

University of Minnesota Bulletin



ITASCA

Biology Program

Summer 1985



UNIVERSITY OF MINNESOTA

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Robert W. Seabloom, Ph.D., Professor, Department of Biology

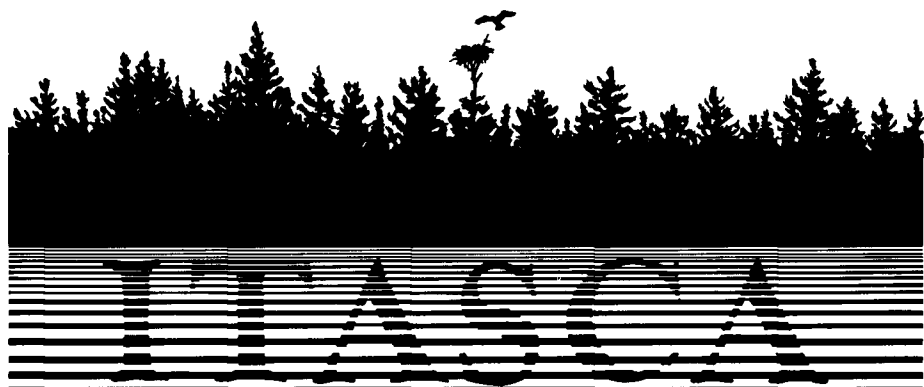
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University of Wisconsin, Madison

Department of Natural Resources, Minnesota State Parks

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UNIVERSITY OF MINNESOTA FORESTRY & BIOLOGICAL STATION

Itasca Biology Program

First Term June 16-July 20

Second Term July 21-August 24



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General Information

Sponsored by the Summer Session at the Lake Itasca Forestry and Biological Station, the Itasca Biology Program is a joint enterprise of the College of Biological Sciences, the College of Agriculture, and the College of Forestry. The University of Wisconsin and the University of North Dakota participate in making policy for and planning the program through membership on the advisory committee.

The Lake Itasca Forestry and Biological Station is located on the east shore of Lake Itasca in Itasca State Park — just a mile from the headwaters of the Mississippi River in northwestern Minnesota.

RESEARCH AND ACADEMIC OPPORTUNITIES

THE ITASCA HABITATS

Itasca Park—an ecological area of national renown — embraces 50 square miles of forests traversed by a fine system of roads and trails. Within this area are located many lakes of different types, providing unusual field opportunities for work in limnology, phycology, aquatic insects, and fungi, as well as related fields. The forests of the park are unique. Here the northern coniferous and deciduous types of the central hardwood region meet. In addition, the many bog areas provide a wide variety of plant communities for study. Itasca's forests have been protected for over a half century, and many have never been cut. Here, truly, is an excellent array of virgin timber stands and communities developing into climax types.

Forty miles to the west a dramatic break from the forests to the prairies occurs where true prairie associations can be found on the bed of ancient Lake Agassiz. To the north lie the Red Lakes and immense expanses of northern bog types.

This meeting of the three great plant regions of the eastern United States provides opportunities for study not only of varied ecosystems but also of a singular range of fauna and flora with southern, northern, and western origins. Opportunities to observe birds closely during June and July are particularly outstanding. An abundance of interesting animals, such as nesting bald eagles, breeding loons, beaver, raccoons, and deer, affords many striking behavioral and ecological problems for study.

INDEPENDENT INVESTIGATORS

Qualified investigators may pursue research in various fields of terrestrial and freshwater biology during any season. An application to conduct research on the station and a research permit must be completed before initiating research projects. Interested persons should contact Jon Ross, Resident Biologist, University of Minnesota Forestry and Biological Station, Lake Itasca, MN 56460.

COURSE WORK AND RESEARCH

The variety of courses available in both terms I and II allows students an opportunity to choose an entire summer of either intensive work in a particular field of interest or a sampling of several types of field experiences.

Graduate and undergraduate students in biology will find an excellent field laboratory for both research and course work. Graduate students may devote themselves exclusively to research problems.

Students in forestry, plant pathology, soils, and fisheries and wildlife management will find course work closely related to their field as well as a broad spectrum of essential background courses in botany, ecology, entomology, and zoology.

For teachers of biology in high schools and colleges, the session offers opportunity for advanced study through course work or independent research.

Advanced students and research workers needing laboratory space and special equipment should make prior arrangements with Jon Ross, 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 before initiating research projects.

INSTRUCTIONAL FACILITIES

Eleven well-equipped laboratories are located in six buildings. Much of the instruction takes place in the field, where many varied habitats are within walking distance of the station.

A fine herbarium of the region and collections of insects, bird skins, and small mammal skins are available for study. Four complete sets of aerial photos of the park area, made in 1938, 1951, 1959, and 1966, are maintained at the station along with stereoscopic equipment.

The station equipment includes necessary compound and dissecting microscopes, collecting apparatus, various types of nets, boats, and other accessories for instruction and research.

The library is stocked with important journals and books basic to fieldwork and offers ample room for study. Other journals and books are available from the University Libraries.



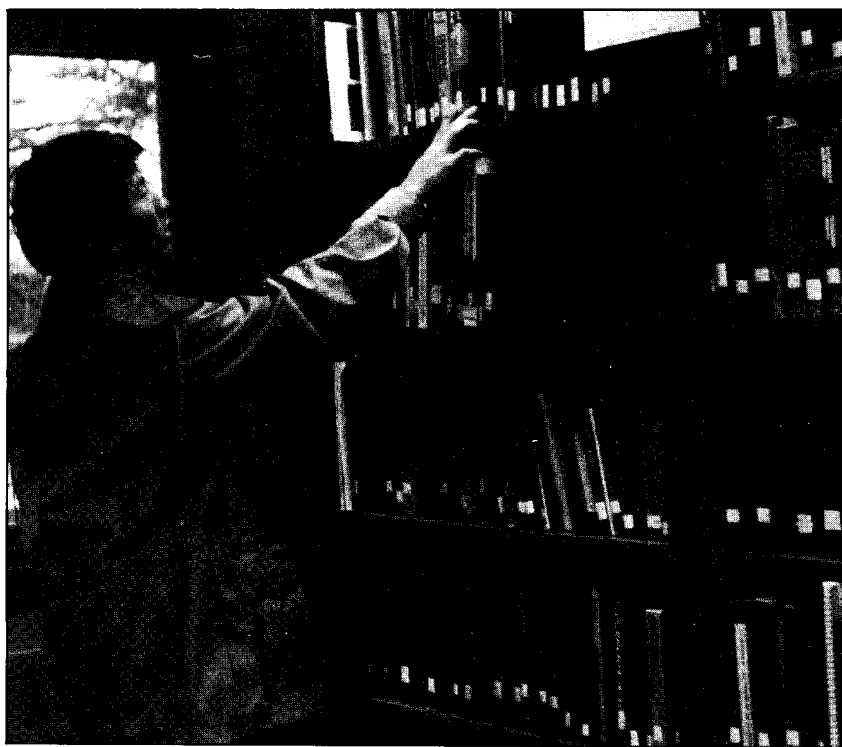
ADMISSION AND REGISTRATION INFORMATION

ADMISSION

Courses are open to all qualified graduate and undergraduate students who have completed the usual preliminary course work in biological subjects. General rules for admission of undergraduates to the summer session apply to the program. Students are advised to review these regulations in the general *Summer Session Bulletin*.

Summer-Only Students—Students with previous college work who wish to attend only the summer session may do so without filing an application for admission to the University, provided they are in good standing and are not degree candidates.

Graduate Students—Any student who holds a bachelor's degree and plans to use credits earned in summer session toward a graduate degree or expects to receive graduate credit for such work should apply for admission directly to the Graduate School. The application must be submitted complete in every detail — one official transcript from each college attended, the application fee (if required), and any required test results — at least four weeks prior to the opening of the summer term in which the student expects to register (Friday, May 17, 1985, for first term; Friday, June 21, 1985, for second term).



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

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

SCHOLARSHIPS

The following awards are available for qualified students:

Alexander P. Anderson and Lydia Anderson Fellowships, at \$350 each, are available only to persons holding a degree from the University of Minnesota. For information and applications write to the Graduate School Fellowship Office, 422 Johnston Hall, 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.

Malvin and Josephine Herz Foundation Fellowship is offered to encourage an outstanding student in ornithological research. For information and applications write to the Program Director, Itasca Biology Program, 349 Bell Museum of Natural History, University of Minnesota, 10 Church Street S.E., Minneapolis, MN 55455.

Fisheries and Wildlife Management Spring and Summer Scholarships are provided by the Minnehaha Chapter, Izaak Walton League, Kenneth M. Frenzel Memorial Scholarship, and the James R. Beer Memorial Scholarship of the Minnesota Student Chapter of the Wildlife Society. For information and applications write to the Program Director, Itasca Biology Program, 349 Bell Museum of Natural History, University of Minnesota, 10 Church Street S.E., Minneapolis, MN 55455.*

ITASCA RESEARCH STIPENDS

A number of research stipends of several hundred dollars each are available for graduate students or qualified persons other than faculty members. Almost any scientific study relating to field biology is considered, provided that the research is carried out at the Lake Itasca Forestry and Biological Station. Expenditures may include transportation costs, supplies, and other research costs, but not salaries for assistants.

Applications are judged competitively on the basis of the scientific merit of proposals and the individual's qualifications. Applicants from within and outside the University are given equal consideration. Applications, including documentation of academic background and training, a description of proposed research, a realistic budget projection, and a supporting letter (preferably from the student's adviser), should be sent directly to David F. Parmelee, Program Director, Itasca Biology Program, 349 Bell Museum of Natural History, University of Minnesota, 10 Church Street S.E., Minneapolis, MN 55455. **The deadline for application is April 10.** Priority will be given to graduate students registered for thesis credits through the Itasca program.

*Applications for the Fisheries and Wildlife Scholarships are due on April 10.

STUDENT LOAN INFORMATION

Students who are enrolled in a University of Minnesota degree or certificate program during the year may obtain a Guaranteed Student Loan to help pay for the costs of their Itasca sessions. The necessary forms may be obtained from the Office of Student Financial Aid in 210 Fraser Hall in Minneapolis or 197 Coffey Hall in St. Paul. *Visiting students who are regularly enrolled in other institutions should arrange for student loans through their home institutions.* These students should expect a delay in receipt of their loans, because a lending institution generally will release a check only after the student has completed registration and his or her enrollment is certified by the Office of Admissions and Records.

EMPLOYMENT OPPORTUNITIES

A number of jobs (library, office, shops, etc.) are available to all students on a competitive basis. Interested persons should request an application form from the program director of the Itasca Biology Program. Only University of Minnesota students may apply for graduate teaching assistant positions and College Work-Study Program jobs. Deadline for job applications is April 10.

RESERVATIONS

Since both the housing facilities and the enrollment size of each class are limited, early application for reservations is recommended. To apply, complete both the Registration form and the Itasca Summer Information Sheet found on the last pages of this bulletin and mail them to David F. Parmelee, Program Director, Itasca Biology Program, 349 Bell Museum of Natural History, University of Minnesota, 10 Church Street S.E., Minneapolis, MN 55455. *These two forms must be accompanied by a recent transcript of your academic record, a listing of courses in which you are currently enrolled, and a deposit of \$40 for one term or \$80 for two terms.* The deposit is applied toward the tuition charged at the time of registration or is returned to you if space is not available.

Assignments to classes will be verified no later than April 10 for early applicants. Assignments are determined on the basis of need, date of application, completion of prerequisites for the courses desired, and scholastic record. Late applications are accepted up to the day of registration (June 16 for first term and July 21 for second term), since openings occur from time to time even in classes that usually close early.

REGISTRATION

All courses offered at the station must be reserved. Students reserve courses by mailing in the Registration form and the Itasca Summer Information Sheet at the end of this bulletin. Once these forms are received, students are notified of acceptance.

Twin Cities students should complete their registration by picking up a fee statement prior to the beginning of the program at the Registration Center on the St. Paul campus (130 Coffey Hall).

Out-of-town students can complete registration at the station on June 16 for first term or on July 21 for second term. The necessary cards are held with the reservation until these students arrive for registration.

Students must register for 5-10 credits per term. A maximum load may include one 10-credit course, or two 5-credit courses, or one 5-credit course and a research problem (2-5 credits). Graduate students who are conducting research for a dissertation may enroll through student status registration.

REGISTRATION AT ITASCA

Scheduled times for registration are as follows:

Term I—June 16

9:00-11:30 a.m.

1:30-4:00 p.m.

Term II—July 21

9:00-11:30 a.m.

1:30-4:00 p.m.

It is important that all students be at the station on June 16 (term I) and July 21 (term II) for a general meeting at 8 p.m. in the Assembly Hall (building 53).

CHANGES IN REGISTRATION

Students accepted into the program who wish to enter courses that have filled early should place their names on the official waiting list by contacting the Itasca Biology Program director. In the event of cancellations, students on the waiting list are accommodated first.

Changes in registration must be approved by the program director and are strongly discouraged after registration day (June 16 first term; July 21 second term).

CANCELLATION

Because late cancellations often create vacancies in classes that earlier could have been filled by persons wishing to attend the program, students who must cancel should do so as early as possible. All cancellations must be approved by the Itasca Biology Program director. Cancellation for any reason should be reported immediately to the director by phone (612/373-1292), followed by a statement in writing. Students should also consult with their instructors before canceling, if the term has already begun.

TUITION, FEES, AND OTHER COSTS¹

ACADEMIC FEES

Tuition and fees are payable each five-week term by every registrant. They are due on or before June 16 for first term or July 21 for second term. Tuition is assessed on a per-credit basis according to the college in which a student registers. Formally admitted day school students must register through the college to which they have been admitted. (For tuition in colleges other than those listed here, please consult the *General Information Bulletin*, available at the Information Booth in Williamson Hall, Minneapolis campus, or in 130 Coffey Hall, St. Paul campus.) Lower division is defined as 90 or fewer credits earned, upper division as 91 or more credits earned. Summer-only students will be charged tuition at the College of Biological Sciences rate.

<i>Students registering in</i>	<i>Per-Credit Rate</i>
Agriculture, College of	
Lower Division	\$36.87
Upper Division	48.32
Biological Sciences, College of	47.15
Forestry, College of	
Lower Division	36.87
Upper Division	51.69
Graduate School	1-5 credits 85.00
	6 or more credits 500.00 per term

¹Tuition, fees, and other costs are subject to change without notice.

Liberal Arts, College of	
Lower Division	36.87
Upper Division	38.43
<i>Additional Fees</i>	<i>Per-Term Rate</i>
Student Services Fee	\$24.20
Laboratory Fee	10.00

A \$40 deposit for each term is required of all persons requesting reservations for course work during the Itasca program. This fee will be returned if written notice of cancellation is *postmarked* before May 17 for the first term or June 21 for the second term. When registration is completed, the \$40 or \$80 deposit will be applied to the tuition fee.

Persons registering at the University of Minnesota for the first time must pay a \$6 record service fee.

Independent investigators may use the facilities at the station and pay a research fee based on facilities, equipment, and services required; the minimum charge is \$5.00 per week.

LATE FEES

Late fees are assessed for both late registration and late payment.

Late Registration—No registration will be accepted after June 16 or July 21 without the approval of the program director of the Itasca Biology Program and payment of the late registration fee, as follows:

June 17-21 or July 22-26	\$10
Thereafter	\$20

Late Payment—A fee of \$20 is charged if tuition and fees are paid after the student's due date, as indicated on the fee statement at the time of registration and on the following chart:

<i>Registration Period</i>	<i>Tuition and Fees Due Date</i>
Through June 16 or July 21	Five workdays after registration
June 17-21 or July 22-26	June 21 or July 26
Thereafter	One workday after registration

ROOM AND BOARD COSTS

There is a service charge of \$30 per term for dormitory facilities. A charge of \$235 (subject to change) for board is payable to the Itasca Dining Club, which is run on an actual cost basis. These fees are payable at the beginning of each term.

TRANSPORTATION COSTS

University vehicles are available for class field trips. Students using them are charged a fee to cover actual costs. Costs usually range from less than \$1 to \$30. Courses that commonly use University vehicles for long or frequent field trips are Bot 5801, 5811; EBB 3800, 5814, 5815, 5817, 5832, 5834.

LIVING ARRANGEMENTS

TRANSPORTATION

Students depending on public transportation to travel to the Itasca station may take a bus to either Park Rapids, 24 miles from campus, or to Bemidji, 42 miles from campus. Republic Airlines offers daily service between the Twin Cities and Bemidji. Students are met upon arrival if they make *prior arrangements* with the program director. Students needing to make such arrangements should contact David Parmelee, 349 Bell Museum of Natural History, University of Minnesota, 10 Church Street S.E., Minneapolis, MN 55455 (612/373-1292). State Highway 200 and U.S. Highway 71 provide easy access by car into the park.

CABINS

There are nine cabins for men, each accommodating eight students, and seven cabins for women, accommodating six to eight students each. Women's cabins are equipped with toilets and wash basins. A central bathhouse with laundry facilities is located near each of these groups of cabins.

FAMILY ACCOMMODATIONS

Students who wish to bring their spouses and children may find accommodations off campus in one of the many resorts in the vicinity. A list of addresses of these facilities is furnished upon request. The station maintains a tent and trailer camp area with a modern bathhouse and outlets for water and electricity but no outdoor cooking facility. Registered students and their spouses and children have top priority for use of the campground. The weekly charge is \$7. Interested students should apply well in advance of the session; those with spouses or children accompanying them should notify the program director.

ACCOMMODATIONS FOR VISITORS

Students must notify the office of expected guests at least 24 hours before arrival. Since there are very limited guest facilities on the station, students may have to arrange housing for their guests off campus. All overnight guests must register at the office upon arrival. Meals for guests can be arranged at the Itasca Dining Club if meal tickets are purchased at the office in advance. Students are responsible for the conduct of their guests and should inform them of park regulations.

MEALS

The Itasca Dining Club, a cooperative formed each year by the students and managed for them by the professionally trained chef, serves meals in an attractive dining hall located on the lakeshore (building 53). The well-balanced meals are carefully planned and prepared by experienced cooks.

PERSONAL NEEDS

Students must provide their own pillows, bed linen, towels, and blankets. Since the nights are often cool, it is suggested that students bring two or three wool blankets. Essential personal equipment includes serviceable clothing (sweaters, sweatshirts, and shoes or boots for fieldwork), a warm jacket, rain gear, a swimming suit, a flashlight, notebooks, pocket field manuals, a portable typewriter and typing paper, a calculator, and the equipment necessary for individual work in the field or laboratory.

BOOKS

A branch of the University Bookstores is maintained at the station to make books and student supplies readily available. All texts should be purchased at Itasca.

HEALTH SERVICE

A registered nurse is on duty at the station infirmary. Only those students who have paid the student services fee have infirmary privileges. Those not paying the student services fee should make arrangements for treatment at Park Rapids or Bemidji. Everyone living at the station is required to have hospitalization coverage, whether obtained through or outside the University. See the 1985 *Summer Session Bulletin* for information about charges for University-sponsored hospital coverage.

Students are furnished medical care and up to 15 days of hospitalization at the nearest medical facility in case of emergency illness or accident and on approval of the program director. These benefits do not include such items as physical examinations, treatment of chronic conditions, or payment for drugs.

MAIL

Mail for students should be addressed to: University of Minnesota Forestry and Biological Station, Lake Itasca, MN 56460.

RECREATION

Recreational opportunities in the park, such as swimming, fishing, canoeing, and hiking, are excellent. Volleyball, softball, soccer, and horseshoe equipment is available at the station. Evening social events may be planned by the students. Weekly evening lectures by staff members or visiting scientists and occasional films on field biology are scheduled. Guests on the campus should check with the program director before using recreational equipment and engaging in recreational activities.

GUIDELINES

Campus regulations are kept at a minimum. Students are expected to keep their own quarters clean and orderly. Students may bring their own cars, but garages and repair services are not provided. Weekend absences and extended field trips must be reported in advance. Domestic pets are not allowed at the station.

Off campus and within park boundaries Minnesota State Park regulations govern. The state park entry sticker (\$10 for Minnesota residents; \$15 for nonresidents) must be purchased for private cars at the park entrance.



Staff and Faculty

ADMINISTRATIVE STAFF

Office (218/266-3302)

David F. Parmelee, Program Director

Dorothy K. Bromenshenkel, Secretary

Building and Grounds

Daniel Traun, Resident Manager

Research

Jon Ross, Resident Biologist

Library

Thomas J. English, Jr., Librarian

Dining Club

Beatrice Axelrod, Chef

Infirmery

To be announced, Registered Nurse

SUMMER FACULTY

Neil A. Anderson, Professor, University of Minnesota, is interested in fungal genetics and the genetics of plant pathogens. (PIPa 5102)

Michael J. Auerbach, Assistant Professor, University of North Dakota, is interested in both empirical and theoretical biology, involving quantitative field experiments and computer-oriented theoretical investigations. His research entails the use of diverse insect-plant systems to test various current hypotheses in population and community ecology. (EBB 5814)

David B. Czarnecki, Assistant Professor of Biology, Loras College, is interested in the morphology and ecology of freshwater algae, particularly diatoms; environmentally induced morphological and life-history expressions; functional and developmental aspects of frustular substructure; algal components of inland alkaline-saline systems, acid bogs, and other seemingly inhospitable environments. (Bot 5811)

Rudolph T. Franklin, Associate Professor, University of Georgia, is interested in the ecology of forest insects, especially the entomophagous arthropod interactions with bark beetles of the coniferous forest. (Ent 5020)

Shelby D. Gerking, Professor Emeritus of Zoology, Arizona State University, is interested in several aspects of the broad problem of fish production in lakes and streams—bioenergetics with emphasis on growth, relation between fish populations and food supply, size-biased feeding, and the effect of stress on reproduction. (FW 5456)

Donald E. Gilbertson, Associate Professor and Director, Bell Museum of Natural History, University of Minnesota, is interested in parasitology and in invertebrate zoology; his special interests lie in the relationships between trematodes and freshwater snails. (EBB 5831)

Jay T. Hatch, Assistant Professor, University of Minnesota, is interested in the life history of Minnesota fishes, especially during the larval period, and in methods of instruction for students with anxiety about science. (GC 1133)

Jeffrey W. Lang, Assistant Professor, Department of Biology, 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. (EBB 5832)

Gregory J. Lee, Lecturer, Botany, University of California, Davis, is interested in the systematics and evolution of flowering plants. His research interests are in experimental systematics, particularly regarding the chromosomal, morphological, and ecological differentiation of recently evolved species. (Bot 5801)

Donald C. McNaught, Professor, University of Minnesota, is interested in zooplankton ecology, Great Lakes limnology, and ecosystem contamination. (Biol 5041)

Robert O. Megard, Associate Professor, University of Minnesota, studies photosynthesis with particular emphasis on mechanisms that control the photosynthetic activity of planktonic algae in lakes and oceans. (EBB 5812)

David F. Parmelee, Professor and Program Director of the Itasca Biology Program, University of Minnesota, specializes in the distribution, ecology, and behavior of arctic and antarctic birds.

Richard E. Phillips, Professor, University of Minnesota, is interested in the physiology of behavior and in communication. Recent research includes brain mechanisms of bird vocalizations, proximate controls of seasonal breeding in ducks, and playback of computer manipulated sounds to analyze function of avian calls. (Biol 5041)

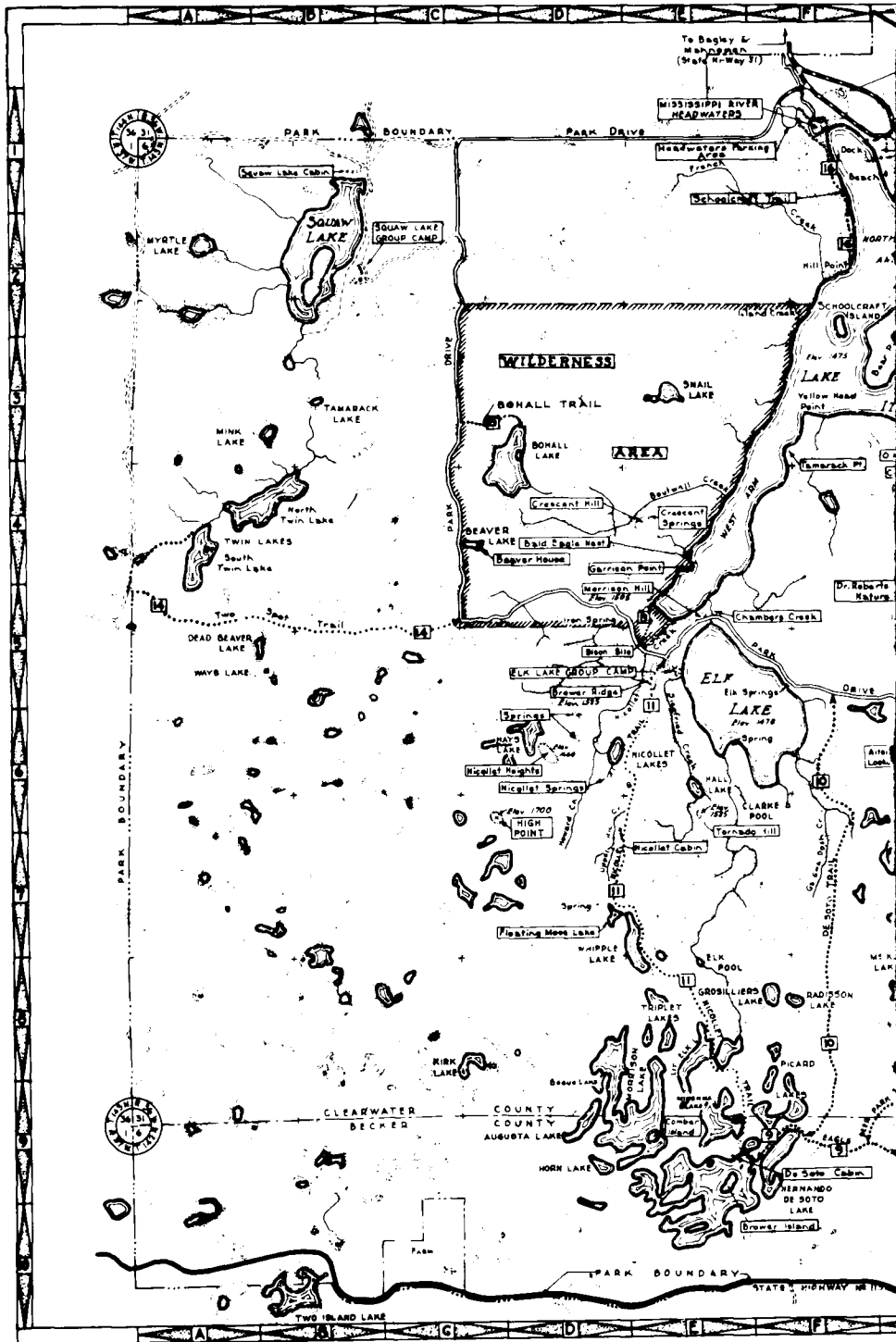
Philip Regal, Professor, University of Minnesota, is an evolutionary biologist who has published on vertebrate biology, temperature regulation, plant-animal interactions, and tropical ecology. (EBB 3800)

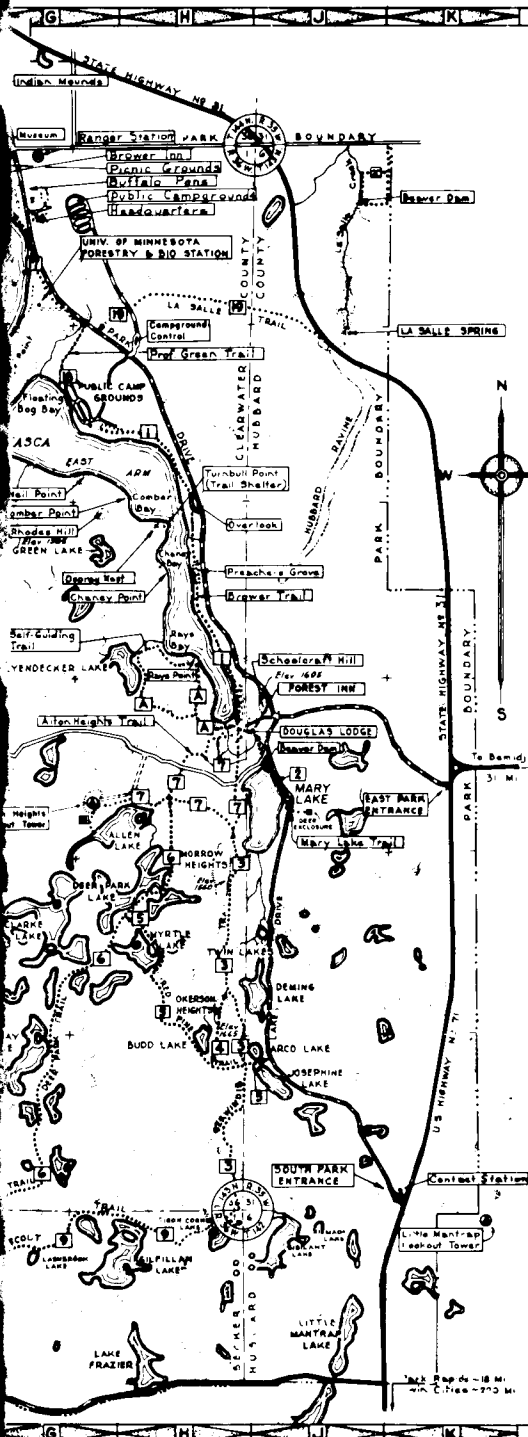
Donald B. Siniff, Professor, University of Minnesota, is interested in vertebrate ecology, with special interest in population ecology of large mammals. (EBB 5041)

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

Dwain Warner, Professor and Curator of Ornithology, University of Minnesota, is studying the effects of habitat loss on long-distance migrant birds, especially tropical forest destruction, and the effects of continuing forest fragmentation on breeding habitats of the Itasca region. (EBB 5834)







MAP LEGEND

- High Type
- All Weather
- Intermediate Type
- Maintained Gravel Road
- Road
- Not Maintained
- Dirt Road
- Foot Trails
- Trail Number 2
- All Weather Gravel Road

TRAILS

SELF GUIDING NATURE TRAILS

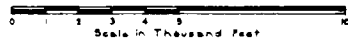
NO.	TRAIL NAME	LENGTH MI.	LOCATION
A	Dr Roberts	18	SH

HIKING TRAILS

NO.	TRAIL NAME	LENGTH MI.	LOCATION
1	Brower	2.2	SH-3H
2	Mary Lake	0.5	6J
3	Ozwindib	2.3	6H-9N
4	Okerson Heights	0.5	8H
5	Red Pine	1.5	8J-7H
6	Deer Park	3.1	6H-9F
7	Alton Heights	2.6	5H-60
8	Big Pine	0.2	E5
9	Eagle Scout	2.3	9F-9H
10	De Soto	3.0	5F-9F
11	Moosefall	3.4	5E-9E
12	Headwaters	0.1	IF
13	Allen Lake	0.2	6G
14	Two Spot	3.2	5C-4B
15	Bohell	0.5	3C
16	Schoolcraft	1.1	1F-2F
17	Professor Cheney	0.8	1E-1E
18	Professor Green	0.6	3G-2G
19	La Salle	1.5	2E-2J
20	Beaver	0.6	IJ

**STATE OF MINNESOTA
ITASCA
STATE PARK**

OPERATED BY
DEPARTMENT OF CONSERVATION
DIVISION OF STATE PARKS



Map No. 49-18 MI. - W. E. Price - 1970

Courses of Instruction

R Means "controlled enrollment."

¶ Means "concurrent registration."

Means "consent of instructor is required."

△ Means "consent of department is required."

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

The University of Minnesota is on the quarter system.

BIOLOGY (Biol)

R5041. ECOLOGY. (291266) (4 cr; *students should sign up for one credit of 5890 for field research credit; limited to 20 students; MTh, term II*) McNaught, Siniff

Interactions of plant and animal populations and their environments. Organization, functioning, and development of ecological systems; population growth and regulation. Human impact on the biosphere in modern times.

5890. RESEARCH PROBLEMS AT ITASCA IN ECOLOGY AND BEHAVIORAL BIOLOGY; OR ENTOMOLOGY; OR FISHERIES AND WILDLIFE; OR PLANT PATHOLOGY; OR SOIL SCIENCE. (288934, term I; 391453, term II) (Cr ar; prereq #, △) Staff

Undergraduate and graduate students develop a short-term research project in any department area listed above during one or both terms.

BOTANY (Bot)

R5801. PLAINS AND BOREAL FLORA. (188935) (5 cr; limited to 20 students; prereq course in taxonomy, △; MTh; term I) Lee

Survey of the summer flowering plants and ferns of the state with particular reference to local flora. Identification by technical keys; important plant families; field recognition of common species; habitat preferences; collecting methods; literature; taxonomic methods.

R5811. FRESHWATER ALGAE. (988936) (5 cr; limited to 20 students; prereq 10 cr botany, biology or zoology, △; WS; term I) Czarnecki

The developmental morphology and taxonomy of freshwater algae as related to ecology. Identification of field collections by technical keys, collecting and analytical methods, and use of information for recognizing distribution patterns.

5890. RESEARCH PROBLEMS. (788937) (1-5 cr per qtr; prereq △; term I)

Individual research for undergraduates and graduates.

ECOLOGY AND BEHAVIORAL BIOLOGY (EBB)

R3800. INTRODUCTION TO FIELD RESEARCH. (588938) (10 cr; limited to 20 students; prereq two courses in biology, △; hrs ar; term I) Regal

An intensive course on how to do research. A series of ecological and behavioral projects provides an introduction to the biology of forests, prairies, lakes, and marshes of the Itasca region while serving to develop individual abilities in the planning and design of experiments, acquisition and analysis of data, and preparation of scientific reports. Intended for undergraduates with little or no previous experience in field biology.

R5812. COMPARATIVE LIMNOLOGY. (486129) (5 cr; limited to 20 students; prereq 15 cr biology, 5 cr chemistry, Δ; TF; term II) Megard

General limnology of lakes. The biology of lakes in the Itasca region and their physical and chemical stratification in summer. Team projects in field research. Plankton ecology and water chemistry.

R5814. COMMUNITY STRUCTURE AND FUNCTIONING. (389945) (5 cr; limited to 20 students; prereq course in ecology, Δ; TF; term II) Auerbach

Communities represented in Itasca Park and vicinity, with emphasis on vegetation. Patterns of distribution of the communities, their interaction with the environment, and their dynamic relationships. Methods of community description and analysis.

R5815. FIELD ETHOLOGY. (886127) (5 cr; limited to 20 students; prereq course in behavior; course in statistics recommended; TF; term I) Phillips

The methods of studying behavior of wild animals. Quantitative techniques; sound recording, motion picture photography, sound tape and film analysis, capturing and marking techniques. An individual research project and term paper on the social behavior of one species required. Individual projects require considerable outside time. Guest lecturers.

R5817. VERTEBRATE ECOLOGY. (687375) (5 cr; limited to 15 students; prereq course in ecology, Δ; WS; term II) Tester

Field studies on populations and their relationships to local environments; habitat analysis and ecological research methods. Individual and team research projects, field trips, and lectures.

R5831. NATURAL HISTORY OF VERTEBRATES. (091455) (5 cr; limited to 20 students; prereq general biology course or equiv; MTh; term I) Gilbertson

Advanced taxonomic and ecological survey of local fauna and independent ecological studies of several taxonomic groups.

R5832. NATURAL HISTORY OF VERTEBRATES. (191454) (5 cr; limited to 20 students; prereq general course in biology; WS; term II) Lang

Taxonomic survey of local vertebrates, exclusive of birds; study of morphological, physiological, and behavioral adaptations to different habitats.

R5834. FIELD ORNITHOLOGY. (388939) (5 cr; limited to 15 students; prereq course in biology, Δ; WS; term I) Warner

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 observe and practice techniques for conducting field studies. Laboratory sessions investigate family distinctions and species identification. Individual field projects.

ENTOMOLOGY (Ent)

R5020. FIELD ENTOMOLOGY. (788940) (5 cr; limited to 15 students; prereq introductory biology; MTh; term I) Franklin

Insect fauna in various natural habitats of the park and surrounding areas. Field trips, collection and identification of insects, and studies of general morphology, life histories, and habitats of local species.

FISHERIES (FW)

R5456. FIELD ECOLOGY OF FISHES. (991447) (5 cr; limited to 15 students; prereq course in ecology; TF; term I) Gerking

Ecological studies, observation, and identification of fishes in their natural habitat including life histories, reproduction, behavior, food habits, interrelationships with other fishes, and general habitat requirements. Collection methods in streams and lakes.

GENERAL COLLEGE (GC)

R1133. NATURE STUDY. (486132) (5 cr; limited to 20 students; TF; term I) Hatch

For students with little or no prior training in biology. Natural histories of common Minnesota plants and animals discussed and examined in the field from the standpoint of the informed amateur naturalist. Techniques of field observation and identification of living organisms.

PLANT PATHOLOGY (PIP_a)

R5102. FIELD MYCOLOGY. (791448) (5 cr; limited to 15 students; prereq 6 cr botany; MTh; term II) Anderson

Survey of the fungi of Itasca Park. Field trips, lectures, laboratory experiences; research project on the identification, life history, genetics, and ecology of fungi.

PROPOSED COURSE PROGRAMS

To help students make the most effective use of the academic resources of the Biology Program, the following program of annual and projected courses is presented. Changes in the projected schedule may be made to take advantage of especially competent staff members or to meet enrollment needs.

Annual Course Offerings

Bot 5801, 5811

EBB 3800, 5812, 5814, 5817, 5834

Ent 5020

Proposed Courses for 1986

Biol 5041. Ecology

Biol 5816. Field Biology Photography

EBB 5815. Field Ethology

EBB 5831. Natural History of Invertebrates

EBB 5832. Natural History of Vertebrates

FW 5456. Field Ecology of Fishes



Recent Research Publications

1975

- BAKKO, EUGENE B. A field water balance study of gray squirrels (*Sciurus carolinensis*) and red squirrels (*Tamiasciurus hudsonicus*). *Comp. Biochem. Physiol.*, 51A:759-768. 1975.
- BAKKO, EUGENE B. Influence of collecting techniques on estimate of natural renal function in red squirrels. *Amer. Midl. Nat.*, 97(2):502-504. 1975.
- BUELL, MURRAY F. and HELEN F. BUELL. Moat bogs in the Itasca Park area, Minnesota. *Bull. Torrey Bot. Club*, 102(1):6-9. 1975.
- GILBERTSON, D. E. and L. SCHMID. Free amino acids in the hemolymph of five species of pulmonate snails. *Comp. Biochem. Physiol.*, 51B:201-203. 1975.
- GILBERTSON, D. E. and R. WEDLUND. Studies on schistosome dermatitis ("swimmer's itch") in Minnesota. *J. Minn. Acad. Sci.*, 41:28-30. 1975.
- GORHAM, E. and J. E. SANGER. Fossil pigments in Minnesota lake sediments and their bearing upon the balance between terrestrial and aquatic inputs to sedimentary organic matter. *Verhandlungen Internationale Vereinigung Limnologie*, 19:2267-73. 1975.
- GORHAM, E. and J. M. BERNARD. Midsummer standing crops of wetland sedge meadows along a transect from forest to prairie. *J. Minn. Acad. Sci.*, 41:15-7. 1975.
- LARSON, O. R. and W. C. SCHARF. New helminth records from Minnesota mammals. *Proc. Helminthological Soc. Wash.*, 42(2):174-175. 1975.
- SCHLICHTING, H. E., JR. Some subaerial algae from Ireland. *Br. Phycol. J.*, 10:257-261. 1975.
- WHITESIDE, M. C. and J. B. WILLIAMS. A new sampling technique for aquatic ecologists. *Verh. Internat. Verein. Limnol.*, 19:1534-1539. 1975.
- WIGGINS, GLENN B. Contributions to the systematics of the caddis fly family Linnephilidae (Trichoptera). II *Can. Ent.*, 107:325-336. 1975.

