 Veterinary Hospitals, St. Paul. 625-9731
College of Veterinary Medicine

FIRST TERM

8777. THESIS CREDITS: MASTERS. (990010) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (790011) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (290022) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (190023) (1-36 cr [max 11 cr per summer term])

Vocational Education (VoEd)

210 Vocational/Technical Building, St. Paul. 624-1221
(Vocational and Technical Education)
College of Education

FIRST TERM

5100. SPECIAL TOPICS IN INSTRUCTION: At Risk Learners: Critical Issues Related to Their Identification, Assessment, and Accommodation—June 17-20, 25-28. (390478) (1-6 cr [max 9 cr]; 1300-1600 MTWThF; VoTech R280) Brown
This course focuses on crucial problems related to "at-risk" learners in vocational education programs. Models of student persistence/attrition will be examined to analyze factors which influence students; efforts to attain their educational goals. Intervention strategies/policies and community resources that can be used to minimize attrition among at-risk students will be explored. This course will be developed in cooperation with faculty in the Department of Educational Policy and Administration who are offering another course which focuses on administrative issues related to at-risk learners. These courses are scheduled so that participants can concurrently enroll in both courses.

5400. EDUCATION FOR WORK—June 17-20, 25-28. (491332) (3 cr; prereq 5300 or #; 1300-1600 MTWThF; VoTech R285; A-F only)
Examination of contextual bases underlying education for work; implications for practice. Designed as a core requirement for M.Ed. students with a major in Vocational Education.

5750. TRAINING IN INDUSTRY AND BUSINESS—June 11-21. (085512) (3 or 4 cr; limited to 25 students; 0800-1200 MTWThF; VoTech R285; A-F only)
Appraisal of the training function in industry and business; advancement of competencies in areas of analysis, design, development, delivery, and evaluation of training. This offering for 4 credits.

5780. INTERNSHIP: TRAINING AND DEVELOPMENT. (785083) (Cr ar [max 15 cr]; limited to 15 students; prereq 5750; hrs ar; S-N optional)
Students apply and contract for training and development positions in industry and business; individual contracts describe the specific training and development responsibilities to be fulfilled during internship.

5900. USING VOCATIONAL EDUCATION RESEARCH—June 17-20, 25-28. (989312) (3 cr; prereq admission to graduate-level program or #; limited to 30 students; 0915-1230 MTWThF; VoTech R385; A-F only) Wardlow
An introduction to the role of vocational education research in professional practice, significant problems of practice for research, alternative modes of research, and synthesis and application of the results of research.

8888. THESIS CREDITS: DOCTORAL. (189678) (1-36 cr [max 11 cr per summer term])

SECOND TERM

5100. SPECIAL TOPICS IN INSTRUCTION. (1-6 cr; max 9 cr; prereq #; S-N optional)

Sec 1. Vocational Classroom-Based Inquiry to Improve Instruction—July 16-26. (590480) 0915-1215
MTWThF, VoTech R385, Leske,

Wardlow
Vocational classroom-based action research designed to improve teaching and curriculum. Based on an action research paradigm which empowers the participants—teachers and students—in improving the learning process, in assessing student needs, and determining student outcomes. This offering for 3 credits.
Sec 2. Teaching for Thinking—July 30-August 15. (691328) 1200-1730
TTh, VoTech R380, Anderson, Thomas
Information processing, knowledge structures, and dispositions as underlying factors in complex thinking; types of complex thinking relevant to vocational education, including problem solving, critical thinking, and decision making; approaches to teaching that facilitate thinking. This offering for 4 credits.

Vocational Education

Special Topics in Instruction: Vocational Classroom-Based Inquiry to Improve Instruction—July 16-26. This course will help teachers in vocational classroom-based action research to improve their teaching and their curriculum. The course is based on an action research paradigm which seeks to empower teachers and students in improving the learning process, assessing student needs, and determining student outcomes. Designed for teachers, support service staff, and administrators in all settings of vocational education and training.

Special Topics in Instruction: Teaching for Thinking—July 30-August 15. This course focuses on information processing, knowledge structures, and dispositions as underlying factors in complex thinking, on types of complex thinking relevant to vocational education including problem solving, critical thinking, and decision making, and on approaches to teaching that facilitate thinking. Designed for teachers in all settings of vocational and technical education and training who wish to enhance their teaching of complex thinking skills.

Special Topics in Curriculum: Vocational Education in the Developing World—July 16-26. Philosophy, organization, management and implementation of vocational education and training in Third World settings. Emphasis on the economic social, cultural, traditional and family influences in vocational education systems. Comparisons and contrasts between Third World and First World systems of education and training. Designed for educators who wish to enhance the international dimensions of the programs for which they are responsible.

Special Topics in Administration: Student Retention in Vocational Education: Issues, Barriers, and Intervention Strategies—July 16-26. This 3-credit course addresses the pressing issue of student "dropouts" in secondary and postsecondary vocational education. Models of student persistence/attrition will be examined to analyze the factors which influence student non-completion. Intervention strategies to minimize the attrition potential of students will be explored.

VOCATIONAL EDUCATION (VoEd)

- 5100 Special Topics in Instruction: At Risk Learners, Critical Issues (June 17-20, 25-28)
- 5400 Education for Work (June 17-20 and 25-28)
- 5750 Training in Industry and Business (June 11-21)
- 5900 Using Vocational Educational Research (June 17-20, 25-28)
- 5300 Philosophy and Practice of Vocational Education (August 5-15)
- 5330 Coordination Techniques in Cooperative Education (August 5-15)
- 5760 Organization Development in Industry and Business (July 22-August f2)

WOMEN'S STUDIES (WoSt)

- 5100 Gender and Culture (Summer Institute for Teachers (June 17-28)

5101. SPECIAL TOPICS IN CURRICULUM: Vocational Education in the Developing World—July 16-26. (691331) (1-6; max 9 cr; prereq #; 1300-1600 MTWThF; VoTech R385; S-N optional) Persons Philosophy, organization, management, and implementation of vocational education and training in Third World settings. Emphasis on the economic, social, cultural, traditional, and family influences in vocational education systems. Comparisons and contrasts between Third World and First World systems of education and training. This offering for 3 credits.

5102. SPECIAL TOPICS IN ADMINISTRATION: Student Retention in Vocational Education: Issues, Barriers, and Intervention Strategies—July 16-26. (390481) (1-6 cr; max 9 cr; prereq #; 1300-1600 MTWThF; VoTech R285; S-N optional) Schwartz Addresses the issues of student "dropouts" in secondary and postsecondary vocational education. Examines models of student persistence/attrition and analyzes the factors which influence student non-completion. Explores intervention

strategies to minimize the attrition potential of students. This offering for 3 credits.

5300. PHILOSOPHY AND PRACTICE OF VOCATIONAL EDUCATION—AUGUST 5-15. (491329) (3 cr; 1300-1600 MTWThF; VoTech R385; A-F only) Peterson. Interpretation of the purposes of vocational education in varying socioeconomic contexts; analysis of vocational fields in regard to recipients, practices, legislation, and funding. This course meets vocational licensure requirements.

5330. COORDINATION TECHNIQUES IN COOPERATIVE EDUCATION—AUGUST 5-15. (891330) (3 or 4 cr; BME 5352, HEEEd 5106, Ind 5310, AgEd 5071; 0915-1215 MTWThF; VoTech R385; A-F only) Leske Responsibilities of instructor-coordinator; guidance, selection, placement, supervision, and evaluation of students; articulation of related instruction; training sponsor identification, orientation, development, and evaluation; purposes and management of the program. This course meets vocational licensure requirements. This offering for 3 credits.

5760. ORGANIZATION DEVELOPMENT IN INDUSTRY AND BUSINESS—July 22-August 2. (890484) (4 cr; limited to 25 students; 0800-1130 MTWThF; VoTech R285; A-F only) Introduction to major concepts, skills, and techniques. This offering for 4 credits.

5780. INTERNSHIP: TRAINING AND DEVELOPMENT. (488141) (Cr and hrs ar [max 15 cr]; limited to 15 students; prereq 5750; S-N optional) McLean See First Term.

8888. THESIS CREDITS: DOCTORAL. (989942) (1-36 cr [max 11 cr per summer term])

W Y Z

Women's Studies (WoSt)

492 Ford Hall. 624-6006
College of Liberal Arts

FIRST TERM

1001. INTRODUCTION TO WOMEN'S STUDIES. (385555) (4 cr; limited to 40 students; 0900-1130 MW; FordH 170) Scheman Brief history of feminism; overview of issues related to the current and rapidly changing role and status of women.

3303. WOMEN AND LITERATURE. (291333) (4 cr; prereq introductory work in literature; limited to 40 students; 0900-1130 TTh; FordH 349) Reyes Women writers and critics of literature about women. Usually limited to Western literature.

3970. DIRECTED STUDIES. (588566) (1-15 cr; prereq #, Δ, □)

3980. DIRECTED INSTRUCTION. (388567) (1-5 cr; prereq #, Δ, □)

5100. SUMMER INSTITUTE FOR TEACHERS: Gender and Culture—June 17-28. (189431) (4 cr; limited to 20 students) Zita See page 28 for course description and registration information.

5103. FEMINIST PEDAGOGY. (191334) (4 cr; limited to 20 students; prereq 8 cr in women's studies or #; 1000-1230 TTh; FordH 160) Albrecht Theory and practice of feminist teaching and learning as a system of inquiry. Emphasizes challenges raised by the diversity of women's experiences and perspectives.