1976

- DEAN, W. E., Jr. and E. GORHAM. Major chemical and mineralogical components of profundal surface sediments of Minnesota lakes. *Limnology and Oceanography*, 21:261-86. 1976.
- DEAN, W. E., Jr. and E. GORHAM. Classification of Minnesota lakes by Q- and R- mode factor analysis of sediment mineralogy and geochemistry. Pp. 61-71 in *Quantitative Techniques for the Analysis of Sediments*, ed. D. F. Merriam. Pergamon Press, 1976.
- HEIDEMANN, MERLE KNUDSON and LEWIS W. ORING. Functional analysis of spotted sandpiper (*Actitis macularia*) song. *Behaviour*, 56 (1-3):182-193. 1976.
- KLEMER, A. R. The vertical distribution of *Oscillatoria agardhii* var. *isothrix*. *Arch. Hydrobiol.*, 78(3):343-362. 1976.
- MCCOLL, J. G. and JOANNA BURGER. Chemical inputs by a colony of Franklin's gulls nesting in cattails. *Amer. Midl. Nat.*, 96(2):270-280. 1976.
- MCINTYRE, JUDITH W. Toe-banding of common loon chicks. *Bird-Banding*, 48(3):272. 1976.
- MCINTYRE, JUDY. The common loon: part I. *Loon*, 48(3):126-127. 1976.
- MOEN, AARON N. Energy conservation by white-tailed deer in the winter. *Ecology*, 57(1):192-198. 1976.
- PIVORUN, E. B. A biotelemetry study of the thermoregulatory patterns of *Tamias striatus* and *Eutamias minimus* during hibernation. *Comp. Biochem. Physiol.*, 53A:265-271. 1976.
- SCHLICHTING, H. E., JR. The origin and occurrence of airborne microalgae in North Carolina. In *The Distribution History of the Biota of the Southern Appalachians. Algae and Fungi*, IV:58-62. 1976.
- SCHMID, WILLIAM D. Temperature gradients in the nasal passage of small mammals. *Comp. Biochem. Physiol.*, 54A:305-308. 1976.
- STARK, DONNA M. Paleolimnology of Elk Lake, Itasca State Park, northwestern Minnesota. *Arch. Hydrobiol.*, 50:208-274. 1976.
- WUJEK, DANIEL E. Ultrastructure of flagellated chrysophytes II. *Uroglena* and *Uroglenopsis*. *Cytologia*, 41:665-670. 1976.

1977

- AVERY, MICHAEL and LEWIS ORING. Song dialects in the bobolink, *Dolichonyx oryzivorus*. *Condor*, 79(1):113-118. 1977.
- BOERNKE, WILLIAM E. A comparison of arginase maximum velocities from several poikilotherms and homeotherms. *Comp. Biochem. Physiol.*, 36B:113-116. 1977.
- CHRISTIANSON, LEE. Winter movements of *Peromyscus* across a lake in northern Minnesota. *J. of Mammalogy*, 58(2):244. 1977.
- MCINTYRE, JUDY. The common loon: part II. *Loon*, 49(2):96-97. 1977.
- MCINTYRE, JUDY and J. MATHISEN. Artificial islands as nest sites for common loons. *J. Wildl. Manage.*, 41(2):317-319. 1977.
- PARMELEE, DAVID F. Annotated checklist of the birds of Itasca State Park and surrounding areas. *Loon*, 49(2):81-95. 1977.
- RAPPOLE, JOHN H., DWAIN W. WARNER and MARIO RAMOS O. Territoriality and population structure in a small passerine community. *Amer. Midl. Nat.*, 97(1):110-119. 1977.
- WRIGHT, H. E., JR. Quaternary vegetation history — some comparisons between Europe and America. In *Ann. Rev. Earth Planet. Sci.*, 5:123-158. 1977.
- HALL, R. J., L. BERNER and E. F. COOK. Observations on the biology of *Tricorythodes atratus* McDunnough (Ephemeroptera: tricorythidae). *Proc. Ent. Soc. Wash.*, (75):34-49. 1977.
- STASIAK, RICHARD H. Morphology and variation in the Finescale Dace, *Chrosomus neogaeus*. *Copeia*, 4:771-774. 1977.
- WINTER, JIMMY D. Summer home range movements and habitat use by four largemouth bass in Mary Lake, Minnesota. *Trans. Amer. Fisheries Soc.*, 106(4):323-330. 1977.

1978

- BOWERS, FRANK D. and JAMES PECK. The bryophyte flora of Fremont County, Iowa. *Iowa Bird Life* 48:18-20. 1978.
- BOWERS, FRANK D. and JAMES PECK. Additions to the bryoflora of Fremont County, Iowa. *The Bryologist* 81:440. 1978.
- GILBERTSON, DONALD E., OLAKUNLE O. KASSIM and JERRY L. STUMPF. Studies on the biology of *Bulimeza megasoma* (say) (*Gastropodo: pulmonata*). *J. Moll. Stud.*, 44:145-150. 1978.
- GORHAM, E. and D. L. TILTON. The mineral content of *Sphagnum fuscum* as affected by human settlement. *Can. J. Bot.*, 56:2755-59. 1978.
- MCINTYRE, JUDITH W. The common loon: part III. Loon, Spring, 1978.
- STASIAK, RICHARD H. Reproduction, age, and growth of the finescale dace, *Chrosomus neogaeus*, in Minnesota. *Trans. Am. Fish. Soc.*, 107(5):720-723. 1978.
- TILTON, D. L. Comparative growth and foliar element concentrations of *Larix laricina* over a range of wetland types in Minnesota. *J. of Ecology*, 66:499-512. 1978.
- WHITESIDE, M. C., J. B. WILLIAMS and C. P. WHITE. Seasonal abundance and pattern of Chydorid (cladocera) in mud and vegetative habitats. *Ecology*, 59:1177-1188. 1978.
- WILLIAMS, J. B. and M. C. WHITESIDE. Population regulation of the Chydoridae in Lake Itasca, Minnesota. *Verh. Internat. Verein. Limnol.*, 20:2484-2489. 1978.

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- AXELROD, MIRIAM. Observations on a boreal chickadee nest. *Loon*, 51(3):135-140. 1979.
- BOVEE, EUGENE C. Protozoa from acid-bog mosses and forest mosses of the Lake Itasca region. *University of Kansas Science Bulletin*, 51(21):615-629. 1979.
- BOWERS, FRANK D. and SALLY FRECKMANN. Atlas of Wisconsin bryophytes. A Museum of Natural History Report- Univ. of Wisconsin-Stevens Point. 16 (1&2):1-135. 1979.
- COLE, MARIETTE, FRANK D. BOWERS and SALLY FRECKMANN. Bryophytes of the Kickapoo River Valley, Southwestern Wisconsin. *The Bryologist* 82:273-276. 1979.
- GORHAM, E. Shoot height, weight and standing crop in relation to density of monospecific plant stands. *Nature*, 279:148-50. 1979.
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- PALM, M. E., E. L. STEWART and E. F. HASKINS. Lake Itasca State Park. Myxomycetes: an annotated checklist. *J. Minn. Acad. Sci.*, 45(1):24-26. May 1979.
- STEWART, ELWIN L. and RUSSELL K. HEBLACK. Hypogeous fungi of Minnesota: *Genea anthracina* sp. nov. *Mycotaxon*, 9:451-458. 1979.
- WHEELER, G. A. and P. H. GLASER. Notable vascular plants of the Red Lake peatland, northern Minnesota. *Michigan Botanist*, 18:137-142. 1979.

1980

- EISENREICH, S. J., J. D. THORNTON, J. W. MUNGER, and E. GORHAM. Impact of land use on the chemical composition of rain and snow in northern Minnesota. Pp. 110-11 in *Ecological Impact of Acid Precipitation*, ed. D. Drablos and A. Tollan. SNSF Project, Oslo-Aas, Norway, 1980.
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- HEINRICH, BERND and F. DANIEL VOGT. Aggregation and foraging behavior in whirligig beetles (*Cyprinidae*). *Behav. Ecol. Sociobiol.*, 7:179-186. 1980.
- PARMELEE, DAVID F. Itasca Birds. *Loon* 52(2):51-58. 1980.
- WHITESIDE, M. C. and C. LINDEGAARD. Complementary procedures for sampling small benthic invertebrates. *Oikos* 35:317-320. 1980.

1981

- COLEMAN, R. W. and S. L. WELSH. Plants from northern Manitoba, Canada, and their substrates. Abstracts of papers, 93rd Session, Iowa Academy of Science, pp. 56. 1981.
- COLLINS, SCOTT L. A comparison of nest-site and perch-site vegetation structure for seven species of warblers. *Wilson Bull.*, 93(4):542-547. 1981.
- GLASER, P. H. and G. A. WHEELER. The development of surface patterns in the Red Lake peatland, northern Minnesota. Pp. 31-35 in *Proceedings, Sixth International Peat Congress*, Duluth, Minnesota, 1981.
- GLASER, PAUL H., GERALD A. WHEELER, EVILLE GORHAM and HERBERT E. WRIGHT, JR. The patterned mires of the Red Lake peatland, northern Minnesota: vegetation water chemistry and landforms. *J. of Ecology*, 69:575-599. 1981.
- HAMAS, MICHAEL J. Thermoregulatory development in the belted kingfisher. *Comp. Biochem. Physiol.*, 69A:149-152. 1981.
- HUMMON, WILLIAM D. Extraction by sieving: a biased procedure in studies of stream meiobenthos. *Trans. Amer. Micros. Soc.*, 100(3):278-284. 1981.
- PARMELEE, D. F. Bird nests at Itasca State Park. *Minnesota Volunteer*, 44(255):22-31. 1981.
- THORNTON, J. D., S. J. EISENREICH, J. W. MUNGER, and E. GORHAM. Trace-metal and strong-acid composition of rain and snow in northern Minnesota. Pp. 261-284 in *Atmospheric Pollutants in Natural Waters*, ed. S. J. Eisenreich, Ann Arbor Press.
- TIMM, ROBERT M. and RICHARD E. LEE, JR. Do butterflies, *Cuterebra* (Diptera: Cuterebridae), emasculate their hosts? *J. Med. Entomol.*, 18(4):333-336. 1981.
- WUJEK, DANIELE E., MICHAEL M. WEIS and ROBERT A. ANDERSEN. Scaled chrysophyceae from Lake Itasca region (*I. mallomonas*). *Minn. Acad. Sci.*, (471): 1981.

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- ZINK, ROBERT M. and BRUCE A. FALL. Breeding distribution, song and habitat of alder flycatcher and willow flycatcher in Minnesota. The Loon 53(4):208-214. 1981.

1982

- COLLINS, SCOTT L., FRANCES C. JAMES and PAUL G. RISSER. Habitat relationships of wood warblers (Parulidae) in northern central Minnesota. Oikos 39(1):50-58. 1982.
- GORHAM, E., W. E. DEAN, and J. E. SANGER. The chemical composition of lakes in the north central United States. U.S. Geological Survey Open-File Report 82-149, 59 pp. + appendix. 1982.
- GORHAM, E. Unsolved problems in peatland ecology. Le Naturaliste Canadien 109 (review). 1982.
- MUNGER, J. W. Chemistry of atmospheric precipitation in the north central United States: influence of sulfate, nitrate, ammonia and calcareous soil particulates. Atmospheric Environment, Vol 16: 1633-1645.
- ORING, L. W. and D. B. LANK. Sexual selection, arrival times, philopatry and site fidelity in the polyandrous spotted sandpiper. Behav. Ecol. Sociobiol., 10:185-191. 1982.
- PIETZ, P. J. and J. R. TESTER. Habitat selection by sympatric spruce and ruffed grouse in north central Minnesota. J. Wildl. Manage. 46(2):391-403. 1982.
- THORNTON, J.D. and S.J. EISENREICH. Impact of land use on the acid and trace element composition of precipitation in the north central United States. Atmospheric Environment, Vol. 16: 1945-1955.
- WILLIAMS, J. B. Temporal and spatial patterns of abundance of the Chydoridae (Cladocera) in Lake Itasca, Minnesota. Ecology 63:345-353. 1982.

1983

- GAGE, M.A. and E. GORHAM. Alkaline phosphatase activity and cellular phosphorus as an index of the phosphorus status in phytoplankton in Minnesota lakes. Freshwater Biology (in press).
- HANYCH, D.A., M.R. ROSS, R.E. MAGNIEN, and A.L. SUGGARS. Nocturnal inshore movement of the mimic shiner (*Notropis volucellus*): a possible predator avoidance behavior. Canadian Journal of Fisheries and Aquatic Sciences, 40 (7): 888-894.
- JAMES, FRANCES C. Environmental Component of Morphological Differentiation in Birds. Science. Vol. 221: 184-186, 1983.
- PIETZ, P. J. and J.R. TESTER. Habitat selection by snowshoe hares in north central Minnesota. J. Wildl. Manage. 47 (3): 1983.
- WUJEK, D.E. and J.L. WEE. *Chrysoiidiymus* in the United States. Trans. Am. Microsc. Soc., 102(1): 77-80.

1984

- ERLIEN, D.A. and J.R. TESTER. Population Ecology of Sciruids in Northwestern Minnesota. The Canadian Field-Naturalist 98 (1): 1-6, 1984.
- HEIMER, S., W. NENTWIG, and B. CUTLER. The Spider Fauna of the Itasca State Park (Minnesota, USA) (Arachnida, Araneae). Faunistische Abhandlungen Staatliches Museum Fur Tierkunde, Dresden. 11 (6): 119-124, 1984.
- PEET, ROBERT K. Twenty-six years of change in a *Pinus strobus*, *Acer saccharum* forest, Lake Itasca, Minnesota. The Torrey Botanical Club, New York, 3 (1): 61-68, 1984.
- VITT, D.H. and N.G. SLACK. Niche diversification of *Sphagnum* relative to environmental factors in northern Minnesota peatlands. Canadian Journal of Botany, Vol. 62(7): 1409-1430.
- WHITESIDE, M.C., W.L. DOOLITTLE and C.M. SWINDOLL. Zooplankton as food resources for larval fish. Verh. Internat. Verein. Limnol. 22: In press, 1984.
- WHITESIDE, M.C., C.M. SWINDOLL and W.L. DOOLITTLE. Factors affecting the early life-history of yellow perch, *Perca flavescens*. Environ. Biol. Fish. In press, 1984.
- WILLIAMS, J. B. A study of summer mortality factors for natural populations of chydoridae (Cladocera). Hydrobiologia. In press, 1984.

OCCASIONAL PAPERS

Field Biology Program occasional paper number one is *History of the Lake Itasca Biology Sessions* by A. C. Hodson (University of Minnesota, 1979). Dr. Hodson is a University of Minnesota emeritus professor and former head of the Department of Entomology, Fisheries, and Wildlife. Individuals or parties interested in obtaining complimentary copies should write to the Program Director, Itasca Biology Program, 349 Bell Museum of Natural History, University of Minnesota, 10 Church Street S.E., Minneapolis, MN 55455.



Graduate Student Theses

1975

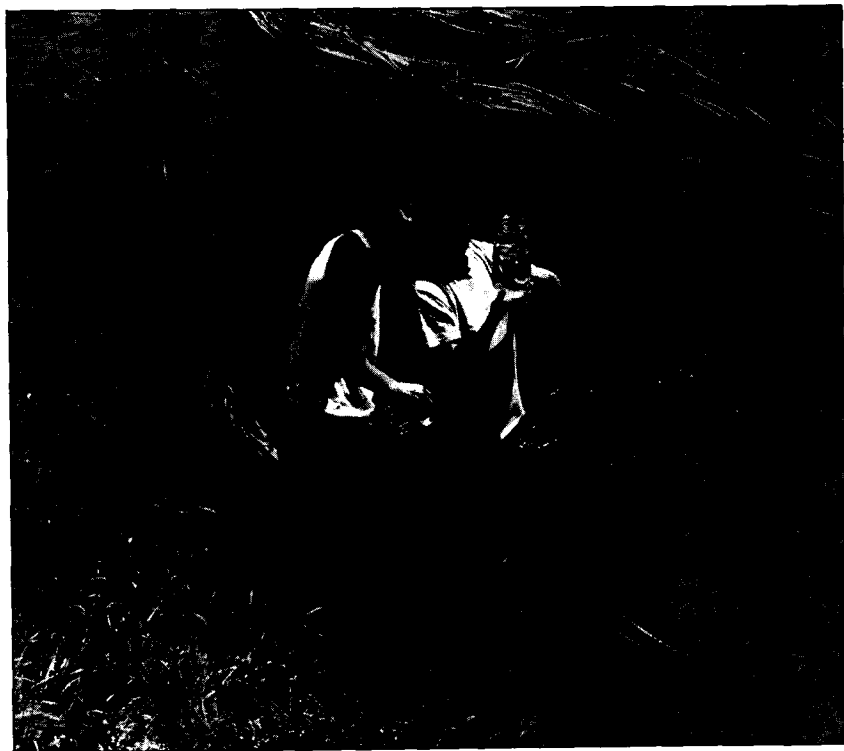
- HALL, RONALD J. Life history, drift, and production rate of the steam mayfly (*Tricorythodes athratus* McDunnough) in the headwaters of the Mississippi River. Ph.D. Thesis. 1975.
- HAMAS, MICHAEL J. Ecological and physiological adaptations for breeding in the belted kingfisher (*Megascops asio*). Ph.D. Thesis. 1975.
- MCINTYRE, JUDITH W. The breeding biology and behavior of the common loon in relation to man-altered environments. Ph.D. Thesis. 1975.
- WHITE, C. P. The Chydorid (cladocera) communities associated with the mud habitats of Lake Itasca, Minnesota. M.S. Thesis. University of Tennessee. 1975.

1976

- AASENG, NORMAN EDWARD. The history, nature, and extent of the major logging operations in Itasca State Park (1901-1919). M.S. Thesis. 1976.
- BAKER, KATHLEEN KROMER. Taxonomy and ecology of *Aphanizomenon* in five Minnesota lakes. Ph.D. Thesis. 1976.
- RUBBELKE, DONALD L. Distribution and relative abundance of potential prey of spotted sandpipers (*Actitis macularia* L.) on Little Pelican Island, Leech Lake, Cass County, Minnesota. M.S. Thesis. University of North Dakota. 1976.
- WARNER, GLORIA M. Seasonal, habitat, and survival studies of viable fungi carried by migratory birds. Ph.D. Thesis. 1976.
- WINTER, J. D. Movements and behavior of largemouth bass (*Micropterus salmoides*) and steelhead (*Salmo gairdneri*) determined by radio telemetry. Ph.D. Thesis. 1976.

1977

- COINER, SUSAN T. A comparison of seasonal patterns in epithelial sodium transport among three species of ranid frogs from different habitats. Ph.D. Thesis. 1977.
- DOOLITTLE, W. L. Qualitative differences in lake biota due to fish predation. M.S. Thesis. University of Tennessee. 1977.
- PEZALLA, VIRGINIA A. MOYLE. The behavioral ecology of a dragonfly, *Libellula pulchella*. Ph.D. Thesis. 1977.



1978

- GAGE, MAURA A. Alkaline phosphatase activity in several Minnesota lakes. Ph. D. Thesis, University of Minnesota, 1978.
PITTINGER, C. A. A comparative analysis of littoral and limnetic microcrustacean communities of Lake Itasca, Minnesota. M.S. Thesis, University of Tennessee, 1978.
WILLIAMS, J. B. Seasonal abundance, pattern, and some population parameters of the Chydoridae in Lake Itasca, Minnesota. Ph. D. Thesis, University of Tennessee, 1978.

1980

- SANTELMAN, ELAINE P. Fossil pigments in surface lake sediments and their relationship to lake productivity and eutrophication. M.S. Thesis, University of Minnesota, 1980.

1981

- MUNGER, J. WILLIAM. Environmental controls and ecological consequences of regional precipitation chemistry in Minnesota. M.S. Thesis, University of Minnesota, 1981.

1982

- BOUCHERLE, M. M. An ecological history of Elk Lake, Clearwater Co., Minnesota, based on Cladocera remains. Ph. D. Thesis, Indiana University, 1982.

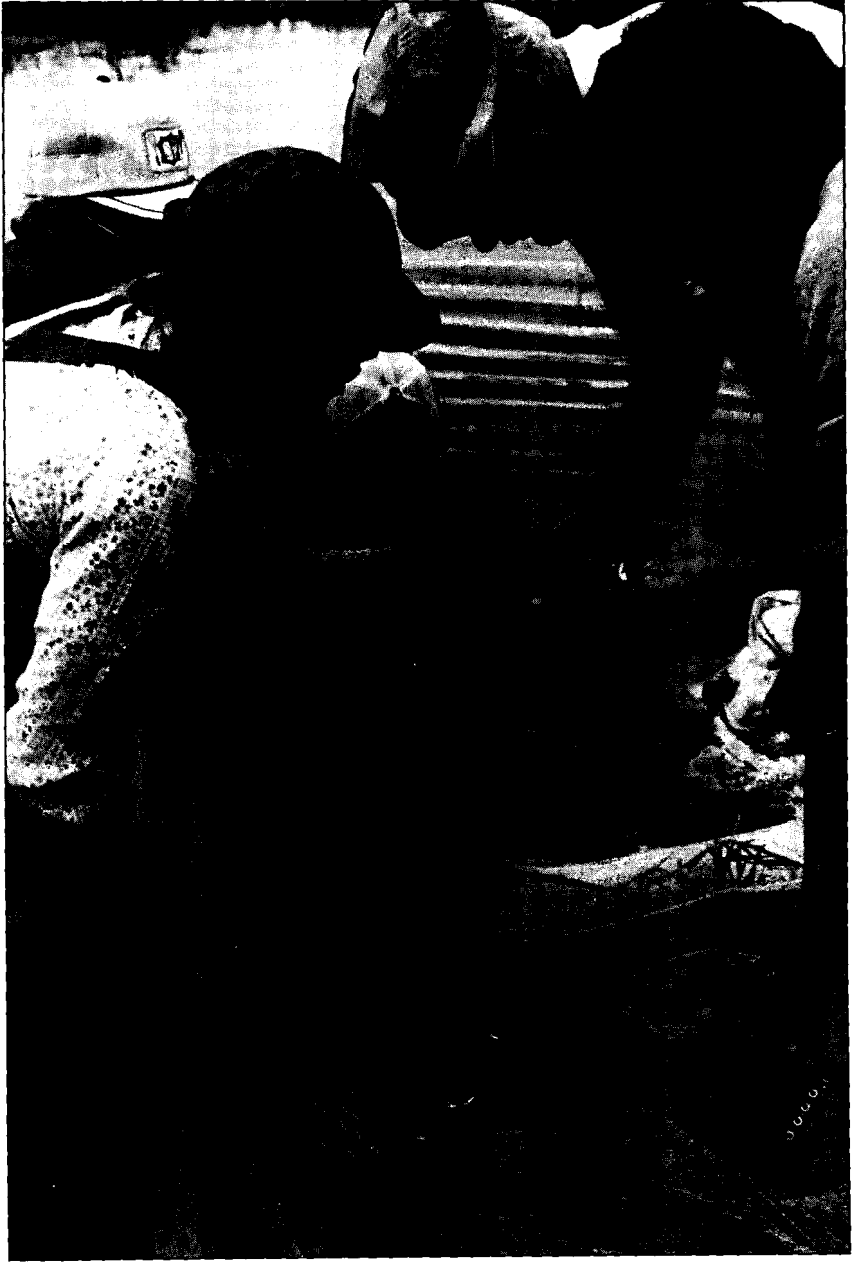
1983

- BIEDENWEG, DOUGLAS W. The use of plant/pollinator mutualisms by the crab spider (*Misumena vatia* Clerck). Ph. D. Dissertation, Washington State University, 1983.
TENNESON, MICHAEL GUNNAR. Behavioral ecology and population decline of the mink frog, *Rana septentrionalis*. M.S. Thesis, University of North Dakota, 1983.
TENNYSON, CHERYL. Winter ecology of the Porcupine *Erethizon dorsatum*. M.A. Thesis, University of North Dakota, 1983.

1984

- BROWN, NICHOLAS KIRKPATRICK. The occurrence and cause of midsummer zooplankton declines: cyanobacteria and the implication for freshwater ecology. Ph. D. thesis, University of Tennessee, 1984.
FRITSCHÉ, THOMAS RICHARD. Host-Parasite Interactions of *Cotylurus flabelliformis* (Faust, 1917) (Trematoda: Strigeidae) In Normal and Aberrant Molluscan Hosts. Ph. D. thesis, University of Minnesota, 1984.





Condensed Course Schedule

TERM I

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Bot 5801	EBB 5815	Bot 5811	Bot 5801	EBB 5815	Bot 5811
EBB 5831	FW 5456	EBB 5834	EBB 5831	FW 5456	EBB 5834
Ent 5020	GC 1133		Ent 5020	GC 1133	

EBB 3800 (10-credit course to be arranged)

TERM II

Biol 5041	EBB 5812	EBB 5817	Biol 5041	EBB 5812	EBB 5817
PIPa 5102	EBB 5814	EBB 5832	PIPa 5102	EBB 5814	EBB 5832

REGISTRATION Itasca Biology Program

Please print.

See Reservation and Registration sections of this bulletin before completing this form. Register for 5-10 credits each term. Schedule only one course per day, using the Condensed Course Schedule above. Mail this form with the Itasca Summer Information Sheet and all required materials to Program Director, Itasca Biology Program, 349 Bell Museum of Natural History, University of Minnesota, 10 Church Street S.E., Minneapolis, MN 55455.

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 (check one):	
City	State	Zip Code	<input type="checkbox"/> Student cabin <input type="checkbox"/> Campground site <input type="checkbox"/> Resort	
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 1985		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	Call Number	Credits	Department	Course Number
Term II				



UNIVERSITY OF MINNESOTA ITASCA SUMMER INFORMATION SHEET
Office of Admissions and Records

Please print.

See Reservation and Registration sections of this bulletin before completing this form. Mail it with the Registration form, a \$40 (one term) or \$80 (two terms) deposit (check or money order payable to the University of Minnesota) to be credited to your tuition, a recent transcript of your academic record (including all current courses), and a letter of evaluation (recommended) from your adviser or supervisor to: Program Director, Itasca Biology Program, 349 Bell Museum of Natural History, University of Minnesota, 10 Church Street S.E., Minneapolis, MN 55455. NOTE: Applications will not be reviewed until all mandatory items are received.

Student Name (last, first, middle, former)			U of M ID Number
Current Street Address			Social Security Number
City	State	Zip Code	Birthdate (month/day/year)
Permanent Street Address			Sex (check one): <input type="checkbox"/> Male <input type="checkbox"/> Female
City	State	Zip Code	Home Phone Number ()
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:			Summer Term (check one or both): <input type="checkbox"/> I <input type="checkbox"/> II
Quarter_____	Year_____	College_____	
If you have never registered in University of Minnesota day classes, have you applied for or been granted admission? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, write quarter, year, and college:			
Quarter_____	Year_____	College_____	

Bulletin Use

The contents of this bulletin and other University bulletins, publications, or announcements are subject to change without notice. University offices can provide current information about possible changes.

Equal Opportunity Statement

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, or veteran status. In adhering to this policy, the University abides by the requirements of Title IX of the Education Amendments of 1972, by Sections 503 and 504 of the Rehabilitation Act of 1973; 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 directed to Patricia Mullen, Acting Director, Office of Equal Opportunity and Affirmative Action, 419 Morrill Hall, University of Minnesota, 100 Church Street S.E., Minneapolis, MN 55455 (612/373-7969), or to 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.

Access to Student Educational Records

In accordance with regents' policy on access to student records, information about a student generally may not be released to a third party without the student's permission. The policy also permits students to review their educational records and to challenge the contents of those records.

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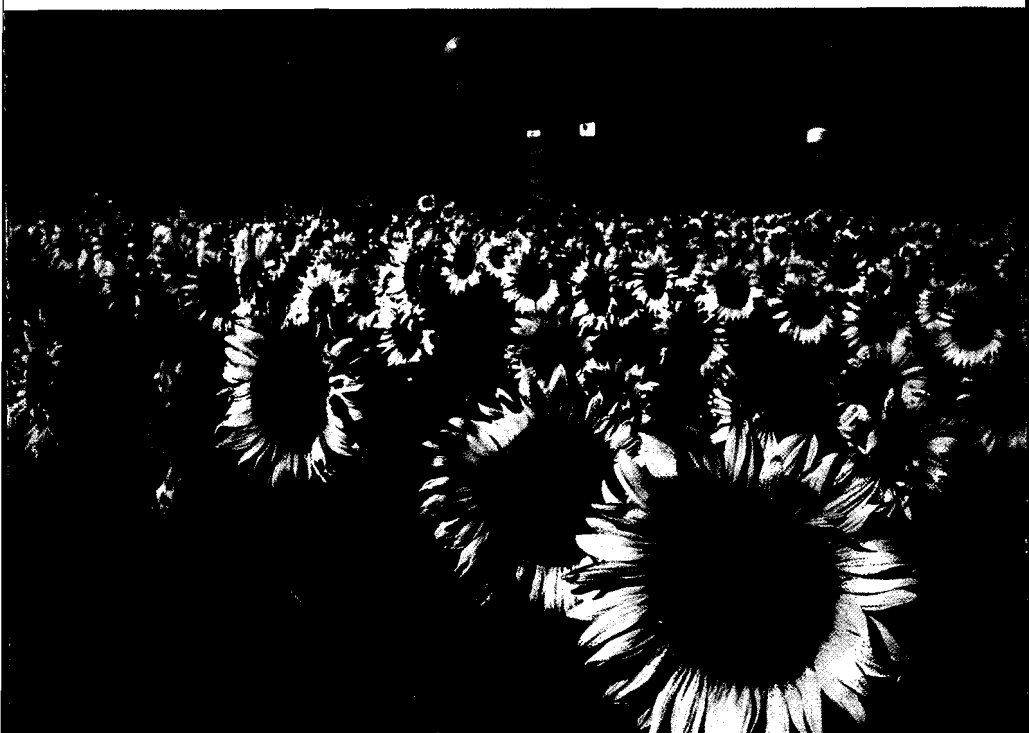
Cover photo by Bruce Edinger
Back cover photo by David Parmelee
Inside photos by Miriam Axelrod

UNIVERSITY OF MINNESOTA BULLETIN
Summer Session
135 Johnston Hall
101 Pleasant Street S.E.
Minneapolis, Minnesota 55455

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Minneapolis, Minnesota

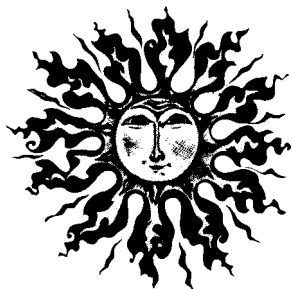


First Term June 16-July 20 • Second Term July 21-August 24



SUMMER SESSION

19



85

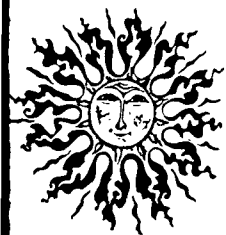
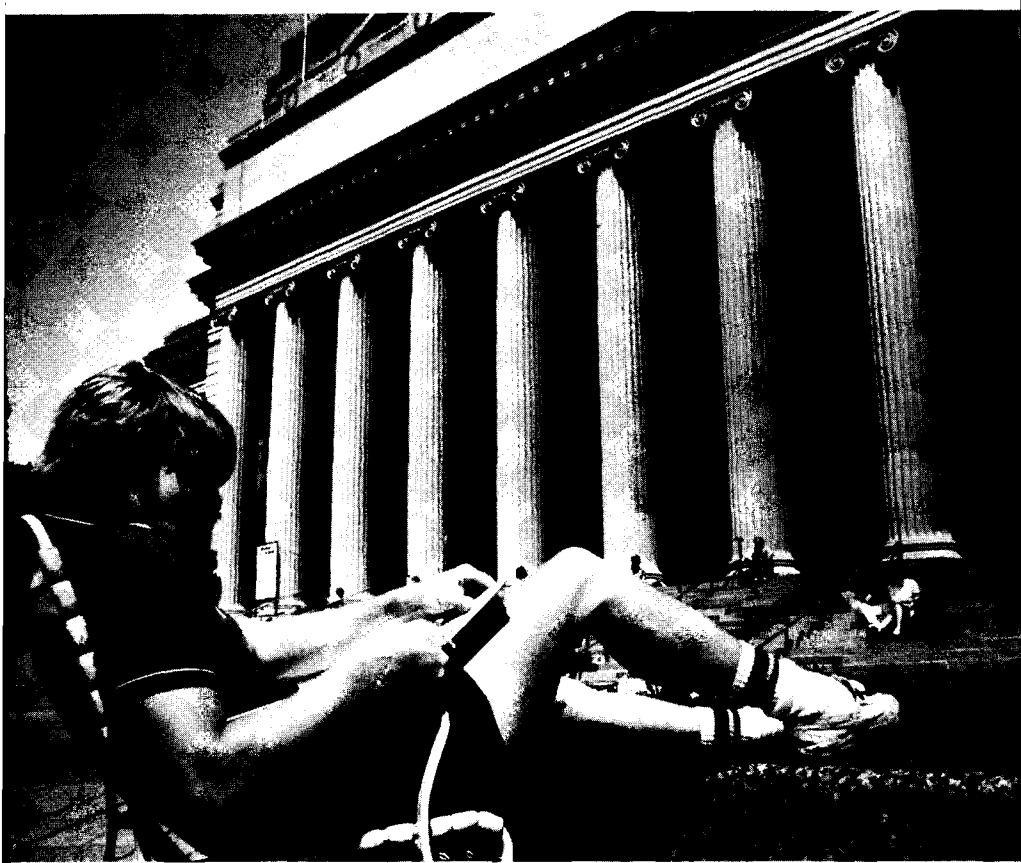
Where to Call for Information

Summer Session Office

(612) 373-2925

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. **Office hours are Monday, 8:00 a.m. to 6:30 p.m., and Tuesday through Friday, 8:00 a.m. to 4:30 p.m.**

University Information Service	
from off-campus telephone	373-2851
from on-campus telephone	3-2002
Advisers	
CLA summer-only students	373-2880
Extension and Summer Session Counseling	373-3905
(all other students contact their college office)	
Admissions	
Adult Special, advanced standing, and transfer	
students within the University	373-1382
MBA Office	373-5505
Bookstores	
Minnesota Book Center, East Bank	373-3688
Books Underground, St. Paul	373-0800
Smith Bookstore, West Bank	373-4450
Bus Information	373-0374
Car-Pool	373-0374
Certifications	376-1680
CLA College Office	373-2876
CLA SUMMER-ONLY STUDENTS	373-2880
Other Colleges Offices (see page 15)	
Extension Information	373-3195
Financial Aid	376-2424
Graduate School	373-5542
Handicapped Services	376-2727
Health Service	373-3141
Independent Study	373-3256
Housing	373-7542
Lost and Found	376-3003
Parking Office	373-4190
Recreational Sports	373-4200
Student Employment	373-3674
Transcripts	376-1680
Veteran's Information	376-1670
BULLETIN REQUESTS	
Graduate School	373-5542
Continuing Education and Extension	376-3000
Summer Evening Courses	376-3000
Other College Bulletins	373-2153



Summer Session 1985



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Calendar

May 23, 24, 28-30	Advance registration for first term, limited to day school students formally admitted to and currently registered in or previously enrolled during any academic year in a Twin Cities college of the University and registering in that same college.
May 31, June 3-7, 17	College of Liberal Arts summer-only day school students may register in person at this time only. See Admission and Registration and college sections for details and office hours (pages 16, 17, 151). Open registration for other students as well.
May 31, June 3-7, 10-14, 17	Summer-only day school students and new students in all other colleges may register at this time only. See Admission and Registration section for details. (Summer-only students in the College of Liberal Arts see paragraph above.) Open registration for other students as well.
June 11	Last day to pay graduation fees for first term.
June 18	FIRST TERM CLASSES BEGIN. <i>Note:</i> First Term classes begin on a Tuesday.
July 4	Holiday.
July 15-17	Advance registration for second term, limited to day school students formally admitted to and currently registered in or previously enrolled during any academic year in a Twin Cities college of the University and registering in that same college.
July 18, 19, 22	Summer-only day school students and new students may register at this time only. See Admission section for details. Open registration for other students as well.
July 19	Last day of class for first term.
July 22	Last day to pay graduation fee for second term.
July 22	SECOND TERM CLASSES BEGIN. <i>Note:</i> Second term classes begin on a Monday.
August 23	Last day of class for second term.

—IMPORTANT—

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

Please note that first term classes begin on **TUESDAY, JUNE 18 EXCEPT** where a Monday starting date is specified, and second term classes on **MONDAY, JULY 22.**

All students not regularly enrolled spring quarter 1985 may be asked to show their United States Social Security numbers.

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A Guide to the Summer Session Bulletin

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

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

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

A minimum of prerequisite information is shown. For example, when courses that must be taken in sequence are prerequisites, only the last course of the sequence is listed. When no abbreviated departmental prefix precedes the course listed as a prerequisite, that prerequisite course is in the same department as the course being described.

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

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

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

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

Conversion Table

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

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

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

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

Limited Enrollment Courses—Courses with limited enrollments are listed in the Course Descriptions section with an **R** before the course number. Check the Section Status Report (posted outside of 101 Fraser Hall, 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.

Changes made subsequent to the printing of this bulletin are published in the *Minnesota Daily*. Lists of changes are also available in the Summer Session office, 135 Johnston Hall.

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

Admission and Registration



Admission

Summer session courses are open to a wide range of those who wish to study at the University of Minnesota in the summer—all high school graduates, students with previous college work, high school students between their junior and senior year who have special abilities and interests that can be satisfied by attending college before high school graduation. Summer session students fall into two major categories:

Currently or Previously Enrolled University of Minnesota, Twin Cities Campus Students

- Students who have been formally admitted to and are currently enrolled in a degree program on the Twin Cities campus.
- Former University of Minnesota day-school students who were at any time formally admitted to and enrolled in any college of the University of Minnesota, Twin Cities campus and registering in that same college. For continuing students, appropriate credits earned in the summer session apply to degree programs.
- Students who are graduates of the University of Minnesota, Twin Cities campus, and are returning for summer study in their previous college.

Summer-Only Students

Students who have never been formally admitted to and enrolled in any Twin Cities college of the University of Minnesota. Included are:

- High school graduates.
- Students from other campuses, colleges, and universities.
- Those whose application and formal admission to Graduate School or any other college of the University of Minnesota is pending or who have been admitted for fall 1985.

Admission and Registration

- High school students who have college office approval.

Summer-only students may register for University classes without formally applying to a University college or program. However, attendance as a summer-only student does not guarantee admission to a regular degree program at the University of Minnesota. If you later apply and are admitted to a degree program, however, appropriate credits you have earned as a summer-only student can be transferred to your degree program. If you plan to take a Graduate School degree, see the current *Graduate School Bulletin* for limitations on transfer regulations.

ADMISSION TO DEGREE PROGRAMS FOR THE SUMMER SESSION

Application to a degree program and registration for classes are two separate procedures. If you intend to receive a degree from the University of Minnesota, you must file an application, any necessary credentials, and an application fee in order to be formally admitted to a college of the University.

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

Entering Freshmen

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

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

To be assured full consideration in time for summer admission to a degree program (for all freshman-admitting colleges except GC, IT, and CLA) and registration for summer session, your freshman application must be received by May 1 in the Office of Admissions, 240 Williamson Hall, University of Minnesota, 231 Pillsbury Drive S.E., Minneapolis, MN 55455. With your completed application form, you must present transcripts from the last high school and all colleges that you have attended, and a \$20 application fee. Most colleges require ACT or PSAT test scores, and some have other special admission requirements (see the *General Information Bulletin* or the appropriate college bulletin).

Undergraduate Applicants With Previous College Work

Students who have previously completed college work at another institution or as summer-only students are generally not considered for admission during the summer session to degree programs of many colleges and schools of the University of Minnesota (except St. Paul-based colleges). If you plan to enter a degree program, you should apply for fall quarter admission and register for one or both summer terms under summer-only

status. Likewise, University of Minnesota students wishing to change their college of enrollment (e.g., from CLA to Education) generally are not considered for admission to the new college (except St. Paul-based colleges) during the summer session. For both groups of students, appropriate courses completed satisfactorily during the summer will be accepted for degree credit when you have been admitted to the unit and have registered for one of the regular quarters of the school year.

May 1 is the last date for application with assurance of full consideration for summer admission to most colleges. Applications, with the \$20 application fee and the necessary credentials, should be sent to the Office of Admissions, 240 Williamson Hall, University of Minnesota, 231 Pillsbury Drive S.E., Minneapolis, MN 55455.

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. Many regular summer session courses are also open to high school students. In either case, students 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.

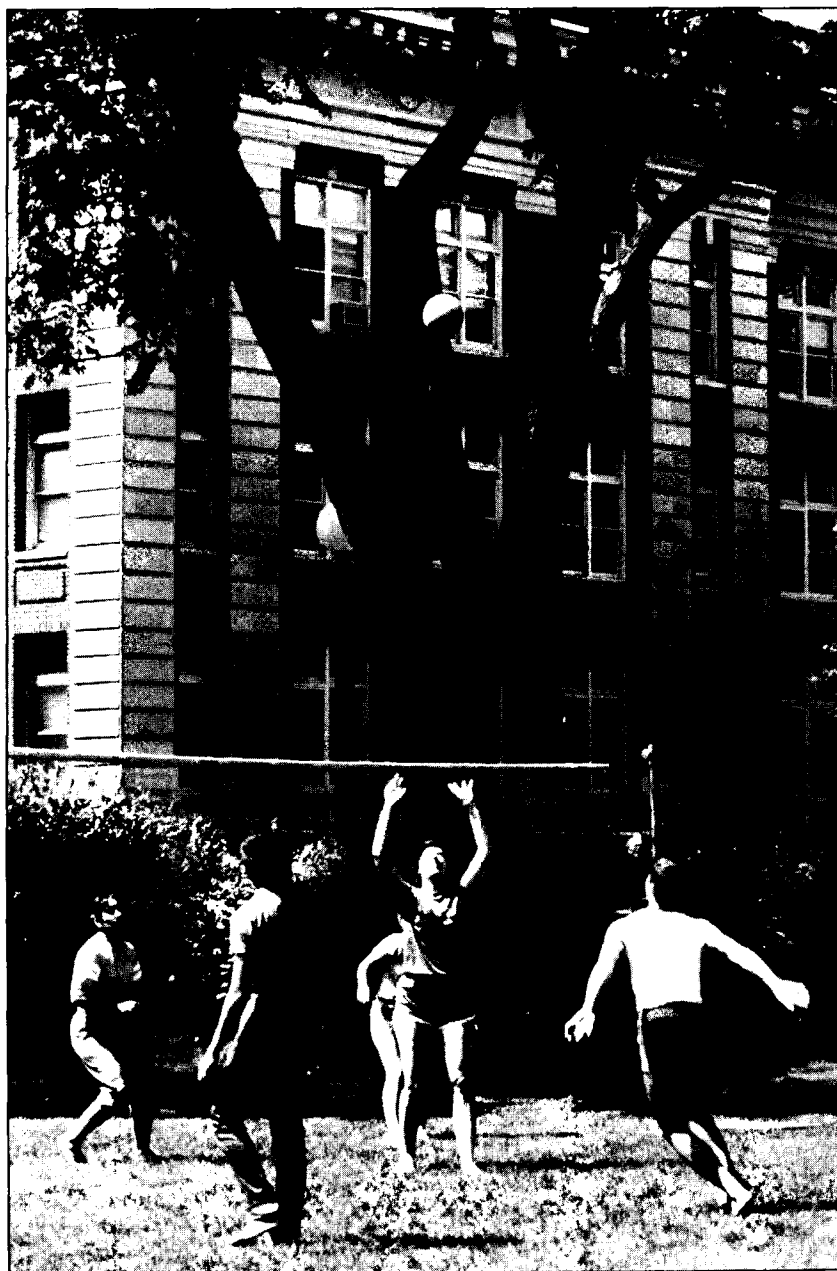
Registration is usually limited to introductory (1000-level) courses in the following colleges: Agriculture, Biological Sciences, Forestry, Home Economics, Liberal Arts, General College, and the Institute of Technology. To apply, take your transcript and letter(s) to the college offering the course. (College offices are listed on page 15.) Some courses may be taken through several colleges; check with the Summer Session Office, 135 Johnston Hall, for a listing of these courses. When you receive college approval, you may register by following the instructions for summer-only students on page 16.

The Summer Honors College will offer an intensive two-week collegiate experience in the liberal arts June 17-28. High ability students who will be high school seniors can earn college credit in courses usually not available to them. Some of the best university teachers have been recruited to teach courses in fields like mathematics, philosophy, English, Russian, studio arts, psychology, political science, statistics, history, and speech-communication. Dormitory rooms, exclusively for high school students accepted in the Summer Honors College, are available for the two-week period. So that high school students with summer jobs may participate, some courses will be scheduled in the morning and some in the afternoon.

For further information, send in the tan request card in the back of this bulletin or call the Summer Session Office, (612) 373-2925.

The Honors Institute in Theatre offers students intensive courses such as acting and set design July 22-August 16. Post-high school students may also participate in this program. The Institute program will culminate with a theatrical production.

For further information, send in the tan request card in the back of this bulletin or call the Summer Session Office, (612) 373-2925.



Northrop Mall is a favorite setting for volleyball at noon.

Senior Citizen Education Program

Minnesota residents age 62 and over who meet academic prerequisites may register for University classes when space is available after tuition-paying students have been accommodated. Under the Senior Citizen Education Program, they may audit courses free of charge or may take courses for credit at \$6 per credit. (Auditors prepare daily assignments and participate in class discussions but do not take examinations or receive grades, and no official record is kept of their work.) Senior citizens do not pay the student services fee but must pay any required laboratory or materials fees.

Registration for the Senior Citizen Education Program will be held on June 19 for first term courses and on July 23 for second term courses. Persons who wish to register should come to 202 Fraser Hall (150 Williamson Hall for those with mobility impairments, or 130 Coffey Hall for St. Paul-based students) and bring identification to verify age and Minnesota residency. Call 376-1680 for more information.

GRADUATE STUDENTS

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

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

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

Graduate Student Admission

Students planning to apply credits earned in summer session toward graduate degrees or who expect to receive graduate credit for such work should apply for admission directly to the Graduate School. Applications must be submitted *complete in every detail*—one official transcript from each college attended, the application fee, and test results if required—by May 15, 1985 for first term admission and June 17, 1985 for second term admission. Since some fields establish deadlines earlier than these dates or make all their decisions well before these deadlines, you are encouraged to contact the program to which you are applying as soon as possible.

Note that courses numbered 8000 and above are open only to students registered in the Graduate School.

Requirements for Graduate Degrees

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

Transient Graduate Students

A student currently enrolled in an advanced degree program of a graduate school at another accredited college or university in the United States may request permission to register in the Graduate School of the University of Minnesota as a transient graduate

Admission and Registration

student by completing Graduate School form 57. No application fee or supporting materials are required for the transient student forms. Permission to register as a transient student will be granted, to the applicant who qualifies, for one summer session (first and/or second term) or one academic-year quarter, and will not extend beyond that single session or quarter.

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

Graduate Student Registration: New Students

- If you are registering for the first time in the Graduate School, obtain your registration materials in 307 Johnston Hall.

Graduate Student Registration: Previously Registered Students

- To clear any Graduate School holds take the following steps:

MAST PGM	Bring signed master's program to 316 Johnston Hall.
DOCT PGM	Bring signed doctoral program to 316 Johnston Hall.
SPEC PGM	Bring signed specialist program to 316 Johnston Hall.
THES TITLE	Bring signed thesis title to 316 Johnston Hall.
TRANSCRIPT	Bring bachelor's transcript, showing degree awarded, to 306 Johnston Hall.
PROJ TITLE	Bring project title to 316 Johnston Hall.
GPA	Bring letter releasing hold from major field director of graduate studies to 316 Johnston Hall.
INCOMPLETE	Bring letter releasing hold from major field director of graduate studies to 316 Johnston Hall.
DEAN'S HLD	Come to 306 Johnston Hall for explanation and instructions for clearing.
DOCT CAND	Come to 316 Johnston Hall for explanation and instructions for clearing.
- Read pages 15-17.
- Have your adviser sign your Course Request form.
- Pay your fees. *Graduate students are subject to the same deadlines for registration and fee payment as undergraduates and will be assessed the same penalties for failure to meet those deadlines. See page 3.*

Thesis Credits—Effective fall 1983 new students in the Graduate School will be required to register, *prior to receiving their degree*, for a standard number of thesis credits—16 thesis credits for Plan A Master's and M.Eng. students and 36 thesis credits for Ph.D., Ed.D., and D.M.A. students. Tuition for thesis credits will be assessed the same way course credits are assessed—with both resident and nonresident rates. For thesis credits register for Grad 8777 or 8888.

Residency Credit—In the summer, students will earn 1/10 of a quarter's residency for each credit, up to a maximum 5/10 per term. For complete residency requirements, see the *Graduate School Bulletin*.

Official Doctoral Candidates—If an official doctoral candidate (one who has passed the preliminary oral examination) wishes to register during the summer, registration materials may be obtained in 316 Johnston Hall.

Maximum Credits—The maximum credit load for a summer term is 10. Refer questions to an Assistant to the Dean, 306 Johnston Hall.

Grading Option—Two grading systems, A-B-C-D-N and S-N, are used in the Graduate School. You must designate your grading option for each course at registration. However, if either A-N only or S-N only is printed after the prerequisite statement for a course, you *must* register for that grading system.

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

- submit your Application for Degree to Student Relations, 150 Williamson Hall on or before the first working day of the month. You must pay your graduation fee (and final quarter fee if doctorate) when you submit your application.
- complete all other requirements by the last working day 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 on eligibility.

Plan A master's and doctoral students receive an Application for Degree plus detailed graduation instructions when they register their thesis title in the Graduate School, 316 Johnston Hall. Plan B students receive an Application for Degree and graduation instructions when they pick up their Final Examination Report form from the Graduate School, 316 Johnston Hall.

Doctoral Oral Examinations—You must schedule your preliminary and final oral exams *at least one week in advance*. You may schedule your exams by coming to 316 Johnston Hall or by calling 373-7912 for a preliminary exam or 373-2953 for a final oral exam. These exams will not be scheduled from the beginning of second term of summer session to the opening of fall quarter unless members of the assigned committee can be assembled without substitution.



Jugglers entertain the crowd in front of Coffman Memorial Union.



Registration, Tuition, Fees

LATE FEES, DUE DATES

Late fees are assessed for both late registration and late payment.

Late Registration—No registration will be accepted after June 18 (first term) or July 22 (second term) without payment of the late registration fee, as follows:

June 19-24 or July 23-26	\$10
Thereafter	\$20

Late Payment—A fee of \$20 is charged if tuition and fees are paid after the student's due date, as indicated on the fee statement at the time of registration and on the following chart:

<i>Registration Period</i>	<i>Tuition and Fees Due Date</i>
Through June 17 or July 19	5 workdays after registration
June 18-20 or July 22-24	June 24 or July 26
Thereafter	1 workday after registration

COLLEGE OFFICES

Agriculture, 277 Coffey Hall (St. Paul) 373-0921

Biological Sciences, 223 Snyder Hall (St. Paul) 373-3648

Dental Hygiene, 5-164 Moos Health Sciences Tower 373-3271

Dentistry, 15-106 Moos Health Sciences Tower 373-3454

Education, 1425 University Avenue S.E. 373-2257

Forestry, 10 Green Hall (St. Paul) 373-0842

General College, 10 Nicholson Hall 376-2950

Graduate School, 307 Johnston Hall 373-5542

(Students registered in the Graduate School spring quarter may obtain registration materials in the office of their major department.)

Home Economics, 32 McNeal Hall (St. Paul) 373-0933

Liberal Arts

Regular (currently enrolled or previously registered) students: college offices

Summer-only students: 16 Johnston Hall 373-2877

See page 151 for office hours for summer-only registration.

High school students: 49 Johnston Hall 376-3950

School of Management, 225 Management/Economics (West Bank) 373-3701

School of Management Graduate Studies, 334 Management/Economics (West Bank) 373-5505

Medical Technology, 15-170 Phillips-Wangensteen Building 373-9670

Medicine, 3-105 Owre Hall 373-7690

Military Science, 108 Armory Building 373-2212

Mortuary Science, 400 Botany 373-3870

Nursing, 5-140 Health Sciences Unit F 373-8208, 373-3462

Pharmacy, 5-110 Health Sciences Unit F 373-7997

Physical and Occupational Therapy, 271 Children's Rehabilitation Center 373-9024

Public Health, 1250 Mayo Memorial Building 373-8060

Institute of Technology, 105 Lind Hall 373-3227, 373-3228

University College, Inter-College Program, 213 Temporary North of Appleby 376-1253

University Without Walls, 201 Westbrook 373-3919

Veterinary Medicine, 460 Veterinary Teaching Hospitals (St. Paul) 376-3886

REGISTRATION PROCEDURE

Steps in the registration procedure vary slightly depending upon whether you are a regular University of Minnesota student or a summer-only student. The definitions of these two categories are outlined on page 7. Most students must register in person. Summer-only students registering in the College of Liberal Arts and adult special, M.Ed., and summer-only students registering in the College of Education may register for first term by mail. See pages 151 and 71 for instructions.

Currently or Previously Enrolled University of Minnesota, Twin Cities Campus Students. First term registration dates are May 23, 24, 28-31—June 3-7, 10-14, 17. Second term registration dates are July 15-19, 22. All continuing students are encouraged to use the *Summer Session Class Schedule* for complete registration instructions and forms.

1. College of Liberal Arts students see the *Summer Session Class Schedule* for complete registration instructions.
Graduate School students see page 11 for additional information.
2. Students in all other colleges should go first to their college office (college office addresses and telephone numbers are listed above) for instructions and registration materials. Complete a Course Request form (printed in the *Summer Session Class Schedule* and at the back of this bulletin).
3. Obtain approval of your study program at your college office (department office in I.T.), if required.
4. Turn in your completed Course Request form and any required Registration Override Permits and obtain your computer-printed schedule and fee statement. The Registration Center on the Minneapolis campus is located in 202 Fraser Hall (150 Williamson Hall for mobility-impaired students) and in 130 Coffey Hall for St. Paul-based students. The Registration Centers are open 8:00 to 6:30 Monday and 8:00 to 4:00 Tuesday through Friday.
5. Pay fees at the Bursar's Office in Williamson Hall, at the West Bank Bursar's Office, at the Cashier's Office in Coffey Hall, or by mail. The hours are 8:00 a.m. to 3:30 p.m. Monday through Friday. If mailed, fees must be paid or postmarked no later than the due date(s) printed on your fee statement(s).
6. Attend the first class meeting. If you miss the first meeting, you may lose your place in class to another student, unless you notify the instructor in advance of an unavoidable absence.

Summer-Only Students. First term registration dates are May 31, June 3-7, 10-14, 17. (Summer-only students in the College of Liberal Arts may register in person on May 31, June 3-7, 17 only. See office hours on page 151.) Second term registration dates are July 18, 19, 22.

1. Complete the Summer-Only Registration form (found at the back of this bulletin) and submit it to the office of the college offering the instruction. College offices are listed on page 15. Complete your Course Request form (also found at the back of this bulletin) using the information found in the Course Descriptions section.
2. Obtain approval of your study program and your Summer-Only Registration form at the college office.
3. Obtain any approved and signed Registration Override Permits required for admittance to courses where Δ or # appears in the prerequisite statement or for limited courses that have closed.

4. Turn in your completed and approved Course Request form and Summer-Only Registration form and obtain your computer-printed schedule and fee statement. The Registration Center on the Minneapolis campus is located in 202 Fraser Hall (150 Williamson Hall for mobility-impaired students), and in 130 Coffey Hall on the St. Paul campus. Registration Centers are open 8:00 to 6:30 Monday and 8:00 to 4:00 Tuesday through Friday.
5. Pay fees at the Bursar's Office in Williamson Hall, at the West Bank Bursar's Office, at the Cashier's Office in Coffey Hall, or by mail. The hours are 8:00 a.m. to 3:30 p.m. Monday through Friday. If mailed, fees must be paid or postmarked no later than the due date(s) printed on your fee statement(s).
6. Attend the first class meeting. If you miss the first meeting, you may lose your place in class to another student, unless you notify the instructor in advance of an unavoidable absence.

COLLEGE OF EDUCATION STUDENTS

Mail Registration—Students registering in the College of Education (M.Ed., adult special, or summer-only) may register by mail for first term only. Registration materials can be obtained by completing the blue request form found at the back of this bulletin and sending it to the Summer Session office. (Note: This does not apply to students registering in the Graduate School.) For more information, see the College of Education section of this bulletin, page 71.

COLLEGE OF LIBERAL ARTS SUMMER-ONLY STUDENTS

Mail Registration—Summer-only students registering in the College of Liberal Arts may register by mail for first term only. Registration materials can be obtained by completing the yellow request form found at the back of this bulletin and sending it to the Summer Session office. (Note: This does not apply to students registering in the Graduate School.) For more information, see the College of Liberal Arts section in this bulletin, page 151.

INTERNATIONAL STUDENTS

Initial Interview—If you hold a non-immigrant visa of any type and if you are registering for the first time at the University, you should go to the International Student Adviser's Office, 717 East River Road, Minneapolis. There you will meet a staff member who will provide you with information on how to begin the registration process. Bring your passport and Immigration Service Forms I-94 and I-201D or evidence of your permanent residence to this interview.

English Proficiency—If English is a second language for you and you achieved less than 550 on the TOEFL exam or if testing was temporarily waived because you are from an Anglophone country, you must take a local English test before you register. There is a fee of \$15 for this test, and you should pay this fee at your orientation interview. Scores for this local test are available seven to ten days after the test is taken. Based on your scores, you may not be required to take English as a Second Language (ESL) classes or you may be required to register for a reduced number of academic courses while taking at the same time a recommended number of ESL classes. Testing may also show that you need full-time ESL classes for a quarter (20-25 hours per week); you will not be allowed to register for academic courses during that quarter.

Admission and Registration

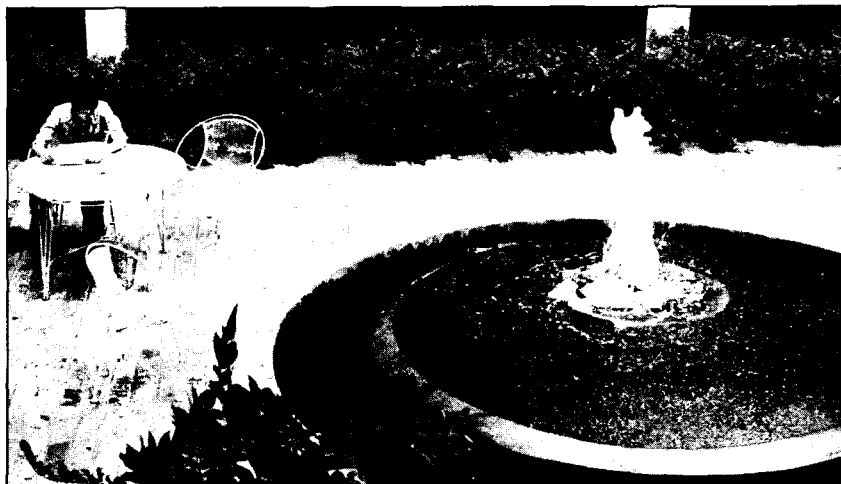
Health Clearance—If you are not a citizen of the United States and if you are registering for the first time at the University of Minnesota, you will be required to present proof of health clearance. This health clearance is obtained at Boynton Health Service, 410 Church Street, Minneapolis (check in at main desk, N300), and most often requires two visits—the first visit for a skin test for tuberculosis and the second, 48 hours later, for evaluation of the test. If your test results are positive, you will be required to have a chest x-ray. To avoid delay, begin your health clearance at least several days before you wish to register. **Note:** if you have been tested elsewhere during the past year *and can bring proof of test results to Boynton Health Service (N300)*, you will not need to repeat the test.

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, see the current *General Information Bulletin*, check with your college office, or call or visit a Student Relations staff member in the Office of Registration, Student Records, and Scheduling, 150 Williamson Hall (376-1680).

CHANGES IN REGISTRATION: CANCELLATIONS, ADDITIONS

If you decide to stop attending class, you *must officially cancel* by submitting to the Registration Center a properly approved Course Request form; failure to attend class does not, by itself, constitute cancellation. Course cancellations are generally allowed without written permission and without a transcript record during the first five days of the term. Cancellation of a course after the fifth day of the term, for 5-week courses, will result in a W on your record. (10-week courses may be cancelled without transcript record through the tenth day of the term.) Many colleges require special approval for cancellations after the end of the first week. Graduate students may not change their registration after the last day of classes of either term. For regulations governing cancellations and additions in your college, check with your college office.



A quiet moment in the courtyard between Murphy and Vincent Halls.

TUITION AND INCIDENTAL FEES¹

TUITION

Per term; per credit	
<i>Students registering in†</i>	
Agriculture, College of	
Lower Division	\$36.87
Upper Division	48.32
Biological Sciences, College of	47.15
Dental Hygiene	
Certificate Program	36.87
Baccalaureate Program	45.77
Education, College of	
Lower Division	36.87
Upper Division	47.14
Forestry, College of	
Lower Division	36.87
Upper Division	51.69
General College	
Lower Division	36.87
Upper Division	37.38
Graduate School	85.00
Home Economics, College of	
Lower Division	36.87
Upper Division	48.95
Law School	110.33
Liberal Arts, College of	
Lower Division	36.87
Upper Division	38.43
Management, School of	44.64
Medical Technology, Division of	55.07
Mortuary Science, Department of	50.58
Nurse Anesthetist (Medical School program)	55.07
Public Health, School of	49.71
Technology, Institute of	
Lower Division	36.87
Upper Division	46.44
University College	
Lower Division	36.87
Upper Division	38.43

†Exceptions—Tuition for summer-only students is assessed at the resident upper division rate.

Tuition, both resident and non-resident, for students in medicine, nursing, dentistry, veterinary medicine, physical therapy, occupational therapy, pharmacy, and those enrolled in the MBA program is the same as it is during the regular academic year.

STUDENT SERVICES FEE²

Per term; not included in tuition	\$41.23
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¹Tuition in the summer session reflects that of the preceding academic year. Tuition and fees are subject to change without notice.

²All students registering for 3 credits or more in classes held within the 9-county metro area (Hennepin, Ramsey, Dakota, Washington, Anoka, Carver, Wright, Scott, and Chisago) must pay this fee. 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. Special fees are assessed for the Itasca Biology Program and Itasca Forestry Session, and for field trips.

Admission and Registration

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

Due Dates—Each fee statement has its own due date. Later fee statements do not extend the due date(s) on earlier fee statements. A \$10 late payment fee can be charged for any fee statement that is paid after the due date printed on it. **There is no installment payment plan for tuition during the summer session.**

Summer Financial Aid

College Work-Study (CWS) funds, Guaranteed Student Loans (GSLs), PLUS loans, and ALAS loans are available to eligible summer applicants. Summer Pell Grants are also available to eligible students who will be graduating prior to spring quarter 1986.

To be considered for summer aid, undergraduates must take at least 6 credits over the two summer sessions; graduate students 4 credits. Awarding of summer aid will be based on financial need and the amount of aid available.

To apply for summer CWS funds, a GSL, and/or a Pell Grant, you must:

1. Complete and submit a 1985-86 American College Testing (ACT)-Family Financial Statement to ACT in Iowa City, Iowa.
 2. Complete and submit a 1985-86 OSFA Data Form to the Office of Student Financial Aid (OSFA).
 3. **If you are applying for CWS funds, you must also complete a summer 1985 financial aid application and submit it to OSFA by Friday, May 3, 1985.**
 4. Have on file in OSFA any required Financial Aid Transcripts or INS documentation.
- ACT-Family Financial Statements and OSFA Data Forms will be available in OSFA after **January 1, 1985**. Summer aid applications, GSL information, and any required supplemental forms will be available in OSFA Monday, **April 1, 1985**. Detailed registration information as it pertains to CWS employment will be included in the summer financial aid application.

To apply for a PLUS or ALAS loan, obtain a PLUS or ALAS application packet in OSFA after April 1, 1985.

For further information, write the Office of Student Financial Aid, 210 Fraser Hall, 106 Pleasant St. S.E., Minneapolis, MN 55455 or 197 Coffey Hall, 1420 Eckles Ave., St. Paul, MN 55108. Students may also call (612) 376-2424 in Minneapolis or (612) 376-2572 in St. Paul.

Health Coverage

The student services fee includes prepayment for outpatient care at the Boynton Health Service. It does not include hospitalization or surgical benefits. Instead, the Board of Regents requires that all students have hospital insurance. Students who do not have private hospitalization insurance must apply for University-sponsored accident and sickness coverage at the time of registration, and an additional fee will be charged. The fees for accident and sickness single coverage are: First Term (5-week coverage)—\$24.25; Second Term including interim, (9-week coverage)—\$43.50; (14-week coverage)—\$67.75. Dependent coverage is also available. Further information concerning accident and sickness coverage can be obtained from the Student Insurance Office of the Boynton Health Service, W227A Boynton, and by calling 379-9259.

Students With Other Coverage For Outpatient Health Services—Students who belong to a health maintenance organization (HMO), or have an insurance plan whose coverage duplicates the outpatient services of Boynton Health Service, may apply for a partial exemption from the Health Service portion of the student services fee in the amount of \$10.50 per 5-week term. Students who receive an exemption for this portion of the fee

waive all prepaid outpatient benefits offered by the Boynton Health Service. To qualify for an exemption, proof of coverage must be presented to the cashier in Room W220 of the Health Service preferably before registration *but no later than the end of the first week of the applicable term.*

Students who do not pay the Health Service fee may use the Health Service on a fee-for-service basis.

For further information, contact Boynton Health Service, Room W220 (373-3780).

Minnesota Public Interest Research Group (MPIRG)

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

A fee of \$1 per term is charged to support MPIRG programs and operations. A student may decline to pay the fee prior to registration by initialing the MPIRG section of the Course Request form or may obtain a refund at a location and date that will be announced in the student newspaper *Minnesota Daily*.



Admission and Registration

COURSE FEES

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

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

COMPOSITION AND COMMUNICATION

Comp 0011—\$115¹

ECOLOGY AND BEHAVIORAL BIOLOGY

EBB 5014, 5016, 5132, 5134 (Transportation Fee)—\$15

FORESTRY

ForP 3300 (Wood Industries Tour)—\$50

HEALTH SERVICE (field trips and foreign study)

Required of students on University field trips such as those in anthropology, civil engineering, geology, mines, and other courses—\$24 per summer term (covers outpatient medical care for emergency illness or accident at the nearest medical facility on approval of the person in charge of the group. Eligible charges which are not collectible from a student's insurance carrier will be paid by Boynton Health Service up to a maximum of \$50 per visit.

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

ITASCA BIOLOGICAL STATION

Laboratory Fee—\$10.00

Research Fee—minimum \$2.50 per week²

LANDSCAPE ARCHITECTURE

LA 3073, 5107—\$35

MATHEMATICS

Math 0005, 0006, 0007, 0009—\$115¹

Math 1008—\$148¹

Math 1111, 1201—\$185¹

MUSIC

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

PUBLIC HEALTH

PubH 5755 (Administrative Residency)—\$200

SOIL SCIENCE

Soil 3220—\$5

Soil 3520, 5510—\$15

Soil 5565—\$25

¹In lieu of tuition.

²In lieu of tuition. Researchers must also pay the \$8.50 laboratory fee.

STUDIO ARTS¹

ArtS 1101, 5190—\$3
ArtS 1404—\$4
ArtS 1701, 1702, 1811, 1812, 3430, 3710, 5430, 5710, 5790—\$20
ArtS 1301, 1302, 1510, 1520, 1530, 3301, 3302, 3304, 3305, 3810, 5310, 5320, 5340, 5350, 5390, 5590—\$25
ArtS 3303, 3510, 3520, 3530, 3720, 5330, 5510, 5520, 5530—\$30
ArtS 3820, 5820—\$35
ArtS 5810, 8810—\$40
ArtS 3830, 3970, 3980, 5830, 5970, 8000-level courses—Arranged

SPECIAL FEES

MUSIC PRACTICE ROOM

5 hours per week for 5 weeks—\$1.75 per term
10 hours per week for 5 weeks—\$3 per term (50¢ per hour for each additional hour per week)
Organ—25¢ per hour

PHYSICAL EDUCATION²

Cooke Hall

Locker and Towel Fee—\$.75 per day, \$10 per one or both summer terms
Gym Clothing Rental Fee—\$10

Norris Hall, St. Paul Gymnasium

Locker and Towel Fee—\$10

SPEECH AND HEARING CLINIC

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

Outpatients:

Speech Pathology, Clinical Management—\$2 per session
Audiologic Evaluation—\$25
Audiologic Evaluation for Senior Citizens—\$15
Audiology Screening—\$2
Audiology Screening Follow-up—\$5

MISCELLANEOUS

Application Fee—\$20; for Graduate School \$25 per major
Credit by Special Examination—\$30
Graduation Fee (each degree)—\$15
International Student Aid Fee—\$2 per term required of **all** non-immigrant students who have temporary visa status
Orientation Fee—\$15 required of all new students (except graduate students who attended the Twin Cities campus as undergraduates); not required for students in law, medicine, veterinary medicine, dentistry, or public health or in M.Ed. or M.Ag. programs
Overseas Diploma Mailing Fee—\$5 charged if student wants diploma sent air mail to address outside the United States, Canada, or Mexico
Record Service Fee—\$6 required of all new students; provides students with unofficial copies of student records
Transcript Fee—\$2 required for **each** official certified copy of student records

¹Materials fees—assessed at registration. Arranged fees are collected by department.

²Fees are the same whether locker and towels or gym clothes are rented for one or both terms.

Admission and Registration

DEPOSIT CARDS

Deposit cards may be purchased from the bursar. Chemistry cards are \$20; pharmacy cards are \$10; art cards are \$5.

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

The student must present a deposit card to be assigned a laboratory desk.

REFUND OF FEES

Students who *officially cancel* their summer session registration without attending class will be granted a 100 percent refund of fees. After classes begin, a student can receive a 100 percent refund *only* with a signed statement, written on official University stationery, from the instructor(s) testifying that the student *never* attended class. All refunds of the student services fee, however, are based on the date that the cancellation is processed and are not affected by retroactive cancellation. Students who *officially cancel* after having attended class will be granted a refund of fees on the following basis:

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

Note: For first term, the first week of classes ends on Monday, June 24.

AUDITORS

Permission to attend a class as an auditor may be granted by the dean of the college or school offering the course, with the consent of the department concerned. The procedure for registration as an auditor is the same as for registration for credit, except that V (for "visitor") should be indicated on the Course Request form in the grading option column. Courses in which the student registers as an auditor count in the determination of the credit total for the student services fee. Tuition and course fees are the same as for students registered for credit.

AMOUNT OF WORK

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

FINAL EXAMINATIONS

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

GRADING

Academic achievement of Twin Cities campus students is evaluated according to two grading systems: A-B-C-D-N and S-N. The S indicates satisfactory work based on standards announced by the instructor; the N indicates no credit. There is no F grade; a student who is not doing satisfactory work will generally receive an N.

A good explanation of the system appears in the current *College of Liberal Arts Bulletin*. Graduate students should consult the *Graduate School Bulletin* section on grading.

If either A-N only or S-N only is printed after the prerequisite statement for a course, students must register for that grading system. If no grading system is listed, either A-N or S-N may be acceptable. For information on courses offered for S-N grading and any degree or quarter limits on credits taken under this system, students should consult both their own college office and the college offering the course. In general, grading options may not be changed after the first week of classes for 5-week courses or after the second week of classes for 10-week courses. Policies may vary by college; students should check with their college office for complete information. **Note:** For first term, the first week of classes ends on Monday, June 24.

REGULATIONS GOVERNING GRANTING OF DEGREES

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

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

2. Recommendation by the faculty.

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

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

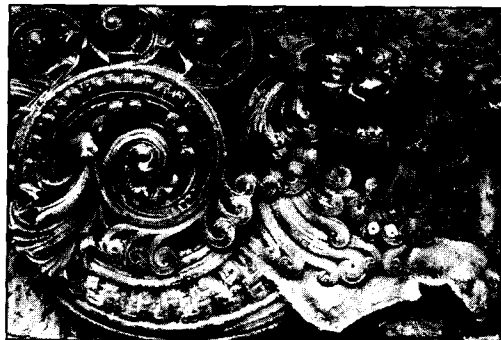
5. Payment of Graduation Fee—(each degree)—\$15.

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

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

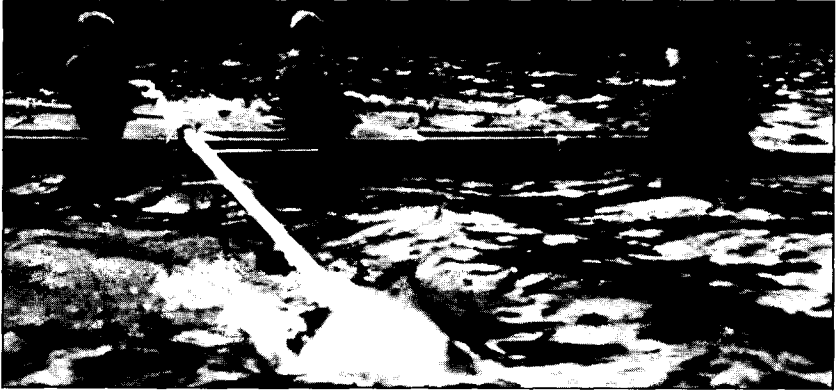
College of Education (except recreation, park, and leisure studies majors) \$20

This lion/serpent is carved into the front of the unique Pillsbury Hall.





University Services, Cultural and Recreational Opportunities



Services

HOUSING

Minneapolis Residence Halls

Territorial Hall and a small number of spaces in Middlebrook Hall have been reserved for summer session students for 1985. Territorial Hall is a coeducational non-air-conditioned residence hall on the East Bank in close proximity to the Health Sciences. Most of Territorial's rooms are doubles. A seven day per week (19 meal) food service program under the direction of a professional food manager is part of the contract and will be provided in a newly remodeled food service adjacent to Territorial Hall.

Middlebrook Hall is a coeducational, air-conditioned residence hall on the West Bank. All rooms are doubles. A food service program similar to that offered in Territorial will be provided in Middlebrook.

For both summer terms in Territorial and Middlebrook, meal service begins on the first day of class.

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

St. Paul Residence Hall

Bailey Hall will be open as a conference facility during the summer of 1985. Depending on demand by summer session students for space in Bailey Hall, a few spaces for students may be available. Special arrangements may be required for food service. If Bailey is open for students during either summer term, accommodations will be in non-air-conditioned double rooms.

Off-Campus Housing—Private Residence

Apartments, houses, duplexes, sublets, roommate requests, and rooms in private homes, rooming houses, cooperatives, fraternities, and sororities are listed by the Division of Off-Campus Housing. Most units are offered about a month before they are available for occupancy. In the past several years, over 8,000 rental units were 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 (612/373-7542). During the summer months the Division provides listings and counseling in 190 Coffey Hall on the St. Paul campus. The service is available from June 1 through September 30.

UNIVERSITY CHILD CARE CENTER

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

STUDENT COUNSELING BUREAU

The Student Counseling Bureau, 109 Eddy Hall (373-4193), offers counseling on a year-round basis. This service is available to students in all of the University's colleges and schools and at any stage of academic progress, from beginning freshmen to students at graduate and professional levels. The range of concerns brought to the Student Counseling Bureau is wide, including career choice, educational planning, reading and study skills improvement, interpersonal relationships, and personal development. Tests and inventories are often used to assist in the counseling process. Referrals are sometimes made to appropriate University and community resource organizations. There is no fee for students, and counseling and testing information is confidential.

Counselors are available from 8:00 a.m. to 4:30 p.m. Monday through Friday. Walk-in counseling is available for crisis or emergency situations. Students may call or visit the reception desk, 109 Eddy Hall (373-4193) on the Minneapolis campus; the St. Paul Student Counseling Bureau, 190 Coffey Hall (373-1140); or any of the other services described below.

Campus Assistance Center—This center furnishes information or referral concerning any problem or question about the University, whether academic, administrative, or personal. Both walk-in and telephone service is available at 109 Eddy Hall (373-1234).

Career Resource Center—This center offers students career information, assistance, and advice. Career development workshops are also offered.

Minnesota Women's Center—Career, personal, and educational support services are provided to University and community women.

Digital Information Access Line (DIAL)—This program is a call-in service offering over 300 taped messages on a wide range of topics, including career planning, social and recreational activities, student services, legal problems, health care, child care, and academic matters. Interested persons may call 373-1857 between 8 a.m. and 5 p.m., Monday through Friday to request a tape on a particular topic or to request a brochure listing tapes by subject.

Reading and Study Skills Center—Students may visit 109 Eddy Hall or call 373-4193 for assistance with reading, note taking, effective study, and other academic skills.

Occupational Information Library—Educational catalogs and occupational descriptions are available for students who need information to help them in planning their careers (109 Eddy Hall).

Office for Students with Disabilities—Counseling, information, problem solving, academic assistance, and referral services are provided for students and prospective students with physical or learning disabilities at 12 Johnston Hall (373-3714, Voice or TTY). Assistance includes sign language interpreters for students with hearing impairments.

STUDENT EMPLOYMENT

The Student Employment Center, of the Office of Student Financial Aid, (Room 120, Fraser Hall) assists students seeking part-time work either with the University or with private or public employers.

To be eligible for summer employment on student status, people **MUST** be registered for a minimum number of credits for either spring quarter or the summer session. More information on minimum credits is available from Student Employment.

Student Employment is a referral service, not a placement service. Students apply in person for vacancies posted on the Student Employment bulletin board. If an individual is eligible for student status and fulfills the minimum qualifications for a job, a referral is issued to the student, who contacts the hiring department or employer for an interview appointment. Chances of finding a summer job depend on the number of jobs available and the student's qualifications and hours available. Most vacancies are 29 hours per week or less and are maintenance or clerical jobs. Student Employment does not handle graduate academic positions.

This office also has a temporary placement service for students who want to work a flexible schedule in temporary jobs at the University. For more information, contact the Student Emergency Service (SES), 373-4403.

The Job Location and Development Program (JLD) refers students to off-campus employment openings. In addition, this program provides special workshops on job searching and interviewing techniques (376-4790).

CAMPUS BUS SERVICE

Detailed information about 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 the following locations: Coffman Union, West Bank Union, Williamson Hall, the St. Paul Student Center, the Housing Office in Comstock Hall, and the Transit Services Office at 2818 Como Ave S.E., Minneapolis, MN 55414 (373-0374).

Wheelchair-accessible campus bus service is available between the East and West Banks and between the St. Paul and Minneapolis campuses at 20 and 30 minute intervals throughout the day. For details or schedule information, call the University's Transit Services Office (373-0374) or Medicine Lake Lines (545-9417).

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

Mpls-St. Paul (Intercampus) Bus Service— Routes 13-G, 13-J, 13-N, 13-S, and 13-U

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

University Services, Cultural and Recreational Opportunities

During both summer terms, intercampus buses leave Blegen Hall on the West Bank and the St. Paul Student Center simultaneously for the opposite campus, from 7:05 a.m. to 5:25 p.m.—every 10 minutes.

Buses that leave at 15, 35, and 55 minutes after each hour between 7:15 a.m. and 5:15 p.m. travel via University Avenue (Route 13-U). All other buses travel via Como Avenue.

Since bus schedules are subject to change, check with the Transit Services Office at 373-0374 or Medicine Lake Lines at 545-9417 for current information. Current schedules and route maps are available at the information centers listed above and are also posted at each bus stop along the route.

East-West Bank Bus Service— Routes 13-G, 13-N, 13-S, and 13-U

Bus service is also available Monday through Friday between the East and West Banks at 10-minute intervals between 7:05 a.m. and 5:25 p.m. Buses on routes 13-G, 13-N, and 13-S travel between Blegen Hall and Jones Hall while Route 13-U buses travel between Blegen Hall and Lyon Laboratory/Amundson Hall.

Route Key:

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

There is no charge to ride the intercampus buses, provided you board and exit at on-campus stops. If you board or exit at an off-campus stop, the fare is 60¢ or one punch on a special reduced-fare discount card. These discount cards, which allow 20 rides for \$11, can be purchased at any University bursar or cashier office. An additional 15¢ rush-hour surcharge is required from 6:00 a.m. to 9:00 a.m. and 3:30 p.m. to 6:30 p.m., Monday through Friday, but is not required when using the discount cards described above. *Note:* Fares are subject to change.

Como Avenue Park-and-Ride Complex

Free parking is available for 700 cars at the Como Avenue park-and-ride complex, located near the intersection of Como and 29th Avenues S.E. (just a few blocks west of Highway 280). Follow the "U of M Parking" signs in the area. A 30¢ fare (60¢ per round trip) is charged to ride the campus buses between the complex and the St. Paul or Minneapolis campus. Bus service to and from either campus is frequent: every 20 minutes between 7:10 a.m. and 5:30 p.m. The bus trip to either campus takes approximately 5 minutes. For those not wishing to worry about having the correct change, bus fare cards offering 20 rides for \$5 (25¢ per ride—a 17% discount) can be purchased at any University bursar or cashier office and the University's Transit Service office, 2818 Como Avenue S.E. (across the street from the Como Avenue Park-and-Ride Complex). *Note:* Fares are subject to change.

City Bus and Route 52 Commuter Bus Service

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

BOYNTON HEALTH SERVICE

Outpatient services—The Boynton Health Service provides outpatient services during the summer session on a basis similar to that during the academic year. Physicians, dentists, and nurses are on duty. Most general and specialist outpatient services are provided without charge to all students who have paid the full student services fee. A student who attends and pays the full student services fee for both summer terms is eligible for regular outpatient benefits without extra charge until the first day of Welcome Week in the fall. Fees are charged for certain services and products, such as dental work, prescription drugs, eye glasses, and routine physical examinations.

Health Service Fee Refund—A student who belongs to a health maintenance organization (HMO) or has an insurance plan whose coverage duplicates the outpatient services of Boynton Health Service may apply for a partial exemption from the Health Service portion of the student services fee. Proof of HMO membership or equivalent insurance coverage must be presented to the cashier in room W220 of the Health Service preferably before registering for classes but *no later than the end of the first week of the applicable summer term*.