5970. DIRECTED STUDIES. (585294) (1-5 cr [max 12 cr]; prereq #, Δ, CLA approval)

8970. DIRECTED STUDY. (487359) (1-8 cr; prereq completion of courses approved by faculty supervisor and DGS)

SECOND TERM

3300. CONTEMPORARY WOMEN'S SHORT STORIES. (990492) (4 cr; limited to 40 students; 0930-1200 TTh; FordH 349) Marquit Short fiction is a favorite form for many of the best women writers today. The course focuses on popular forms of the short story, the role of independent women's publishers, and several outstanding individual authors such as Grace Paley, Alice Walker, Joanna Russ, Janet Kauffman, and Barbara Kingsolver.

3400. WOMEN AND POPULAR AMERICAN CULTURE. (991335) (4 cr; limited to 40 students; 0900-1130 MW; FordH 120) Katz Explores the roles and realities of women within and outside mainstream North American culture through film, video, music, and literature.

3970. DIRECTED STUDIES. (885365) (1-15 cr; prereq #, Δ, □)

3980. DIRECTED INSTRUCTION. (685352) (1-5 cr; prereq #, Δ, □)

5970. DIRECTED STUDIES. (385295) (1-5 cr; max 12 cr; prereq #, Δ, CLA approval)

8970. DIRECTED STUDY. (887360) (1-8 cr; prereq completion of courses approved by faculty supervisor and DGS)

Youth Development and Research (YoSt)

386 McNeal Hall, St. Paul. 624-3700
College of Human Ecology

FIRST TERM

5120. INDEPENDENT STUDY IN YOUTH STUDIES. (185467) (Cr ar [max 12 cr per qtr]; prereq #; hrs ar) Beker, Staff Independent reading and/or research under faculty supervision.

SECOND TERM

5120. INDEPENDENT STUDY IN YOUTH STUDIES. (486910) (Cr ar [max 12 cr per qtr]; prereq #; hrs ar) Beker, Staff See First Term.

Zoology (Zool)

109 Zoology. 625-4466
College of Biological Sciences

FIRST TERM

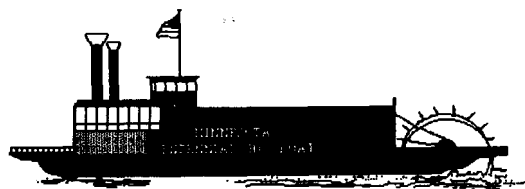
8777. THESIS CREDITS: MASTERS. (989679) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (289680) (1-36 cr [max 11 cr per summer term])

SECOND TERM

8777. THESIS CREDITS: MASTERS. (189946) (1-16 cr [max 11 cr per summer term])

8888. THESIS CREDITS: DOCTORAL. (089947) (1-36 cr [max 11 cr per summer term])



Student Services

Advising and counseling services for summer-only students

Summer-only students with questions about what to study and which courses to take can make use of either the Counseling Department in Continuing Education and Extension, or the college offices. In addition, there are several offices that specialize in assisting students of color, or students who have been culturally, educationally or financially disadvantaged. For more information or a referral to one of these services, please call an adviser at 625-2500.

■ **The Counseling Department of Continuing Education and Extension (CEE)** offers counseling, academic advising and financial aid services to summer-only students. Advisers are available Monday through Friday. Call (612) 625-2500 to ask about appointment times for day and evening hours. Many questions can also be answered by phone, for your convenience. The offices are located in 314 Nolte Center, 315 Pillsbury Drive S.E. Arrangements will be made for students with mobility impairments. A curb cut is provided on the south entrance to Nolte Center (Pillsbury Drive S.E.).

Counseling—Professional counseling services are available to assist summer-only students with career and educational planning. Counselors can help students identify their interests, values, skills, and personal characteristics important for work and education; clarify a career and educational direction and develop an action plan; and resolve

personal concerns that may interfere with educational goals. Career/educational testing is available to aid in the counseling process. A fee is charged for counseling services.

Advising—Academic advising is available to help students select programs of study; determine prerequisites and academic standing; evaluate transcripts of previous college work; choose the kinds and number of courses to take and the order in which they should be taken; arrange for examinations for credit; and handle other academic matters. Extension certificate programs are available to eligible Summer Session students.

Financial Aid—Advising is available to students seeking information about grants, scholarships, loans, and work study for part-time or full-time study.

■ **College advising**—Both academic-year students and summer-only students are encouraged to use collegiate advising services. The advisers offer individual help in planning your program and discussing other academic life concerns. Wise use of the advising system can make your college experience satisfying and more productive. Please bring pertinent records and materials to advisory appointments, as well as a list of questions you need answered. See list of college offices on the inside front cover.

■ **College of Liberal Arts summer-only students** may use

the advising services available in B18 Johnston Hall between 8 a.m. and 4:30 p.m. Advisers can assist you with your concerns regarding registration, course work, choosing a major, and using a computer-assisted career planning program. Services are available on a walk-in basis or by appointment. You may come in without an appointment if you have questions that can be answered with brief, factual information, but please phone for an appointment, 624-9585, for more extended academic or career related concerns.

■ **College of Education summer-only students** may use the advising services available from the College of Education Student Affairs Office (ESAO), 1425 University Avenue S.E., Minneapolis 55414, telephone 625-2342. The staff will be available during Summer Session registration as well as during both terms for consultation concerning admission, information about teacher licensure requirements, and placement services.

■ **The Office for Minority and Special Students Affairs (OMSSA)** provides minority and special students with a wide range of support services including counseling, tutoring and cultural programs. The OMSSA consists of the Coordinator's Office and four culturally sensitive student service units: African American Learning Resource Center, American Indian Learning Resource Center, Asian/Pacific American Learning Resource Center, and Chicano/Latino

Learning Resource Center. Affiliated with their respective Learning Resource Centers, the Africana, American Indian, Asian American and La Raza Student Cultural Centers offer cultural and educational activities for the University community, the ethnic communities and the general public. The OMSSA's mission is to assist students of color in receiving meaningful educational opportunities through graduation from the University of Minnesota.

African American LRC,
323 Walter Library, 625-1363

American Indian LRC,
125 Fraser Hall, 624-2555

Asian/Pacific American LRC,
306 Walter Library, 624-2317

Chicano/Latino LRC,
332 Walter Library, 625-6013

The OMSSA Summer Institute is an intensive head-start program designed to help students of color develop college-level skills in English and Mathematics, so that they can successfully pursue their studies at the University of Minnesota. Approximately 200 incoming freshmen and current lower-division students will be admitted to the Summer Institute, which will run for seven weeks from late June through early August. All Summer Institute participants will receive a full stipend to cover their tuition, student fees and living expenses. Call the Learning Resource Centers for information.



■ **Other college services for minority students** are available. These programs provide supportive services for their students to supplement and personalize the general services provided by the University as a whole.

MLK Program—The College of Liberal Arts (CLA) has designated one of its many advising offices—the Martin Luther King (MLK) Program Office—to specifically serve the needs of minority students enrolled in CLA. The MLK office provides registration assistance, academic program planning, and tutorial services as well as special sections of classes for students it serves.

Project Technology Power's (PTP) main goal is to identify and remove barriers which discourage African, African American, American Indian, and Chicano/latino students from entering the Institute of Technology (IT) to prepare for careers in computer science, engineering or science. PTP's college programs offer practical support methods which assist students in successfully obtaining a degree from IT. These services include academic and career counseling, merit scholarships, tutoring, practice interviews and resume writing, and assistance in obtaining summer internships or permanent employment. For more information call 626-0219.

Student Services Special Programming—Assistance is

provided to students in the following areas: daycare funding through Project HELP; counseling, career and educational planning; registration assistance and tutorial services are available to students enrolled in TRIO.

In addition to these special services for minority students, the College of Liberal Arts and other undergraduate colleges have honors and other special interest programs for their enrolled students.

The University Libraries

The University of Minnesota-Twin Cities Libraries, with a collection of more than 4 million cataloged volumes, ranks among the largest American university libraries. In addition to books and periodicals, the libraries have substantial holdings of archives, audiovisuals, government documents, manuscripts, maps, microforms, scores, and other material.

The core collections, which comprise the backbone of the University Libraries holdings, are located in over 19 separate locations. The collections directly support the curriculum of the University and serve as the foundation for research.

Humanities and Social Sciences Collections

The main humanities and social sciences collections including American studies, anthropology, area studies, art, business, economics, film, geography, history, language, literature, philosophy, political science, religion, sociology, and women's studies, are found in Wilson Library on the West Bank.

The collections for education, library science, and psychology are found in Walter Library on the East Bank.

The collections in agriculture and applied economics, applied statistics, design, home economics, housing and apparel, family social sciences, rural sociology, textiles, and vocational and technical education, are housed in the St. Paul Central Library on the St. Paul campus.

Related Subject Collections

- Ames Library of South Asia (S-10 Wilson)
- Architecture Library (160 Architecture Building)
- East Asian Library (S-75 Wilson)
- Government Publications Library (409 Wilson)
- Journalism Library (Eric Sevareid Library, 121 Murphy Hall)
- Map Library (S-76 Wilson)
- Middle East Library (S-30 Wilson)
- Music Library (70 Ferguson Hall)

The Law Library (Law Center) contains a comprehensive legal literature collection including state and federal statutes; reports and regulations; legal periodicals and treatises; and a broad range of foreign and comparative international legal sources.