Students who do not pay the Health Service fee may use the Boynton Health Service on a fee-for-service basis. HMOs usually do not reimburse members for nonurgent services obtained away from the HMO.

Hospitalization and Surgical Benefits—The Health Service portion of the student services fee does not provide any hospitalization or surgical benefits. Instead, the Board of Regents requires that all students registered for a minimum of 3 credits per summer term have hospitalization insurance. If not already insured, students must purchase University-sponsored accident and sickness insurance at the time of registration.

Students who have private insurance, or who are eligible for Medicaid, need not purchase the University-sponsored accident and sickness insurance. The name of the insurance company and the policy number must be presented at registration time to avoid the additional charge for University-sponsored coverage.

For Further Information—Contact Boynton Health Service, Room W220 (373-3780).

UNIVERSITY LIBRARIES—TWIN CITIES

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 government documents, manuscripts, archives, phonograph records, audiovisual tapes, and other materials.

The 32 libraries, which make up the University Libraries, are organized into the following major units, each housing collections related to a substantial discipline or cluster of disciplines:

Bio-Medical Library in Diehl Hall (373-7713) supports the programs in the health sciences and has extensive holdings in medicine, nursing, dentistry, pharmacy, and public and allied health. The Natural History Library, 305 Museum of Natural History (373-7771), is physically separate but affiliated with the Bio-Medical Library.

University Services, Cultural and Recreational Opportunities

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

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

St. Paul Campus Libraries (373-0903) support programs in agriculture, biological sciences, and veterinary medicine. In addition to the Central Library, the St. Paul Campus Libraries include the following separate libraries: Andersen Horticultural Library, 3675 Arboretum Drive, Box 39, Chanhassen, MN (443-2460); Biochemistry Library, 406 Biological Sciences Center (373-1582); Entomology Library, 375 Hodson Hall (373-1741); Forestry Library, 203 Green Hall (373-1407); Plant Pathology Library, 202 Stakman Hall (373-1669); Veterinary Medical Library, 450 Veterinary Science (373-1455).

Walter Library (376-2931) on the East Bank Mall of the Minneapolis campus, supports programs in education, library science, music, and psychology. Walter Library also includes the following archives and manuscript units: Children's Literature Research Center, Social Welfare History Archives, University Archives, and the Charles Babbage Institute Collection. The Immigration History Research Center Collection, and the Manuscripts Collection are located at 826 Berry Street, St. Paul. Also affiliated with Walter is the Eric Sevareid Library, 121 Murphy Hall (373-3174), which supports the journalism program.

Wilson Library, on the West Bank of the Minneapolis campus, (373-5370), supports programs in the humanities, social sciences, and business administration. Wilson Library also includes the following specialized service units: Ames Library of South Asia, S10 Wilson (373-2890); Business Reference Service, 2nd Floor Wilson (373-4109); East Asian Library, S30 Wilson (373-3737); Government Publications, 409 Wilson (373-7813); James Ford Bell Library, 462 Wilson (373-2888); Middle East Library, S50 Wilson (373-7804); Reserve/Periodicals Unit, 65 Wilson (373-3840, 373-2887); Public Administration Library, 365 Blegen Hall (373-2892); Special Collections/Rare Books, 466 Wilson (373-2897).

Specialized Services. The University Libraries provide a number of services, including in-depth reference service, library instruction, computer-literature searching, interlibrary borrowing, and photocopying.

Circulation of Materials. Information regarding student, faculty, and staff borrowing privileges can be obtained from any library unit.

Library Hours. A recording of current library hours is available by calling 373-0066.



THE MINNESOTA UNION

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

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

Coffman Memorial Union

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

Throughout the year, CMU presents hundreds of films, concerts, dances, trips, lectures, exhibits, and cultural programs and a series of over 70 minicourses.

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

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

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

West Bank Union

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

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

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

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

University Services, Cultural and Recreational Opportunities

The Gallery Theatre, emphasizing contemporary scripts and student participation, presents mixed-media and experimental theatre works in the Katherine E. Nash Gallery. The theatre's principal aim is to integrate the performing and visual arts.

Minnesota Forum/Public Affairs is dedicated to the enhancement of campus intellectual life; the encouragement of out-of-classroom association among faculty, students, and staff; and the provision of a variety of programs that span across humanistic and scientific disciplines and address issues, ideas, and opinions of public concerns.

West Bank Music Productions offer the University community a variety of leisure-time programming aimed at presenting fine local and regional talent, gallery recitals, and evening concerts. Students are involved in every aspect of program planning and implementation and have the opportunity to learn some of the skills and acquire some of the knowledge necessary to arts and entertainment management.

Third Century Poetry and Prose involves the best American writers of poetry and fiction with University community and Twin Cities writers. The series aims to coordinate readings by local, regional, and national writers while providing a unique opportunity for students and previously unrecognized writers to share their art with a wide and sympathetic audience.

West Bank Bijou Films offer the University community the opportunity to view classic and historically significant films by a variety of directors in many different genres. The Bijou offers exposure to the film medium and its development through attendance at film programs and participation in all phases of film selection, booking, and promotion.

Katherine E. Nash Gallery offers members of the University community, as well as the community at large, the opportunity to exhibit, experience, and appreciate contemporary visual art and to become involved in and learn about the operations and management of an educational gallery of contemporary art.

College Bowl, the "varsity sport of the mind," offers the opportunity for University students to participate in an exciting, challenging, entertaining "sport." Intramural and varsity competition are open to University students. The program is coordinated and planned by WBU students and staff.

St. Paul Student Center

The air-conditioned St. Paul Student Center is open during the 1985 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 4:00 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. For questions concerning campus and Student Center facilities and activities, stop by Information Services on the lower level or call 373-1046. Information Services also sells magazines, candy, tobacco, MTC bus passes, and movie discount tickets.

The Graphics Communication Center provides a self-service copy machine and a complete graphics service including typesetting, illustration, keylining, camera work, and printing. Next door, the Cooperative Outdoor Adventure (COA) Resource Center supplies outdoor enthusiasts with space and informational materials to plan their outings. COA also provides free publicity for outings so that planners can involve others in their outdoor experiences. Equipment for canoeing, camping, and backpacking can be rented or purchased at the Outdoor Store next to COA. The store also features clothing and accessories for campus and outdoor recreation use.

For relaxing music and opportunity to view art exhibits, visit the Gallery and Music Listening Center near the lower level lobby.

Campus groups in need of meeting or entertainment space are invited to use the Student Center's meeting rooms; for reservations and information call 373-1046. Bowling, billiards, and video games are available in the Games Room, which is open from 11:30 a.m. to 10:00 p.m. The Student Center contains lounges for relaxation, reading, and television viewing.

Cultural and Recreational Opportunities

The University of Minnesota, aware of the need for relaxation during the intensive, accelerated summer academic program, plans a variety of recreational and cultural activities on campus at little or no cost to the student. Campus activities are listed—along with summer schedules for Twin Cities theatres, museums, and other groups—in *Socially Speaking*, a special publication for summer session students. The large metropolitan area boasts many lakes, swimming beaches, picnic grounds, evening outdoor concerts, art galleries, excellent stores and restaurants, and other entertainment opportunities.

CAMPUS SPORTS FACILITIES

Recreational sports are available during the two five-week summer terms. Students may sign up individually or in teams for softball, tennis, and soccer. For people seeking individual exercise experiences, Rec Sports offers the popular aerobics sessions for a small fee.

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

Baseball and softball diamonds at Bierman Field, West Bank Field, golf course fields, and soccer fields on the St. Paul campus.

Complete information on sports programs is available from Cooke Hall Recreational Sports, 373-4200. The Pool Update Line is 373-4234.

An 18-hole golf course, a 9-hole (par 3) golf course, and tennis courts that may be used by regularly enrolled summer session students upon presentation of a fee statement and a nominal fee. The golf courses can be reached by intercampus bus. The Golf Course telephone number is 373-1645. The telephone number for the Fourth Street Tennis Courts is 373-4212.

CONCERTS AND LECTURES

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

UNIVERSITY ART MUSEUM

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

University Services, Cultural and Recreational Opportunities

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.

Framed original paintings and prints are available for rental to University departments, employees, and registered students. Call 373-5685 for rental information.

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 main office is located in 110 Northrop Memorial Auditorium (373-3424).

BELL MUSEUM OF NATURAL HISTORY

The James Ford Bell Museum of Natural History features exhibits on Minnesota wildlife and plants, the Touch and See Room, the Jaques Gallery of natural history art, the Blue Heron Bookshop, education programs for the public, research programs, and the University's natural history library.

Animal skins, teeth, tree trunks, horns and antlers, mineral specimens, bones and more may be handled and investigated by visitors to the Touch and See Room. Trained guides are available to help. Children are especially invited to investigate the specimens.

The Blue Heron bookshop offers an outstanding selection of books on natural history, records of animal sounds, cards, stationery, and loon T-shirts.

Special educational programs are scheduled throughout the year for visitors of all ages and interests.

Located at 17th and University Avenues S.E. on the Minneapolis campus, the museum offers free admission and is open from 9 a.m. to 5 p.m., Tuesday through Saturday, and from 1 to 5 p.m. on Sundays. All exhibit areas of the museum are accessible to the handicapped. Call 373-2423 for tour reservations and information on gallery shows and education programs. Mailing address: 10 Church Street S.E., Minneapolis, MN 55455.

UNIVERSITY 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.

Charles Nolte, will direct the 1985 play. Call 373-2337 for ticket information and reservations.



Special Programs and Workshops



College of Education

MAIL REGISTRATION FOR STUDENTS IN THE COLLEGE OF EDUCATION

Students registering in the College of Education as M.Ed., adult special, and summer-only students may register by mail for first-term courses only. Teachers registering for courses in any department of the University, as well as other students taking professional education courses, should register through the College of Education and thus are entitled to register by mail. Mail registration is *not* permitted in the Graduate School for 8xxx courses, or for courses and workshops listed in this bulletin that have special registration instructions.

Qualified students may obtain registration materials from the Summer Session Office, either by telephoning 612/373-2925 or by sending in the blue request card found at the back of this bulletin. All mail registrations *must be received by May 31* in order to be processed in time for the start of the summer session.

Students who register and then decide not to attend classes must officially cancel their registration in order to avoid being billed. Cancellation before classes begin can be accomplished by telephoning the Registration Clerk at Education Student Affairs Office (ESAO), 612/373-2268. Those who cancel courses after the term begins must submit to ESAO a *Last Day of Attendance* form signed by the instructor of the course(s). *Last Day of Attendance* forms may be obtained at ESAO.

INSTITUTE OF CHILD DEVELOPMENT

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

Nursery School—Parents interested in the nursery school should contact Margaret Roth at 612/373-2219.

Nontraditional Students—Summer Session offerings are designed to accommodate both traditional and nontraditional students. Offerings emphasize practical as well as theoretical applications for *day care and K-12 teachers, substitute teachers, nurses, social workers, speech and hearing specialists, parents, and others who work with children in applied settings.* See special topics in Child Psychology offerings.

DEPARTMENT OF CURRICULUM AND INSTRUCTION

The sixth annual Chase Lecture, with emphasis on creative writing for and by children, will be presented on Tuesday, June 25, at 3:30 p.m. in The Great Hall of Coffman Memorial Union. The lecture, open to the public, is supported by the University of Minnesota Foundation with funds from an endowment given for the purpose of encouraging the improvement of children's writing and reading. This year's guest lecturer, Ashley Bryan, Professor of Art at Dartmouth College, is a noted artist and storyteller.

Among the distinguished guests who will be lecturers for the creative writing course (Elem 5318) are Julie Jensen and John Parker.

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 (612/373-3974).

Community Education Institute—A University of Minnesota Community Education Institute will be offered July 8-19. The courses are listed jointly as Educ 5103 and EdAd 5203 and the theme is "Program Models for Early Childhood and Family Education." Interested students should contact Professor Charles Bruning, 125 Peik Hall, University of Minnesota, 159 Pillsbury Drive S.E., Minneapolis, MN 55455 (612/373-2244).

Global Education—Offered jointly under Elem 5363, section 1, and SeEd 5153, the course focuses on the review of existing material in the field and analysis and development of new and appropriate globally oriented instructional materials for classroom use. Partial tuition scholarships are available to the first 30 participants who meet selected criteria. Contact Professor John Cogan, 152A Peik Hall, 159 Pillsbury Drive S.E., Minneapolis, MN 55455 (612/373-5629).

International Study Tours

Three opportunities are offered to students wishing to earn University graduate-level credit as a member of a study tour sponsored by the College of Education and the Global Education Center.

International Education: Topics in Classroom Practices and Procedures, June 28-July 7, 1985. This is a 3-credit offering in residence July 1-7 at the University of York, England focusing on modern Britain in a changing world. It is designed to provide understanding of the relationship between Britain and the United States as we approach the 21st century. Students wishing credit may register for Educ 5601 in the first summer term. The option to make personal plans for further travel following the seminar is available. For information, contact Professor John Cogan, Director of Global Education Center, 110 Pattee Hall, University of Minnesota, 150 Pillsbury Drive S.E., Minneapolis, MN (612/376-5297 or 373-5629). Final application date is May 10, 1985.

Study Tour of the USSR, July 5-31, 1985. The tour is planned in cooperation with the Center for Study of Socialist Education at Kent State University and the Phi Delta Kappa fraternity. Visits include Leningrad, Tallinn, Minsk, Smolensk, and Moscow with a trip on the famous Trans-Siberian Express Train across the Ural Mountains to Irkutsk in East Siberia and several relaxing days in the Lake Baikal area. Those wishing graduate-level credit will register for Educ 5601, section 1, in the second summer term. For information, contact Professor Frank Braun, 110 Pattee Hall, University of Minnesota, 150 Pillsbury Drive S.E., Minneapolis, MN 55455 (612/373-2266).

Eastern Europe Study Tour, July 30-August 14, 1985. This unique tour for educators features East and West Germany, Czechoslovakia, Poland, Austria, Hungary, and Yugoslavia. Special arrangements include informal discussions with educators and seminars with government officials and resident university faculty. Tour director is Professor Darrell Lewis of the College of Education. Those wishing to register for credit will register for Educ 5601, section 2, in the second summer term. Further details are available from White Bear Travel, 1310 Highway 96, White Bear Lake, MN 55110 (612/426-3238). Application should be made by June 10, 1985.

DEPARTMENT OF EDUCATIONAL POLICY AND ADMINISTRATION

Educational Administration Two-Year and Doctoral Programs

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

Brochures describing the programs are available from the Department of Educational Policy and Administration, 275 Peik Hall, University of Minnesota, 159 Pillsbury Drive S.E., Minneapolis, MN 55455.

Special Programs

Administrator Development Seminar—Applicants for admission to degree programs in educational administration are encouraged to participate in a seminar combining registration in EdAd 5130 and EdAd 5139. Assessment and counseling, skill development, and contemporary issues in the field are topics of the second term seminar. See the Course Descriptions section for registration requirements. Registration in both courses for a total of six credits is mandatory, and 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.

Instructional Improvement Procedures for School Principals—EdAd 5128, in the first term (July 2-19), focuses on the elementary and secondary school principal as instructional leader. Through simulation, case studies, and audiovisual techniques, participants will learn and practice behaviors designed to assist teachers enhance their instruction.

Clinical Supervision for School Administrators—Joel Suzuki, a nationally known authority on clinical supervision in schools, will offer a concentrated section of EdAd 5128, section 2, July 15-19. The course provides practicing and prospective school administrators instruction and experience in collecting and analyzing observational data, and trains them to conduct teacher conferences to incorporate the elements of effective instruction. Students will have the opportunity to learn in a realistic setting at the Roseville Area Schools, where parking and air-conditioned facilities will be provided. Inquiries should be addressed to 275 Peik Hall, 159 Pillsbury Drive S.E., Minneapolis, MN 55455, or call 612/373-5568 or 373-9899.

Special Programs and Workshops

Postsecondary Faculty Organization and Representation—In the second term (July 29-August 9), EdAd 5128 focuses on the evolution and governance of postsecondary institutions and the organization and representation of faculties within them. Emphasis is on Minnesota postsecondary, nonbaccalaureate-granting institutions. The course critically examines the present status of faculty representative associations, their organization and activities, and the roles of faculties and administration in the areas of staff, organization, and curriculum and resource development.

Public School Personnel Programs—EdAd 5227, offered in the first term at the University of Minnesota, Duluth, provides administrators with the latest information on collective bargaining, staff development, evaluation, recruitment, and selection.

Community Education Institute—A University of Minnesota Community Education Institute, EdAd 5203, will be offered July 8-19. Since the Institute's inception in 1969, each of its offerings has examined a different facet of the larger community school organization concept. The Institute theme for 1985 is "Program Models for Early Childhood and Family Education in Community Education." The Institute faculty of specialists develops the theme in a framework of relevant concepts and clinical experiences. The program format will feature general and clinical sessions, idea exchange periods, site visitation, and faculty consultations. Those interested are encouraged to contact Professor Samuel H. Popper, University of Minnesota, 275 Peik Hall, 159 Pillsbury Drive S.E., Minneapolis, MN 55455 (612/373-9835) or the department office (612/373-5568). The Institute is offered jointly with the Department of Curriculum and Instruction and may be taken as Educ 5103.

Special Education Administration—Supervision and Administration of Special Education, offered under EdAd 5103 or EPsy 5660, provides an opportunity for teachers and administrators to study contemporary management issues in special education, including implementation of such mandates as Public Law 94-142.

Higher Education

Course offerings have been selected to be of value to persons with particular interests and responsibilities in Higher Education. These courses may be taken either as Educational Administration (EdAd) or Higher Education (HiEd) courses. Included are Administration in Higher Education (EdAd 8253/HiEd 8255) and American Higher Education (EdAd/HiEd 8250). Independent study opportunities are also available (EdAd/HiEd 8228).

Social and Philosophical Foundations of Education

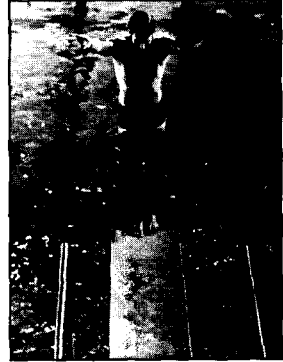
This program offers graduate study and professional preparation in several areas leading to the M.A. and Ph.D. degrees in educational psychology: psychology, methodology, and social and philosophical foundations of education. Students planning to major or minor in one of these areas should apply for admission to the Graduate School and to the Department of Educational Policy and Administration. Program information is available from the department office, 275 Peik Hall, University of Minnesota, 159 Pillsbury Drive S.E., Minneapolis, MN 55455.

SCHOOL OF PHYSICAL EDUCATION, RECREATION, AND SCHOOL HEALTH EDUCATION

Physical Education and Dance

Practicum: Prevention and Care of Athletic Injuries—PE 5620 will be offered first term as a concentrated two-week practicum (July 1-12). Instructor for the course will be Jeffrey Monroe, assistant athletic trainer, University of Minnesota.

The five indoor pools provide many hours of recreational swimming in addition to scheduled class activities .



Coaching Individual, Dual, or Team Sports: Swimming and Diving—PE 5740 is a five-day, first-term (June 24-28), concentrated workshop on coaching swimming and diving. The instructors for the course will be Paul Stearns, head coach of the University of Minnesota men's swimming teams, Jean Freeman, head coach of the University of Minnesota women's swimming team, and Craig Lincoln, diving coach for the University of Minnesota men's and women's teams. Both practical and theoretical instruction in the techniques of coaching swimming and diving will be offered. A written assignment and a final examination will be required.

Nutrition and Exercise—PE 5720 is a two-week (June 18-28), concentrated workshop taught jointly with Home Economics Education as HEEd 5430, section 1. Instructors Allen S. Levine, Adjunct Associate Professor of Food Science and Nutrition and Robert C. Serfass, Associate Professor of Physical Education, will cover application of basic nutrition to exercise, athletics, diet, and weight control. This course is designed for athletic coaches, teachers, health professionals, and others interested in the relationship between nutrition and exercise. Specific topics include the energy foods, vitamins, minerals, water, energy requirements of exercise, exercise and weight control, and ergogenic aids.

Recreation, Park, and Leisure Studies

Programming in Outdoor Education—Rec 5310 offers an interdisciplinary approach to the use of leisure and educational resources of a wild river, with emphasis on preparation for leadership in outdoor recreation and education. The class, scheduled June 17 through 22, will be held in a variety of settings. Some formal classes will be conducted in Cooke Hall on campus June 17, followed by a six-day canoe trip down the Namekagon and St. Croix Rivers, part of the Federal wild and scenic river systems. The class will stress the practical application of outdoor education methods, materials, and facilities. Emphasis will be on the development of practical environmental interpretation skills. Advanced application is required. Contact Professor Leo McAvoy, 209 Cooke Hall, University of Minnesota, 1900 University Avenue S.E., Minneapolis, MN 55455 (612/373-4222) for further information and to preregister for the course. In addition to tuition, there will be a charge of \$40 for food, transportation, and some equipment. The deadline for preregistration and payment of all fees is June 7.

Contemporary Issues in Leisure Services—Rec 5900 offers a focus on legal issues in leisure services. The workshop includes an examination of specific legal issues affecting leisure services, liabilities, land dedication, civil liberties, civil rights, employment, and environmental regulations. Instructor for the workshop is John Schultz, Associate Professor of Recreation, Park, and Leisure Studies. Workshop is scheduled from July 22 through August 6.

Special Programs and Workshops

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

Counseling Adults in Transition—In the first term, EPsy 5434 focuses upon transitions which occur over the adult life span. Participants will consider individual adult experiences and developmental competencies associated with work, leisure, family, and individualized lifestyle; examine processes for identifying transitional problems; explore personal style for managing the stress involved in transition; and investigate psychosocial dimensions that distinguish successful adaptive behavior from that which is less successful. Case materials generated by members of the class will be used as the basis for discussing possible interventions. Course content is directed at health and recreation professionals, counselors, adult educators, human resource development specialists, and others who work in a helping capacity with adults.

Leadership for Career Development: Programs, Resources, Practices—EPsy 5400, July 8-12. This intensive one-week workshop focuses on building leadership skills for creating and implementing career development programs in a variety of settings. It presents a holistic concept of career, including work-family linkages, labor market trends and technology, gender issues in career, futures planning, and organizational change; designed for counselors and teachers, counselor educators and supervisors, human resource specialists, private practitioners, and other human service workers. Instructor for the course is L. Sunny Hansen, Professor of Educational Psychology, University of Minnesota, who will be assisted by Garry Walz, Director of the ERIC/CAPS Center, University of Michigan. For further information and application for admission, write Professor Hansen, University of Minnesota 139 Burton Hall, 178 Pillsbury Drive S.E., Minneapolis, MN 55455 (612/373-0202).

Teaching Exceptional Children (SLBP Resource or Clinical Teacher Sequence)—The six credits earned in a combined first-term offering of EPsy 5701, sections 2 and 3 may be applied to SLBP: LD teacher licensure or to a graduate degree by those students admitted to the Graduate School. Participants will work with learning-disabled children, concentrating on the remediation of academic problems and the quality of interaction between teacher and learner. Enrollment is limited to those who have completed EPsy 5615 during the academic year 1984-85. Advance application is required by May 15, 1985. Requests should be directed to Professor Stanley L. Deno, 233 Burton Hall, University of Minnesota, 178 Pillsbury Drive S.E., Minneapolis, MN 55455.

Teaching Children With Emotional Disturbances—The eight credits earned in EPsy 5701, section 1, a workshop scheduled during a six-week period from June 18 through July 26, may be applied to SLBP:ED licensure or to a graduate degree with consent of the adviser. Priority will be given to those seeking licensure, but teachers, administrators, and other professionals in the field are encouraged to apply for admission. Advance application is required. Requests should be directed to Professor Frank H. Wood, 226 Burton Hall, University of Minnesota, 178 Pillsbury Drive S.E., Minneapolis, MN 55455. See Course Descriptions section for registration information.

DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

Vocational Education

Authoring Vocational Instruction with Microcomputers—VoEd 5100, offered July 1-12 for three credits, introduces vocational educators and trainers in industry and business to the development of instructional applications.

Special Topics in Administration: Legal Aspects of Managing Vocational Education—VoEd 5102, July 29-August 9, is a three-credit course that helps managers of

vocational education understand rules and laws affecting their job responsibilities. Experts who have experience with rules and laws affecting the various aspects of managing vocational programs will address each topic. The course includes topics such as confidentiality of records, tort liability, sex equity, budgeting and reporting, and OSHA.

Agricultural Education

Workshop in Agricultural Technology—In AgEd 5041, students choose from among six technical agricultural updating sessions, combined with enrollment in a workshop section (June 18-21). This course includes special noon presentations and evening judging workshops.

Organization and Management—AgEd 5080 is of special interest to teachers, agriculture program administrators, and secondary center directors. Key issues will focus on the alternative strategies for organizing and managing agriculture programs in the face of declining enrollments and changes in basic course offerings at the secondary level. The course will meet on campus July 8-9 and July 15-17.

Business and Marketing Education

Program Developments—BME 5360 (July 22-26) will focus on psychological concepts in teaching the typewriter/computer keyboard to elementary school students using computer-assisted instructional materials developed for use at this educational level.

Special Topics—BME 5370 in first term (July 8-19) will teach the use of representative business graphics software packages for use in instructional applications and/or simulated projects. In second term, BME 5380, scheduled July 22-August 2, will help participants learn to integrate the direct application of mathematics and communication skills in business and marketing education courses.

Home Economics Education

Nutrition and Exercise—HEEd 5430, first term, section 1, is a two-week (June 18-28), three-credit workshop taught jointly with the Division of Physical Education and Dance as PE 5720. The instructors are Allan S. Levine, adjunct associate professor of Food Science and Nutrition, and Robert C. Serfass, associate professor of Physical Education. The course covers application of basic nutrition to exercise, athletics, diet and weight control, and is designed for athletic coaches, teachers, health professionals, and others interested in the relationship between nutrition and exercise. Specific topics include the energy foods, vitamins, minerals, water, energy requirements of exercise, exercise and weight control, and ergogenic aids.

Developing Student Discipline and Motivation—HEEd 5430, first term, section 2, is a one-week (July 8-12) two-credit workshop. The course explores ways to develop student self-discipline and motivation through the application of selected approaches to discipline, and ways to maintain productive student behavior in both formal and informal educational settings. The course instructor, Jennette Dittman, associate professor of Home Economics Education at North Dakota State University, has taught in the area of classroom management for several years and has developed effective techniques to help educators produce an environment conducive to learning.

Special Programs and Workshops

Financial Planning Education—HEEd 5430, second term, is a one and one-half day workshop (August 13-14) taught by Marianne Anderson, president of Financial Planning Associates. This one-credit offering emphasizes teaching fundamentals of personal financial planning. See course description section for details.

Industrial Education

Two advanced industrial technology workshops are designed to prepare teachers and other school personnel to incorporate industry's technology into classroom instruction.

Graphic Communications: Specialization—Ind 5122, section 2, is a three-credit workshop offered second term that features experts from the field of graphic communications. It meets all day, July 22-26, in the graphic communications laboratory of the Vo Tech building.

Instructional Materials Laboratory—Ind 5600, offered second term, describes advanced technology, identifies its teachable content, and presents alternative ways to integrate it into the education curriculum and to adapt instruction to the classroom's technology. The workshop is a three-credit offering which meets mornings from July 29-August 9.

College of Liberal Arts

MAIL REGISTRATION FOR SUMMER-ONLY STUDENTS REGISTERING IN COLLEGE OF LIBERAL ARTS

Summer-only students registering in the College of Liberal Arts may register by mail for first-term courses. See pages 17 and 151 for further details.

FOREIGN TRAVEL AND STUDY

SPAN Study Abroad

SPAN, the Student Project for Amity Among Nations, sponsors independent study with the goal of enhancing international friendship and understanding. The program is a cooperative effort of the University of Minnesota and 15 other Minnesota colleges. Its 1985 student groups will study in the British Isles, Japan, Malawi (Africa), and Thailand.

The SPAN program involves extensive preparation, eight to ten weeks abroad, and production of a research paper. Preparation, during the year preceding the summer abroad, includes study of the language, history, social and political ambiance, and culture of the area to be visited. Each "country group" of about a dozen students meets regularly with a faculty adviser. During their period of study abroad, students conduct interviews, visit appropriate institutions, use libraries and other research facilities, and often live with local families. Upon return, they complete their SPAN paper, a major academic report growing from their study at home and abroad. Upon satisfactory completion of the preparation year and of the paper the student earns 12 quarter credits in the Foreign Studies Seminar, FoSt 5960.

Students must apply for SPAN appointments by the fall quarter preceding the summer abroad. Information about 1986 applications may be obtained from the SPAN Office, 309 Social Sciences Building, University of Minnesota, 267 19th Avenue South, Minneapolis, MN 55455 (612/376-5219).

Nankai Institute

The sixth Minnesota-Nankai Summer Intensive Chinese Language Institute will be held at Nankai University, Tianjin, People's Republic of China, June 12 to August 12. This year the optional post-institute tour will be to Shanghai, Xian, and the Silk Route cities from August 12-24. Applications for the institute were accepted until February 28, 1985. For further information, write to the Department of East Asian Studies, 113 Folwell Hall, University of Minnesota, 9 Pleasant Street S.E., Minneapolis, MN 55455.

FIELDWORK OPPORTUNITIES

Field Experience Learning

Students may want to arrange a project in a community agency, government office, business organization, health care facility, cultural institution, or any other appropriate off-campus location. For information about current opportunities, contact the Office for Special Learning Opportunities (OSLO), 220 Johnston Hall.

In some cases, it may be possible to earn credit for a study project carried out in conjunction with the fieldwork. This is done through a directed study (3970 or 5970) or an extra credit (X) registration. These must be approved by the instructor and the department. For more information, contact the appropriate department or the Office for Special Learning Opportunities (373-7550).

INTENSIVE LANGUAGE STUDY

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

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

Reading Finnish

An intensive course in reading Finnish (Fin 3001-3002) is offered during the first term in a 10-credit course and in an additional 5-credit course (Fin 3003) during the second term. Students will quickly master the basic vocabulary and the essentials of Finnish grammar, its inflectional as well as derivational categories. Students will begin reading Finnish texts from various fields of study.

The course is unique in the United States. It is designed for students with little or no prior knowledge of Finnish. The course is intended for undergraduate students, graduate students, and scholars anywhere in the United States who have a desire or need to be able to read written Finnish.

For further information see the Course Descriptions section of this bulletin or consult the Department of Scandinavian or the Western European Area Studies Center.

Classical Studies: Latin

Intensive beginning Latin (Lat 3001) is offered during the first term in a 10-credit course equivalent to the full regular elementary sequence (Lat 1101-03). Students will rapidly master the fundamentals of Latin grammar and will begin reading Latin authors at the intermediate level. Further reading is offered in Lat 3104 (5 cr) during the second term.

OTHER SPECIAL OPPORTUNITIES

Minnesota History Workshop

Designed for upper elementary and secondary teachers, the Minnesota History Workshop is a two-week (July 22-August 2) intensive introduction to state and local history and to the collections of the Minnesota Historical Society. This summer's workshop features the development of a community history project through the theme *Going to Work: People and Places in the Industrial Age*. Between 1865 and 1920 the structure of social and economic life in the United States changed dramatically. The birth of the industrial age left no aspect of society unaffected. How Minnesotans were touched by these changes in their homes as well as in their workplaces is the topic of this summer's workshop. In the first week, class participants examine what industrialization meant to businesses and business practices, and what mark this process left on the environment. Sessions in the second week explore how work and the workplace were transformed during the industrial age. The workshop involves teachers actively with the historical resources of a community study and they will be encouraged to develop their projects into curriculum packets. The workshop will be conducted by faculty of the history department, University of Minnesota, and the education staff of the Minnesota Historical Society. First time registrants should register for Hist 5381; students repeating the workshop should register for Hist 5970, section 2. For more informaton, call Summer Session, (612) 373-2925.

Journalism and Mass Communication

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

JMC will offer two workshops for high school newspaper and yearbook staff members; teachers may attend. A newspaper and photo workshop will be held July 14-18, and the yearbook and photo workshop will be held July 21-25. These workshops do not offer college credit. Details may be obtained from the MHSPA, 620 Rarig Center, University of Minnesota, 330 21st Avenue South, Minneapolis, MN 55455.

Linguistics: English as a Second Language

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

Applications for the program can be obtained by contacting the Intensive English Language and Orientation Program, International Student Adviser's Office, University of Minnesota, 717 East River Road, Minneapolis, MN 55455.

Small Group Communication Workshops

Direct experience as a teaching-learning device in leadership situations will be provided in Spch 5414. Experiences will deal with the nature of authority, power, and interpersonal and intergroup problems.

Spch 5441 examines the role of communication in building the culture of organizations. It covers the theory of communicating in organizing, the analysis of organizational cultures, and changing organizational cultures. Spch 5414 meets June 18-30; Spch 5441 meets June 18-July 3 (see the listing in the Course Descriptions section for a schedule).

Speech 5261, The Communicative Processes of Television, will be offered June 18-July 3. This four-credit workshop examines television as a system of communicative processes: the organizational processes of televised communicators, television content as a link between communicators and communicatees, and how viewers use television.

Children's Literature

The 8th annual Children's Literature Summer Forums will be held during Sessions I and II in the Kerlan Collection Reading Room, 109 Walter Library. The forums, co-sponsored by Summer Session and Kerlan Friends, bring authors, illustrators, editors, and other experts in children's literature to the campus. For more information, call 373-9731 or pick up a schedule in 109 Walter Library.

FOR HIGH SCHOOL STUDENTS

Summer Honors College, Honors Institute in Theatre

The University of Minnesota actively seeks to attract high ability high school students through its 1985 Summer Honors College and the Honors Institute in Theatre nonresidential program. Both programs will offer college credit and will include special courses that will enrich students' learning experience by exposing them to classes not typically available in high school. These classes will be taught by outstanding University faculty. For further information, see page 9.

High School Musicians Honors Program

The School of Music will invite approximately 120 qualified high school musicians to spend two weeks on the University campus to participate in its annual music honors program. The program, June 16 through June 28, will include intensive band, orchestra, and musical theatre (including chorus) rehearsals culminating in a concert performance at Northrop Auditorium. Also included are classes in music theory, music style analysis, chamber music, jazz ensemble; vocal repertoire and instrumental master classes; recitals, and social and recreational activities.

This non-credit program is open to high school students in the Midwest. Information and application forms should be requested from Professor Richard Massmann, 106 Scott Hall, University of Minnesota, 72 Pleasant Street S.E., Minneapolis, MN 55455.

School of Management

MASTER OF BUSINESS ADMINISTRATION (MBA) PROGRAM

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

For further details about the MBA program, contact the Graduate School of Management, 334 Management/Economics Building, University of Minnesota, 271 19th Avenue South, Minneapolis, MN 55455 (612/373-5505).

Department of Military Science

UNIVERSITY ARMY ROTC SUMMER PROGRAM

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

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

School of Public Health

EPIDEMIOLOGY

Twentieth Anniversary Graduate Summer Session in Epidemiology—An intensive program in epidemiology will be offered by the School of Public Health and the Department of Conferences June 23 through July 13 on the Minneapolis campus. This program, which carries graduate credit, is designed for teachers and students in schools of medicine, public health, veterinary medicine, and dentistry and professionals in health research and program agencies. Course offerings will be arranged in programmatic clusters, which include: Infectious Diseases, Chronic Diseases, Environmental and Occupational Diseases, Methods, and Hospital Associated Diseases. These 13 courses are accredited (Category I) through the American College of Preventive Medicine for the AMA Physicians Recognition Award. *Registration is limited and cannot be made through regular Summer Session channels.* Inquiries should be addressed to Leonard M. Schuman, M.D., Director, Graduate Summer Session in Epidemiology, School of Public Health, 1260 Mayo Memorial Building, Box 197, University of Minnesota, Minneapolis, MN 55455 (612/373-8029).

Institute of Technology

AEROSPACE ENGINEERING WORKSHOP FOR ELEMENTARY AND SECONDARY SCHOOL TEACHERS

This workshop for elementary and secondary school teachers, AEM 5001, will be held in Minneapolis from July 8-19. Offered through the cooperation of the National Aeronautics and Space Administration (Lewis Center), Civil Air Patrol Liaison Personnel (U.S. Air Force), Minnesota Department of Aeronautics, and Department of Aerospace Engineering and Mechanics of the University of Minnesota, the workshop is designed to provide teachers with a background in recent discoveries in the space sciences that can be used as the basis for new or existing classroom programs. Enrollment will be limited to 30 participants. Further information may be obtained from the Aerospace Workshop Coordinator, 107 Akerman Hall, University of Minnesota, 110 Union Street S.E., Minneapolis, MN 55455.

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

GEOLOGY FIELD STUDY

Fieldwork in geologic mapping (Geo 5111) will be conducted in a special term (June 17-July 26) in the Sawatch Mountains near Gunnison, Colorado. The course is restricted to geology and geophysics majors who have satisfactorily completed the core sequence of Geo 1111 (or 1001), 3102, 3112, 3401, and 5501. A major paper is required. Instructor's permission *is required* to register.

Courses Offered Through Continuing Education and Extension

FIFTH ANNUAL INTERDISCIPLINARY CONFERENCE: NATURE AND NURTURE OF THE HUMAN VOICE—THE VOICE IN PERFORMANCE

This program will be offered July 24-26 at the St. Paul Student Center. It is unique in its offering of innovative and thought-provoking explorations of the physiological, psychological, and pedagogical aspects of the human voice as they relate to the needs of singers, voice teachers, and others who use their voices professionally. This course offers graduate credit. For further information contact: Donna Dacus, Program Director, Department of Professional Development and Conference Services, University of Minnesota, 219 Nolte Center, 315 Pillsbury Drive S.E., Minneapolis, MN 55455 (612/373-2578).

Special Programs and Workshops



SPLIT ROCK arts program

Duluth, Minnesota

Week-long workshops in the arts are offered at the University of Minnesota, Duluth, located on the hilltops overlooking Lake Superior. Participants work with nationally recognized artists in a supportive community, where they choose from 40 workshops in a variety of arts areas. Participants can: paint the landscape, write personal essays, draw from the figure, photograph or write about nature, create illustrations for children's books, write a novel or novella, weave rag rugs, write and perform poetry, make fine paper, write short stories, investigate approaches to creativity, write and learn how to market nonfiction books, design and construct quilts, learn traditional Chinese painting, join a writers' community, draw or write on the North Shore, and more.

Split Rock is a place to renew your creative energy and broaden your interests and skills.

On-campus apartments, rooms, and excellent food services are available at very low cost. Come early or stay on in Duluth to see Minnesota's favorite summer city, and travel the rugged and beautiful North Shore.

Split Rock opens June 23rd and new workshops begin each Sunday for seven weeks. Graduate and undergraduate credit is available, or workshops may be taken for no credit or grade at reduced cost.

For complete information, call or write for the 1985 Split Rock catalog.

By phone: Call the Split Rock Arts Program at 373-4947.

By mail: Fill out the request form and mail it. Requests will be filled promptly.

Please send me my copy of the 1985 Split Rock Arts Program catalog.

Name _____

Address _____

City, State, Zip _____

Mail to: Split Rock Arts Program
320 Wesbrook Hall
77 Pleasant Street S.E.
University of Minnesota
Minneapolis, MN 55455

COURSE DESIGNATORS (Twin Cities)

Acct	Accounting	Educ	Adult and Teacher Education
AdPy	Adult Psychiatry	EE	Electrical Engineering
AEM	Aerospace Engineering and Mechanics	Elem	Elementary Education
Afro	Afro-American Studies	Endo	Endodontics
AgEc	Agricultural and Applied Economics	Engl	English Language and Literature
AgEd	Agricultural Education	Ent	Entomology
AgEn	Agricultural Engineering	EPsy	Educational Psychology
AgET	Agricultural Engineering Technology	ESL	English as a Second Language
AgJo	Agricultural Journalism		
Agri	Agriculture	Fin	Finnish
Agro	Agronomy and Plant Genetics	ForP	Forest Products
Air	Aerospace Studies	FoSt	Foreign Study
AmIn	American Indian Studies	FPAAd	Family Planning Administration
AmSt	American Studies	FPCH	Family Practice and Community Health
Anat	Anatomy	FR	Forest Resources
ANEJ	Ancient Near Eastern and Jewish Studies	Fren	French
Anes	Anesthesiology	Frit	French and Italian
AnSc	Animal Science	FScN	Food Science and Nutrition
AnSt	Ancient Studies	FSoS	Family Social Science
Anth	Anthropology	FW	Fisheries and Wildlife
Arab	Arabic		
Arch	Architecture	GC	General College
ArEd	Art Education	GCB	Genetics and Cell Biology
ArH	Art History	Geo	Geology and Geophysics
ArtS	Arts, Studio	GeoE	Geo-Engineering
Ast	Astronomy	Geog	Geography
		Ger	German
		Grad	Graduate School
		Grk	Greek
BA	Business Administration		
BFin	Finance	HCol	Honors Colloquia
BGS	Business, Government, and Society	HE	Home Economics
BioC	Biochemistry (Biol Sci)	Hebr	Hebrew
Biol	Biology	HEEd	Home Economics Education
BLaw	Business Law	HiEd	Higher Education
BME	Business and Marketing Education	Hist	History
Bot	Botany	Hlth	School Health Education
BPhy	Biophysical Sciences	HMed	History of Medicine
		Hort	Horticultural Science
CAPy	Child and Adolescent Psychiatry	HSci	History of Science & Technology
CDis	Communication Disorders	HSU	Health Science Units
CE	Civil Engineering	Hum	Humanities
Chem	Chemistry		
ChEn	Chemical Engineering	ID	Interdepartmental Study
Chic	Chicano Studies	IEOR	Industrial Engineering/ Operations Research
Chn	Chinese		
CISy	Curriculum and Instructional Systems	Ind	Industrial Education
Clas	Classics	InMd	Interdisciplinary Medicine
Comp	Composition and Communication	Ins	Insurance
CPsy	Child Psychology	IntR	International Relations
CSci	Computer Science	IofT	Institute of Technology
CVM	Veterinary Medicine	IR	Industrial Relations
		Ital	Italian
Dent	Dentistry		
Derm	Dermatology	Jour	Journalism and Mass Communication
Dnce	Dance	Jpn	Japanese
DSci	Decision Sciences	JwSt	Jewish Studies
Dsgn	Design		
		LA	Landscape Architecture
EAS	East Asian Studies	LACS	Large Animal Clinical Sciences
EBB	Ecology and Behavioral Biology	LaMP	Laboratory Medicine and Pathology
Econ	Economics	Lat	Latin
EdAd	Educational Administration	Law	Law

Lib	Library School	Phys	Physics
Ling	Linguistics	PIPa	Plant Pathology
LMed	Laboratory Medicine	PIPh	Plant Physiology
		PMed	Physical Medicine and Rehabilitation
Math	Mathematics	PO	Personal Orientation
MatS	Materials Science	Pol	Political Science
MBA	Master of Business Administration	Port	Portuguese
MdBc	Biochemistry (Medical)	Pros	Prosthodontics
ME	Mechanical Engineering	Psy	Psychology
Med	Medicine	PubH	Public Health
MedT	Medical Technology		
MESA	Middle Eastern and South Asian Studies	Rad	Radiology
MetE	Metallurgical Engineering	Rec	Recreation, Park, and Leisure Studies
Mgmt	Management	RelS	Religious Studies
MicB	Microbiology	Rhet	Rhetoric
Mil	Military Science	Russ	Russian
MinE	Mining Engineering		
MIS	Management Information Systems	SACS	Small Animal Clinical Sciences
Mktg	Marketing	SAPH	Social and Administrative Pharmacy
Mort	Mortuary Science	Scan	Scandinavian
MthE	Mathematics Education	SeEd	Secondary Education
MuEd	Music Education	Slav	Slavic
Mus	Music	Soc	Sociology
MusA	Music Applied	Soil	Soil Science
		Span	Spanish
Neur	Neurology	Spch	Speech-Communication
NSu	Neurosurgery	SPFE	Social and Philosophical Foundations of Education
Nurs	School of Nursing	SpPt	Spanish-Portuguese
Nutr	Nutrition	Stat	Statistics
		Surg	Surgery
OBio	Oral Biology	SW	Social Work
Obst	Obstetrics and Gynecology		
OM	Operations Management	TexC	Textiles and Clothing
OPat	Oral Pathology	Th	Theatre Arts
Oph	Ophthalmology	TRad	Therapeutic Radiology
ORad	Oral Radiology	Tran	Transportation
OrSu	Orthopaedic Surgery		
OSur	Oral and Maxillofacial Surgery	UC	University College
Otho	Orthodontics	UrbS	Urban Studies
Otol	Otolaryngology	Urol	Urologic Surgery
PA	Public Affairs	VB	Veterinary Biology
Path	Pathobiology	VDI	Veterinary Diagnostic Investigation
PE	Physical Education	VoEd	Vocational Education
Ped	Pediatrics	VPB	Veterinary Pathobiology
Pedo	Pediatric Dentistry		
Pero	Periodontics	WoSt	Women's Studies
Phar	Pharmacy		
Phcg	Pharmacognosy	YoSt	Youth Development and Research
Phcl	Pharmacology		
Phil	Philosophy		
Phm	Pharmaceutics		
Phsl	Physiology		

DIRECTORY FOR DEPARTMENTAL OFFICES

Admissions and Records, Office of:

Minneapolis Campus	
Admissions	WmsonH 240
Records	WmsonH 150
St. Paul Campus	CofH 130
Adult and Teacher Education	PeikH 345
Aerospace Engineering and	
Mechanics	AkerH 107
Aerospace Studies	Armory 3
Afro-American Studies	SocSci 214
Agricultural and	
Applied Economics	ClaOff 231
Agricultural Education	VoTech 320
Agricultural Engineering (Agri)	AgEng 213
Agricultural Engineering (IT)	AgEng 213
Agricultural Journalism	HckrH 326
Agronomy and Plant Genetics	Ag 303
American Indian Studies	FordH 489
American Studies	LindH 225
Anatomy	Jach 4-135
Ancient Near Eastern, Jewish Studies	KlaCt 178
Anesthesiology	Mayo B515
Animal Science	PetH 120
Anthropology	FordH 215
Architecture	Arch 110
Art Education	WullH 135
Art History	JonesH 107
Astronomy	Phys 356
Biochemistry (BioC)	GorL 140
Biochemistry (Med)	MlrdH 4-225
Biological Sciences	SnH 123
Biology	SnH 223
Biophysical Sciences	TNCE 200
Botany	BioSci 220
Business and Marketing Education	VoTech 420
Chemical Engineering and	
Materials Science	AmundH 151
Chemistry	SmithH 139
Chicano Studies	FordH 489
Child Psychology	ChDev 158
Civil and Mineral Engineering	CivMinE 122
Classics	FoIH 310
Communication Disorders	ShevH 115
Comparative Literature	FoIH 301
Computer Science	LindH 136
Curriculum and Instructional	
Systems	PeikH 130
Dance	NorrisH 101
Dental Hygiene	MoosT 5-164
Dentistry	MoosT 15-209
Dermatology	PWB 4-240
Design, Housing, and Apparel	McNH 240

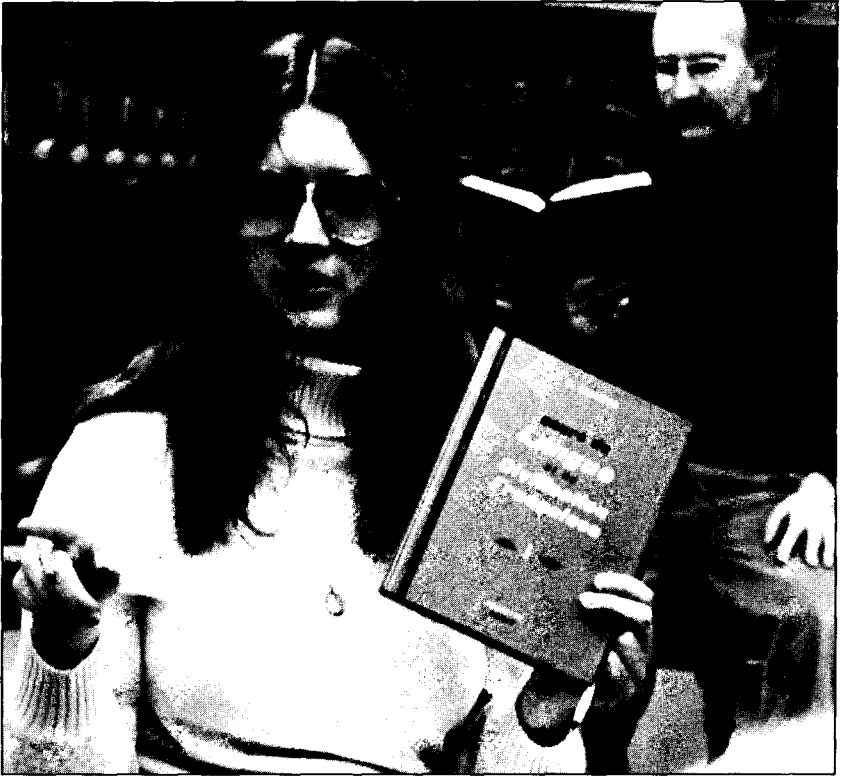
East Asian Studies	FoIH 113
Ecology and Behavioral	
Biology	Zoology 109
Economics	Mgmt/Econ 1035
Educational Administration	PeikH 275
Educational Psychology	BuH 204
Electrical Engineering	ElectE 139
Elementary Education	PeikH 125
English	LindH 207
Entomology	HodsonH 219
Family Practice,	
Community Health	PWB 6-240
Family Social Science	McNH 290
Fisheries and Wildlife	HodsonH 219
Food Science and Nutrition	FScN 225
Forest Products	KaulL 203
Forest Resources	GrnH 110
French and Italian	FoIH 200
General College	NichH 106
Genetics and Cell Biology	BioSci 250
Geography	SocSci 414
Geology and Geophysics	PillsH 106
German	FoIH 219
Higher Education	PeikH 275
History	SocSci 614
History of Science & Technology	Phys 428
Home Economics	McNH 32
Home Economics Education	VoTech 325
Horticultural Science	AlderH 305
Humanities	FordH 314
Industrial Education	VoTech 425
Interdepartmental Study (CLA)	JohH 220
Journalism, Mass	
Communication	MurH 111
Laboratory Medicine	Mayo D242
Large Animal Clinical Sciences	VetTchHos 225
Law School	Law 285
Library School	WaLib 419
Linguistics	KlaCt 142
Management, School of	Mgmt/Econ 225
Marketing Education	VoTech 420
Mathematics	VinH 127
Mathematics Education	PeikH 145
Mechanical Engineering	MechE 125
Medical Technology	PWB 15-170
Medicine	PWB 14-110
Microbiology	Mayo 1460

Middle Eastern and South	
Asian Studies	KlaCl 192
Military Science	Armory 108
Mining Engineering	CivMinE 122
Mortuary Science	Botany 400
Music	ScottH 106
Music Education	ScottH 104
Naval Science	Armory 203
Neurology	PWB 12-100
Northwest European Language and	
Area Studies, Center for	FolH 212
Nursing	HSUnitF 5-140
Obstetrics and Gynecology	MoosT 12-211
Ophthalmology	PWB 9th floor
Otolaryngology	PWB 8-240
Pediatrics	PWB 13-112
Pharmacology	MirdH 3-260
Pharmacy	HSUnitF 5-110
Philosophy	FordH 355
Physical Education	CookeH 110
Physical Medicine and	
Rehabilitation	Mayo 860
Physics	Phys 148
Physiology	MirdH 6-255
Plant Pathology	StakH 304
Plant Physiology	BioSci 220
Political Science	SocSci 1414
Prekindergarten Education	ChDev 226
Psychiatry	Mayo A605
Psychology	ElIH N218
Public Affairs	SocSci 909
Public Health	Mayo 1250
Radiology	Mayo B238
Recreation, Park, and	
Leisure Studies	CookeH 203
Rhetoric	HckrH 202
Russian, East European Studies	ElIH 253
Scandinavian Languages	FolH 210
School Psychology	N550 ElIH
Secondary Education	PeikH 125
Small Animal Clinical Sciences	VetTchHos C339
Social, Philosophical	
Foundations of Educ	PeikH 275
Social Work	FordH 400
Sociology	SocSci 1114
Soil Science	Soils 125
Spanish and Portuguese	FolH 34
Special Education	BuH 255
Speech-Communication	FolH 317
Statistics	VinH 270
Studio Arts	ArtB 208
Surgery	PWB 11-100
Textiles and Clothing	McNH 364
Theatre Arts	MdbH 208
University College:	
Intercollege Program (ICP)	TNA 213
University Without Walls (UWW)	WesH 201
Veterinary Biology	AnScVM 295K
Veterinary Pathobiology	VetS 205g
Vocational and Technical Education	VoTech 210
Women's Studies	FordH 492
Youth Development and Research	McNH 386
Zoology	Zoology 109



Concerts are performed regularly on Northrop Mall.





Course Descriptions

College of Agriculture

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

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

Information concerning admission to the Graduate School should be obtained from the director of graduate studies in your proposed major field. Students wishing information regarding courses at the graduate level should confer with the graduate staff of the department in which they will be working.

Agricultural and Applied Economics (AgEc)

FIRST TERM

5990. SPECIAL TOPICS AND INDEPENDENT STUDY IN AGRICULTURAL AND APPLIED ECONOMICS. (687392) (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. (088880) (1-9 cr; [may be repeated for cr]; hrs ar) Staff
Special problems for individual work by qualified students.

SECOND TERM

5990. SPECIAL TOPICS AND INDEPENDENT STUDY IN AGRICULTURAL AND APPLIED ECONOMICS. (487393) (Cr ar; prereq #) Staff
See First Term.

8200. ADVANCED TOPICS IN AGRICULTURAL AND APPLIED ECONOMICS. (287394) (1-9 cr; [may be repeated for cr]; hrs ar) Staff
See First Term.

Agricultural Engineering

Agricultural Engineering Technology (AgET)

FIRST TERM

1020. AGRICULTURAL SHOP—METALWORK. (688882) (4 cr; prereq Chem 1004 or #; 2 lect and 6 lab hrs per wk; lect 0800-0850 MTWTh, AgEng 42; lab 0905-1100 MTWTh, 0800-1205 F, AgEng 20) Ades
Arc and oxyacetylene welding, soldering, use and conditioning of metalworking tools, and the identification and characteristics of metals used in farm machinery.

5031. AGRICULTURAL MACHINERY AND MECHANIZATION. (990752) (1-3 cr; prereq 5020 or #; special problems ar; AgEng 218) Bear
Principles and practices in the implementation of instructional programs in agricultural mechanics. Selection, application, operation, service, and maintenance of equipment for the instructional program.

SECOND TERM

5020. PROGRAM PLANNING AND INSTRUCTIONAL METHODS IN AGRICULTURAL MECHANICS—August 5-9. (689904) (4 cr; prereq 10 cr in agricultural engineering technology, AgEd 3031 or †AgEd 3031; 0800-1205 and 1325-1730 MTWThF; AgEng 218) Bear
Planning and designing high school vocational agriculture facilities, organizing equipment, tools, supplies, and storage as demanded by the instructional program. Administering the agricultural mechanics program. Developing techniques and programs for student supervised study programs.

5032. ELECTRICAL POWER AND PROCESSING. (790753) (1-3 cr; prereq 5020 or #; special problems ar: AgEng 218) Bear
Principles and practices in the implementation of instructional programs in agricultural mechanics. Selection, application, operation, service, and maintenance of equipment for the instructional program.

Agriculture (Agri)

FIRST TERM

1000. ACADEMIC ENRICHMENT AND HONORS PROGRAM: SPECIAL PROJECTS. (288884) (1-15 cr; S-N only; prereq acceptance for Special Opportunity Grant, agriculture major only) Wharton
Pursuit of a special interest in depth as an alternative to regular classroom activities. Requires submission of a proposal describing the project, including estimation of its duration and a tentative expense budget (funds of up to \$400 are available for approved projects). For further information, check with the college office.

SECOND TERM

1000. ACADEMIC ENRICHMENT AND HONORS PROGRAM: SPECIAL PROJECTS. (489905) (1-15 cr; S-N only; prereq acceptance for Special Opportunity Grant, agriculture major only) Wharton
See First Term.

Agronomy and Plant Genetics (Agro)

Agronomy

FIRST TERM

1020. SPECIAL PROBLEMS. (188885) (1-3 cr; prereq #) Smith, Cardwell
In-depth research or studies in agronomy. Intended for students who wish to pursue aspects of agronomy in greater depth than that offered in formal courses or who wish to investigate areas not presently offered in courses. Tutorial instruction under staff guidance.

5000. PROFESSIONAL EXPERIENCE PROGRAM. (988886) (4 cr [not for grad cr]; prereq #) Smith, Cardwell
Supervised practical experience in agronomic industries and farm enterprise systems; studies of various aspects of the industry and related fields.

5001. PROBLEMS IN AGRONOMY FOR ADVANCED STUDENTS. (788887) (1-5 cr; prereq #) Smith, Cardwell
In-depth research or studies in agronomy. Intended for advanced students who wish to pursue aspects of agronomy in greater depth than that offered in formal courses or who wish to investigate areas not presently offered in courses. Independent study and research under staff guidance.

8010.* RESEARCH IN AGRONOMY. (588888) (Cr ar; prereq #) Staff
Problems in physiology and production of crop plants.

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

8320.* ORIENTATION TO AGRONOMY AND SOILS FIELD RESEARCH TECHNIQUES. (067373) (1 cr; S-N; prereq 5040 or #) Goodding
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. (289906) (1-3 cr; prereq #) Smith, Cardwell
See First Term.

5000. PROFESSIONAL EXPERIENCE PROGRAM. (189907) (4 cr [not for grad cr]; prereq #) Smith, Cardwell
See First Term.

5001. PROBLEMS IN AGRONOMY FOR ADVANCED STUDENTS. (989908) (1-5 cr; prereq #) Smith, Cardwell
See First Term.

8010.* RESEARCH IN AGRONOMY. (789909) (Cr ar; prereq #) Staff
See First Term.

Course Descriptions

Plant Breeding

FIRST TERM

8330.* RESEARCH IN PLANT GENETICS. (388889) (Cr ar) Staff

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

8310.* ORIENTATION TO FIELD CROP BREEDING. (788890) (1 cr; prereq 5020 or #) Stuthman
Field study of plant breeding programs and techniques.

SECOND TERM

8330.* RESEARCH IN PLANT GENETICS. (388424) (Cr ar) Staff

Animal Science (AnSc)

FIRST TERM

5710. SPECIAL PROBLEMS. (588891) (Cr ar; open to students who have completed appropriate prereqs with #) Staff
Research in an area of animal science under the supervision of a staff member. A written report on the research is required.

5715. TUTORIAL. (291560) (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. (388892) (1 cr [may be repeated once for cr]; prereq #) Staff
Review and evaluation of pertinent scientific literature.

8810.* RESEARCH IN ANIMAL SCIENCE. (188893) (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 managerial considerations.

8820.* RESEARCH IN ANIMAL GENETICS. (088894) (Cr and hrs ar; prereq #) Staff

Research in quantitative genetics, cytogenetics, and other areas related to animal breeding.

8830.* RESEARCH IN ANIMAL PHYSIOLOGY. (888895) (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. (688896) (Cr and hrs ar; prereq #) Staff

Research in selected areas of animal nutrition. Topics and species studied determined by consultation with adviser.

8850.* RESEARCH IN MUSCLE CHEMISTRY AND PHYSIOLOGY. (488897) (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. The topic may be a specialized aspect of a thesis problem or an individual problem of mutual interest to graduate student and adviser.

SECOND TERM

5710. SPECIAL PROBLEMS. (189910) (Cr ar; open to students who have completed appropriate prereqs with #) Staff
See First Term.

5715. TUTORIAL. (988211) (Cr ar; prereq #)

See First Term.

8750. CONCEPTS AND DEVELOPMENTS IN MEAT SCIENCE AND TECHNOLOGY. (989911) (1 cr [may be repeated once for cr]; prereq #) Staff
See First Term.

8810.* RESEARCH IN ANIMAL SCIENCE. (789912) (Cr and hrs ar; prereq #) Staff

See First Term.

8820.* RESEARCH IN ANIMAL GENETICS. (589913) (Cr and hrs ar; prereq #) Staff

See First Term.

8830.* RESEARCH IN ANIMAL PHYSIOLOGY. (389914) (Cr and hrs ar; prereq #) Staff

See First Term.

8840.* RESEARCH IN ANIMAL NUTRITION. (189915) (Cr and hrs ar; prereq #) Staff
See First Term.

8850.* RESEARCH IN MUSCLE CHEMISTRY AND PHYSIOLOGY. (089916) (Cr and hrs ar; prereq #) Staff
See First Term.

Entomology (Ent)

(See also *Itasca Biology Program*)

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

FIRST TERM

3100. ENTOMOLOGICAL TECHNIQUES. (288898) (Cr ar; prereq 3175 or equiv. or #) Staff
Practical laboratory instruction in dealing with entomological materials.

5901. SPECIAL PROBLEMS IN ENTOMOLOGY. (188899) (Cr ar; prereq #) Staff
Individual field, laboratory, or library studies in various areas of entomology.

8500.* RESEARCH IN ENTOMOLOGY. (888900) (Cr ar; prereq #) Staff

SECOND TERM

3100. ENTOMOLOGICAL TECHNIQUES. (889917) (Cr ar; prereq 3175 or equiv. #) Staff
See First Term.

5901. SPECIAL PROBLEMS IN ENTOMOLOGY. (689918) (Cr ar; prereq #) Staff
See First Term.

8500.* RESEARCH IN ENTOMOLOGY. (489919) (Cr ar; prereq #) Staff

Food Science and Nutrition (FScN)

FIRST TERM

R 3600. PRINCIPLES OF NUTRITION. (988905) (4 cr; limited to 25 students; prereq Biol 1009 and Chem 1004 or equiv; 0800-0955 MWF, 0905-0955 TTh; FScN 15)

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

5111. INDEPENDENT STUDY IN FOOD SCIENCE AND NUTRITION. (788906) (1-5 cr [may be repeated for cr]; prereq Δ ; hrs ar) Staff

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

5321. INDEPENDENT STUDY IN FOOD MICROBIOLOGY. (588907) (1-5 cr; prereq sr, Δ ; hrs ar) Staff
Laboratory or library research on problems related to the microbiology of dairy and food products.

R 5404. CURRENT ISSUES IN FOOD AND NUTRITION—June 20-July 3. (388908) (3 cr; limited to 25 students; prereq 15 cr in food science and nutrition or #; 0905-1135 MTWThF; ABLMS 125) Levine

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

8401. INDEPENDENT STUDY: FOOD SCIENCE. (188909) (1-5 cr; prereq #; hrs ar) Staff
Independent study and written reports.

8621. INDEPENDENT STUDY: NUTRITION. (588910) (1-9 cr; prereq Δ ; hrs ar) Staff
Independent study and written reports.

SECOND TERM

1102. TECHNOLOGY OF FOOD PROCESSING. (189924) (4 cr; prereq high school chemistry and biology; 0800-0955 MWF, 0905-0955 TTh; ABLMS 125)

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

Course Descriptions

5111. INDEPENDENT STUDY IN FOOD SCIENCE AND NUTRITION. (989925) (1-5 cr [may be repeated for cr]; prereq Δ ; hrs ar) Staff
See First Term.

5321. INDEPENDENT STUDY IN FOOD MICROBIOLOGY. (789926) (1-5 cr; prereq sr, Δ ; hrs ar) Staff
See First Term.

8401. INDEPENDENT STUDY: FOOD SCIENCE. (589927) (1-5 cr; prereq Δ ; hrs ar) Staff
See First Term.

8621. INDEPENDENT STUDY: NUTRITION. (389928) (1-9 cr; prereq #; hrs ar) Staff
See First Term.

Plant Pathology (PIPa)

(See also Itasca Biology Program)

FIRST TERM

3090. RESEARCH IN PLANT PATHOLOGY. (988810) (Cr ar; prereq 1001 or equiv or #)

8095. ADVANCED PROCEDURES AND RESEARCH IN MYCOLOGY. (786783) (1-6 cr) E L Stewart
Special assignment of work in laboratory and field problems in pathological research.

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

5650. CLINICAL PLANT PATHOLOGY. (388911) (6 cr; prereq 1001, 8 cr plant pathology; StakH 105) MacDonald, staff
Field laboratory and clinical experience in Plant Disease Clinic in diagnosis, treatment, and control of plant diseases of field crops, vegetable crops, turf, ornamentals, and trees.

8090.* ADVANCED PROCEDURES AND RESEARCH IN PLANT PATHOLOGY. (188912) (Cr ar) Staff
Special assignment in laboratory and field problems in pathological research.

SECOND TERM

3090. RESEARCH IN PLANT PATHOLOGY. (788811) (Cr ar; prereq 1001 or equiv or #)

8095. ADVANCED PROCEDURES AND RESEARCH IN MYCOLOGY. (190997) (1-6 cr) E L Stewart
See First Term.

Rhetoric (Rhet)

FIRST TERM

R 1147. EFFICIENT READING. (088913) (4 cr; limited to 30 students; 0905-1100 TW; FolH 102) Bennett
The adult reading process is explored with emphasis on comprehension, speed, and vocabulary development. For persons of average or above-average reading ability who wish to develop and refine college-level reading skills. Not a basic course. Meets concurrently with 5147.

R 1151. WRITING IN YOUR MAJOR. (191009) (4 cr; limited to 23 students; prereq soph, completion of fr communication requirements; 0905-0955 MTWThF; HckrH 100) Walzer
Students investigate and write on subjects related to their majors. The criterion of appropriateness: good writing meets the expectation of readers and the conventions of a particular form. Assignments such as literature review, abstract, fact sheet, instructions, and feature article.

R 1222. PUBLIC SPEAKING. (888914) (4 cr; limited to 18 students; prereq completion of fr communication requirements; 1010-1100 MTWThF; HckrH 222) Eyo
A practical course in the fundamentals of speechmaking. Emphasis upon organizing and delivering the speech.

3374. HUMANITIES: SPECIAL PROBLEMS. (386866) (1-2 cr; prereq #, Δ) Bennett, Walzer, others
Primarily for supervised reading and research on topics not covered in regularly scheduled humanities offerings.

R 3562. WRITING IN YOUR PROFESSION. (4 cr; each section limited to 23 students; prereq jr, completion of fr communication requirements, 1151)

Projects in professional writing. Relationship between structuring information to meet the needs of particular readers and writing effectively. Assignments such as the feasibility report, proposal, memorandum, letter of application, and resume.

Sec 1, (688915) 0800-0850 MTWThF, HckrH 111, Ferguson

Sec 2, (586381) 0905-0955 MTWThF, HckrH 111, Scanlan

5100. TECHNICAL COMMUNICATION: SPECIAL PROBLEMS. (888718) (Cr ar; prereq #, Δ) Connolly, McDowell, others
Designed for supervised reading, research, and work on advanced technical communication projects not covered in regularly scheduled courses.

5147. EFFICIENT READING. (488916) (4 cr; limited to 10 students; 0905-1100 TW; FolH 102) Bennett
The adult reading process is explored with emphasis on comprehension, speed, and vocabulary development. For persons of average or above-average reading ability who wish to develop and refine college-level reading skills. An evaluative paper is required. Meets concurrently with 1147.

5180. INTERNSHIP IN TECHNICAL COMMUNICATION. (688719) (2-6 cr; prereq #, Δ) Connolly, McDowell, others
Designed to give technical communication majors on-the-job experience at the University or in industry or government.

SECOND TERM

1147. EFFICIENT READING. (189929) (4 cr; limited to 30 students; 0905-1100 TW; FolH 102) Bennett
See First Term.

1222. PUBLIC SPEAKING. (589930) (4 cr; limited to 18 students; prereq completion of fr communication requirements; 0905-0955 MTWThF; HckrH 222) Cuffe
See First Term.

1310. HUMANITIES: THE LAND IN AMERICAN EXPERIENCE. (591015) (4 cr; limited to 40 students; 0905-0955 MTWThF; HckrH 100) Scanlan
American attitudes toward the land from colonial times to the present as expressed in social history, literature, and the fine arts. Social thought and the relationship between farm and city, wilderness and countryside. The changing appearance of America.

3374. HUMANITIES: SPECIAL PROBLEMS. (391016) (1-2 cr; prereq #, Δ) Bennett, Horberg, others
See First Term.

3562. WRITING IN YOUR PROFESSION. (4 cr; each section limited to 23 students; prereq jr, completion of fr communication requirements, 1151)
See First Term.

Sec 1, (086370) 1010-1100 MTWThF, HckrH 111, Horberg

Sec 2, (886371) 1115-1205 MTWThF, HckrH 111

5100. TECHNICAL COMMUNICATION: SPECIAL PROBLEMS. (688722) (Cr ar; prereq #, Δ) Connolly, McDowell, others
See First Term.

5147. EFFICIENT READING. (887374) (4 cr; limited to 10 students; 0905-1100 TW; FolH 102) Bennett
See First Term.

5180. INTERNSHIP IN TECHNICAL COMMUNICATION. (488723) (2-6 cr; prereq #, Δ) Connolly, McDowell, others
See First Term.

Soil Science (Soil)

FIRST TERM

5114.* SPECIAL PROBLEMS IN SOILS. (288917) (1-5 cr per qtr [max 10 cr]; prereq 1122 or #) Adams, Baker, Bloom, Malzer, Gaudreau, Graham, Rust, Schmidt, Grava, Grigal, Swan, Cooper
Research, readings, instruction.

8124.* RESEARCH PROBLEMS IN SOILS. (188918) (2-5 cr; hrs ar) Adams, Baker, Bloom, Dowdy, Graham, Malzer, Molina, Rust, Schmidt, Swan, Grava, Grigal
Individual laboratory or fieldwork on special problems in a phase of soils other than the student's major thesis. Arrangements must be made in advance.

SECOND TERM

5114.* SPECIAL PROBLEMS IN SOILS. (389931) (1-5 cr per qtr [max 10 cr]; prereq 1122 or #) Adams, Baker, Bloom, Malzer, Gaudreau, Graham, Swan, Rust, Schmidt, Grigal, Cooper
See First Term.

8124.* RESEARCH PROBLEMS IN SOILS. (189932) (2-5 cr; hrs ar) Adams, Baker, Bloom, Dowdy, Graham, Malzer, Molina, Rust, Schmidt, Grava, Grigal, Swan
See First Term.

College of Biological Sciences

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

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

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

Biochemistry (BioC)

FIRST TERM

5950. SPECIAL TOPICS. (688025) (1-5 cr; prereq #, Δ)

5970. DIRECTED STUDIES. (387998) (Cr ar; prereq #, Δ) Staff

5990. DIRECTED RESEARCH. (187999) (Cr ar; prereq #, Δ) Staff
Laboratory or field investigation of selected areas of research.

8290. CURRENT RESEARCH TECHNIQUES. (988919) (1-3 cr; prereq grad major in biochemistry, #) Graduate faculty
Research projects in biochemistry carried out in the research laboratory of an individual staff member. Will satisfy all or part of the laboratory requirements for the Ph.D. degree.

8990. GRADUATE RESEARCH. (288920) (2-5 cr; prereq #) Graduate faculty
Research problems in various fields in biochemistry represented by staff interest.

SECOND TERM

5950. SPECIAL TOPICS. (488026) (1-5 cr; prereq #, Δ)

5970. DIRECTED STUDIES. (188000) (Cr ar; prereq #, Δ) Staff

5990. DIRECTED RESEARCH. (988001) (Cr ar; prereq #, Δ) Staff
See First Term.

8290. CURRENT RESEARCH TECHNIQUES. (089933) (1-3 cr; prereq grad major in biochemistry, #) Graduate faculty
See First Term.

8990. GRADUATE RESEARCH. (889934) (2-5 cr; prereq #) Graduate faculty
See First Term.

Biology (Biol)

(See also *Itasca Biology Program*)

FIRST TERM

R 1009. GENERAL BIOLOGY. (5 cr; limited to 96 students; lect 0905-1005 MTWThF; AndH 210) McKone

An introduction to the principles of biology. The cell, metabolism, heredity, reproduction, ecology, and evolution.

Lab 1, (587465) 1020-1205 MTWTh, KoltH S177

Lab 2, (387466) 1020-1205 MTWTh, KoltH S179

Lab 3, (187467) 1020-1205 MTWTh, KoltH S183

Lab 4, (087468) 1020-1205 MTWTh, KoltH S187

3112. BIOLOGICAL RHYTHMS—June 18-July 12. (588924) (4 cr, §5112; prereq 1009 or #: 1115-1240 MTWThF; BioSci 70) Koukkari

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

5001. BIOCHEMISTRY. (388925) (4 cr, §3021, §BioC 5001; prereq 1009, 12 cr organic chemistry or #: 0825-0945 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. (885995) (4 cr, §GCB 3022, §GCB 5022; prereq 5001; 1100-1200 MTWThF and 1 hr ar; ClaOff B25)

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

5112. RHYTHMS AND CIRCADIAN REGULATION—June 18-July 12. (188926) (5 cr, §3112; prereq 15 cr biology, 10 cr chemistry or #: 1115-1240 MTWThF; BioSci 70) Koukkari

Laboratory experience arranged. Meets with 3112.

5506. BIOTRANSFORMATIONS OF ORGANIC COMPOUNDS—July 8-August 23. (386639) (5 cr; prereq chemistry through organic, 1 yr biol, 1 yr phys, 1 qtr biochem; micro recommended; 0830-1000 MTWThF; Gray Freshwater Biological Institute) Navarre

Lecture course describing the microbiology, biochemistry, and genetics of bacteria that grow on or transform organic compounds.

5507. BIOTRANSFORMATIONS OF ORGANIC COMPOUNDS LABORATORY—July 8-August 23. (786640) (5 cr;

prereq 5506 or #5506; 1030-1630 MTWThF; Gray Freshwater Biological Institute) Navarre

Laboratory course to accompany 5506.

SECOND TERM

R 1103. GENERAL BOTANY. (489936) (5 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 1220-1320 MTWThF, BioSci 12; lab 0905-1205 TTi, BioSci 176, 182) Biesboer

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

R 1106. GENERAL ZOOLOGY. (5 cr; limited to 72 students, prereq 1009; lect 0815-0915 MTWThF; Botany B6) Underhill

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

Lab 1, (391260) 1325-1625 MW, KoltH P168

R 3011. ANIMAL BIOLOGY. (5 cr, §1106; limited to 44 students; prereq 1009, Chem 1005; lect 1215-1330 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, (891263) 1000-1200 MTWTh, SnH 13

R 3012. PLANT BIOLOGY. (187470) (5 cr, §1103; limited to 40 students; prereq 1009, Chem 1005; lect 0805-0915 MTWTh, BioSci 64; lab 0920-1220 TW; BioSci 151, 163) Koukkari

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

R 3051. BIOLOGY AND THE FUTURE OF MAN. (289937) (4 cr; S-N only; limited to 100 students, 1220-1310 MTWThF; AndH 210)

Nontechnical discussion of biological factors affecting the quality of life—pollution, chemical and biological warfare, population growth, food supply, resource sufficiency, value of wilderness, genetics and eugenics, public health, aging, behavior control, and biological aspects of ethics, morals, and societal organizations.

3111. ANIMAL BIOLOGY. (491265) (4 cr, §3011; prereq 1009, 1106, Chem 1005; 1215-1330 MTWTh; ClaOff B35) Kerr

Lectures covering the comparative physiology of various animal groups; coordination, movement, support, excretion, reproduction. Meets with 3011.

Course Descriptions

5004. CELL BIOLOGY. (189938) (3 cr; prereq 5001; 1100-1200 MTWThF; ClaOff B25)

Structures and functions of membranes, organelles, and other macromolecular aggregates found in plant, animal, and bacterial cells. Cell form and movement, intercellular communication, transport, and secretion.

Botany (Bot)

(See also *Itasca Biology Program*)

FIRST TERM

5970. DIRECTED STUDIES. (588003) (Cr ar; prereq #, Δ) Staff

5990. DIRECTED RESEARCH. (487491) (Cr ar; prereq #, Δ) Staff
Laboratory or field investigation of selected areas of research.

8990. RESEARCH PROBLEMS. (688929) (Cr ar; prereq #) Staff

SECOND TERM

5970. DIRECTED STUDIES. (788002) (Cr ar; prereq #, Δ) Staff

5990. DIRECTED RESEARCH. (287492) (Cr ar; prereq #, Δ) Staff
See First Term.

8990. RESEARCH PROBLEMS. (988939) (Cr ar; prereq #) Staff

Ecology and Behavioral Biology (EBB)

(See also *Itasca Biology Program*)

FIRST TERM

3001. INTRODUCTION TO ECOLOGY. (4 cr; open to jrs and above but not biol majors; lect 0905-0955 MWF, Zoology 102)

Basic concepts of ecology dealing with the organization, development, and functioning of ecosystems; population growth and regulation. Man's impact on such systems.

Rec 1, (990749) 0800-0850 TTh, Zoology 108

Rec 2, (290750) 0900-0955 TTh, Zoology 108

5970. DIRECTED STUDIES. (088930) (Cr ar; prereq Δ) Staff

5990. DIRECTED RESEARCH. (388004) (Cr ar; prereq #, Δ) Staff
Laboratory or field investigation of selected areas of research.

8391. ADVANCED WORK IN ECOLOGY AND BEHAVIORAL BIOLOGY. (888931) (Cr ar; prereq #) Staff

SECOND TERM

5970. DIRECTED STUDIES. (289940) (Cr ar; prereq Δ) Staff

5990. DIRECTED RESEARCH. (188005) (Cr ar; prereq #, Δ) Staff
See First Term.

8391. ADVANCED WORK IN ECOLOGY AND BEHAVIORAL BIOLOGY. (189941) (Cr ar; prereq #) Staff

Genetics and Cell Biology (GCB)

FIRST TERM

3022. GENETICS. (391078) (4 cr, §Biol 5003; not intended for biology majors; prereq Biol 1009; 1000-1100 MTWThF plus 1 hr ar; ClaOff B35)

Mechanisms of heredity; their implications for biological populations, and applications to practical problems. Meets with 5022.

5022. GENETICS. (191079) (3 cr, §3022, §Biol 5003; not open to grad students in genetics; 1000-1100 MTWThF plus 1 hr ar; ClaOff B35)
See 3022.

5970. DIRECTED STUDIES. (187498) (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. (087499) (Cr ar; prereq #, Δ) Staff
Laboratory or field investigation of selected areas of research.

8970. DIRECTED STUDIES. (688932) (Cr ar; prereq #, Δ) Staff

8990. RESEARCH. (488933) (Cr ar; prereq #) Staff

SECOND TERM

5970. DIRECTED STUDIES. (787500) (Cr ar; prereq #, Δ) Staff
See First Term.

5990. DIRECTED RESEARCH. (587501) (Cr ar; prereq #, Δ) Staff
See First Term.

8970. DIRECTED STUDIES. (989942) (Cr ar; prereq #, Δ) Staff

8990. RESEARCH. (789943) (Cr ar; prereq #) Staff

Biology Program

Held at the Lake Itasca Forestry and Biological Station

(See also Forest Resources, page 105)

During two five-week terms of the summer session (June 16 through July 20 and July 21 through August 24), opportunities for fieldwork in terrestrial and freshwater biology in their most fundamental aspects are available at Itasca State Park, approximately 220 miles northwest of the Twin Cities.

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

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

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

ADMISSION AND REGISTRATION

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

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

Reservations for housing and course work should be made as early as possible. A special registration form for this purpose is included in the *Itasca Biology Program Bulletin*. This form should be mailed to: Program Director, Itasca Biology Program, 349 Bell Museum of Natural History, University of Minnesota, 10 Church Street S.E., Minneapolis, MN 55455. Assignments to classes will be verified by April 10 for early applicants. Late applications will be accepted for classes that are not closed, up to the time of registration. The necessary class reservation cards will be held with the registration form and are to be turned in by the student when he or she registers at the station on June 16 or July 21.

TUITION AND FEES¹

Tuition and fees are payable each five-week term by every regular registrant. They are due on or before June 16 for first term or July 21 for second term.

<i>Students registering in</i>	<i>Per-credit rate</i>
Biological Sciences, College of	\$47.15
Graduate School	1-5 credits 85.00
	6 or more credits 500.00 per term

Other colleges, refer to page 19

<i>Additional Fees</i>	<i>Per-Term Rate</i>
<i>Student Services Fee</i>	\$ 24.20
<i>Laboratory Fee</i>	10.00

Graduate students who are conducting research for a dissertation may enroll through student status registration.

¹Subject to change

Independent investigators will pay a research fee based on facilities, equipment, and services required; the minimum fee is \$5.00 per week.

On the basis of the experience of other groups of students, it is estimated that board—which is determined on an actual cost basis—will be \$235 for the five-week period. A charge of \$30 per term is made for room in the cabins of the station and is to be paid to the program director during the first week of each term.

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

Tuition and fees for each five-week term does not include books, class supplies, traveling expenses including class field trips, clothing, laundry, and incidental personal expenses.

Tuition and fees are payable on or before June 16 and July 21. Late fees are assessed for both late registration and late payment.