Science Collections

The health science collections including allied health, dentistry, medicine, mortuary science, nursing, pharmacy, and public health are available in the Bio-Medical Library in Diehl Hall.

Chemistry, engineering, geology and physics are among the science and technology collections in the Science & Engineering Library located in Walter Library.

St. Paul Central Library, on the St. Paul Campus, contains the agricultural, food science and nutrition, biotechnology, and biological science collections.

Related Subject Collections

- Biochemistry Library (406 Biological Sciences Center, St. Paul)
- Entomology, Fisheries & Wildlife Library (375 Hodson Hall, St. Paul)
- Forestry Library (B50 Natural Resources Administration Building, St. Paul)
- Mathematics Library (310 Vincent Hall)
- Natural History Library (305 Bell Museum of Natural History)

- Plant Pathology Library (395 Borlaug Hall)
- Veterinary Medicine Library (450 Veterinary Science, St. Paul)

Archives and Special Collections

- Andersen Horticultural Library (University of Minnesota Landscape Arboretum, Chanhassen)
- Charles Babbage Institute Archives (101 Walter)
- James Ford Bell Library (462 Wilson)
- Children's Literature Research Collections (109 Walter)
- Manuscripts Division (826 Berry St., St. Paul)
- Social Welfare History Archives (101 Walter)
- Special Collections and Rare Books Division (466 Wilson)
- University Archives (10 Walter)
- Wangensteen Historical Collection (568 Diehl Hall)

LUMINA

LUMINA, (Libraries of the University of Minnesota Integrated Network Access), serves as the major access point for the University Libraries' collections. This public on-line catalog currently provides access to over 2 million roman alphabet language records by author, subject, title and keyword. Each record contains all the bibliographic information for each item, as well as where the item is located within the University Libraries. LUMINA is accessible from any of over seventy public terminals available throughout the University Libraries; access is also possible from the Academic Computer Services and Systems laboratories located throughout the Twin Cities campus. It is also possible to dial into LUMINA using a personal computer and a modem. To connect to LUMINA, dial 626-2206. For hardware or software problems, call 626-2272.

Specialized Services

The University Libraries provide a number of services, including library instruction, computer-literature searching, inter-library borrowing, and photocopying.

The Libraries provide a variety of services for the disabled, including special aids, resources, and services. For more information about these services, contact the Office for Students with Disabilities, 12 Johnston Hall.

Circulation of Materials

Information regarding student, faculty and staff borrowing privileges can be obtained from any library circulation unit.

Library Hours

A recording of current library hours is available by calling 624-4552. Library hours for each quarter and finals/intersession are printed in the *Minnesota Daily* quarterly. A printed list of hours is also available at all libraries.

Campus Bus Service (Route 13)

Detailed information about University bus service between the Minneapolis and St. Paul campuses, between the East and West Banks, and to and from the Como Avenue parking complex is available at the main information centers in Coffman Union, the West Bank Union, Williamson Hall, the St. Paul Student Center, Housing Services in Comstock Hall, and University Transit Services at 2818 Como Avenue S.E., Minneapolis, MN 55414 (625-9000). (For information before or after normal business hours, call Medicine Lake Lines at 647-9290.)

Fares

There is no charge to ride the inter- or intra-campus buses, provided you board and exit at on-campus stops. The fare is 50¢ (85¢ as of July 1, 1991) at off-campus stops (plus a 25¢ surcharge during rush hours), or one punch on a special inter-campus bus reduced-fare discount card. These discount cards allow 20 rides for sizeable discounts and can be purchased at any University bursar's office or cashier's office, and the Coffman Union Service Center. By purchasing a *peak-hour* discount card, you avoid having to pay the 25¢ surcharge during the rush hours of 6 to 9 a.m. and 3:30 to 6:30 p.m.

Schedule

Between 7:05 a.m. and 6:05 p.m., inter and intra campus buses operate every 10 minutes (at 5, 25 and 45 minutes after each hour via Jones Hall and Como Avenue and at 15, 35 and 55 minutes after each hour via Washington and University Avenues). Between 6:05 p.m. and 10:05 p.m. there is only inter campus bus service and it operates every 20 minutes.

Wheelchair-accessible inter and intra campus bus service is available at 20 and 30 minute intervals throughout the day.

During the summer months, there is no campus bus service on Saturdays, Sundays or official University holidays.

More detailed schedules are posted at each campus bus stop and are printed in the *Minnesota Daily* on the first class day of each Summer Session. Schedules are also available on Route 13 campus buses and at the locations referred to in the introductory paragraph to the Campus Bus Service section above.

Central Reference and Research Service Points

HUMANITIES AND SOCIAL SCIENCES

Catalog/Library Information	Wilson Library, 1st floor
Business Reference	Wilson Library, 2nd floor
Education/Psychology Reference	Walter Library, 1st floor
Government Publications Reference	Wilson Library, 4th floor
Reference	Wilson Library, 1st floor
SCIENCES	
Bio-Medical Reference	Diehl Hall, 3rd floor (street level)
Science & Engineering Reference	Walter Library, 2nd floor
St. Paul Central Reference	Central Library, ground floor

Como Avenue S.E. and Robbins Avenue S.E. and Fairgrounds Park and Ride Lots

Free parking is available at the Como Avenue Park and Ride complex located near the intersection of Como and 29th Avenues S.E., just a few blocks west of Highway 280. Route 13 inter-campus buses make regular stops at the complex and the trip to either campus only takes about 6 minutes. The one-way cash bus fare at the "Como Lot" is 35¢, however bus fare discount cards offering 20 "Como Lot" rides for \$5 (25¢ per ride) are available at any University bursar's office or cashier's office, the Coffman Union Service Center, as well as at University Transit Services. These rates may increase on July 1, 1991.

The above bus fares also apply to the park and ride lot on Rollins and 15th Avenue S.E., plus there is a 50¢ charge to park in that lot. (75¢ as of July 1, 1991)

Route 13 inter-campus buses also serve the Fairgrounds parking complex. There is no bus fare to board or exit at the Fairgrounds Parking complex.

Route 52 Commuter and City Bus Service

The University and the Transit Board jointly operate a semi-express bus system known as the Route 52 Commuter Bus Service. It consists of twelve routes directly serving the University's Minneapolis Campus from various residential areas of the Twin Cities.

Information about the Route 52 Commuter Bus Service and other city bus routes serving the University area is available at the main information centers in Coffman Union, the West Bank Union, the St. Paul Student Center, Williamson Hall, the Housing Office in Comstock Hall, and the University's Transit Services Office, 2818 Como Avenue S.E., Minneapolis, MN 55414 (625-9000), and from the Metropolitan Transit Commission (545-1025).

Route Key

Route 13-F (Fairgrounds)	Travels between Blegen Hall on the West Bank and the St. Paul Student Center via Washington, University and Raymond Avenues, and the Fairgrounds parking complex. Route 13-F buses also stop on Washington Ave by Lyon Lab.
Route 13-G (Grove)	Travels between Blegen Hall on the West Bank and the St. Paul Student Center (and vice versa) via Como and Larpenteur Avenues. Route 13-G buses also stop at Jones Hall on the East Bank and in the University "Grove".
Route 13-N (Northern)	Travels from Blegen Hall on the West Bank to the St. Paul Student Center (and northern portions of the St. Paul campus (and vice versa) via Como and Larpenteur Avenues. Route 13-N buses also stop at Jones Hall.
Route 12-S (Southern)	Travels between Blegen Hall on the West Bank and the St. Paul Student Center (and southern portions of the St. Paul Campus) (and vice versa) via Como and Larpenteur Avenues. Route 13-S buses also stop at Jones Hall.
Route 13-U (University Ave.)	Travels between Blegen Hall on the West Bank and the St. Paul Student Center (and vice versa) via Washington and University Avenues. Route 13-U buses also stop on Washington Avenue just east of Church Street.

NOTE: All routes except Route 13-U and 13-F stop at the Como Lot.

Coming to the campus by automobile...

Directions to the University of Minnesota WEST BANK

If you are traveling...

Northbound on 35W:

Take the University of Minnesota, West Bank, exit. Make a right on Washington Avenue. Continue on Washington (which changes to Cedar) to campus.

Southbound on 35W:

Take the Washington Avenue exit. Make a left on Washington. Continue on Washington (which changes to Cedar) to campus.

Eastbound on I-94

Take the 35W exit and continue to the University of Minnesota, West Bank exit. Make a right on Washington Avenue. Continue on Washington (which changes to Cedar) to campus.

Westbound on I-94

Take the Cedar Avenue exit. Make a right. Take Cedar to Riverside Avenue. Make a right on Riverside. Continue to campus.

Direction to the University of Minnesota EAST BANK

If you are traveling...

Northbound on 35W:

Take the University Avenue exit. Make a right on University. Continue to campus

Southbound on 35W:

Take the University Avenue exit. Make a left on University. Continue to campus.

Eastbound on I-94:

Take the University of Minnesota exit. Make a left on Fulton. Take Fulton to Oak Street. Make a right on Oak. Take Oak to Washington Avenue. Make a left on Washington. Continue to campus.

Westbound on I-94:

Take the University of Minnesota exit. Follow the same directions for eastbound I-94.