Late Registration—No registration will be accepted after June 16 or July 21 without the approval of the Director of the Itasca Biology Program and payment of the late registration fee, as follows:

June 17-21 or July 22-26	\$10
Thereafter	\$20

Late Payment—A fee of \$10 is charged if tuition and fees are paid after the student's due date, as indicated on the fee statement at the time of registration and on the following chart:

<i>Registration Period</i>	<i>Tuition and Fees Due Date</i>
Through June 16 or July 21	Five workdays after registration
June 17-21 or July 22-26	June 21 or July 26
Thereafter	One workday after registration

Biology (Biol)

FIRST TERM

5890. RESEARCH PROBLEMS AT ITASCA IN ECOLOGY AND BEHAVIORAL BIOLOGY; OR ENTOMOLOGY; OR FISHERIES AND WILDLIFE; OR PLANT PATHOLOGY. (288934) (Cr ar; prereq #, Δ) Staff

SECOND TERM

¶ **5041. ECOLOGY.** (291266) (4 cr; student should also register for 1 credit of 5890; limited to 20 students; 0800-1700 MTh) Siniff and McNaught

5890. RESEARCH PROBLEMS AT ITASCA IN ECOLOGY AND BEHAVIORAL BIOLOGY; OR ENTOMOLOGY; OR FISHERIES AND WILDLIFE; OR PLANT PATHOLOGY. (391453) (Cr ar; prereq #, Δ) Staff

Botany (Bot)

FIRST TERM

¶ **5801. PLAINS AND BOREAL FLORA.** (188935) (5 cr; limited to 20 students; prereq course in taxonomy, Δ; 0800-1700 MTh) Lee

¶ **5811. FRESHWATER ALGAE.** (988936) (5 cr; limited to 20 students; prereq 10 cr in botany, biology or zoology, Δ; 0800-1700 WS) Czarnecki

5890. RESEARCH PROBLEMS. (788937) (1-5 cr; prereq #, Δ) Staff

Course Descriptions

Ecology and Behavioral Biology (EBB)

FIRST TERM

R 3800. **INTRODUCTION TO FIELD RESEARCH.** (588938) (10 cr; limited to 20 students; prereq 2 courses in biology, Δ ; frs ar) Regal

R 5815. **FIELD ETHOLOGY.** (886127) (5 cr; limited to 20 students; prereq course in behavior; course in statistics recommended, Δ ; 0800-1700 TF) Phillips

R 5831. **NATURAL HISTORY OF INVERTEBRATES.** (091455) (5 cr; limited to 20 students; prereq course in general biology or equiv, Δ ; 0800-1700 MTh) Gilbertson

R 5834. **FIELD ORNITHOLOGY.** (388939) (5 cr; limited to 15 students; prereq course in general biology or equiv, Δ ; 0800-1700 WS) Warner

SECOND TERM

R 5812. **COMPARATIVE LIMNOLOGY.** (486129) (5 cr; limited to 20 students; prereq 15 cr biology, 5 cr chemistry, Δ ; 0800-1700 TF) Megard.

R 5814. **COMMUNITY STRUCTURE AND FUNCTIONING.** (389945) (5 cr; limited to 20 students; prereq course in ecology, Δ ; 0800-1700 TF) Auerbach

R 5817. **VERTEBRATE ECOLOGY.** (687375) (5 cr; limited to 15 students; prereq course in ecology, #, Δ ; 0800-1700 WS) Tester

R 5832. **NATURAL HISTORY OF VERTEBRATES.** (191454) (5 cr; limited to 20 students; prereq course in general biology; 0800-1700 WS) Lang

Entomology (Ent)

FIRST TERM

R 5020. **FIELD ENTOMOLOGY.** (788940) (5 cr; limited to 15 students; prereq introductory biology; 0800-1700 MTh) Franklin

Fisheries and Wildlife (FW)

FIRST TERM

R 5456. **FIELD ECOLOGY OF FISHES.** (991447) (5 cr; limited to 15 students; prereq course in ecology, Δ ; 0800-1700 TF) Gerking

General College (GC)

FIRST TERM

R 1133. **NATURE STUDY.** (486132) (5 cr; limited to 20 students; prereq Δ ; 0800-1700 TF) Hatch

Plant Pathology (PIPa)

SECOND TERM

R 5102. **FIELD MYCOLOGY.** (791448) (5 cr; limited to 15 students; prereq 6 cr botany; 0800-1700 MTh) Anderson

College of Education

Those expecting to become candidates for the bachelor's or M.Ed. degree should apply for admission as regular students in the College of Education by completing the application form in the Office of Admissions and Records and filing in that office any credentials necessary to support their request for advanced standing. Students interested in specific degree programs are encouraged to immediately contact the Education Student Affairs Office (ESAO), 1425 University Avenue S.E., to learn when students are accepted and the deadline for application for those programs. The *College of Education Bulletin* provides current information about programs and requirements.

Summer session students who do not expect to become candidates for undergraduate or graduate degrees do not need to present credentials (see section on Admission and Registration); they are classified as "summer-only" students. Those wishing to enter the Graduate School should apply for admission to the Graduate School (see Admission section).

For detailed descriptions of courses and curricula in education, see the *College of Education Bulletin*.

Although normally classes are *not* scheduled on the final registration day (June 17), some College of Education short-term workshops *will* meet on that date.

MAIL REGISTRATION

Students registering in the College of Education as M.Ed., adult special, and summer-only students may register by mail. Teachers registering for courses in any department of the University, as well as other students taking professional education courses, should register through the College of Education and thus are entitled to register by mail. Mail registration is not permitted in the Graduate School, for 8xxx courses, or for courses and workshops listed in this bulletin that have special registration instructions.

Qualified students may obtain registration materials from the Summer Session Office, either by telephoning 373-2925 or by sending in the blue request card found at the back of this bulletin. All mail registrations *must be received by May 31* in order to be processed in time for the start of the summer session.

Students who register and then decide not to attend classes must officially cancel their registration in order to avoid being billed. Cancellation before classes begin can be accomplished by telephoning the Registration Clerk at ESAO (612/373-2268). Those who cancel courses after the term begins must submit to ESAO a *Last Day of Attendance* form signed by the instructor of the course(s). *Last Day of Attendance* forms may be obtained at ESAO.

ADVISING SERVICES

The staff of the Education Student Affairs Office will be available during both terms for consultation concerning admission, information about teacher licensure requirements, and placement services. Appointments should be made at ESAO, 1425 University Avenue S.E. (373-1422).

STUDENT PROGRESS SUBCOUNCIL

Undergraduate and master of education students with questions concerning program adjustments and substitutions for required work should consult their adviser or a representative of the Student Progress Subcouncil at ESAO, 1425 University Avenue S.E.

Course Descriptions

GRADUATE CREDIT FOR WORKSHOPS

The amount of graduate credit in workshops that may be applied toward a master's degree program is limited. Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

STUDENT TEACHING

Student teaching during the summer is open *only* to those students completing programs in the College of Education who are regularly approved applicants for student teaching in the prekindergarten program, and to some students in special education. Because of limited facilities, it is *not* possible to offer student teaching to students completing programs at other institutions.

INSTITUTE OF CHILD DEVELOPMENT

Child Psychology (CPsy)

FIRST TERM

- 1301. INTRODUCTORY CHILD PSYCHOLOGY.** (4 cr, §3309, §5301; prereq 5 cr introductory psychology)
Introduction to science of child behavior; review of theories and research. See also Section 2 in ten-week listing. Meets with 3309, section 1.
Sec 1, (288996) 0905-0955 MTWThF, ChDev 218, Azmitia
- 3303. ADOLESCENT PSYCHOLOGY.** (188997) (4 cr, §5303; prereq 5 cr introductory psychology; 0905-0955 MTWThF; ChDev 216) Bergmann, Rosengren
Physical, cognitive, and social development during adolescence. Meets with 5303.
- R 3308. RESEARCH METHODS IN CHILD PSYCHOLOGY.** (290795) (4 cr; limited to 20 students; prereq 1301, Psy 1004; 1010-1100 MTWThF; ChDev 216) Morgan
Techniques used in study of child development; emphasis on collection, organization, and analysis of data.
- 3309. INTRODUCTORY CHILD PSYCHOLOGY FOR THE SOCIAL SCIENCES.** (4 cr, §1301, §5301; prereq Psy 1001)
Science of child behavior; review of theory and research; designed for majors in psychology, sociology, and related disciplines; not suggested for CPsy majors. See also Section 2 in ten-week listing. Meets with 1301, section 1.
Sec 1, (790817) 0905-0955 MTWThF, ChDev 218, Azmitia
- 3311. BEHAVIORAL AND EMOTIONAL PROBLEMS.** (988998) (4 cr, §5311; prereq 1301 or equiv; 0800-0850 MTWThF; ChDev 216) Reed
Description, etiology, development of behavioral and emotional problems of children; treatment where germane. Excluded are problems deriving primarily from sensory or physical handicap, mental retardation, or neurological impairment. Meets with 5311.
- 3331. PROCESSES OF SOCIALIZATION OF CHILDREN.** (788999) (4 cr, §5331; prereq 1301 or equiv; 1115-1205 MTWThF; ChDev 216) Livingston
Processes of social learning; identification, social influence, imitation, reward and punishment, internalization, object choice. Meets with 5331.
- 3980. DIRECTED INSTRUCTION.** (689000) (1-4 cr [max 4 cr]; prereq #: S-N only) Gunnar
Undergraduates serve as teaching assistants in courses they have successfully completed for credit.
- 5303. ADOLESCENT PSYCHOLOGY.** (489001) (4 cr, §3303; prereq 5 cr introductory psychology; 0905-0955 MTWThF; ChDev 216) Bergmann, Rosengren
Physical, cognitive, and social development during adolescence. Meets with 3303.
- 5310. TOPICS IN CHILD PSYCHOLOGY.** (1-4 cr; prereq 1301)
Selected topics in the general content area.
Sec 1, Stress and the Developing Child, (790798) 4 cr, 1010-1100 MTWThF, ChDev 218, Brady, Chalkley
Research and theory of the effects on the child of stressful life events including: divorce, reconstituted marriages, illness, loss, poverty.
Sec 2, The Child in the Social System: Guidance and Discipline, July 9-18 (190801) 2 cr, 1300-1600 TTh, ChDev 216, Galle
Theory and research on developing guidance techniques and practical strategies for dealing with common childhood misbehaviors.

5311. BEHAVIORAL AND EMOTIONAL PROBLEMS. (289002) (4 cr, §3311; prereq 1301 or equiv; 0800-0850 MTWThF; ChDev 216) Reed

Description, etiology, development of behavioral and emotional problems of children; treatment where germane. Excluded are problems deriving primarily from sensory or physical handicap, mental retardation, or neurological impairment. Meets with 3311.

5331. PROCESSES OF SOCIALIZATION OF CHILDREN. (189003) (4 cr, §3331; prereq 1301 or equiv, 1115-1205 MTWThF; ChDev 216) Livingston

Processes of social learning; identification, social influence, imitation, reward and punishment, internalization, object choice. Meets with 3331.

5970. DIRECTED STUDY IN CHILD PSYCHOLOGY. (989004) (Cr ar; prereq #) Gunnar
Independent reading.

5990. DIRECTED RESEARCH IN CHILD PSYCHOLOGY. (789005) (Cr ar; prereq #) Gunnar
Individual empirical investigation.

8970. INDEPENDENT STUDY. (589006) (Cr ar; prereq #) Gunnar
Independent reading.

8990. RESEARCH PROBLEMS. (389007) (Cr ar; prereq #) Gunnar
Individual empirical investigation.

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

1301. INTRODUCTORY CHILD PSYCHOLOGY. (4 cr, §3309, §5301; prereq 5 cr introductory psychology)
See five-week listing First Term. Meets with 3309, section 2.

Sec 2, (286021) 1800-2030 T, BlegH 245, Yonas

3309. INTRODUCTORY CHILD PSYCHOLOGY FOR THE SOCIAL SCIENCES. (4 cr, §1301, §5301; prereq Psy 1001)
See five-week listing First Term. Meets with 1301, Sec 2.

Sec 2, (590818) 1800-2030 T, BlegH 245, Yonas

SECOND TERM

3302. INFANCY. (886029) (4 cr; prereq 1301 or #; 1220-1310 MTWThF; ChDev 216) Mangelsdorf, Palmer
Perceptual, motor, emotional, social, and cognitive development during the first two years of life; the developing infant in its social and physical environment.

3303. ADOLESCENT PSYCHOLOGY. (589992) (4 cr, §5303; prereq 5 cr introductory psychology; 1115-1205 MTWThF; ChDev 216)
See First Term. Meets with 5303.

3313. PSYCHOLOGY OF ATYPICAL CHILDREN. (690826) (4 cr, §5313; prereq 1301 or equiv; 0800-0850 MTWThF; ChDev 216) Brown
Problems of research, assessment, and behavior associated with atypicality; evaluation of research in areas of major concern for sensory, language, intellectual, and physical deviation. Meets with 5313.

3980. DIRECTED INSTRUCTION. (389993) (1-4 cr [max 4 cr]; S-N only; prereq #) Gunnar
See First Term.

5303. ADOLESCENT PSYCHOLOGY. (189994) (4 cr, §3303; prereq 5 cr introductory psychology; 1115-1205 MTWThF; ChDev 216)
See First Term. Meets with 3303.

5310. TOPICS IN CHILD PSYCHOLOGY. (1-4 cr; prereq 1301)
See First Term.

Sec 1, Sadness, Grief and Depression in Childhood and Adolescence, (290828) 4 cr, 1010-1100 MTWThF, ChDev 218, Garber
Theoretical, assessment, and treatment issues surrounding normal and clinical expressions of these negative emotional states from a developmental perspective.

Sec 2, Fostering Intellectual and Emotional Competence in Early Childhood, (290831) 4 cr, 1115-1205 MTWThF, ChDev 218, Fust, Jacobvitz
Analysis and discussion of programs designed to stimulate social and cognitive growth in normal and developmentally delayed infants and toddlers.

5313. PSYCHOLOGY OF ATYPICAL CHILDREN. (590835) (4 cr, §3313; prereq 1301 or equiv; 0800-0850 MTWThF; ChDev 216) Brown
Problems of research, assessment, and behavior associated with atypicality; evaluation of research in areas of major concern for sensory, language, intellectual, and physical deviation. Meets with 3313.

5315. INTRODUCTION TO MENTAL RETARDATION. (987396) (4 cr, §EPsy 5620, §PsyS 5120; prereq 1301 or equiv; 1010-1100 MTWThF; ChDev 216) Turnure
Psychological and educational problems related to the mentally retarded. Meets with EPsy 5620.

Course Descriptions

5319. CLINICAL PROCEDURES WITH CHILDREN AND YOUTH. (686033) (4 cr; prereq 12 cr in psychology, educational psychology, sociology, or child psychology; 0905-0955 MTWThF; ChDev 216) Gross
Assessment and intervention procedures of clinical child psychology in clinical and community settings. Primarily for students not majoring in clinical psychology.

5349. CHILDREN'S LEARNING AND INTELLECTUAL SKILLS. (190837) (4 cr, §3347; prereq 1301, 3343, or #: 0905-0955 MTWThF; ChDev 105) Merriman
Current research on learning, problem solving, intellectual performance in children: practical applications.

5970. DIRECTED STUDY IN CHILD PSYCHOLOGY. (089995) (Cr ar; prereq #) Gunnar
See First Term.

5990. DIRECTED RESEARCH IN CHILD PSYCHOLOGY. (889996) (Cr ar; prereq #) Gunnar
See First Term.

8970. INDEPENDENT STUDY. (689997) (Cr ar; prereq #) Gunnar
See First Term.

8990. RESEARCH PROBLEMS. (489998) (Cr ar; prereq #) Gunnar
See First Term.

DEPARTMENT OF CURRICULUM AND INSTRUCTION

Art Education (ArEd)

FIRST TERM

3001. SURVEY OF ART ACTIVITIES. (189008) (4 cr; not open to art education majors; 0830-1100 MTWTh; WullH 220; A-N only) Slettehaugh
Introduction to pictorial expression, design, and the function of art in the school environment.

R 5001. ART MEDIA TECHNIQUES: Art Experiences for Learning Disabled Children. (089009) (1-12 cr [max 12 cr]; limited to 30 students; 0900-1100 MTWTh; WullH 240; A-N only) Russell
Lectures, demonstrations, discussions, critique sessions exploring techniques and processes in creativity; handling specific media; each offering focuses on a single topic. This 3-credit offering will provide curricular interventions through art-related experiences.

R 5020. ADVANCED CONTEMPORARY CRAFTS. (185993) (4 cr; prereq 3020 or #: limited to 25 students; 1220-1520 MTWThF; WullH 110, 120; A-N only) Russell
In-depth experiences in a variety of craft techniques, including ceramics, fibers, jewelry, and metal design with emphasis on design analysis, understanding of materials, and mastery of processes.

R 5389. APPLICATION OF AESTHETIC THEORY IN EDUCATION—June 18-July 3. (290778) (3 cr; limited to 30 students; 0800-0955 MTWThF; WullH 110; A-N only) DiBlasio
Contemporary theories of art; their psychological and philosophical foundations. Open to teachers, supervisors, and administrators concerned with art in general education at all levels.

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

Sec 21, (389010) Slettehaugh

Sec 23, (490780) DiBlasio

Sec 22, (189011) Russell

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

Sec 21, (089012) Slettehaugh

Sec 23, (190779) DiBlasio

Sec 22, (889013) Russell

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

Sec 21, (689014) Slettehaugh

Sec 22, (489015) DiBlasio

SECOND TERM

R 5001. ART MEDIA TECHNIQUES: Using New Technologies in Teaching Art—August 1-16. (786637) (1-12 cr [max 12 cr]; limited to 30 students; 0830-1100 MTWThF; WullH 240; A-N only) DiBlasio
See First Term. This 3-credit offering will survey computer software, video cassettes and discs, and computerized art slide projects for teaching art.

5605. PRACTICUM. (290781) (3-9 cr; prereq #; A-N only) DiBlasio
See First Term.

5900. PROFESSIONAL PROBLEMS. (190782) (3 cr; prereq MEd student; #; hrs ar; A-N only) DiBlasio
See First Term.

8900. PROBLEMS: ART EDUCATION. (990783) (Cr ar; prereq #; hrs ar) DiBlasio
See First Term.

Curriculum and Instructional Systems (CISy)

FIRST TERM

R 5003. EDUCATIONAL TECHNOLOGY: COMPUTERS IN THE CLASSROOM—June 19-July 10. (289016) (1 cr, §SeEd 5003, §SeEd 5102; limited to 30 students; 1115-1205 MW; PeikH 355; A-N only) Willie
Introduction to the use of computer technology in instruction; self-instructional, computer-managed module.

R 5201. SYSTEMS APPROACH TO DESIGN OF INSTRUCTION. (090855) (3 cr, §SeEd 5201; limited to 30 students; prereq 5000 or SeEd 5000 or #; 1010-1205 TTh; EdHAN 64; A-N only) R Tennyson
Instructional materials design in accordance with systems principles, including design of a specific unit of courseware.

R 5205. APPLICATIONS OF COMPUTERS IN EDUCATION. (186103) (3 cr, §SeEd 5205; limited to 30 students; prereq 5003 or SeEd 5003; 1220-1400 TTh; EdHAN 64; A-N only) R Tennyson
Computer uses in education and training; instructional applications: simulation, tutorial, counseling, testing, instructional management, modeling, and information retrieval (including data base inquiry). Computer-managed course includes criteria for selection, evaluation, and examination of on-line examples.

R 5206. MICROCOMPUTER USES IN ELEMENTARY CLASSROOMS. (687408) (3 cr, §Elem 5140; limited to 5 students; 1325-1630 MWF; PeikH 355; A-N only) Stochl
Uses of microcomputers to enhance instruction; applications in language arts, mathematics, science, social studies; evaluation of available programs. Meets with Elem 5140.

5509. DIRECTED INDIVIDUAL STUDY. (1-6 [max 6 cr]; prereq Δ; A-N only)
Review of literature in research and theory of instructional systems.

Sec 21, (989018) R Tennyson

Sec 22, (789019) Kimpston

5600. INTRODUCTION TO CURRICULUM SYSTEMS. (987401) (3 cr; 1010-1100 MTWThF; PeikH 225; A-N only) Kimpston
Exploration of forces influencing goals and curriculum planning, trends and issues, traditional and emergent curricular designs, current proposals for change; a model for curriculum planning.

5605. PRINCIPLES AND PROCEDURES IN DESIGNING CURRICULUM—June 18-July 5. (787402) (3 cr, §SeEd 5114; 1325-1520 MTWThF; PeikH 225; A-N only) Kimpston
Systematic curriculum planning; students develop models for planning, formulate plans, outline a curriculum design for an educational setting.

8501. PROBLEMS: INSTRUCTIONAL SYSTEMS. (Cr ar; prereq Δ)
Individual empirical investigation.

Sec 21, (189020) R Tennyson

Sec 22, (989021) Kimpston

8700. CURRICULUM AND INSTRUCTIONAL SYSTEMS FIELD EXPERIENCE. (887407) (3-6 cr [max 6 cr]; prereq #; hrs ar) Kimpston
Internship experience in an educational setting; planning, implementing, and supervising curriculum or instructional change.

SECOND TERM

R 5003. EDUCATIONAL TECHNOLOGY: COMPUTERS IN THE CLASSROOM. (289999) (1 cr, §SeEd 5003 or 5102; limited to 30 students; 0905-0955 TTh; PeikH 355; A-N only) R Tennyson
See First Term.

R 5006. EDUCATIONAL TECHNOLOGY: INSTRUCTIONAL COMPUTER PROGRAMMING. (487409) (1 cr; limited to 30 students; 1430-1520 TTh; PeikH 355; A-N only) R Tennyson
See First Term.

5209. PRINCIPLES AND PROCEDURES IN DESIGNING INSTRUCTION. (086112) (4 cr; prereq 5000; 1010-1310 TTh; EdHAN 64; A-N only) R Tennyson
Major models of instructional development; generic components; design models; review of instructional design and learning environments.

5509. DIRECTED INDIVIDUAL STUDY. (086109) (1-6 cr [max 6 cr]; prereq Δ; A-N only) R Tennyson
See First Term.

8501. PROBLEMS: INSTRUCTIONAL SYSTEMS. (386110) (Cr ar; prereq Δ) R Tennyson
See First Term.

Course Descriptions

Education: Adult and Teacher (Educ)

International Study Tours—See Special Programs section for information on special tours for credit registration sponsored by the College of Education and the Global Education Center.

FIRST TERM

5103. ADULT EDUCATION WORKSHOP: Community Education Institute: Program Models for Early Childhood and Family Education—July 8-19. (091570) (1-12 cr [max 12 cr]; prereq practicing adult educator or #; 1300-1600 MTWThF; ClaOff B45, B30, B36, B42; A-N only) Bruning

Specialists will develop the theme in a framework of relevant concepts and clinical experiences. General and clinic sessions, idea exchange periods, site visitation, and faculty consultations. This 3-credit offering meets jointly with EdAd 5203. See Special Programs section.

5104. SURVEY OF ADULT EDUCATION—June 19-July 12. (390724) (3 cr; prereq sr: 1010-1205 MWF; PeikH 315; A-N only) Copeland

General concepts in the field; literature, objectives, history, philosophy, research, institutions, issues, and problems.

5205. FIELD EXPERIENCES IN ADULT EDUCATION. (4-8 cr [max 8 cr]; prereq #: A-N only)

Sec 21, (387385) Copeland

Sec 23, (190725) Willie

Sec 22, (187386) Williams

Sec 24, (090726) Bruning

5401. ADULT LEARNING AND DEVELOPMENT THROUGH THE LIFE SPAN—June 18-July 11. (890727) (3 cr; 1815-2115 TTh; PeikH 25; A-N 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 19-July 12. (087390) (3 cr; 0800-0955 MWF; PeikH 27; A-N only) Willie

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

5601. INTERNATIONAL EDUCATION: TOPICS IN CLASSROOM PRACTICES AND PROCEDURES—July 1-7. (690728) (1-12 cr [max 12 cr]; prereq tchg license and #: University of York, England; A-N only) Cogan

Educational practices in a designated country, region, or cultural group; impact of social and cultural features; organization, school structures, classroom practices, and delivery of educational services; potential for implementation in the United States. This 3-credit offering will focus on modern Britain in a changing world. See Special Programs section.

8284. PROBLEMS: TEACHER EDUCATION. (3-9 cr; prereq #)

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

Sec 21, (891666) Willie

Sec 22, (691667) Bruning

8302. PROBLEMS: ADULT EDUCATION. (3-9 cr; prereq #)

Individual research in area of adult education.

Sec 21, (887388) Copeland

Sec 23, (890730) Willie

Sec 22, (687389) Williams

Sec 24, (690731) Bruning

SECOND TERM

5204. READING IN WORK SETTINGS—July 23-August 15. (388276) (3 cr, §VoEd 5204; 1500-1800 TTh; PeikH 225; A-N only) Park

Overview of concepts involved in integrating reading instruction into vocational training programs and work settings; diagnosis and methods of assessing needs of vocational students and workers on a job, and techniques for building needs into training programs.

5205. FIELD EXPERIENCES IN ADULT EDUCATION. (4-8 cr [max 8 cr]; prereq #: A-N only)

Sec 21, (190000) Park

Sec 22, (090001) Copeland

5301. DESIGNING THE ADULT EDUCATION PROGRAM—July 22-August 14. (490732) (3 cr; 1500-1800 MW; PeikH 25; A-N only) Copeland

Designing and implementing educational programs for adults; exploring concepts, theories; determining needs, educational objectives, learning experiences; and evaluating outcomes.

5601. INTERNATIONAL EDUCATION: TOPICS IN CLASSROOM PRACTICES AND PROCEDURES. (1-12 cr [max 12 cr]; prereq tchg license and #)

Sec 1, (191625) Study Tour of the USSR, July 5-31, Braun

See Special Programs section.

Sec 2, (991626) Eastern Europe Study Tour, July 30-August 14, Lewis

See Special Programs section.

8302. PROBLEMS: ADULT EDUCATION. (3-9 cr; prereq #)

See First Term.

Sec 21, (890002) Park

Sec 22, (690003) Copeland

Elementary Education (Elem)

FIRST TERM

3604.¹ STUDENT TEACHING IN THE NURSERY SCHOOL. (389024) (3-6 cr; S-N only; prereq approval of major adviser and director of student tchg; hrs ar) Weigand

R 5100. ELEMENTARY SCHOOL CURRICULUM—July 5-19. (189025) (3 cr; limited to 35 students; prereq 3101; 1115-1310 MTWThF; PiH 214; A-N only) Lambert

R 5140. MICROCOMPUTER USES IN ELEMENTARY CLASSROOMS. (587420) (3 cr; limited to 25 students; \$CISy 5206; 1325-1630 MWF; PeikH 355; A-N only) Stochl
Uses of microcomputers to enhance instruction; applications in language arts, mathematics, science, social studies; evaluation of available programs. Meets with CISy 5206.

R 5145. CLASSROOM MANAGEMENT. (588017) (3 cr; \$SeEd 5145; limited to 40 students; prereq tchg or admin exper or #; 0800-0850 MTWThF; PeikH 40; A-N only) H Hansen

For teachers, administrators, and support staff working in elementary school programs. Focus on management of student behavior, of instruction as it relates to student behavior, and of teacher organizational tasks within the classroom.

5300. LITERATURE FOR THE ELEMENTARY SCHOOL. (089026) (3 cr; 0905-0955 MTWThF; BuH 120; A-N only) Odland

R 5316. TEACHING AND SUPERVISION OF ENGLISH IN THE ELEMENTARY SCHOOLS—July 5-19. (187419) (3 cr; limited to 40 students; prereq 3316 or elem tchg exper; 1010-1205 MTWThF; PeikH 40; A-N only) Dykstra
Improvement of instruction; study of trends in English education.

R 5318. CREATIVE WRITING FOR AND BY CHILDREN—June 18-July 3. (889027) (3-6 cr [max 6 cr]; limited to 60 students; prereq 3300 or 3316 or elem tchg exper or #; 1010-1205 MTWThF; BuH 120; S-N only) Odland, Monson
Language arts in the elementary school for experienced teachers, supervisors, graduate students, and college instructors; emphasis on creative aspects of writing of children's literature and the children's own writing. Authors and illustrators of children's books will be involved in this 3-credit offering. See Special Programs section.

5319. TEACHING SECOND LANGUAGES AND CULTURES IN ELEMENTARY SCHOOLS—June 17-July 5. (190983) (3 cr; 1430-1625 MTWThF; PeikH 215; A-N 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.

R 5330. COMPUTER-ASSISTED INSTRUCTION IN READING AND LANGUAGE ARTS FOR ELEMENTARY SCHOOL STUDENTS—June 18-July 11. (090984) (3 cr; prereq education major or elementary or secondary school tchg exper or #; limited to 30 students; 0800-0955 MTWTh; PeikH 355; A-N only) Schreiner
Developing, evaluating, and using materials to present reading and language arts content to elementary age students; interface of theoretical issues with instructional techniques presented on computers.

5336. CLINICAL PRACTICE IN REMEDIAL TEACHING. (488477) (3 cr; prereq 5334 or 5107 and #; 0800-0955 MTWTh; Lincoln Elementary School, 2131 12th Ave. No., Minneapolis; A-N only) Taylor
Remedial tutoring of individual children who have difficulty in school learning.

5338. TEACHING READING IN THE INTERMEDIATE GRADES—July 3-19. (286200) (3 cr; prereq 3331 and #; 1010-1205 MTWThF; PeikH 165; A-N only) Taylor

For teachers and specialists interested in problems of teaching reading beyond the decoding stages; comprehension strategies, basic study skills, and reading in the content areas.

5361. TEACHING SOCIAL STUDIES IN THE ELEMENTARY SCHOOL—July 3-19. (890985) (3 cr; prereq 3101 or equiv; 1115-1310 MTWThF; PeikH 48; A-N only) Ellis

Content and organization of social studies programs; programs for understanding, improving the learning situation; and effective use of materials.

R 5363.² WORKSHOP: CURRICULUM IMPLEMENTATION IN ELEMENTARY SCHOOL SOCIAL STUDIES. (Cr ar [max 9 cr]; section 1 limited to 20 students, section 2 limited to 30 students; prereq elementary tchg exper and #; A-N only)
Analysis of new instructional materials and recent curriculum developments in the field; training in innovative instructional procedures.

Sec 1, Global Education, June 18-28. (690986) 3 cr, 1300-1700 MTWThF, Central Community Center, 6300 Walker St., St. Louis Park, MN, Cogan

Features selection of appropriate units of lessons and development of specialized global education materials appropriate to teaching situations K through 12, and economic consequences of governmental decisions on a global scale. A limited number of partial tuition scholarships will be available to in-service teachers who meet specified criteria. Contact Professor John Cogan 152A Peik Hall, 159 Pillsbury Drive S.E., Minneapolis, MN 55455 (373-5629). Advanced application required; deadline is June 1, 1985. Meets with SeEd 5153.

Sec 2, Geographic Inquiry for Elementary and Middle School Teachers, July 3-19. (490987) 3 cr, 1330-1600 MTWThF, PeikH 48, Ellis

Emphasis on content, concepts, and skills of geography in the school curriculum. Participants will learn about and use the tools of geographic inquiry including mapping, problem solving, and planning. For teachers K through middle school.

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.

²Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Course Descriptions

5376. CURRENT TRENDS IN EARLY CHILDHOOD EDUCATION. (489029) (3 cr; prereq tchg exper in kindergarten or primary school or #: 0905-0955 MTWThF; PeikH 48; A-N only) H 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, (889030) Lambert	Sec 27, (589037) Schreiner
Sec 22, (489032) Stochl	Sec 28, (389038) Taylor
Sec 23, (289033) H Hansen	Sec 29, (986586) Ellis
Sec 24, (189034) Odland	Sec 30, (290988) Post
Sec 25, (989035) Dykstra	Sec 31, (491623) Cogan
Sec 26, (789036) Monson	

8300. RESEARCH IN SPECIAL COLLECTIONS OF CHILDREN'S LITERATURE. (189039) (1-3 cr [max 6 cr]; 1325-1520 TTh; BuH 125) Odland

This offering for 3 credits will provide comparative study of national and international special collections of original manuscripts, artwork, first editions, and other bases for collection of children's books; research in University Libraries Special Collections or other accessible collections.

8916. PROBLEMS: TEACHING ENGLISH. (Cr and hrs ar; prereq #)

Sec 21 (587417) Dykstra	Sec 22, (387418) Monson
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8931. PROBLEMS: TEACHING READING. (Cr and hrs ar; prereq 5331 or SeEd 5344 and #)

Sec 21, (589040) Odland	Sec 23, (990993) Taylor
Sec 22, (389041) Dykstra	

8961. PROBLEMS: TEACHING SOCIAL STUDIES. (Cr and hrs ar; prereq 5361 or SeEd 5155 or 8104, and #)

Sec 21, (790980) Ellis	Sec 22, (490990) Cogan
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8976. PROBLEMS: TEACHING KINDERGARTEN. (189042) (3 cr; prereq #: hrs ar) H Hansen

8991. PROBLEMS: IMPROVEMENT OF INSTRUCTION. (Cr and hrs ar; prereq #)

Sec 21, (089043) Lambert	Sec 27, (189051) Schreiner
Sec 22, (489046) Stochl	Sec 28, (989052) Taylor
Sec 23, (289047) H Hansen	Sec 29, (786587) Ellis
Sec 24, (189048) Odland	Sec 30, (290991) Post
Sec 25, (989049) Dykstra	Sec 31, (291624) Cogan
Sec 26, (289050) Monson	

SECOND TERM

5107. DIAGNOSIS AND TREATMENT OF LEARNING DIFFICULTIES—July 22-August 1. (490004) (3 cr; 0800-0955 MTWTh; PeikH 46; A-N only) Park

5316. TEACHING AND SUPERVISION OF ENGLISH IN THE ELEMENTARY SCHOOL. (3 cr; prereq 3316 or elem tchg exper; A-N only) Monson

See First Term. Students will register in class the first day.

Sec 1, July 22-August 9, (691006), 0910-1105 MTWThF, University of Minnesota, Morris campus
Sec 2, July 22-August 9, (491007), 1210-1405 MTWThF, University of Minnesota, Morris campus

5331. TEACHING AND SUPERVISION OF READING IN THE ELEMENTARY SCHOOL—July 22-August 7. (291008) (3 cr; prereq 9 cr in education; 1010-1205 MTWThF; PeikH 40; A-N only) Dykstra

Objectives, materials, and teaching procedures; current practices and curricula; class and individual projects; observation of reading techniques and material in the demonstration school.

5334. READING DIFFICULTIES—July 22-August 2. (290005) (3 cr; prereq 5331 or SeEd 5344; 1015-1205 MTWThF; PeikH 48; A-N only) Manning

5350. ELEMENTARY SCHOOL SCIENCE: MATERIALS AND RESOURCES—July 22-August 9. (087423) (3 cr; prereq 5349; 1010-1205 MTWThF; PeikH 385; A-N only) Knoll

Experiences in the use of educational materials and media common to the teaching of modern elementary school science.

5602. PRACTICUM: IMPROVEMENT OF TEACHING. (3 cr; prereq MEd student in elem education, #: S-N only; hrs ar)

Sec 21, (190006) Lambert	Sec 25, (990010) Jackson
Sec 22, (990007) Monson	Sec 26, (086675) Schreiner
Sec 23, (790008) Dykstra	Sec 27, (891019) Ellis
Sec 24, (590009) Manning	

8916. PROBLEMS: TEACHING ENGLISH. (Cr and hrs ar; prereq #) Dykstra

Sec 21, (391002) Monson	Sec 23, (891022) Manning
Sec 22, (191020) Dykstra	

8931. PROBLEMS: TEACHING READING. (191003) (Cr and hrs ar; prereq 5331 or SeEd 5344 and #) Schreiner

8961. PROBLEMS: TEACHING SOCIAL STUDIES. (591550) (Cr and hrs ar; prereq 5361 or SeEd 5155 or 8104, and #) Ellis

8991. PROBLEMS: IMPROVEMENT OF INSTRUCTION. (Cr and hrs ar; prereq #)
 Sec 21, (790011) Lambert
 Sec 22, (590012) Monson
 Sec 23, (390013) Dykstra
 Sec 24, (190014) Manning
 Sec 25, (090015) Jackson
 Sec 26, (186674) Schreiner
 Sec 27, (691023) Ellis

Mathematics Education (MthE)

FIRST TERM

5081. TEACHING SECONDARY SCHOOL ARITHMETIC. (891098) (2 cr; prereq mathematics education major or minor, Math 5081 or 15081 or #: 1010-1100 MWF; PeiKH 375; A-N only) Bledsoe
 Survey of concepts, principles, and processes of the secondary school pre-algebra curriculum; learning difficulties, teaching strategies and alternatives; mathematical foundations of pre-algebra topics.

R 5101.¹ WORKSHOP: ELEMENTARY SCHOOL MATHEMATICS. (691099) (1-12 cr [max 12 cr]; prereq #: not open to mathematics education majors; limited to 30 students; 0800-0955 MWF; PeiKH 385; A-N only) Stochl
 Modern trends, methods, and materials used to convey mathematical ideas. This offering for 3 credits.

R 5102.¹ WORKSHOP: MATHEMATICS EDUCATION. (1-12 cr [max 12 cr]; each section limited to 30 students)
 Issues, materials, and instructional techniques, focusing on a single current topic of particular relevance to secondary school and college mathematics teachers. Please call Professor Post, 612/373-5261, for location of each section to be held in a Minneapolis public school.

Sec 1, Improving Computational Skills in the Elementary School, June 17-21. (589054) 1 cr, 1300-1500 MTWThF, off campus, Post

Proven strategies for improving conceptual understanding and skill development in addition, subtraction, multiplication, and division. Emphasis based on participants' needs.

Sec 2, Rational Number Concepts and Proportional Reasoning Skills, June 24-July 5. (986829) 2 cr, 1300-1500 MTWThF, off campus, Post

Focus on practical and theoretical aspects of effective rational number instruction; various subcomponents of rational number (part whole, ratio, decimal, measure, and operator); suggestions for lesson planning presentation, follow-up, and evaluation.

Sec 3, Descriptive Geometry and Measurement, July 8-19. (286830) 3 cr, 1300-1600 MTWThF, off campus, Bledsoe

For intermediate and middle school students; instructional approaches and physical materials relating to the teaching of informal and intuitive geometric concepts.

5312. TEACHING AND SUPERVISION OF MATHEMATICS IN THE SECONDARY SCHOOL. (391100) (3 cr; prereq mathematics tchg exper or #: 0800-0850 MTWThF; PeiKH 375; A-N only) House

Methods, materials, and curriculum development; principles of learning; review of research; preparation and evaluation of test, units, and materials of instruction.

R 5366. COMPUTER-ASSISTED MATHEMATICS INSTRUCTION. (186240) (3 cr; limited to 30 students; prereq 5312 or SeEd 3365, SeEd 3366 or CIsy 5006, one year of calculus or #: 1115-1310 MTWThF; PeiKH 355; A-N only) House
 Role of the computer in a mathematics department; its contribution to learning concepts, problem solving, and computational skill; consideration of various types of equipment and languages, programming of problems, instructional materials.

5680. PRACTICUM IN MATHEMATICS EDUCATION. (3-9 cr [max 9 cr]; prereq #: A-N only)
 Supervised experience in teaching or related work in school.

Sec 21, (189065) Stochl
 Sec 22, (989066) House
 Sec 23, (789067) Post

5980. DIRECTED STUDIES IN MATHEMATICS EDUCATION. (3-9 cr [max 9 cr]; prereq #: A-N only)
 Survey of recent literature; design and preparation of reports on special problems.

Sec 21, (988323) Stochl
 Sec 22, (788324) House
 Sec 23, (588325) Post

8680. INTERNSHIP: MATHEMATICS EDUCATION. (Cr ar)

Participation in supervision, instruction, curriculum development, or research to gain in-service experience in a leadership role; includes a seminar, related project; required for the specialist certificate in mathematics education.

Sec 21, (188319) Stochl
 Sec 22, (488320) House
 Sec 23, (288321) Post

8980. PROBLEMS: MATHEMATICS EDUCATION. (Cr ar; prereq 8500 or 8570)

Sec 21, (589068) Stochl
 Sec 22, (389069) House
 Sec 23, (789070) Post

¹Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Course Descriptions

SECOND TERM

5355. MATHEMATICS FOR SLOW LEARNING CHILDREN—July 22-August 9. (191101) (3 cr; prereq 5311 or Elem 3391 or #; limited to 35 students; 0800-0955 MWF; PeikH 375; A-N only) Jackson
Units of instruction emphasizing mathematical concepts essential for vocational competence; experimental materials and methods designed to improve performance of low achievers.

5680. PRACTICUM IN MATHEMATICS EDUCATION. (187526) (3-9 cr [max 9 cr]; prereq #; A-N only) Jackson
See First Term.

5980. DIRECTED STUDIES IN MATHEMATICS EDUCATION. (987527) (3-9 cr [max 9 cr]; prereq #; A-N only) Jackson
See First Term.

8680. INTERNSHIP: MATHEMATICS EDUCATION. (787528) (Cr ar) Jackson
See First Term.

9980. PROBLEMS: MATHEMATICS EDUCATION. (587529) (Cr ar; prereq 8500 or 8570) Jackson

Secondary Education (SeEd)

FIRST TERM

3600.¹ STUDENT TEACHING. (589071) (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-N only)
Opportunity to work individually or in teams on curricular, instructional, or evaluation problems within the school.
Sec 21. (091200) Glenn Sec 22. (191213) Mackey

5153. NEW PERSPECTIVES IN THE SOCIAL STUDIES: Global Education—June 18-28. (198073) (1-3 cr [max 12 cr]; limited to 20 students; 1300-1700 MTWThF; Central Community Center, 6300 Walker Street, St. Louis Park, MN; A-N only) Cogan

Issues, materials, and techniques related to topics of particular relevance to social studies teachers. This 3-credit offering features selection of appropriate units of lessons and development of specialized global education materials appropriate to teaching situations K-12, and economic consequences of governmental decisions on a global scale. A limited number of partial tuition scholarships will be available to in-service teachers who meet specified criteria. Contact Professor John Cogan, 152A Peik Hall, 159 Pillsbury Drive S.E., Minneapolis, MN 55455 (612/373-5629). Advanced application required; deadline is June 1, 1985. Meets with Elem 5363 section 1. See Special Programs section.

5167. ECONOMIC EDUCATION PROGRAMS—July 3-19. (091214) (1-3 cr; prereq Econ 1002 or equiv or #; limited to 30 students; 0800-1200 MTWThF; Mgmt/Econ 1168, and off-campus; A-N only) Dalgaard

Conceptual framework of economic education through analyzing research, objectives, philosophy, scope, and curricular sequence. This 3-credit course is offered in conjunction with Minnesota Business Venture. Students will prepare an action plan, work with high school students and staff from the Center for Economic Education, and prepare an economics unit based on the computer simulation employed during the course. Meets on the University campus July 3-6 and 16-19 in Mgmt/Econ 1168, and at St. Olaf College, Northfield, MN, from July 7-15. A limited number of tuition scholarships will be available to in-service teachers who meet specified criteria, with preference given to economics teachers. For information contact Bruce Dalgaard, Center for Economic Education, 1169 Management and Economics Building, 271 19th Avenue South, Minneapolis, MN 55455 (373-4469). Advance application required; deadline date is June 1, 1985.

5185. SCHOOL AND PROFESSIONAL BASED EXPERIENCES IN SECOND LANGUAGES AND CULTURES. (1-12 cr [max 12 cr]; prereq MEd students only; A-N only)

Opportunity for teachers to work together on curricular, instructional, or evaluation problems; internship experiences; participation in professional activities.

Sec 21. (086286) Lange

Sec 22. (386298) Jorstad

5191² WORKSHOP: TEACHING OF SECOND LANGUAGES AND CULTURES: Proficiency Evaluation/Curriculum Development—June 17-July 5. (586784) (1-10 cr [max 10 cr]; 1230-1730 MTWThF; PeikH 46; A-N only) Lange

Related specifically to the needs of the in-service teacher; this 6-credit workshop will develop awareness of techniques and strategies for the evaluation of oral proficiency through an oral interview in relation to the ACTFL Proficiency Guidelines. Procedures for the evaluation of proficiency in listening, reading, and writing. Implications of proficiency evaluation for the development of curriculum in second language programs.

5227. TEACHING ABOUT THE NEWSPAPER IN THE CLASSROOM—June 18-July 2. (286522) (1-3 cr [max 4 cr], \S Elem 5227; limited to 40 students; 1220-1520 MTWThF; PeikH 165; A-N only) Mackey

The institution of the newspaper; articulation of a series of useful instructional strategies, curriculum development techniques, and teaching materials. This offering for 3 credits.

¹ Student 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.

² Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

5351. DIRECTED STUDY. (Cr ar [max 6 cr]; prereq education or graduate student; S-N optional)

Sec 21, (886287) Lange
Sec 22, (186439) Jorstad

Sec. 23, (586297) Gennaro

5382. SECOND LANGUAGE TESTING, ASSESSMENT, AND EVALUATION—June 17-July 5. (891215) (3 cr; 1220-1415 MTWThF; PeikH 215; A-N only) Jorstad

Language proficiency assessment, English as a second language, bilingual education; oral interviews, testing communicative abilities; standardized language measures; building test items; evaluating programs; aptitude and attitude measurement.

R 5394.¹ WORKSHOP: SCIENCE EDUCATION. (1-12 cr [max 12 cr]; each section limited to 30 students; A-N only) Gennaro

Analysis of issues, materials, and instructional techniques related to current topics of relevance to secondary school and college science teachers.

Sec 1. Development of Curricular Materials for the Minnesota Science Museum—June 18-28. (889075) 3 cr, 0800-1200 MTWThF, Science Museum of Minnesota, 10th and Wabasha Street, St. Paul, MN

Familiarizes teachers with the Science Museum, its curators, its educational opportunities, and allows teachers to design curricular materials for visiting school groups; includes speakers, hands-on experience, and field trips into the Museum and behind-the-scene tours. *First class session will meet in PeikH 365.*

Sec 2. Environmental Education for Teachers—July 1-12. (689076) 3 cr, 0905-1205 MTWThF, PeikH 365

Techniques useful in integrating environmental education into the junior and senior high school science curriculum; introduction to educational materials dealing with hazardous wastes and water pollution problems, acid rain and air pollution, peat bog and energy questions, and Project Wildlife; includes speakers, hands-on experience, and field trips.

5395. SCHOOL BASED PROJECTS IN SCIENCE EDUCATION. (489077) (1-12 cr [max 12 cr]; prereq MEd student in science education; A-N only) Gennaro

Individual or group work on curricular, instructional, or evaluation problems and projects applicable to school situations.

5404. LANGUAGE, CULTURE, AND EDUCATION. (687585) (4 cr, §Spch 5404; 0905-0955 MTWThF; PeikH 46; A-N only) Piché

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.

5504. THEORETICAL AND RESEARCH BASES FOR THE TEACHING OF WRITING. (691216) (4 cr; prereq postbaccalaureate, MEd, or graduate student; 1115-1205 MTWThF; PeikH 46; A-N only) Piché

Emerging multidisciplinary perspectives on writing and the teaching of writing, with particular attention to text-grammatical and cognitive science contributions.

5659. SCHOOL-RELATED PROJECTS IN LANGUAGE ARTS. (391209) (1-12 cr [max 12 cr]; A-N only; prereq MEd student in English education) Piché

Individual or group work on curricular, instructional, or evaluation problems and projects applicable to school situations.

8801. PROBLEMS: TEACHING SOCIAL STUDIES. (3-9 cr; prereq 5150, 5152, 5156, 8104 or #; hrs ar) Mackey

Individual research.

Sec 21, (791210) Glenn

Sec 22, (491217) Mackey

8871. PROBLEMS: CURRICULUM CONSTRUCTION. (289078) (Cr and hrs ar; prereq #) Gennaro

8894. PROBLEMS: SECOND LANGUAGES AND CULTURES EDUCATION. (Cr ar [max 8 cr])

Individual research.

Sec 21, (886290) Lange

Sec 22, (186299) Jorstad

8895. READINGS IN ENGLISH EDUCATION. (591211) (1-3 cr) Piché

Readings in secondary school English curriculum and instruction.

8896. PROBLEMS: TEACHING ENGLISH. (391212) (Cr and hrs ar) Piché

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, (686291) Lange

Sec 22, (986300) Jorstad

SECOND TERM

5151. SCHOOL-BASED PROJECTS IN SOCIAL STUDIES EDUCATION. (1-12 cr [max 12 cr]; A-N only) Glenn
See First Term.

Sec 21, (291221) Mackey

Sec 22, (891229) Glenn

R 5153. NEW PERSPECTIVES IN THE SOCIAL STUDIES: Using the Computer in the Social Studies Classroom—July 22-August 7. (290019) (1-3 cr [max 12 cr]; limited to 30 students; 1325-1520 MTWThF; PeikH 355; A-N only) Glenn
See First Term. This offering for 3 credits.

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Course Descriptions

5185. SCHOOL AND PROFESSIONAL BASED EXPERIENCES IN SECOND LANGUAGES AND CULTURES. (1-12 cr [max 12 cr]; prereq MEd students only; A-N only)
See First Term.

Sec 21, (686453) Lange

Sec 22, (486454) Walker

5191¹. WORKSHOP: TEACHING OF SECOND LANGUAGES AND CULTURES: Computers in the Second Language Classroom—August 5-16. (286312) (1-10 cr [max 10 cr]; limited to 30 students; 1325-1520 MTWThF; Jackson Junior High School, 6000 109 Ave. N., Champlin, MN; A-N only) Lange

See First Term. This 3-credit offering will explore use of the computer in the context of language learning in bilingual education (in English as a Second Language, and in French, German, Spanish); use and evaluation of software in a language curriculum; future needs and directions in use of computer with other technology in education; for teachers of all levels and languages.

5218. ASSESSMENT OF LEARNERS WITH LIMITED ENGLISH PROFICIENCY—July 22-August 2. (986314) (4 cr; 1430-1605 MTWThF; PeikH 215; A-N only) Walker

Social, political, and educational context of assessment of students with limited English proficiency; evaluation vs. research and implications for bilingual schooling, curriculum development, and materials selection; existing methods for assessment of language proficiency and academic achievement.

5219. TEACHING READING TO SECOND LANGUAGE LEARNERS—July 22-August 2. (691233) (4 cr; 1200-1400 MTWThF; PeikH 215; A-N only) Walker

Nature of reading process in second language; relationship between first and second languages and implications for reading; comprehension development; skill building; assessment of second language reading; materials and resources for different languages at different levels.

5227. TEACHING ABOUT THE NEWSPAPER IN THE CLASSROOM. (1-3 cr [max 4 cr], §Elem 5227) Mackey

See First Term.

Sec 1, August 8-9, (191230) 1 cr, August 8 1700-2100, August 9 0900-1500, Cambridge Sr. High School, 430 NW 8th Ave. Cambridge, MN

Sec 2, August 13-14, (091231) 1 cr, August 13 1700-2100, August 14 0900-1500, Friedell Building, 1200 S. Broadway, Rochester, MN

Sec 3, August 15-16, (891232) 1 cr, August 15 1700-2100, August 16 0900-1500, Holiday Inn, 2306 E. Main St., Albert Lea, MN

5322. TEACHING COMPOSITION AND COMMUNICATION IN JUNIOR AND SENIOR HIGH SCHOOLS—July 22-August 16. (286455) (3 cr; 0905-1015 MTWThF; PeikH 40; A-N only) Beach

Contemporary directions in rhetorical theory and analysis of recent curriculum developments bearing on teaching of oral and written composition. Concurrent registration in SeEd 5323 required.

5323. PRACTICUM IN DIAGNOSING, ASSESSING, AND TEACHING WRITING IN SECONDARY SCHOOL—July 22-August 16. (786525) (3 cr; prereq 5322 or 15322, education jr. sr, or grad student; 1045-1205 MTWThF; PeikH 40; A-N only) Beach

Application of theory and research on composition instruction to analysis and diagnosis of writing samples; evaluation of writing using written or conference feedback; large group writing assessment using different writing scales; development of assignments and curriculum materials for writing instruction. Concurrent registration in SeEd 5322 required.

5351. DIRECTED STUDY. (Cr ar [max 6 cr]; S-N optional; prereq education or graduate student)

Sec 21, (186304) Mackey

Sec 23, (986457) Walker

Sec 22, (186456) Glenn

Sec 24, (886547) Beach

5659. SCHOOL-RELATED PROJECTS IN LANGUAGE ARTS. (1-12 cr [max 12 cr]; prereq MEd student in English education; A-N only)

See First Term.

Sec 21, (086305) Beach

Sec 22, (786458) Piché

8801. PROBLEMS: TEACHING SOCIAL STUDIES. (3-9 cr; prereq 5150, 5152, 5156, 8104 or #) Glenn

See First Term.

Sec 21, (091228) Mackey

Sec 22, (491234) Glenn

8894. PROBLEMS: SECOND LANGUAGES AND CULTURES EDUCATION. (Cr ar [max 8 cr]; prereq #)

See First Term.

Sec 21, (886306) Lange

Sec 22, (786315) Walker

8895. READINGS IN ENGLISH EDUCATION. (1-3 cr)

Sec 21, (686307) Beach

Sec 22, (586316) Piché

8896. PROBLEMS: TEACHING ENGLISH. (Cr and hrs ar)

Sec 21, (486308) Beach

Sec 22, (386317) Piché

8898. READINGS IN SECOND LANGUAGES AND CULTURES EDUCATION. (1-3 cr)

See First Term.

Sec 21, (286309) Lange

Sec 22, (186318) Walker

¹Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

DEPARTMENT OF EDUCATIONAL POLICY AND ADMINISTRATION

Educational Administration (EdAd)

FIRST TERM

¶ 5103. SUPERVISION AND ADMINISTRATION OF SPECIAL EDUCATION. (191611) (3 cr, §EPsy 5660; limited to 25 students; 0800-1030 TTh; PtH 102; A-N only) Kittelsen
Procedures for establishing and improving educational programs for emotional children. Meets with EPsy 5660.

¶ 5128. WORKSHOP: EDUCATIONAL ADMINISTRATION. (1-6 cr; section 2 limited to 40 students; S-N optional) Laboratory approach provides opportunities for experienced administrators to concentrate on common administrative and supervisory problems. See Special Programs section.

Sec 1, The Principal as Instructional Leader, July 2-19. (090872) 3 cr, 1325-1520 MTWThF, BuH 123, Nickerson
Sec 2, Clinical Supervision for School Administrators, July 15-19. (891604) 3 cr, 0830-1700 MTWThF, Kellogg Senior High School, 15 E County Rd B-2, Roseville Area Schools, Little Canada, MN, Suzuki

5200. DESIGN AND MANAGEMENT OF EDUCATION SERVICES. (488270) (3 cr; 1430-1520 MTWThF; PeikH 25; A-N only)

Educational services offered by schools, hospitals, industries, government agencies; contemporary technology, roles, authority systems, communication networks; resource-policy relationships, evaluation and management of activities of clients and staff members.

5202. POLITICS OF EDUCATION. (787996) (3 cr, §8202 or SPFE 8202 or 5202; 1010-1205 MWF; PtH 111; A-N only) Mazzoni

Social science findings, concepts, and methods used to consider the political context of educational administration; emphasis on public school policy by local and state governments; role of administrators. Meets with SPFE 5202.

5203. THE COMMUNITY SCHOOL—July 8-19. (290876) (3 cr; 1300-1600 MTWThF; ClaOff B45, B30, B36, B42; A-N only) Popper

Changing structure and process in school organization; the evolving team model; the multiple-skills process in socialization. Concurrent with Educ 5103. See Special Programs section.

5210. FINANCING ELEMENTARY AND SECONDARY SCHOOLS. (986183) (3 cr, §8210; 0800-0955 MWF; PeikH 225; A-N only) 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.

5227. PUBLIC SCHOOL PERSONNEL PROGRAMS—June 24-27, July 8-11. (587997) (3 cr, §8227; 1100-1430 MTWThF, Mathematics/Geology 306, University of Minnesota, Duluth; [students must register on the Twin Cities campus]; A-N only) Alkire

Selection, assignment, evaluation, and development of school personnel; salary and conditions of service; policies for administrative; instructional, and noninstructional personnel.

5250. AMERICAN HIGHER EDUCATION. (387452) (4 cr; §Educ 5250, §HiEd 5250; S-N optional; 1010-1215 TTh; BuH 240) Hearn

Higher and postsecondary educational systems and institutions; purposes and functions; governance and organization, instructional programs, outcomes. Meets with HiEd 5250.

8215. THE ELEMENTARY SCHOOL PRINCIPALSHIP—June 18-July 3. (289081) (3 cr; 1325-1520 MTWThF; PeikH 315) Lambert

Problems in elementary school administration and the principal's role of leadership.

8220. QUANTITATIVE FOUNDATIONS FOR MANAGEMENT METHODS. (189082) (3 cr; 0800-0850 MTWThF; PeikH 315) Hendrix

Quantitative techniques for research and analysis of policy, program, and management problems and decision situations in administration of educational organizations; includes computer usage.

8228. PROBLEMS: HIGHER EDUCATION. (Cr and hrs ar, §HiEd 8228; prereq #)

Selected topics on college programs, instruction, organization, and administration.

Sec 21, (187453) Clark

Sec 22, (087454) Hearn

8238. SEMINAR: THEORY AND RESEARCH. (288271) (3 cr; prereq 8218 and 8235, educational administration major or #; 1010-1205 MWF; FoH 108) Mueller

Research design involving thesis or field project; includes interrelatedness of formulation of conceptual framework and the analytical process; clinical and research problems.

8247. SEMINAR: SCHOOL DISTRICT POLITICS. (190877) (3 cr; prereq 8202; 1010-1215 TTh; PtH 111) Mazzoni
Local school district as an arena for political action; emphasis on conceptual and technical skills useful to administrators exercising policy leadership in this arena.

Course Descriptions

8253. ADMINISTRATION IN HIGHER EDUCATION. (687456) (3 cr. \$HiEd 8255; prereq 5250 or HiEd 5250; 1010-1215 MW; BuH 240) Hearn

Control, faculty and employee personnel administration, budget making and administration, financial accounting and reporting, protection of college funds, public relations. Meets with HiEd 8255.

8270. PROBLEMS: ELEMENTARY SCHOOL ADMINISTRATION. (587451) (Cr and hrs ar; prereq #) Lambert

8271. PROBLEMS: SECONDARY SCHOOL ADMINISTRATION. (Cr and hrs ar; prereq #)

Sec 21, (286181) Nickerson

Sec 22, (386186) Popper

8272. PROBLEMS: EDUCATIONAL ADMINISTRATION. (1-3 cr per term; hrs ar)

For superintendents and principals qualified to make intensive studies of a school system.

Sec 21, (190880) Hendrix

Sec 24, (589085) Mueller

Sec 22, (989083) Lambert

Sec 25, (389086) Nickerson

Sec 23, (789084) Mazzoni

Sec 26, (189087) Popper

8273. FIELD STUDY. (0-10 cr; prereq #; hrs ar)

Required for specialist in education certificate. The 10 credits will be based on a written report covering an approved field study. Students may register for the general planning and organization of their study without credit.

Sec 21, (790882) Hendrix

Sec 24, (588275) Mueller

Sec 22, (988273) Lambert

Sec 25, (188277) Nickerson

Sec 23, (788274) Mazzoni

Sec 26, (088278) Popper

SECOND TERM

5128. WORKSHOP: EDUCATIONAL ADMINISTRATION: Postsecondary Faculty Organization and Representation—July 29-August 9. (690924) (1-6 cr; 0900-1200, 1300-1600 MTWThF; Minneapolis Community College; Room 256b, 1501 Hennepin Ave., Minneapolis; S-N optional) Morgan

See First Term. This offering for 6 credits. See Special Programs section.

5130. ADMINISTRATOR DEVELOPMENT SEMINAR. (086191) (3-9 cr [max 9 cr]; limited to 25 students; 1010-1520 MTWThF; PIH 111; A-N only) Alkire

Assessment and development of skills required of the administrator in planning, decision making, and human relations; introduction to contemporary issues in educational administration; polling community opinions on educational issues confronting schools in urban areas. Initial course for students pursuing professional licensure programs. Participants register concurrently for 3 credits in EdAd 5130 and 3 credits in EdAd 5139. Advance application required by July 15, 1985. See Special Programs section.

5139. LABORATORY IN DECISION MAKING. (886192) (1-4 cr per qtr; limited to 25 students; 1010-1520 MTWThF; PTH 111; A-N only) Alkire

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 EdAd 5130 and 3 credits in EdAd 5139. Advance application required by July 15, 1985. See Special Programs section.

5201. FORMAL ORGANIZATIONS IN EDUCATION. (490925) (3 cr, §8201; 1000-1225 TTh; PeikH 315; A-N only) Popper

Formal school organization as a complex social system focusing on the executive role and its extensions, administrative process, and the historical development of the professional field.

5214. SCHOOL MANAGEMENT INFORMATION SYSTEMS. (686193) (3 cr, §8214; 1355-1550 TWTh; PeikH355; A-N only) Sederberg

Basic techniques required to generate, maintain, and make accessible computer-based management information systems in education.

5224. LEGAL IMPLICATIONS OF ACTS BY SCHOOL BOARDS, ADMINISTRATORS, AND TEACHERS—July 22-August 7. (286195) (3 cr, §8224; 1220-1415 MTWThF; Law 1; A-N only) Hooker

Constitutional, statutory, and common law bases of school administration; principles growing out of fundamental legal procedures.

8212. SCHOOL BUDGETING. (987429) (3 cr; prereq 5210; 1010-1235 TTh; PTH 102) Sederberg

Concepts and skills involved in preparing financial budgets for public schools; competency in translating educational programs into budgetary systems, anticipating revenue receipts, planning expenditures, and techniques for preparing a balanced budget.

8221. QUANTITATIVE MODELS FOR PROGRAM ANALYSIS AND RESEARCH. (287430) (3 cr; prereq 8220; 1010-1205 MWF; PeikH 315)

Quantitative techniques for program analysis, research, and decision making in the administration of educational organizations; emphasis on general linear models and computer usage.

8228. PROBLEMS: HIGHER EDUCATION. (190921) (Cr and hrs ar, \$HiEd 8228; prereq #) Lewis

See First Term.

8264. THE SECONDARY SCHOOL PRINCIPALSHIP—July 22-August 7. (290926) (3 cr; 0800-0955 MTWThF; PeikH 315) Nickerson

Role of the principal: qualifications, duties, and problems, including current issues and factors of staff and student relationships.

Course Descriptions

5125. YOUTH IN MODERN SOCIETY. (488284) (4 cr. §Soc 5952; 1115-1205 MTWThF; PeikH 25; A-N only) Clark
Youth in advanced societies and as a social entity; functions and roles in industrial society, family, education, politics and government, economy and work, welfare and religion; organizations, social movements, and subcultures; empirical research and cross-cultural perspectives. Meets with Soc 5952.

5202. POLITICS OF EDUCATION. (387984) (3 cr. §EdAd 5202; 1010-1205 MWF; FolH 303; A-N only) Mazzoni
Social science findings, concepts, and methods used to consider the political context of educational administration, emphasis on public school policymaking by local and state governments; role of administrators. Meets with EdAd 5202.

8241. PROBLEMS: HISTORY AND PHILOSOPHY OF EDUCATION. (288285) (Cr and hrs ar; prereq #) Clark
For graduate students interested in research and original work in these areas.

SECOND TERM

3090. THE SCHOOL AND SOCIETY. (990136) (3 cr; limited to 45 students; prereq sr; 0800-0850 MTWThF; PeikH 28; A-N only) Harkins
See First Term.

3099. DIRECTED STUDY. (786542) (1-6 cr; prereq #) Harkins
See First Term.

5099. DIRECTED STUDY. (Cr ar [max 9 cr]; prereq #; S-N optional)
See First Term.

Sec 21, (590964) Harkins

Sec 22, (790963) Lewis

8241. PROBLEMS: HISTORY AND PHILOSOPHY OF EDUCATION. (386544) (Cr and hrs ar; prereq #) Harkins
See First Term.

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY (EPsy)

EPsy courses were most recently listed as PsyS and PsyF, and before Fall 1979 as CSPP, SchP, and SpEd. Students concerned they may have taken course work with a similar title but different designator should consult the department.

FIRST TERM

3131. (formerly PsyF 3380) INTRODUCTION TO HUMAN RELATIONS—June 24-July 18. (190787) (3 cr. §PsyF 3380; limited to 30 students; prereq education sr; 0800-1000 MTWTh; Arch 30; S-N only) Petersen
Based on small group training theory and methods; designed to help the student develop an understanding of his or her own behavior, the behavior of other individuals, and group and organizational behavior.

3606. (formerly PsyF 3106) EXCEPTIONAL STUDENTS IN REGULAR CLASSES. (090788) (2 cr. §5606. §PsyS 5106, §PsyS 3106; 1115-1205 MTWTh; Arch 55; A-N only) Balow
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.

5114. (formerly PsyF 5182) PSYCHOLOGY OF STUDENT LEARNING. (890789) (3 cr. §PsyF 5182; 0905-0955 MTWThF; PeikH 315; A-N only) Samuels
Survey of psychological methods and principles; models of the learner; topics in development, creativity, intelligence, and motivation; implications for teaching and curriculum design in preschool, elementary, and secondary education; professional training with children and adolescents as clients.

5130. (formerly PsyF 5162) PERSONALITY AND SOCIAL DEVELOPMENT. (690793) (3 cr. §PsyF 5162; prereq 5 cr introductory psychology; 1010-1100 MTWThF; ChDev 105; A-N only)
Major concepts and research findings in adjustment and development with special emphasis on educational implications.

5135. (formerly PsyF 5305) WORKSHOP IN HUMAN RELATIONS—June 24-July 18. (990797) (6 cr. §PsyF 5305; limited to 25 students; 0800-1200 MTWTh; Arch 15; 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.

5220. (formerly PsyF 5120) EDUCATIONAL MEASUREMENT IN THE CLASSROOM. (590804) (4 cr. §PsyF 5120; 0905-0955 MTWThF; PtH 214; S-N optional) 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.

- 5221. (formerly PsyF 5121) BASIC PRINCIPLES OF MEASUREMENT.** (890808) (3 cr. \$PsyF 5121; prereq 5260 or 8260 or PsyF 5110 or 8110; 1010-1100 MTWThF; Pth 214; S-N optional) Terwilliger
Fundamental concepts, principles, and methods in educational and psychological measurement; educationally useful properties of tests; types and uses of derived scores; factors influencing reliability and validity.
- R 5260. (formerly PsyF 5110) INTRODUCTORY STATISTICAL METHODS.** (4 cr. \$PsyF 5110; each section limited to 40 students; S-N optional) Stecklein
Techniques for organizing and presenting data; descriptive indices of central tendency, variability, and bivariate correlation/regression; procedures for making inferences concerning means and proportions.
Sec 1, (490813) 0800-0850 MTWThF, BuH 123
Sec 2, (290814) 0905-0955 MTWThF, BuH 123
- 5280. (formerly PsyF 5330) COMPUTER PROGRAMMING.** (190815) (3 cr. \$PsyF 5330; prereq sr; 0800-0850 MTWTh; BuH 125; S-N optional) D Anderson
Computer as a tool for research in the behavioral sciences; computer systems, language, and development of specific programs demonstrating computer characteristics; laboratory experience.
- R 5400. (formerly PsyS 5300) WORKSHOP: COUNSELING PSYCHOLOGY: Leadership for Career Development—Programs, Resources, Practices—July 8-12.** (990816) (1-6 cr [max 12 cr]; limited to 150 students; 0830-1630 MTWTh, 0830-1200 F and off-campus individual study one week and one evening, hrs ar; BlegH 5; A-N only) L Hansen, G Walz
For all counselors, teachers, and administrators: aspects of intervention theory in relation to psychological principles; counseling, career development, assessment, psychological education, and consultation. This 3-credit workshop provides human service workers with background and skills to lead career development programs in a variety of settings. Participants learn career content and resources, program development process and organizational change skills in the context of the holistic and future-centered concept of career. Preapplication deadline is June 15, 1985. See Special Programs section.
- R 5401. (formerly PsyS 5110) COUNSELING PROCEDURES.** (390819) (3 cr. \$PsyS 5110; limited to 35 students; 1010-1205 TTh, 1 hr ar; BuH 125; A-N only) Shaffer
For persons whose professional work includes counseling and interviewing; not for licensure as school counselors. Emphasis on counseling relationship and principles of interviewing; case studies, role-playing, and demonstration.
- 5417. (formerly PsyS 5117) CLINICAL USE OF TESTS IN PSYCHOLOGICAL SERVICES.** (790820) (3 cr. \$PsyS 5117; prereq 5260 or PsyF 5110 or Psy 3801, 5221 or PsyF 5121 or Psy 5862 or #; 1010-1205 MWF; BuH 125; A-N only)
Psychological theories related to test interpretation and counseling process; critical review and selection of standardized tests.
- 5433. (formerly PsyS 5310) DEVELOPMENTAL CAREER COUNSELING OF WOMEN—June 18-July 5.** (791613) (3 cr. \$PsyS 5310; 0800-1000 MTWThF; PeikH 335; S-N optional) L Hansen
Counseling skills and interventions to facilitate career development of girls and women at different life stages; sex role system, female socialization, and stereotyping; facts, myths, and trends regarding women's changing roles in technological society; issues of sexism in strategies and programs.
- 5434. COUNSELING ADULTS IN TRANSITION.** (590821) (3 cr; 1010-1205 MWF; BuH 123; A-N only) W Tennyson
Theoretical and empirical knowledge to provide bases for analyzing adaptation to transitions; applications of counseling interventions and training in coping skills to cases of life change. See Special Programs section.
- 5600. (formerly PsyS 5100) CHILDHOOD LANGUAGE DEVELOPMENT: CLASSROOM IMPLICATIONS.** (390822) (3 cr, \$PsyS 5100; 1010-1100 MTWThF; WullH 130; A-N only) Turnure
Recent trends and findings in the study of language acquisition; classroom implications for the education of exceptional children.
- 5601. (formerly PsyS 5101) EDUCATION OF EXCEPTIONAL CHILDREN.** (190823) (4 cr. \$PsyS 5101; 0905-0955 MTWThF; WullH 130; A-N only)
Introduction to field of special education for classroom teachers and other school personnel.
- 5604. (formerly PsyS 5104) SOCIAL AND VOCATIONAL DEVELOPMENT OF HANDICAPPED STUDENTS.** (090824) (4 cr. \$PsyS 5104; 0800-0955 MWF; ChDev 105; A-N only) W Tennyson
Organization and design of training programs to promote independent living, vocational and community adjustment of handicapped persons; curriculum materials and methods at adolescent and adult levels.
- 5606. (formerly PsyS 5106) EXCEPTIONAL STUDENTS IN REGULAR CLASSES.** (190829) (2 cr. \$3606, \$PsyS 3106, \$PsyS 5106; 1115-1205 MTWTh; Arch 55; A-N only) Balow
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.
- 5641. (formerly PsyS 5141) METHODS OF TEACHING SCHOOL SUBJECTS TO THE HEARING IMPAIRED.** (990833) (3 cr. \$PsyS 5141; 1115-1205 MTWThF; PeikH 225; A-N only) Rose
Adaptation of materials and teaching methods for hearing-impaired children in reading, mathematics, social studies, and science.
- 5643. (formerly PsyS 5143) LANGUAGE FOR HEARING IMPAIRED CHILDREN.** (090838) (4 cr. \$PsyS 5143; prereq 5640 or PsyS 5140; 0905-0955 MTWThF; BuH 125; A-N only) Rose
Functional language development in communicatively handicapped persons; overview of language curricula and programming strategies, pertinent research and models of instruction for use in the educational environment.

Course Descriptions

5651. (formerly PsyS 5151) MANAGING PROBLEM BEHAVIOR IN THE CLASSROOM. (890842) (3 cr, §PsyS 5151; 0800-0850 MTWThF; ChDev 218; A-N only) Wood

Typical patterns of problem behavior in classroom settings; relationships to teacher mental health; simulation of methods for prevention and management.

5660. (formerly PsyS 5160) SUPERVISION AND ADMINISTRATION OF SPECIAL EDUCATION. (591614) (3 cr, limited to 5 students; §EdAd 5103, §PsyS 5160; 0800-1030 TTh; PIH 102; A-N only) Kittelsen
Procedures in establishing and improving educational programs for exceptional children. Meets with EdAd 5103.

5690. (formerly PsyS 5190) EDUCATION OF THE GIFTED AND TALENTED. (290845) (3 cr, §PsyS 5190; 1115-1205 MTWThF; ChDev 105; A-N only)

Origin and development of terms such as giftedness, creativity, genius, talent, and intelligence; implications for educational practice; current issues and trends.

5700. (formerly PsyS 5200) ASSESSMENT AND DECISION MAKING IN SPECIAL EDUCATION. (790848) (4 cr, §PsyS 5200; 1010-1100 MTWThF; Arch 55; A-N only)

For teachers and other educational personnel; identifying the needs of handicapped students; planning, monitoring, evaluating instructional programs; practice in use of standardized devices and development of clinical measures for handicapped students.

5701. (formerly PsyS 5601) PRACTICUM: SPECIAL EDUCATION. (Cr ar; prereq #: S-N optional)

Supervised experience in teaching or related work in schools or other agencies serving exceptional children. Advance application required for sections 2 and 3.

Sec 1, Teaching Children With Emotional Disturbances. (390853) 5 cr, 0800-1520 MTWThF, off campus, Wood.
Students must also register for 5701, section 1 in Term II, for 3 cr. Inclusive dates for both are June 18-July 26.

Sec 2, Diagnosis and Remediation of Learning Disabilities I. (190854) 4 cr, 0800-1200 MTWThF, off campus, Deno

Advance application required by May 15, 1985.

Sec 3, Diagnosis and Remediation of Learning Disabilities II. (890856) 4 cr, 1300-1700 MTWThF, off campus, Deno

Advance application required by May 15, 1985.

Sec 21, (690857) Rose

Sec 22, (490858) Rynders

5705. (formerly PsyS 5305) BEHAVIOR ANALYSIS PROCEDURES WITH MILDLY AND MODERATELY HANDICAPPED PEOPLE. (690860) (4 cr, §PsyS 5305; 5116 or PsyF 5149 or Psy 5017 recommended; 0905-0955 MTWThF; PTH 215; A-N only)

Behavioral approaches to improving the academic and personal-social behavior of mildly and moderately handicapped people in mainstream and resource programs.

5900. INDEPENDENT STUDY. (Cr and hrs ar [max 12 cr]; prereq #: A-N only)

Sec 21, (490861) psychological foundations, MacEachern

Sec 22, (290862) counseling, L Hansen

Sec 23, (190863) counseling, Shaffer

Sec 24, (990864) counseling, W Tennyson

Sec 25, (790865) special education, Balow

Sec 26, (590866) special education, Bruininks

Sec 27, (390867) special education, Deno

Sec 28, (190868) special education, Rose

Sec 29, (090869) special education, Rynders

Sec 30, (390870) special education, Turnure

Sec 31, (190871) special education, Wood

8129. (formerly PsyF 8940) RESEARCH PROBLEMS: LEARNING AND COGNITION. (890873) (Cr and hrs ar; prereq #) Samuels

Formulation of research designs.

8239. (formerly PsyF 8920) PROBLEMS: MEASUREMENT. (1-3 cr or [max 9 cr]; hrs ar)

Intensive study and individual research.

Sec 21, (191552) Stecklein

Sec 22, (690874) Terwilliger

8260. (formerly PsyF 8110) STATISTICAL METHODS. (990878) (3 cr, §PsyF 8110; prereq 5260 or PsyF 5110 or Psy 3801 or equiv; 0800-0850 MTWThF; Arch 30) MacEachern

Foundations of statistical theory; practice in applying theories in solution of educational and psychological problems.

8262. (formerly PsyF 8112) STATISTICAL METHODS. (990881) (3 cr, §PsyF 8112; prereq 8261 or PsyF 8111; 0905-0955 MTWThF; Arch 30) MacEachern

Foundations of statistical theory; practice in applying theories in solution of educational and psychological problems.

8279. (formerly PsyF 8910) PROBLEMS: STATISTICS FOR STUDENTS IN EDUCATION AND PSYCHOLOGY. (Cr and hrs ar, §PsyF 8910)

Recent developments in statistical science; applications to educational and psychological problems.

Sec 21, (590883) D Anderson

Sec 23, (190885) Stecklein

Sec 22, (390884) MacEachern

8280. (formerly PsyF 8130) COMPUTER APPLICATION TO STATISTICAL ANALYSES. (890886) (3 cr, \$PsyF 8130; prereq 8262 or PsyF 8112 or equiv; 1010-1100 MTWTh; EItH N647) D Anderson
Use of computer to analyze data from the behavioral sciences; interpretation of results; attention to large-scale problems.

8289. (formerly PsyF 8930) RESEARCH PROBLEMS: COMPUTER APPLICATIONS. (890887) (Cr ar, \$PsyF 8930; prereq #) D Anderson
Recent developments in computer applications to educational and psychological problems.

- 8900. RESEARCH PROBLEMS.** (Cr and hrs ar; prereq #)
Sec 21, (690888) psychological foundations, D Anderson
Sec 22, (490889) psychological foundations, Davison
Sec 23, (490892) psychological foundations, MacEachern
Sec 24, (290893) psychological foundations, Maruyama
Sec 25, (190894) psychological foundations, Samuels
Sec 26, (990895) psychological foundations, Stecklein
Sec 27, (790896) psychological foundations, Terwilliger
Sec 28, (590897) counseling, L Hansen
Sec 29, (390898) counseling, Shaffer
Sec 30, (190899) counseling, W Tennyson
Sec 31, (990900) special education, Balow
Sec 32, (790901) special education, Bruininks
Sec 33, (590902) special education, Deno
Sec 34, (390903) special education, Rose
Sec 35, (190904) special education, Rynders
Sec 36, (090905) special education, Turnure
Sec 37, (890906) special education, Wood

SECOND TERM

8 3131. (formerly PsyF 3380) INTRODUCTION TO HUMAN RELATIONS—July 22-August 15. (3 cr, \$PsyF 3380; each section limited to 30 students; prereq education sr; S-N only)
See First Term.

- Sec 1, (690907) 0800-1000 MTWTh, Arch 30, Petersen
Sec 2, (490908) 0800-1000 MTWTh, Arch 45

3606. (formerly PsyS 3106) EXCEPTIONAL STUDENTS IN REGULAR CLASSES. (290909) (2 cr, \$5606, \$PsyS 5106, \$PsyS 3106; 1115-1205 MTWTh; BuH 120; A-N only) Balow
See First Term. Meets with 5606.

5110. (formerly PsyF 5147) INTELLIGENCE. (690910) (3 cr, \$PsyF 5147; 1115-1205 MTWThF; PtH 214; A-N only) Lane
Theories of intelligence; its development; implications for educational practices and psychological research.

5115. (formerly PsyF 5183) ADULT LEARNING AND EDUCATIONAL PRACTICE. (991058) (4 cr, \$PsyF 5183; 1010-1100 MTWThF; PtH 214; A-N only) Lane
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.

8 5151. (formerly PsyF 5172) STRUCTURING LEARNING: SOCIAL PSYCHOLOGICAL APPROACHES. (990914) (3 cr, \$PsyF 5172; limited to 60 students; 1300-1600 MTWThF July 22-August 9; and 1300-1500 F August 23; PtH 214, and hrs ar off-campus; A-N only) Petersen
How to use cooperation, competition, and individualization to affect learning climate and cognitive and affective outcomes of instruction.

5240. (formerly PsyF 5125) PRINCIPLES AND METHODS OF EVALUATION. (490911) (3 cr, \$PsyF 5125; 0800-0850 MTWThF; BuH 123; S-N optional) Hueftle
Introductory course in program evaluation; theory; practical examples; purpose, roles, program descriptions, and evaluation strategies.

8 5260. (formerly PsyF 5110) INTRODUCTORY STATISTICAL METHODS. (4 cr, \$PsyF 5110; each section limited to 40 students; S-N optional) D Anderson
See First Term.

- Sec 1, (290912) 0800-0850 MTWThF, EItH N647
Sec 2, (190913) 0905-0955 MTWThF, EItH N647

8 5401. (formerly PsyS 5110) COUNSELING PROCEDURES. (790915) (3 cr, \$PsyS 5110; limited to 35 students; 1010-1205 TTh, 1 hr ar; BuH 125; A-N only) Shaffer
See First Term.

5606. (formerly PsyS 5106) EXCEPTIONAL STUDENTS IN REGULAR CLASSES. (590916) (2 cr, \$3606, \$PsyS 3106, \$PsyS 5106; 1115-1205 MTWTh; BuH 120; A-N only) Balow
See First Term. Meets with 3606.

Course Descriptions

5608. (formerly PsyS 5108) PARENT AND PROFESSIONAL PLANNING FOR HANDICAPPED STUDENTS. (390917) (3 cr, §PsyS 5108: 0800-0850 MTWThF; PtH 215; A-N only) Wood
Study and demonstration of constructive approaches to cooperative planning and implementation of education programs by parents, teachers, and persons involved with children who have special needs.

5612. (formerly PsyS 5112) EDUCATION OF LEARNING-DISABLED CHILDREN. (190918) (3 cr, §PsyS 5112: 1010-1100 MTWThF; PtH 215; A-N only) Balow
Analysis of considerations in design and conduct of services for learning-disabled children; approaches to education of such children.

5620. (formerly PsyS 5120) INTRODUCTION TO MENTAL RETARDATION. (090919) (4 cr, §CPsy 5315, §PsyS 5120; prereq 5601 or PsyS 5101 or #; 1010-1100 MTWThF; ChDev 216; A-N only) Turnure
Issues relating to educational practices; community planning; educational philosophy, administration and organization, and programming. Meets with CPsy 5315.