The Minnesota Unions

All Twin Cities campus students, through payment of the student services fee, become members of the Minnesota Unions, an association of students, faculty, staff, and alumni. The Minnesota Unions provide intellectual, cultural, social, and recreational services, programs, and activities for the University community.

Three organizations make up the Minnesota Unions: 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.

CMU has lounges, study areas, the newly renovated International Court on the ground level, several snack areas, dining facilities, a recreation/games complex, and an art/craft studio, 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 an International Court, cultural centers, MSA Store, a copy service, a credit union, University YW, newsstands, the locker rental service, WMMR radio station, the International Study and Travel Center, the Golden Razor Barber and Beauty Salon, and a service center offering postal, MTC transit, discounted entertainment tickets and parking coupons.

Summer hours for CMU are 7 a.m. to 10 p.m. Monday through Thursday; Friday, 7 a.m. to 6 p.m.; closed on the weekends. Hours may be subject to change. Consult the *Minnesota Daily* for specific program events, times, and dates. For further information about programs, services, and facilities at Coffman Union, call the CMU Information Center at 625-4177 during building hours.

St. Paul Student Center

The air-conditioned St. Paul Student Center is open during the summer session

from 7:00 a.m. to 10:00 p.m. Monday through Friday. The center offers a variety of services and programs to ensure that your summer on campus is an enjoyable one.

The Terrace Cafe provides breakfast, lunch, and snacks from 7:00 a.m. to 2:30 p.m. with both indoor and outdoor seating available. Books Underground, the campus bookstore, is open weekdays 8:00 a.m. to 4:30 p.m. and carries course texts, books for leisure reading, school supplies, and U of M souvenirs. Also on campus is the Outdoor Store which sells outdoor gear, and rents canoes, tents, and camping equipment. If you need copies or self-service word processing, Copies on Campus is open from 8 a.m. to 4:30 p.m. Both are located on the lower level. For questions concerning campus and Student Center facilities and activities, stop by Information Services on the lower level or call 625-7200. Information Services also sells snacks, candy, tobacco, MTC bus passes, and movie and entertainment discount tickets.

West Bank Union

West Bank Union facilities include common rooms in

Anderson Hall for study; Blegen Hall and the Upper Concourse Study Area in Willey Hall for reading, lounging, study, and conversation. The West Bank Union office in Room 130 of the WBU Skyway offers program information, room rental, and general assistance. The WBU Program Hall (the Lower Level of Willey Hall) includes the WBU Auditorium, Fireplace Room, and Amphitheater. These spaces are for rent for groups from two to 150.

The Skyway Service Center (located in the Skyway entrance to Willey Hall) offers magazines, MTC bus passes, movie discount tickets, candy, locker rental, tobacco products, parking coupons, newspapers, and assorted sundries. The summer hours of the Skyway Service Center are 8:30 a.m.-4:30 p.m., Monday through Friday.

All West Bank Union facilities are air-conditioned.

Hours for the West Bank Union are 8:00 a.m. to 4:30 p.m. Monday through Friday. For further information about programs, see WBU ads in the *Minnesota Daily*, or call 624-5200 during business hours.



Museums

Bell Museum of Natural History

The James Ford Bell Museum of Natural History is permanent home to some of the nation's finest exhibits of Minnesota wildlife. The Jaques Gallery and Ground Floor Gallery feature changing temporary exhibits on a variety of natural science topics. The Museum also features the Blue Heron Bookshop, education programs for the public and the University's natural history library. In the Touch and See Room, visitors of all ages are invited to examine the animal skins, horns and antlers, and other natural items throughout the room. Trained staff are available to aid in the discovery process.

The Museum is accessible to the handicapped. It is located at 17th and University Avenues S.E. on the Minneapolis campus. The Museum is open from 9 a.m. to 5 p.m. Tuesday through Saturday, and from 1 to 5 on Sundays. It is closed on Mondays and holidays. Call 624-1852 for group reservations, information on exhibits and programs, and for fees. Admission: members, free; adults, \$2.00; youths (3-16), students, senior citizens 62 or over, \$1.00; children under 3, U of M students, free; **Thursdays, free.** The mailing address is: 10 Church St. S.E., Minneapolis, MN 55455.

University Art Museum

The Art Museum, located on the third and fourth floors of Northrop Auditorium, presents frequently changing exhibitions of photographs, paintings, sculpture, prints, and decorative arts and related interdisciplinary events.

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

Museum hours are 11 a.m. to 5 p.m. Monday, Tuesday, Wednesday, Friday; 11 a.m. to 8 p.m. Thursday, and 2 to 5 p.m. Sunday. The Museum is closed on Saturday and University holidays. Admission is free. The Administrative office is located in 110 Northrop Auditorium, 624-9876.

University Child Care Center

The University Child Care Center provides care for infants and toddlers as well as preschool children. The center is open Monday through Friday throughout the year from 7:15 a.m. to 5:30 p.m. Fees for care are charged on a sliding scale based on family income, and age of child. There is a waiting list. For further information, call the University Child Care Center, 1818 4th Street South, Minneapolis, MN 55454; call 627-4014.

Housing

Minneapolis Residence Halls

Space in Middlebrook Hall has been reserved for summer session students for 1991. Middlebrook Hall is a coeducational, air conditioned residence hall on the West Bank. Nearly all rooms are doubles (very limited number of singles). A seven day per week (21 meal) food service program under the direction of a professional food manager is part of the contract. Meal service begins on the first day of class each session.

Applications for residence will be filled in order of date received. To assure a choice of rooms, applications should be submitted as soon as possible. For information and application forms, contact Housing Services, Comstock Hall-East, 210 Delaware Street S.E., Minneapolis, MN 55455 (612) 624-2994.

St. Paul Residence Hall

Bailey Hall will be open as a conference facility during the summer of 1991. A limited number of spaces for summer session students will be available. No food service is available at Bailey. Bailey accommodations will be in non-air conditioned double rooms. For information, contact Housing Services, Comstock Hall-East, 210 Delaware Street S.E., Minneapolis, MN 55455 (612/624-2994).

Off-Campus Housing in Private Residences

Apartments, houses, duplexes, sublets, roommate requests, and rooms in private homes, rooming houses, cooperatives, fraternities and sororities are listed by the Division of Off-Campus Housing. A summer sublet list is available upon request. Most units are offered approximately one month before they are available for occupancy. During the past several years, over 8,000 rental units have been listed.

For more information about specific services, contact the Division of Off-Campus Housing, Comstock Hall-East, University of Minnesota, 210 Delaware Street S.E., Minneapolis, MN. 55455. (612 624-2994). During the summer months the Division also provides listings and counseling in 190 Coffey Hall on the St. Paul campus. This service is available from July through September.

Recreational Sports Facilities

The University of Minnesota provides students with recreational programs at little or no additional cost to the student. The Department of Recreational Sports offers activities in the areas of open recreation, fitness, intramurals, and sport clubs.

Indoor and outdoor facilities are available for swimming, running, weight-lifting, tennis, and many other activities through the open recreation program. These facilities are on both the Minneapolis and St. Paul campuses. Fitness programs, such as aerobic dance classes, are also offered—usually at reduced rates for students.

Students may sign up as individuals or as teams in the intramural leagues. Sand volleyball, softball, and soccer are played each summer. Nearly 40 sport clubs, covering a vast variety of sports, provide unique recreational opportunities for students.

Complete information on all of these programs is available at 101 Cooke Hall, 625-6800 (Minneapolis) or at 104 St. Paul Gymnasium, 625-8283. Pool hours are on the SPLASH Line: 624-7050.

The University of Minnesota Centennial Showboat, docked on the river flats below the East Bank campus

Summer Entertainment

Big bands, jazz, upbeat classics—all kinds of music and entertainment events make the Summer at Northrop Festival a campus highlight each year. Events run from June through August. Most are free and performed outdoors on the Northrop Mall during the noon hour so people can enjoy them during lunch. This lively festival is presented by Summer Session.

Watch for schedules of the Summer at Northrop events. Calendars are available during the first week's events on the Northrop Mall or may be picked up in June at the Northrop Ticket Office, 105 Northrop Auditorium. Also, ads in the *Minnesota Daily* announce upcoming performances.

In addition to free events, the Summer at Northrop Festival occasionally presents special concerts and performances by renowned artists. Tickets for these attractions are offered at a discount to Summer Session day students who present a fee statement for their Summer Session registration at the Northrop Ticket Office (624-2345), which is open weekdays from 8:30 a.m. to 5:00 p.m.

Theatre—During the summer months of June through August, University Theatre offers theatre productions aboard the Minnesota Centennial Showboat. The Showboat is a real sternwheel riverboat moored on the Mississippi River. Audiences enjoy lighthearted musical entertainment or melodramas aboard the air-conditioned Showboat. Call 625-4001 for ticket information and reservations.



University Counseling Services

The University Counseling Services, 109 Eddy Hall (624-3323), 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 University Counseling Service is wide, including career choice, educational planning, academic and learning skills improvement, interpersonal relationships, women's issues, 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. Counseling and testing information is confidential.

Disability Services

The University's mission is to provide optimal educational opportunities for all students including those with physical, sensory, learning, and/or psychological disabilities. The University recognizes that disabled students sometimes have unique needs that must be met for them to have access to campus programs and facilities. In general, University policy calls for accommodations to be made on an individualized and flexible basis. It is the responsibility of students to seek assistance at the University and to make their needs known.

One of the first places to seek assistance is the Office for Students With Disabilities (OSD). This office is provided by the University of Minnesota to promote program and physical access, which means ensuring the rights of disabled students and assisting the University in meeting its obligations under Federal and State statutes. OSD provides direct assistance such as information, referral, advocacy, support, and academic accommodations (i.e., interpreters, readers, tutors, etc.) for enrolled and prospective students, as well as consultation to faculty and staff to ensure access to their programs and facilities. The office will also assist disabled students in obtaining services from other University or community resources. Educational specialists are available to assist students who have learning disabilities and sensory impairments; a counselor provides services to students with physical and/or psychological disabilities, as well as serving as a liaison between the University and the Division of Rehabilitation Services. For more information contact: The Office for Students With Disabilities, 16 Johnston Hall, 624-4037 (Voice or TDD).



BUILDING ABBREVIATIONS AND BUILDING ACCESSIBILITY INFORMATION

MINNEAPOLIS

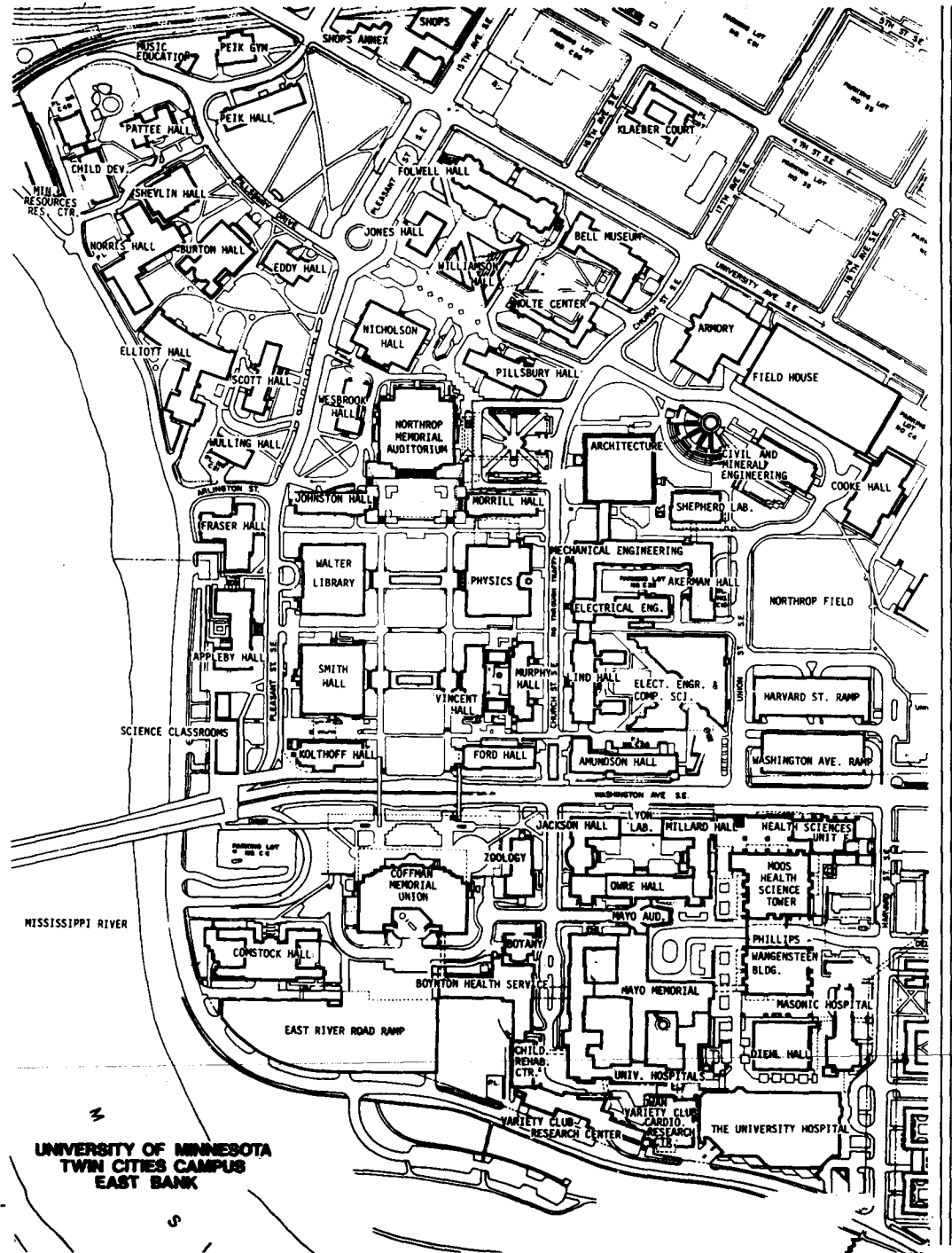
East Bank

AkerH, Akerman Hall □
 AmundH, Amundson Hall ◌* L
 ApH, Appleby Hall ■*
 Arch, Architecture ◌* L
 Armory □
 BellMus, Museum of Natural History ◌* L
 BFAB, Bierman Field Athletic Building □* L
 Botany □
 BoynHS, Boynton Health Service ◌* L
 BuH, Burton Hall ◌* L
 CenH, Centennial Hall
 ChDev, Child Development ◌*
 ChRC, Children's Rehabilitation Center ◌*
 L
 CivMinE, Civil and Mineral Engineering ◌*
 L
 CMU Coffman Memorial Union ◌* L
 ComH, Comstock Hall □
 CookeH, Cooke Hall ■
 DiehlH, Diehl Hall ◌*
 DVCCRC, Dwan Variety Club
 Cardiovascular
 Research Center ◌* L
 EddyH, Eddy Hall ■
 EdHAN, Eddy Hall Annex
 EE/CSci, Electrical Engineering/Computer
 Science Building ◌* L
 ElectE, Electrical Engineering □
 EltH, Elliott Hall ◌* L
 FieldHse, University Field House
 FolH, Folwell Hall ◌* L
 FordH, Ford Hall ◌* L
 FraserH, Fraser Hall □
 FronH, Frontier Hall ◌*
 HL, St. Anthony Falls Hydraulic Laboratory
 (Hennepin Island)
 HSUnitF, Health Sciences Unit F ◌* L
 Jach, Jackson Hall ◌*
 JOAd, Jackson-Owre Addition ◌*
 JohH, Johnston Hall ◌* L
 JonesH, Jones Hall ■
 KlaCt, Klaeber Court □
 Kolth, Kolthoff Hall ◌* L
 LindH, Lind Hall ◌* L
 LyonL, Lyon Laboratories
 Mayo, Mayo Memorial ◌* L
 MechE, Mechanical Engineering ◌* L

MirdH, Millard Hall ◌*
 MMA, Mayo Memorial Auditorium □
 MoosT, Moos Health Sciences Tower ◌* L
 MorH, Morrill Hall ◌* L
 MRRC, Mineral Resources Research
 Center ■
 MurH, Murphy Hall ■
 MusEd, Music Education ■
 NichH, Nicholson Hall ◌* L
 NMA, Northrop Memorial Auditorium ◌* L
 NorrisH, Norris Hall □ L
 OwreH, Owre Hall ◌* L
 PeikG, Peik Gym □
 PeikH, Peik Hall □*
 Phys, Tate Laboratory of Physics ◌*
 PIH, Pioneer Hall □
 PillsH, Pillsbury Hall
 PtH, Pattee ◌*
 PWB, Phillips Wangensteen Building ◌* L
 SaH, Sanford Hall ■
 SciCB, Science Classroom Building □*
 ScottH, Scott Hall ■
 ShepLab, Shepherd Laboratories ◌*
 ShevH, Shevlin Hall ◌*
 SmithH, Smith Hall ◌*
 Stad, Stadium □ L
 TerH, Territorial Hall ■
 UAqCtr, University Aquatic Center ◌* L
 UHosp, University Hospital ◌* L
 VinH, Vincent Hall ◌*
 WaLib, Walter Library ◌* L
 WesH, Wesbrook Hall ■
 WmsA, Williams Arena □ L
 WmsonH, Williamson Hall ◌* L
 WullH, Wulling Hall □*
 Zoology ◌* L

CODES:

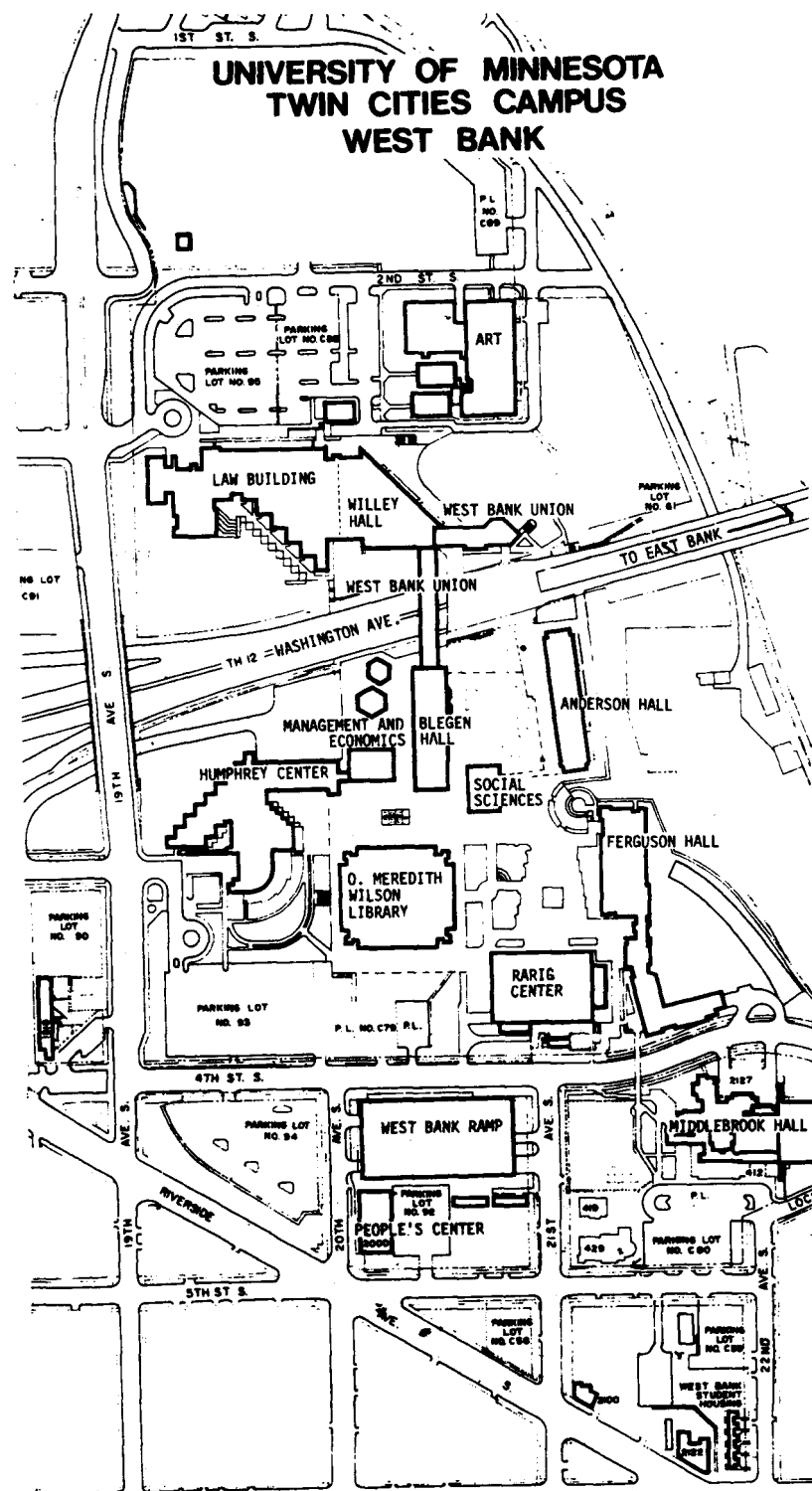
- ◌ = accessible building
- = partially accessible
- = inaccessible building
- * = elevator
- L = adapted restroom



For a map, *Campus Accessibility Guide*, and further information, contact the Office for Students with Disabilities at 624-4037.

BUILDING ABBREVIATIONS AND BUILDING ACCESSIBILITY INFORMATION

MINNEAPOLIS West Bank



AndH, Anderson Hall ♂*
 ArtB, Art Building (2020 Washington Ave S)

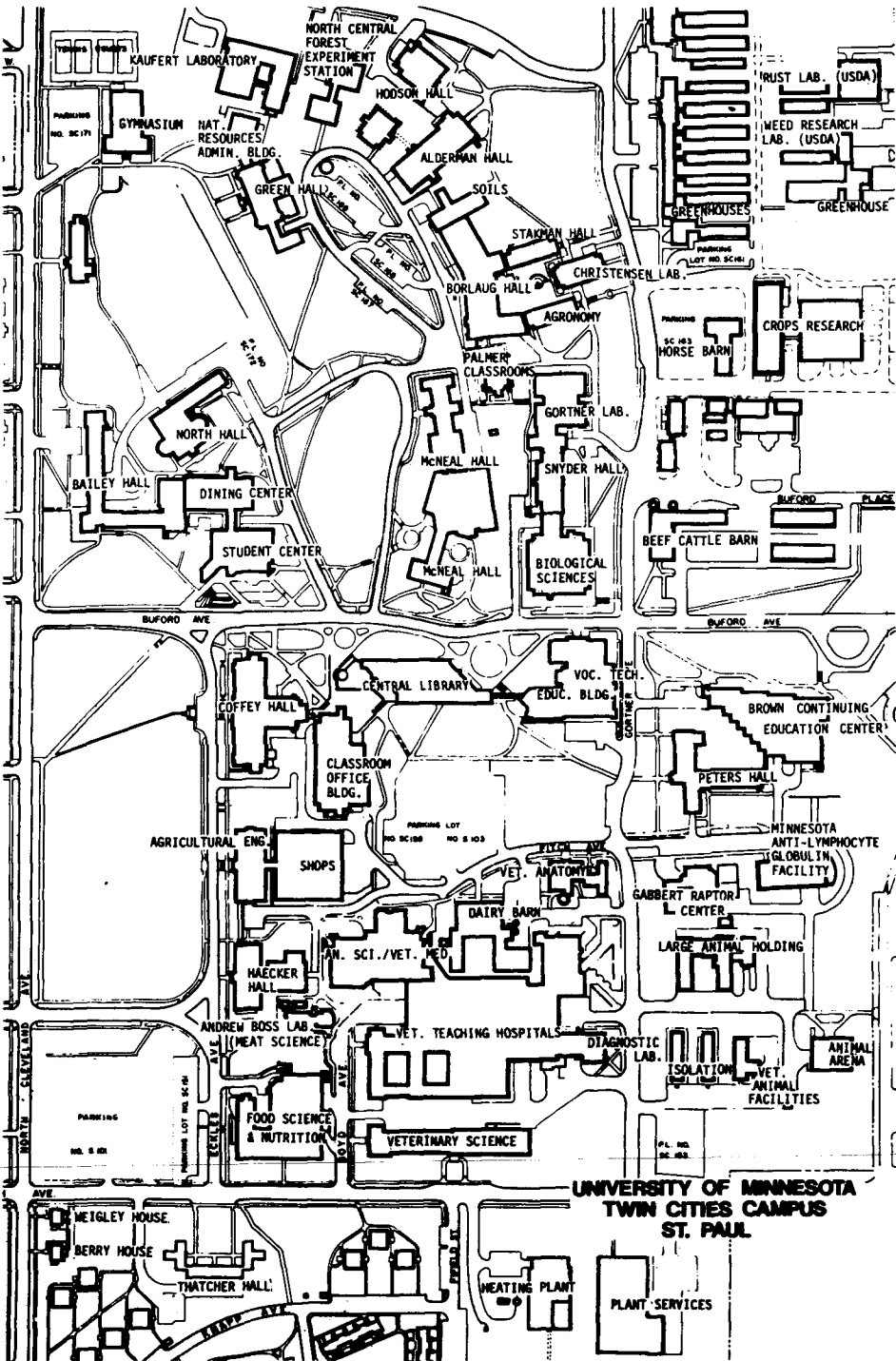
BlegH, Blegen Hall ♂* L
 FergH, Ferguson Hall ♂* L
 HHH Ctr, Humphrey Center ♂* L
 Law, Law Building ♂* L
 MdbH, Middlebrook Hall ♂* L
 Mgmt/Econ, Management/Economics Building ♂*
 OMWL, O Meredith Wilson Library ♂* L
 PeoCtr, People's Center (2000 5th Street)
 RarigC, Rarig Center ♂* L
 SocSci, Social Sciences Building ♂*
 WBU, West Bank Union ♂L
 WilleyH, Willey Hall ♂* L

CODES:
 ♂ = accessible building
 □ = partially accessible
 ■ = inaccessible building
 * = elevator
 L = adapted restroom

For a map, *Campus Accessibility Guide*, and further information, contact the Office for Students with Disabilities at 624-4037.

BUILDING ABBREVIATIONS AND BUILDING ACCESSIBILITY INFORMATION

ST. PAUL



ABLMS, Andrew Boss Laboratory-Meat Science ◊*
 AgEng, Agricultural Engineering ◻*
 AgEngShop, Agriculture Engineering Shop ◊
 Agr, Agronomy ■
 AgGhCl, Agronomy Greenhouse Classroom ◊
 AgrPGGh, Agronomy/Plant Genetics Greenhouse
 AlderH, Alderman Hall ◊*
 AnAren, Animal Arena
 AnScVM, Animal Science, Veterinary Medicine ◻*
 BCB, Beef Cattle Barn ◊
 Berry, Berry House (1304 Cleveland Ave N) ◻
 BioSci, Biological Sciences Center ◻*
 BorH, Borlaug Hall ◊* L
 CentLib, St. Paul Campus Central Library ◊*
 ClaOff, Classroom Office Bldg ◊*
 CofH, Coffey Hall ◊*
 DinC, Dining Center ◊*
 EBCEC, Earle Brown Continuing Education Center ◊* L
 FScN, Food Science and Nutrition ◊*

GorL, Gortner Laboratory of Biochemistry ◊*
 GrnH, Green Hall ◊* L
 Gym, Gymnasium ■
 HckrH, Haecker Hall ◻
 HodsonH, Hodson Hall ◊*
 HrG, Horticulture Greenhouse
 KaufL, Kaufert Laboratory ◊*
 McNH, McNeal Hall ◊* L
 NatResAd, Natural Resources Administration Building ◊* L
 NorH, North Hall ■
 PetH, Peters Hall ◻
 PISci, Plant Sciences ■
 SnH, Snyder Hall
 Soils ◊*
 StakH, Stakman Hall of Plant Pathology ■
 StCen, Student Center ◊* L
 VetA, Veterinary Anatomy ◻
 VetDL, Veterinary Diagnostic Laboratories ■
 VetS, Veterinary Science ■
 VetTchHos, Veterinary Teaching Hospitals ◻
 VoTech, Vocational-Technical Education ◊* L
 Weigley, Weigley House (1316 Cleveland Ave N)

CODES:

- ◊ = accessible building
- ◻ = partially accessible
- = inaccessible building
- * = elevator
- L = adapted restroom

For a map, *Campus Accessibility Guide*, and further information, contact the Office for Students with Disabilities at 624-4037.

COMPLETING YOUR COURSE REQUEST FORM

Chris R. Student
147-83-2659

1 Print name (last, first, middle) and ID number or Social Security number.

2 College of Enrollment Liberal Arts

3 Major

4 Street Address 4627 S. Elm Street
City Minneapolis State MN Telephone Number 373-4343
Zip Code 55455

5 Term and Year Fall Winter Spring Summer Session I Summer Session II 1990

6 Registration: Number of credits 8 Cancel/Add: Number of credits after change _____ Complete Cancellation

NOTE: Fill in VARIABLE CREDITS only if credits are listed as "ar cr" in the Class Schedule. Fill in GRADE OPTION if mandatory grading is not listed in the Class Schedule. To change grade option or variable credits, list course as both cancellation and addition.

COURSE(S)—First Choice (original registration)				COURSE(S)—Second Choice (or cancel/add additions)				CANCELLATIONS	
CALL NUMBER	GRADE OPTION	VARIABLE CREDITS	DESIGNATOR, COURSE NUMBER, AND SECTION	CALL NUMBER	GRADE OPTION	VARIABLE CREDITS	DESIGNATOR, COURSE NUMBER, AND SECTION	CALL NUMBER	DESIGNATOR, COURSE NUMBER, AND SECTION
7 (A) 789179	(B) S-N	(C)	(D) Comp 1027-1	(8) 887410			Art # 3014	(9)	
691605			Hist 1301						

10 MPIRG (optional)
Minnesota Public Interest Research Group is described in the Class Schedule. The MPIRG fee is \$2.50 per quarter (or \$1.25 per summer term) for those who pay the student services fee. Payment is refundable through MPIRG. If you choose NOT to pay, initial here.

11 ADVISER APPROVAL (if needed)
[Signature]

12 ADDITIONAL APPROVAL (if needed)

A22-otr 9/88

- 1 Print your name and student ID number (or Social Security Number).
- 2 Print the college in which you are enrolled.
- 3 Print your major.
- 4 Print your complete address and phone number.
- 5 Indicate the term (fall, winter, spring, summer I, or summer II) and year for which you are registering.
- 6 Check the box for registration if this is your first registration for the quarter or term and fill in the number of credits for which you are registering. If you are making changes in your original registration (cancel/ adding), check the cancel/add box and fill in the number of credits you will have after completing those changes. Check the "Complete Cancel" box if you are cancelling all courses.
- 7 This section is for your first choice course requests:
 - A Print the six digit call number. (The call number is to the left of each course listing or each section of a course.)
 - B Mark the grading system you are requesting, only if the course is offered for both A-F and S-N. See example above and read the paragraph on Grading Option on page 27 of this Class Schedule for further information.
 - C Print the number of credits only if you are registering for a variable credit course (i.e., 1-4 cr.) or an arranged credit course (ar cr). See example above.
- 8 This section is for your second choice course requests. Plan alternatives for all parts of the course (e.g., lecture, lab, recitation) in case your first choice requests are closed or otherwise unavailable. If you are cancel/adding, list any course additions here.
- 9 Provide the call number, designator, course, and section numbers for any courses you are cancelling. Remember to indicate your credit total in section 6.
- 10 MPIRG—see instructions on form. The Minnesota Public Interest Research Group (MPIRG) is a nonprofit, nonpartisan, student-run organization funded at the Twin Cities campus by an optional quarterly fee of \$2.50. A statewide advocacy group, MPIRG gives students the opportunity to speak out on public issues and work for social change. The fee supports a professional staff for lobbying, litigation, organizing, and research.
- 11 College, department, and/or adviser approval, as required.
- 12 Additional approval, as required.

UM COURSE REQUEST
University of Minnesota

Print name (last, first, middle) and ID number or Social Security number

College of Enrollment			Street Address			Telephone Number			
Major			City		State	Zip Code			
Term and Year			<input type="checkbox"/> Fall <input type="checkbox"/> Winter <input type="checkbox"/> Spring <input type="checkbox"/> Summer Session I <input type="checkbox"/> Summer Session II			19__			
<input type="checkbox"/> Registration: Number of credits ____			<input type="checkbox"/> Cancel/Add: Number of credits after change ____			<input type="checkbox"/> Complete Cancellation			
NOTE: Fill in VARIABLE CREDITS only if credits are listed as "ar cr" in the Class Schedule. Fill in GRADE OPTION if mandatory grading is not listed in the Class Schedule. To change grade option or variable credits, list course as both cancellation and addition.									
COURSE(S)—First Choice (original registration)				COURSE(S)—Second Choice (or cancel/add additions)				CANCELLATIONS	
CALL NUMBER	GRADE OPTION	VARIABLE CREDITS	DESIGNATOR, COURSE NUMBER, AND SECTION	CALL NUMBER	GRADE OPTION	VARIABLE CREDITS	DESIGNATOR, COURSE NUMBER, AND SECTION	CALL NUMBER	DESIGNATOR, COURSE NUMBER, AND SECTION
MPIRG (optional) Minnesota Public Interest Research Group is described in the Class Schedule. The MPIRG fee is \$2.50 per quarter (or \$1.25 per summer term) for those who pay the student services fee. Payment is refundable through MPIRG. If you choose NOT to pay, initial here → <input type="checkbox"/>				ADVISER APPROVAL (if needed)				ADDITIONAL APPROVAL (if needed)	

A22-otr 9/88

UM COURSE REQUEST
University of Minnesota

Print name (last, first, middle) and ID number or Social Security number

College of Enrollment			Street Address			Telephone Number			
Major			City		State	Zip Code			
Term and Year			<input type="checkbox"/> Fall <input type="checkbox"/> Winter <input type="checkbox"/> Spring <input type="checkbox"/> Summer Session I <input type="checkbox"/> Summer Session II			19__			
<input type="checkbox"/> Registration: Number of credits ____			<input type="checkbox"/> Cancel/Add: Number of credits after change ____			<input type="checkbox"/> Complete Cancellation			
NOTE: Fill in VARIABLE CREDITS only if credits are listed as "ar cr" in the Class Schedule. Fill in GRADE OPTION if mandatory grading is not listed in the Class Schedule. To change grade option or variable credits, list course as both cancellation and addition.									
COURSE(S)—First Choice (original registration)				COURSE(S)—Second Choice (or cancel/add additions)				CANCELLATIONS	
CALL NUMBER	GRADE OPTION	VARIABLE CREDITS	DESIGNATOR, COURSE NUMBER, AND SECTION	CALL NUMBER	GRADE OPTION	VARIABLE CREDITS	DESIGNATOR, COURSE NUMBER, AND SECTION	CALL NUMBER	DESIGNATOR, COURSE NUMBER, AND SECTION
MPIRG (optional) Minnesota Public Interest Research Group is described in the Class Schedule. The MPIRG fee is \$2.50 per quarter (or \$1.25 per summer term) for those who pay the student services fee. Payment is refundable through MPIRG. If you choose NOT to pay, initial here → <input type="checkbox"/>				ADVISER APPROVAL (if needed)				ADDITIONAL APPROVAL (if needed)	

A22-otr 9/88



REQUEST FOR SUMMER-ONLY STATUS

University of Minnesota

Please see the instructions in the Summer Session Bulletin. Please print.

U of M Student ID Number (if any)		Social Security Number		Birthdate (month/day/year)	
Student Name (last, first, middle)					
Street Address (for mailing grades)				Telephone Number	
City		State	Zip Code	Sex (check one): <input type="checkbox"/> Male <input type="checkbox"/> Female	
To which University of Minnesota college are you submitting your request?				Summer Term/Year <input type="checkbox"/> I <input type="checkbox"/> II 19__	
Have you registered before at any University of Minnesota campus? <input type="checkbox"/> Yes <input type="checkbox"/> No					
If yes: <input type="checkbox"/> Day (including past summers) <input type="checkbox"/> Extension					
If day: Campus: <input type="checkbox"/> Crookston <input type="checkbox"/> Duluth <input type="checkbox"/> Morris <input type="checkbox"/> Twin Cities <input type="checkbox"/> Waseca					
Date of Last Enrollment _____ College _____					
Student Name (at time of last enrollment) _____					
Have you ever applied or been admitted to the University of Minnesota? <input type="checkbox"/> Yes <input type="checkbox"/> No					
If day: Campus: <input type="checkbox"/> Crookston <input type="checkbox"/> Duluth <input type="checkbox"/> Morris <input type="checkbox"/> Twin Cities <input type="checkbox"/> Waseca					
College _____ Term/Year _____ 19__					
Student Name (at time of application) _____					
Have you received an admission letter? <input type="checkbox"/> Yes <input type="checkbox"/> No					

FOR STUDENTS CURRENTLY OR PREVIOUSLY ENROLLED IN ANOTHER UNIVERSITY OR COLLEGE

Previous College or University (most recent)		Major Field of Study	
Number of Credits Earned (indicate quarter or semester)		Approximate GPA (4.00 scale)	
Did you graduate? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes: Degree Earned _____ Date Granted _____			

FOR HIGH SCHOOL STUDENTS

Name of High School	Last Grade Completed Before Summer Session Starts
---------------------	---

for college use only	for records office use only
<input type="checkbox"/> approved for summer-only registration	initials _____
college code _____	date _____
_____	_____
college approval or stamp	date


STUDENT HOSPITALIZATION INSURANCE
 University of Minnesota

<input type="checkbox"/> Summer Term I <input type="checkbox"/> Summer Term II	
Student Name (last, first, middle initial)	Student ID Number
<p>If you are taking 3 or more credits, you will automatically be charged for University-sponsored hospitalization insurance unless you check the first box below, fill in the name of your insurance company and policy number, and sign the bottom of this form. (If you are taking 3 or more credits and do not have hospitalization insurance, you do not have to fill out this form.)</p> <p><input type="checkbox"/> I am adequately covered by the hospitalization insurance indicated below. (If you do not provide complete information, you will be charged for insurance.) You may receive a full refund by returning to the Registration Center with your insurance information by the end of the first week of classes.</p>	
Name of Insurance Company or HMO	Policy Number
<p><input type="checkbox"/> Although I am taking fewer than 3 credits, I would like to purchase University-sponsored hospitalization insurance. I understand that I will also be charged the student services fee.</p>	
Signature	Date

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STUDENT HOSPITALIZATION INSURANCE
 University of Minnesota

<input type="checkbox"/> Summer Term I <input type="checkbox"/> Summer Term II	
Student Name (last, first, middle initial)	Student ID Number
<p>If you are taking 3 or more credits, you will automatically be charged for University-sponsored hospitalization insurance unless you check the first box below, fill in the name of your insurance company and policy number, and sign the bottom of this form. (If you are taking 3 or more credits and do not have hospitalization insurance, you do not have to fill out this form.)</p> <p><input type="checkbox"/> I am adequately covered by the hospitalization insurance indicated below. (If you do not provide complete information, you will be charged for insurance.) You may receive a full refund by returning to the Registration Center with your insurance information by the end of the first week of classes.</p>	
Name of Insurance Company or HMO	Policy Number
<p><input type="checkbox"/> Although I am taking fewer than 3 credits, I would like to purchase University-sponsored hospitalization insurance. I understand that I will also be charged the student services fee.</p>	
Signature	Date

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Summer Session
135 Johnston Hall
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Mpls MN 55455



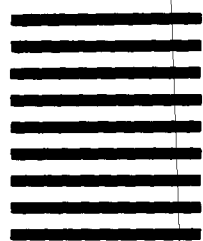
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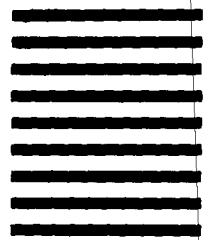
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IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 16972 MINNEAPOLIS, MN

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UNIVERSITY OF MINNESOTA
100 CHURCH ST SE
MINNEAPOLIS MN 55455-9817



**College of Education Students Only
Mail Registration Request**

I will be registering for courses in the College of Education (I have read the Registration Section). Please send me mail registration materials for the 1991 Summer Session.

Please Print.

Name _____

Address _____

City _____ State _____ Zip _____

Telephone (_____) _____

Check appropriate status

College of Education Student _____ ID# _____

Inservice Teacher _____

Not a teacher, but registering for education courses _____

I plan to be a summer-only student registering through the College of Liberal Arts (I have read the Registration Section). Please send me registration materials for the 1991 Summer Session.

Please Print.

Name _____

Address _____

City _____ State _____ Zip _____

Telephone (_____) _____

Programs for High School Students

High ability students may want to investigate one of the special programs available to them this summer.

Please send me information on:

___ Summer Honors College

___ Itasca Field Biology

___ Honors Institute in Theatre

Enrichment Program

___ The Summer Scholars Program,
Morris

Please Print.

Name _____

Address _____

City _____ State _____ Zip _____

Telephone (_____) _____

UNIVERSITY OF MINNESOTA

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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, religion, color, sex, national origin, handicap, age, veteran status, or sexual orientation. In adhering to this policy, the University abides by the requirements of the Minnesota Rights Act, Minnesota Statute Ch. 363, by the Federal Civil Rights Act, 42 U.S.C. 2000e; By Title IX of the Education Amendments of 1972; by Sections 503 and 504 of the Rehabilitation Act of 1973; by Executive order 11246, as amended; 38 U.S.C. 2012; by the Vietnam Era Veterans Readjustment Assistance Act of 1972, as amended; and by other applicable statutes and regulations relating to equality of opportunity.

Inquiries regarding compliance may be addressed to Patricia A. Mullen, Director, Office of Equal Opportunity and Affirmative Action, 419 Morrill Hall, University of Minnesota, 100 Church Street S.E., Minneapolis, MN 55455 (612/624-9547) or the Director of the Office of Civil Rights, Department of Education, Washington, DC 20202, or to the Director of the Office of Federal Contract Compliance Programs, Department of Labor, Washington, DC 20210.

Bulletin Use

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Access to Student Educational Records

In accordance with regents' policy on access to student records, information about you generally may not be released to a third party without your permission. (Exceptions under the law include state and federal education and financial aid institutions.) The regents' policy also permits you to review your educational records and to challenge the contents of those records.

Some student information—name, address, telephone number, dates of enrollment and enrollment termination, college and class, major, adviser, and degrees earned—is considered public or directory information. You may prevent release of public information outside the University only during your terms of enrollment. To do so, you must notify the records office on your campus.

The regents' policy, including a directory of student records, is available for review at the information center in Williamson Hall, Minneapolis, and at records offices on other campuses of the University. Questions may be directed to the Office of the Registrar, 150 Williamson Hall (612/625-5333).

COLLEGE OF EDUCATION STUDENTS ONLY

Previous MEd, Adult Special, and Summer-only students may register by mail for both terms. See Registration Section for limitations. To request registration materials, complete and return the card at the right. If you intend to register by mail, please act promptly; all registration materials must be received by the College of Education between May 1 and May 25.

CLA summer-only students who qualify (see Registration Section of this bulletin) may register by mail. To request registration materials, complete and return the card at the right. Please act promptly; all registration materials must be received before June 1.

SUMMER SCHOLARS PROGRAM

High ability high school students may want to participate in one of the special programs available to them this summer. Short descriptions of these programs can be found in the Special Programs Section of this bulletin. For further information about the Summer Honors College, the Honors Institute in Theatre, Summer Scholars Program in Morris, or the Itasca Field Biology Enrichment Program, please complete the postage-paid return card at the right and mail it to the Summer Session.

Summer Session
University of Minnesota
135 Johnston Hall
101 Pleasant Street S.E.
Minneapolis, MN 55455

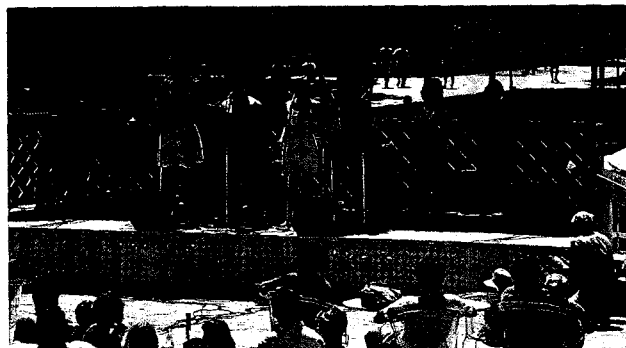
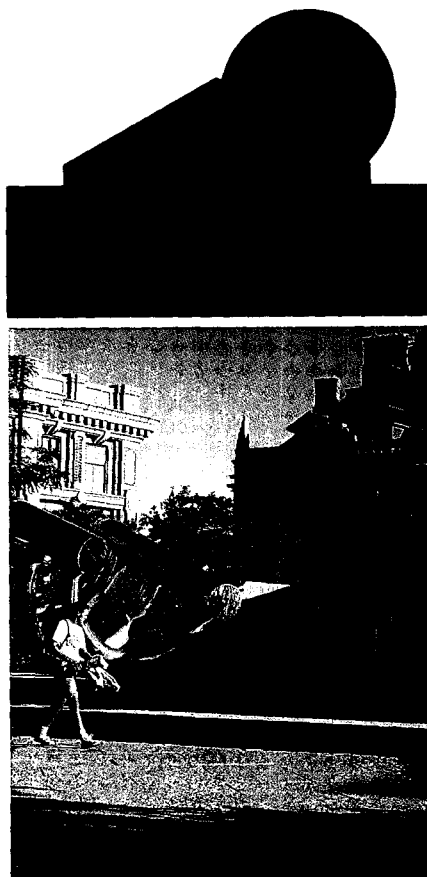
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Summer Session office hours:
7:45 a.m. - 4:30 p.m.
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