5640. (formerly PsyS 5140) PSYCHOSOCIAL AND EDUCATIONAL ASPECTS OF DEAFNESS. (390920) (3 cr, §PsyS 5140; 0905-0955 MTWThF; BuH 125; A-N only) Rose
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 the psychological processes on acquisition of language, speech, and speechreading skills.

5644. (formerly PsyS 5144) TEACHING LANGUAGE TO THE HEARING IMPAIRED II. (090922) (3 cr, §PsyS 5144; 1115-1205 MTWThF; ChDev 105; A-N only) Rose
Devising language curricula and teaching techniques in primary, intermediate, and advanced programs for the deaf; comparative study of the language development of the deaf and hearing.

5701. (formerly PsyS 5601) PRACTICUM: SPECIAL EDUCATION. (Cr and hrs ar; S-N optional; prereq #)
Sec 1, Teaching Children with Emotional Disturbances—July 22-26. (890923) 3 cr, 0800-1520 MTWThF, students must also register for 5701, section 1, first term for 5 cr. Inclusive dates for both are June 18-July 26. Off campus. Wood
Sec 21, (190927) Rose

5702. (formerly PsyS 5302) WORKSHOP: SPECIAL EDUCATION. (Cr ar; prereq #; A-N only)
Laboratory approach provides opportunities for school personnel to study specific problems related to special education.

Sec 1, Transition of Moderately and Severely Handicapped Learners from School to Community—July 22-26. (190935), 2 cr, 0800-1200 MTWThF, Arch 15, Johns

Issues and strategies, assessment and decision-making strategies, community-based training models and inter-agency service approaches needed for planning transition of moderately and severely handicapped learners from school to community living.

Sec 2, Leisure Activity for Severely Handicapped Learners—July 29-August 2. (690938), 2 cr, 0800-1200 MTWThF, Arch 15, Schleien

Overview of severe physical disabilities, historical background of leisure skills development, teaching leisure, independent living, and assistive devices available for handicapped students.

Sec 3, Community Based Training for Employment of Severely Handicapped Learners—August 5-9. (490942), 2 cr, 0800-1200 MTWThF, Arch 15, Vandercook

Rationale for community employment, description of model programs, logistics of competitive employment, job development, modified vocational tasks, parental and transition team involvement. Participation in an ecological inventory process in the community.

Sec 4, Augmentative Systems and Communication Intervention with Severely Handicapped Learners—August 12-16. (290943), 2 cr, 0800-1200 MTWThF, Arch 15, Reichle

Overview of instructional procedures that can be used to select and implement the initial phases of an augmentative communication system for persons with severe handicaps. Pertinent language intervention programs reviewed.

5849. (formerly PsyS 5549) ASSESSMENT OF THE PRESCHOOL CHILD. (190944) (3 cr, §PsyS 5549; prereq statistics or measurement or grad course in assessment; 1010-1100 MTWThF; ChDev 105; S-N optional) Erickson
Review of assessment of children ages 0-5 from a developmental perspective; overview of normal and abnormal development; issues and techniques in cognitive, social, and emotional assessment; early education programs.

5900. INDEPENDENT STUDY. (Cr and hrs ar [max 12 cr]; prereq #; A-N only)

Sec 21, (790946) psychological foundations, MacEachern

Sec 22, (590947) counseling, Shaffer

Sec 23, (390948) special education, Balow

Sec 24, (190949) special education, Bruininks

Sec 25, (590950) special education, Rose

Sec 26, (390951) special education, Turnure

Sec 27, (190952) special education, Wood

8239. (formerly PsyF 8920) PROBLEMS: MEASUREMENT. (690955) (1-3 cr [max 9 cr]; hrs ar) Stecklein
See First Term.

8261. (formerly PsyF 8111) STATISTICAL METHODS. (490956) (3 cr, §PsyF 8111; prereq 8260 or PsyF 8110; 0800-0850 MTWThF; BuH 120) MacEachern
Foundations of statistical theory; practice in applying theories in solution of educational and psychological problems.

8263. (formerly PsyF 8113) DESIGN AND ANALYSIS OF EXPERIMENTS. (190958) (3 cr, §PsyF 8113; prereq 8262 or PsyF 8112 or #: 0905-0955 MTWThF; BuH 120) 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. (formerly PsyF 8910) PROBLEMS: STATISTICS FOR STUDENTS IN EDUCATION AND PSYCHOLOGY. (Cr and hrs ar)
See First Term.

Sec 21, (790977) D Anderson
Sec 22, (290960) MacEachern

Sec 23, (190961) Stecklein

8289. (formerly PsyF 8930) RESEARCH PROBLEMS: COMPUTER APPLICATIONS. (990962) (Cr and hrs ar; prereq #) D Anderson
See First Term.

8900. RESEARCH PROBLEMS. (Cr and hrs ar; prereq #)
Sec 21, (390965) psychological foundations, D Anderson
Sec 22, (190966) psychological foundations, Davison
Sec 23, (090967) psychological foundations, MacEachern
Sec 24, (890968) psychological foundations, Stecklein
Sec 25, (690969) counseling, Shaffer

Sec 26, (090970) special education, Balow
Sec 27, (890971) special education, Bruininks
Sec 28, (690972) special education, Rose
Sec 29, (490973) special education, Turnure
Sec 30, (290974) special education, Wood

MUSIC EDUCATION (MuEd)

(See also *Music in the College of Liberal Arts section*)

FIRST TERM

3011. TEACHING MUSIC IN THE ELEMENTARY SCHOOL. (189090) (4 cr; prereq Mus 1001 and elementary educ major; limited to 30 students; 1010-1100 MTWThF; ScottH 4; A-N only) Borg
For non-music majors; methods and materials in teaching singing, rhythm, music reading, creativity, classroom instruments, fundamentals, appreciation in K-6.

3851. INTERNSHIP: MUSIC THERAPY. (6 cr; prereq #: S-N only)

Six-month resident internship in music therapy at an affiliated, approved hospital or clinic.

Sec 21, (286486) Borg
Sec 22, (186487) Turrentine

Sec 23, (986488) Schultz

3852. INTERNSHIP: MUSIC THERAPY. (6 cr; prereq 3851; S-N only)

See 3851.

Sec 21, (786489) Borg
Sec 22, (186490) Turrentine

Sec 23, (986491) Schultz

5611. TECHNIQUES AND MATERIALS: MUSIC AND RELATED ARTS—June 18-July 5. (891103) (3 cr; prereq #: 0905-1100 MTWThF; ScottH 3; A-N only) Turrentine
Teaching music to reflect the major developments of western culture.

5613. TEACHING MUSIC LITERATURE—June 18-July 5. (091102) (3 cr; prereq #: 1325-1520 MTWThF; ScottH 4; A-N only) Borg

Principles, methods, and materials for teaching music history (appreciation) in grades K-12.

5645. TECHNIQUES AND MATERIALS: BRASS—July 8-19. (386432) (3 cr, §5525; prereq #: 0905-1100 MTWThF; NMA 4; A-N only) Turrentine

Practical performance with lectures and discussions of research in performance techniques.

5750.¹ WORKSHOP: MUSIC EDUCATION: Conducting the Musical Show—July 8-19. (691104) (1-12 cr [max 12 cr]; 1220-1520 MTWThF; NMA 4; A-N only) Schultz

Selected topics in music education. This 3-credit offering focuses on rehearsal techniques, coordination of singing actors and instrumental accompaniment, and conducting of the pit orchestra; laboratory performance and listening activities focus on traditions and trends in the musical theater.

5970. INDEPENDENT STUDY. (1-4 cr; prereq education or graduate student; hrs ar; ScottH 104; A-N only)

An independent study project organized by the student with the appropriate instructor.

Sec 21, (089091) Borg
Sec 22, (889092) Schultz

Sec 23, (386429) Turrentine

8990. RESEARCH PROBLEMS. (4-12 cr; prereq knowledge of elem statistics; hrs ar; ScottH 104)

Sec 21, (689093) Borg
Sec 22, (489094) Schultz

Sec 23, (786430) Turrentine

¹Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Course Descriptions

SECOND TERM

3011. TEACHING MUSIC IN THE ELEMENTARY SCHOOL. (390030) (4 cr; limited to 30 students; prereq Mus 1001 and elementary educ major; 1010-1100 MTWThF; ScottH 4; A-N only) Caswell
See First Term.

5214. PSYCHOLOGICAL FOUNDATIONS—July 22-August 9. (191107) (3 cr; prereq #; 1325-1520 MTWThF; ScottH 4; A-N only) Caswell
Analysis and interpretation of psychologies of music and education as applied to the teaching of music.

5665. MUSIC FOR EXCEPTIONAL CHILDREN—August 5-23. (991108) (3 cr; prereq #; 1010-1205 MTWThF; 1411 University Avenue SE; A-N only) Furman
Trends; methods and materials for a functional program of singing, playing, rhythm, listening, and creative activities for mentally and physically handicapped and gifted pupils.

5750¹. WORKSHOP: MUSIC EDUCATION: Computers in Music Education—July 22-August 2. (791109) (1-12 cr [max 12 cr]; 0905-1205 MTWThF; ScottH 103; A-N only) Schultz
See First Term. Using the microcomputer to enhance instruction in music; developing a data base for music libraries, instrument inventories, and budgets; examination of research capabilities for music analysis, composition, and bibliographic indices. This offering for 3 credits.

5970. INDEPENDENT STUDY. (1-4 cr; prereq education or graduate student; hrs ar; A-N only)
See First Term.

Sec 21, (086448) Caswell

Sec 23, (491105) Furman

Sec 22, (886449) Schultz

8990. RESEARCH PROBLEMS. (4-12 cr; prereq knowledge of elem statistics; hrs ar; A-N only)

Sec 21, (186450) Caswell

Sec 23, (291106) Furman

Sec 22, (086451) Schultz

SCHOOL OF PHYSICAL EDUCATION, RECREATION, AND SCHOOL HEALTH EDUCATION

Physical Education (PE) and Dance (Dnce)

Students interested in meeting a college requirement for physical education or in taking activity courses for elective credit may register for PE 1007, 1014, 1015, 1036, 1038, 1050, and Dnce 1022, 1024.

Professional Physical Education—Courses are offered at the undergraduate and graduate levels in physical education. Many of these courses apply toward the licensure requirements for teaching physical education in the state of Minnesota. Courses are also offered that will apply toward the athletic coaching licensure requirements. Courses applicable toward requirements in the various programs that are offered this summer include the following:

1. An Advanced Degree in Physical Education — PE 5121, 5131, 5134, 5136, 5140, 5152, 5160, 5620, 5720, 5740, 5980, 5981, 5983, 8980, 8981
2. Undergraduate Major in Physical Education—PE 3110, 3111, 3115
3. State of Minnesota Coaching License—PE 3110, 3111, 3115, 3126, 5620
4. State of Minnesota Developmental/Adapted Physical Education License—PE 5131, 5152, 5980, 5981

Elementary School Majors—PE 3327 is offered to accommodate elementary education majors and classroom teachers.

¹Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

All activity courses listed below are high intensity (participation requiring a high level of energy expenditure) except those otherwise indicated. It is therefore recommended that students who have questions about their ability to participate safely in the physical activities involved in a course seek advice from a physician.

PHYSICAL ACTIVITY PROGRAM COURSES (PE)

(Open to all students)

FIRST TERM

- R 1007. SWIMMING.** (289095) (1 cr; limited to 22 students; 0905-0955 MTWTh; NorrisH 58) Waters
Course for nonswimmers includes aquatic breathing, floating, bobbing, treading, finning, human stroke, elementary backstroke, sidestroke, front crawl.
- R 1014. CONDITIONING.** (1 cr; each section limited to 40 students) Wu
Improvement of physical fitness and general appearance through the use of running, circuit training, and progressive exercises of various types.
Sec 1, (589118) 0800-0850 MTWTh, StadS 264, Northrop Field, FieldHse, Wu
Sec 2, (389119) 1010-1100 MTWTh, StadS 264, Northrop Field, FieldHse, Helmerson
Sec 3, (291249) 1115-1205 MTWTh, StadS 264, Northrop Field, FieldHse, Griffith
- R 1015. WEIGHT TRAINING.** (989097) (1 cr; limited to 30 students; 0905-0955 MTWTh; StadN 202) Davis
Emphasizes the fundamentals of weight training including skills, techniques, individualized exercise prescription, and theory.
- R 1032. BADMINTON.** (691250) (1 cr; limited to 24 students; 0800-0850 MTWTh; CookeH 325) Davis
Fundamental skills, rules, etiquette, and strategy for both singles and doubles.
- R 1036. RACQUETBALL.** (589099) (1 cr; limited to 28 students; 0800-0850 MTWTh; StadN 208)
Basic fundamentals of skills and shots; rules and game strategy are stressed.
- R 1038. TENNIS.** (1 cr; each section limited to 28 students)
Includes fundamental strokes such as service, forehand and backhand, drives and volley; court positions and strategy for singles and doubles; rules, terminology, and etiquette.
Sec 1, (789120) 0800-0850 MTWTh, BFAB 101, Tennis Courts, Santiago
Sec 2, (589121) 0905-0955 MTWTh, BFAB 101, Tennis Courts, Santiago
Sec 3, (389122) 1010-1100 MTWTh, BFAB 101, Tennis Courts, Lee
Sec 4, (189123) 1115-1205 MTWTh, BFAB 101, Tennis Courts, Lee
Sec 5, (686372) 1220-1310 MTWTh, BFAB 101, Tennis Courts, Griffith
- R 1041. CYCLING.** (491251) (1 cr; limited to 25 students; prereq supply own bicycle; 1220-1310 MTWTh; CookeH 420) Ainsworth
Emphasis on basic skills, physiological and mechanical principles, maintenance, safety, training.
- R 1048. BOWLING.** (291252) (1 cr; moderate intensity; limited to 32 students; 0800-0850 MTWTh; CMU B55) Helmerson
For the beginning student. Fundamentals of stance, approach, and delivery; scoring; terminology; etiquette.
- R 1050. GOLF.** (1 cr; moderate intensity; each section limited to 24 students) Schneider
Emphasizes fundamentals of grip, stance, and swing in addition to etiquette and rules.
Sec 1, (889125) 0905-0955 MTWTh, StadS 267, Golf Course
Sec 2, (489127) 1115-1205 MTWTh, StadS 267, Golf Course
- R 1059. TRACK AND FIELD.** (191253) (1 cr; limited to 30 students; 1010-1100 MTWTh; FieldHse, BFAB Track) Ainsworth
Fundamentals and strategy in sprint, distance, and field events.
- R 1072. SOCCER.** (991254) (1 cr; limited to 30 students; 1010-1100 MTWTh; FieldHse, Stadium) Wu
Strategy, rules and fundamentals emphasized through drills and team play; basic techniques and ball skills; experience in match play.
- R 1107. SWIMMING.** (791255) (1 cr; limited to 22 students; prereq 1007 or equiv; 1010-1100 MTWTh; NorrisH 58) Waters
Deep water skills, elementary back stroke, side stroke, front crawl, elementary diving, and distance swimming.

PROFESSIONAL COURSES (PE)

FIRST TERM

- 3110. HUMAN ANATOMY.** (289100) (3 cr; 0905-0955 MTWThF; CookeH 214; A-N only) Serfass
Emphasizes bones, nerves, and muscles and their significance in physical education.

Course Descriptions

R 3327. TEACHING PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOL. (187557) (3 cr; prereq elem education major; limited to 35 students; 0800-0850 MTWThF; NorrisH M153, M153A; A-N only) 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. (186786) (1-12 cr [max 12 cr]; prereq Δ ; S-N only) Serfass
On-the-job experience under a specialist in the particular area of study.

5152. CURRICULUM DEVELOPMENT. (786380) (3 cr; prereq 5151 or equiv; 0905-0955 MTWThF; BFAB 285; A-N only) Young
Trends, issues, and problems at selected levels of interest; elementary, secondary, junior college; for experienced teachers.

5160. EVALUATION IN PHYSICAL EDUCATION. (591256) (3 cr; prereq 3150 or equiv; 0800-0850 MTWThF; CookeH 215; A-N only) Shick
General principles and techniques of evaluation.

5620. PRACTICUM: PREVENTION AND CARE OF ATHLETIC INJURIES—July 1-12. (989102) (3 cr; A-N only; prereq Anat 1027 or equiv; 1330-1600 MTWThF; BFAB 285, 144) Monroe
An overview of problems (recognition, principles, and responsibilities) related to athletic injuries in secondary and college programs; demonstration and practice in training techniques and familiarity with the use of instruments for athletic rehabilitation. See Special Programs section.

5720. TOPICS IN PHYSICAL EDUCATION: Nutrition and Exercise—June 18-28. (391257) (1-12 cr [max 12 cr]; 1300-1625 MTWThF; VoTech R380; A-N only) Levine, Serfass
Current issues related to physical education and sport. This offering for 3 credits. Meets with HEEd 5430, sec 1. See Special Programs section.

5740.¹ WORKSHOP: COACHING OF INDIVIDUAL, DUAL OR TEAM SPORTS: Swimming and Diving—June 24-28. (191258) (1-12 cr [max 12 cr]; 0800-1200 MTWThF; CookeH 10, 15; A-N only) Stearns, Freeman, Lincoln
Instruction at the advanced level including analyses of skills, game strategies; techniques of coaching and methods of training and conditioning. This offering for 3 credits. See Special Programs Section.

5980. RESEARCH METHODOLOGY. (789103) (3 cr, \S Hlth 5980; prereq education or graduate student; 1010-1100 MTWThF; CookeH 214; A-N only) Shick
Methods and design for research in health, physical education, and recreation.

5981. PROBLEMS. (Cr and hrs ar; prereq MEd candidate, #; A-N only)
Focus on teaching of physical education.

Sec 21, (589104) Shick

Sec 23, (189106) Young

Sec 22, (389105) Serfass

5983. READINGS: PHYSICAL EDUCATION. (Cr ar [max 9 cr]; prereq education or graduate student; A-N only)
Independent study under tutorial guidance.

Sec 21, (689109) Shick

Sec 23, (889111) Young

Sec 22, (089110) Serfass

8981. RESEARCH PROBLEMS. (Cr and hrs ar; prereq 8980 or #; S-N only)
Individual problems.

Sec 21, (289114) Shick

Sec 23, (989116) Young

Sec 22, (189115) Serfass

PHYSICAL ACTIVITY PROGRAM COURSES (PE)

(Open to all students)

SECOND TERM

R 1007. SWIMMING. (1 cr; each section limited to 22 students) Stube
See First Term.

Sec 1, (190031). 0800-0850 MTWTh, NorrisH 58

Sec 2, (588308). 0905-0955 MTWTh, NorrisH 58

R 1014. CONDITIONING. (1 cr; each section limited to 40 students)
See First Term.

Sec 1, (991268). 0905-0955 MTWTh; StadS 264, Northrop Field, FieldHse, Jones

Sec 2, (791269). 1115-1205 MTWTh; StadS 264, Northrop Field, FieldHse, Rattigan

R 1015. WEIGHT TRAINING. (890033) (1 cr; limited to 30 students; 0905-0955 MTWTh; StadN 202) Greene
See First Term.

R 1032. BADMINTON. (191270) (1 cr; limited to 24 students; 1010-1100 MTWTh; CookeH 325) Jones
See First Term.

R 1038. TENNIS. (1 cr; each sec limited to 28 students)

See First Term.

- Sec 1, (490035) 0800-0850 MTWTh, BFAB 101, Tennis Courts, Jacklitch
- Sec 2, (290036) 0905-0955 MTWTh, BFAB 101, Tennis Courts, Jacklitch
- Sec 3, (190037) 1010-1100 MTWTh, BFAB 101, Tennis Courts, Brylinsky
- Sec 4, (990038) 1115-1205 MTWTh, BFAB 101, Tennis Courts

R 1047. ARCHERY. (991271) (1 cr; moderate intensity; limited to 25 students; 0800-0850 MTWTh; NorrisH 60) Brylinsky Instruction in fundamentals; history, safety, formal and informal tournaments, and competition included.

R 1050. GOLF. (1 cr; moderate intensity; each section limited to 24 students) Larson

See First Term.

- Sec 1, (791272), 0905-0955 MTWTh, StadS 267, Golf Course
- Sec 2, (591273), 1010-1100 MTWTh, StadS 267, Golf Course

R 1074. VOLLEYBALL. (391274) (1 cr; limited to 48 students; 0905-0955 MTWTh; CookeH 325) Rattigan Fundamental skills and rules of volleyball; basic team play and strategy.

PROFESSIONAL COURSES (PE)

SECOND TERM

3111. MECHANICS OF MOVEMENT. (091276) (3 cr; prereq Anat 1027; 0800-0855 MTWThF; CookeH 206; A-N only) DeDeyn

Structure of the body, principles, and mechanics of bodily movements.

R 3115. PHYSIOLOGICAL APPLICATION TO SPORTS. (987561) (3 cr, \$PubH 3385, 3386 or PE 3385, 3386; limited to 40 students; prereq Phsl 3051 or #; 0905-0955 MTWThF; CookeH 206; A-N only) Alexander

Muscular contraction for strength development programs; contributions of training programs to endurance, speed, and skill acquisition; influence of training on the cardiovascular system, fatigue, and recovery; early season training, pregame meals and ergogenic aids in athletics. Required for Minnesota Coaching licensure.

3126. PSYCHOLOGICAL AND SOCIOLOGICAL DIMENSIONS OF PHYSICAL ACTIVITY. (691278) (3 cr; 1010-1100 MTWThF; CookeH 206; A-N only) Krotee

Introductory focus on analysis of current literature and theoretical constructs in this dimension of physical activity.

3625. SUPERVISED PRACTICAL EXPERIENCE. (491279) (1-12 cr [max 12 cr]; prereq Δ ; S-N only) Stoner

See First Term.

5121. CONTRIBUTIONS OF BASIC SCIENCE TO PHYSICAL EDUCATION. (891280) (3 cr; prereq #: 0905-0955 MTWThF; CookeH 215; A-N only) Stoner

Recent research in related physical sciences; applications in selected areas.

5131. MOTOR DEVELOPMENT. (787562) (3 cr; prereq 3112 or #; 0800-0850 MTWThF; CookeH 215; A-N only) Plack

Development aspects of motor skill acquisition from birth to physical maturity.

5134. PERCEPTUAL-MOTOR DEVELOPMENT IN CHILDHOOD. (691281) (3 cr; prereq 3113 or #; 1010-1100 MTWThF; CookeH 215; A-N only) Plack

The motoric dimension of perception; emphasis on developmental tenets of perception, diagnosis, and remediation of perceptual-motor deficiencies and related research.

5136. PSYCHOLOGY OF COACHING. (491282) (3 cr; prereq 3113 or #; 1115-1205 MTWThF; CookeH 215; A-N only) Krotee

Psychological aspects of coaching at the elementary, secondary, and college levels.

5140. BIOMECHANICS OF SPORT SAFETY—July 22-August 1. (291283) (3 cr; prereq undergrad kinesiology; 1230-1500 MTWThF; CookeH 215; A-N only) Stoner

Forces and torques developed in sports activities; tolerances of the human body; techniques for preventing injury; design of protective equipment.

5981. PROBLEMS. (Cr and hrs ar; prereq MEd candidate, #: A-N only)

See First Term.

- Sec 21, (990041) Alexander
- Sec 22, (790042) Krotee

- Sec 23, (590043) Plack
- Sec 24, (390044) Stoner

5983. READINGS: PHYSICAL EDUCATION. (Cr ar [max 9 cr]; prereq education or graduate student; A-N only)

See First Term.

- Sec 21, (090046) Alexander
- Sec 22, (890047) Krotee

- Sec 23, (690048) Plack
- Sec 24, (490049) Stoner

8980. RESEARCH PROBLEMS. (587563) (1 cr [max 2 cr]; prereq 5980, PsyF 5110 or EPsy 5260 or #; 1220-1310 TTh; CookeH 214; S-N only) Alexander

Designing and reporting on individual problems. Required of all M.A. and Ph.D. candidates.

Course Descriptions

8981. RESEARCH PROBLEMS. (Cr and hrs ar; prereq 8980 or #; S-N only)

See First Term.

Sec 21, (690051) Alexander
Sec 22, (490052) Krottee

Sec 23, (290053) Plack
Sec 24, (486423) Stoner

DANCE (Dnce)

All dance courses listed below are high intensity (participation requiring a high level of energy expenditure) except those otherwise indicated. It is therefore recommended that students who have questions about their ability to participate safely in the physical activities involved in a course seek advice from a physician.

FIRST TERM

1022. BALLROOM DANCE—June 12-July 6. (1 cr; each section limited to 25 students) Jette
Elementary steps and variations of the foxtrot, waltz, tango, samba, cha-cha, rumba, and swing.

Sec 1, (189865) 1115-1205 MTWTh, NorrisH M153, M153A (men only)
Sec 2, (089866) 1115-1205 MTWTh, NorrisH M153, M153A (women only)

1024. MODERN DANCE. (1 cr; each section limited to 25 students) Jette
Introduction to fundamental techniques of modern dance.

Sec 1, (889867) 0800-0850 MTWTh; NorrisH M153, M153A
Sec 2, (091553) 1010-1100 MTWTh; NorrisH M153, M153A

SECOND TERM

1022. BALLROOM DANCE. (1 cr; each section limited to 25 students) Lampe
See First Term.

Sec 1, (686114) 1115-1205 MTWTh, NorrisH M151 (men only)
Sec 2, (486115) 1115-1205 MTWTh, NorrisH M151 (women only)

Recreation, Park, and Leisure Studies (Rec)

FIRST TERM

3700. SENIOR INTERNSHIP. (689868) (1-15 cr; prereq sr, recreation major or minor, Δ; hrs ar; S-N only) McAvoy, Schleien
Supervised experiences in selected agencies.

5230. RECREATION AND MENTAL RETARDATION. (891196) (3 cr; prereq 5210, 5220, or #; limited to 30 students; 1800-2045 TTh; CookeH 206; A-N only) Schleien
Issues relating to leisure services for persons with mental retardation problems; approaches to programming in the institution and in the community.

5310. PROGRAMMING IN OUTDOOR EDUCATION. (491198) (4 cr; prereq 5300 or #; limited to 18 students; meet 0800 M, June 17, CookeH 206 for organization and departure; field trip through 1800, June 22; A-N only) McAvoy
Methods, materials, and setting appropriate for developing and conducting outdoor education and environmental interpretation programs; emphasis on development of practical skills on a six-day field canoe trip on Namekagon and St. Croix Rivers. Advance application required by June 7, 1985. See Special Programs section.

5630. PRACTICUM: THERAPEUTIC RECREATION. (489869) (3-9 cr; prereq recreation MEd or graduate student; hrs ar; A-N only) Schleien
Supervised experiences in program operation; administrative and supervisory duties.

5640. PRACTICUM: PUBLIC RECREATION AND PARKS. (889870) (3-9 cr; prereq recreation MEd or graduate student; hrs ar; A-N only) McAvoy
Supervised experiences in program operation; administrative and supervisory duties.

5981. PROBLEMS. (687568) (Cr and hr ar; prereq MEd candidate, #; A-N only) McAvoy
Focus on conduct of recreation programs.

5983. READINGS: RECREATION. (489872) (1-3 cr; prereq MEd or grad student or Δ; hrs ar; A-N only) Schleien
Independent study under tutorial guidance.

8981. RESEARCH PROBLEMS. (691197) (Cr ar; prereq 8980 or #; S-N only) McAvoy
Individual problems.

SECOND TERM

3700. SENIOR INTERNSHIP. (190054) (1-15 cr; prereq sr, recreation major or minor, Δ; hrs ar; S-N only) Schultz
See First Term.

5630. PRACTICUM: THERAPEUTIC RECREATION. (990055) (3-9 cr; prereq recreation MEd or graduate student; hrs ar; A-N only) Schultz
See First Term.

5640. PRACTICUM: PUBLIC RECREATION AND PARKS. (790056) (3-9 cr; prereq recreation MEd or graduate student; hrs ar; A-N only) Schultz
See First Term.

5900. WORKSHOP: CONTEMPORARY ISSUES IN LEISURE SERVICES: Legal Issues—July 22-August 6. (291199) (1-12 cr [max 12 cr]; prereq Δ; 0800-0950 MTWThF; CookeH 214; A-N only) Schultz
Contemporary issues emphasizing administrative and supervisory functions for recreation and allied professionals; individual offerings focus on special issues and/or professional groups. This offering for 3 credits. See Special Programs section.

5981. PROBLEMS. (686243) (Cr and hr ar; prereq MEd candidate, #; A-N only) Schultz
See First Term.

5983. READINGS: RECREATION. (590057) (1-3 cr; prereq MEd or grad student or Δ; hrs ar; A-N only) Schultz
See First Term.

DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

Agricultural Education (AgEd)

FIRST TERM

R 5027. PRACTICUM: PLACEMENT FOR EXTENSION EXPERIENCES. (389878) (2-9 cr [max 9 cr], §HEEd 3605, 5027; limited to 30 students; hrs ar; off campus; S-N optional) Norenberg
Observation of the activities of county extension staff; familiarization with staff, program planning and development, county committee, youth activities and office activities, with opportunity to participate in the functions of an extension educator. Meets with HEEd 5027.

5041. WORKSHOP: AGRICULTURAL EDUCATION TECHNOLOGY. (1-6 cr [max 6 cr]; A-N only)
New understandings, techniques, and materials in animal science, plant science, horticulture, soil science, agricultural mechanics, forestry, natural resources, youth organization, visual aids, and occupational exploration. See Special Programs section.

Sec 1, **June 18-21**, (890761) 0800-1200 and 1300-1600 TWThF, VoTech R375, Norenberg

Sec 2, **June 18-21**, (690762) 0800-1200 and 1300-1600 TWThF, VoTech R375, Peterson

Sec 3, Agriculture In The Elementary Classroom—June 18-28, (191597) 3 cr, 0800-1200 MTWThF, VoTech R385, Wardlow

Designed to provide basic knowledge of farm production, marketing, processing, distribution, and economics to support U.S.D.A. and Minnesota Department of Agriculture. "Ag in the Classroom" curriculum for elementary schools.

5061. PROGRAM PLANNING AND EVALUATION. (287461) (3 cr; prereq sr; 1300-1345 MTWThF; VoTech R375; A-N only) Peterson

5080. ORGANIZATION AND MANAGEMENT—July 8-9 and 15-17. (290764) (3 cr; prereq #; 0800-1200 and 1300-1600 MTW, VoTech R385; A-N only) Leske
Administrative structure and function of subcollegiate programs of agricultural education. See Special Programs section.

5090. INDEPENDENT STUDY. (1-3 cr; prereq sr; hrs ar; A-N 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, (185959) Bear

Sec 22, (385961) Norenberg

Sec 23, (185962) Persons

Sec 24, (085963) Peterson

Sec 25, (885964) Swanson

Sec 26, (990766) Leske

Course Descriptions

5095. INDEPENDENT STUDY. (3 cr; prereq MEd student in agricultural education; hrs ar; A-N only)
Preparation of a paper dealing with studies in agricultural education applied to professional responsibilities.

Sec 21, (285967) Bear	Sec 24, (185971) Peterson
Sec 22, (185968) Norenberg	Sec 25, (985972) Swanson
Sec 23, (985969) Persons	Sec 26, (790767) Leske

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, (785973) Bear	Sec 24, (185976) Peterson
Sec 22, (585974) Norenberg	Sec 25, (085977) Swanson
Sec 23, (385975) Persons	Sec 26, (590768) Leske

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

Sec 21, (885978) Bear	Sec 24, (885981) Peterson
Sec 22, (685979) Norenberg	Sec 25, (685982) Swanson
Sec 23, (085980) Persons	Sec 26, (390769) Leske

SECOND TERM

R 5027. PRACTICUM: PLACEMENT FOR EXTENSION EXPERIENCES. (188831) (2-9 cr [max 9 cr]; §Heed 3605, 5027; limited to 30 students; prereq #: hrs ar; off campus; S-N optional) Norenberg
See First Term. Meets with HEEd 5027.

5041.¹ WORKSHOP: AGRICULTURAL EDUCATION TECHNOLOGY: Labor Laws and Regulations—August 12. (185928) (1-6 cr [max 6 cr]; 0800-1200 and 1300-1600 M, and hrs ar; VoTech R385; A-N only) Leske
See First Term. This offering for 1 credit.

5072. PRACTICUM: AGRICULTURAL BUSINESS AND INDUSTRY—August 12-16. (790137) (1-3 cr [max 9 cr]; prereq 5071 or #: 0800-1200 and 1300-1600 MTWThF; VoTech R385; A-N only) Leske
Observation, study, and experience in agricultural business and industry; application to educational programs in agriculture. This offering for 3 credits.

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

Sec 21, (185931) Bear	Sec 24, (485935) Peterson
Sec 22, (085932) Norenberg	Sec 25, (285936) Swanson
Sec 23, (685934) Persons	Sec 26, (090774) Leske

5095. INDEPENDENT STUDY. (3 cr; prereq MEd student in agricultural education; hrs ar; A-N only)
See First Term.

Sec 21, (185937) Bear	Sec 24, (185940) Peterson
Sec 22, (985938) Norenberg	Sec 25, (985941) Swanson
Sec 23, (785939) Persons	Sec 26, (890775) Leske

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

Sec 21, (785942) Bear	Sec 24, (085946) Peterson
Sec 22, (585943) Norenberg	Sec 25, (685948) Swanson
Sec 23, (185945) Persons	Sec 26, (690776) Leske

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

Sec 21, (485949) Bear	Sec 24, (285953) Peterson
Sec 22, (885950) Norenberg	Sec 25, (185954) Swanson
Sec 23, (685951) Persons	Sec 26, (490777) Leske

Business and Marketing Education (BME)

FIRST TERM

R 1501.² BASIC KEYBOARDING/TYPEWRITING. (085901) (3 cr, §BDE 1501; limited to 25 students; S-N optional for nonmajors; 1115-1205 MTWThF; VoTech 240) Davison
Emphasis on correct keyboarding techniques for the typewriter, microcomputer, and other applications; letter format; manuscripts; proofreading. Meets with BME 1502 and 1503.

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

² These courses meet concurrently. A total of 40 students will be accepted in the three courses.

nr 1502.¹ INTERMEDIATE TYPEWRITING. (885902) (3 cr, §BDE 1502; limited to 8 students; prereq 1501 or proficiency exam; 1115-1205 MTWThF; VoTech 240; A-N only) Davison
Business letters; job application forms; personal data sheets; centering and tabulations; memoranda; manuscripts with footnotes; speed and accuracy building. Meets with BME 1501 and 1503.

nr 1503.¹ ADVANCED TYPEWRITING. (685903) (3 cr, §BDE 1503; limited to 7 students; prereq 1502 or proficiency exam; 1115-1205 MTWThF; VoTech 240; A-N only) Davison
Form letters; business and personal letters; business forms; tabular/columnar copy; speed and accuracy building. Meets with BME 1501 and 1502.

nr 5310. INTRODUCTION TO MICROCOMPUTER APPLICATIONS IN BUSINESS AND MARKETING EDUCATION—June 18-28. (485904) (3 cr, §BDE 5310; limited to 22 students; 1220-1625 MTWThF and hrs ar; VoTech 230; A-N only) Hopkins
Instructional uses of microcomputers, representative business and marketing education applications, and BASIC programming.

5353. CURRICULUM CONSTRUCTION IN BUSINESS AND MARKETING EDUCATION—July 8-19. (790784) (4 cr, §BDE 5353; 0800-1100 MTWThF and hrs ar; VoTech R285; A-N only) Hopkins
Content identification, program organization, preparation of instructional objectives, guidelines for selection and development of instructional materials.

nr 5359. OCCUPATIONAL EXPERIENCE. (285905) (1-18 cr; limited to 10 students; prereq #; S-N optional; 1800-2000 T and hrs ar; VoTech 420C) Lambrecht
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.

nr 5370. SPECIAL TOPICS IN INSTRUCTION: Teaching Business Graphics Using the Microcomputer—July 8-19. (785908) (1-6 cr; limited to 22 students; 1220-1625 MTWThF and hrs ar; VoTech 230; A-N only) Lambrecht
Topics vary with each offering. This 3-credit offering will teach the use of representative business graphics software packages on the Apple II microcomputer. Instructional applications: using graphics software for making instructional presentations and using simulated projects to teach business graphics applications in business and marketing classrooms.

5600. FIELD-BASED PROJECTS IN BUSINESS AND MARKETING EDUCATION. (1-12 cr [max 12 cr]; prereq #; hrs ar; A-N only)
Individual or group work on curricular, instructional, developmental, or evaluation problems and projects applicable to local school or business situations.

Sec 21, (985910) Hopkins

Sec 22, (785911) Lambrecht

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 21, (585912) Hopkins

Sec 22, (385913) Lambrecht

8900. PROBLEMS: BUSINESS AND MARKETING EDUCATION. (1-9 cr [max 9 cr]; prereq #; hrs ar)
Individual research.

Sec 21, (185914) Hopkins

Sec 22, (085915) Lambrecht

SECOND TERM

nr 5360. PROGRAM DEVELOPMENTS IN BUSINESS AND MARKETING EDUCATION: Teaching Keyboarding in the Elementary School—July 22-26. (590785) (1-6 cr; limited to 30 students; 1220-1625 MTWThF and hrs ar; VoTech 230; A-N only) Davison
Developments emerging from research and local, state, and national programs and projects. This 2-credit offering will focus on using appropriate psychological concepts in teaching the typewriter/computer keyboard to elementary school students, including evaluation. Existing materials available for instruction will be reviewed, including computer-assisted programs.

5380. SPECIAL TOPICS IN CURRICULUM: Integrating Math and Communication Skills in Business and Marketing Education Courses—July 22-August 2. (390786) (1-6 cr; 1220-1625 MTWThF and hrs ar; VoTech 220; A-N only) Ashmun
Content development and evaluation of curriculum and curriculum materials. Topics vary with each offering. This 3-credit offering is designed to help participants review and revise curriculum to provide for the direct application of mathematics and communication skills when teaching business and marketing education courses.

nr 5390. SPECIAL TOPICS IN TECHNICAL UPDATING: Data Base Programs in Business and Marketing Education—July 22-August 2. (685897) (1-6 cr; limited to 22 students; 0800-1205 MTWThF and hrs ar; VoTech 230; A-N only) Ashmun
Topics vary with each offering. This 3-credit offering will teach the use of representative data base software packages on the Apple II microcomputer. Instructional applications: using data base programs for managing instructional materials for teaching inventory control, mailing lists, accounting, and data entry concepts in business and marketing classrooms.

¹These courses meet concurrently. A total of 40 students will be accepted in the three courses.

Course Descriptions

5600. FIELD-BASED PROJECTS IN BUSINESS AND MARKETING EDUCATION. (685898) (1-12 cr [max 12 cr]; prereq #: hrs ar; A-N only) Ashmun
See First Term.

5900. DIRECTED STUDY IN BUSINESS AND MARKETING EDUCATION. (485899) (1-6 cr [max 6 cr]; S-N optional; prereq Δ; hrs ar) Ashmun
See First Term.

8900. PROBLEMS: BUSINESS AND MARKETING EDUCATION. (185900) (1-9 cr [max 9 cr]; prereq #: hrs ar) Ashmun
See First Term.

Home Economics Education (HEEd)

FIRST TERM

R 5003. COOPERATIVE EDUCATION PROGRAM: INTERNSHIP. (188272) (3 cr [max 9 cr]; limited to 30 students; prereq HE 1003, 1500; hrs ar; VoTech 325 J, K; S-N only) Rossmann, Kvistberg
Planned work experience focusing on educational competencies in nonschool settings. Students assume defined responsibilities of the position. A maximum of 3 credits may be used in M.A. and M.Ed. programs. For information, contact Marilyn Rossmann, 325 Vocational and Technical Education Building, University of Minnesota, 1954 Buford Avenue, St. Paul, MN 55108 (373-1525).

R 5027. PRACTICUM: PLACEMENT FOR EXTENSION EXPERIENCES. (991612) (2-9 cr [max 9 cr], \$HEEd 3605, \$AgEd 5027; limited to 30 students; hrs ar; off campus; S-N optional) Norenberg
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.

R 5325. TRENDS IN HOME ECONOMICS EDUCATION: The Future is Now—Education for Meeting Changed Family Needs—July 1-5. (991027) (1-4 cr [max 12 cr]; limited to 30 students; 0815-1200 MTWF; VoTech R380; A-N only) Rossmann

Current status; purposes, programs, content emphasis, research, problems, and issues in the field. This 2-credit offering focuses on interpreting signals of social change and resultant implications for planning educational programs for adolescents and families; application of futurist techniques to educational program planning.

R 5407. FAMILY LIFE EDUCATION—July 8-19. (589880) (1-4 cr [max 12 cr]; 0900-1200 MTWThF and hrs ar; limited to 30 students; VoTech R380; A-N 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.

R 5430.¹ WORKSHOP: CONTEMPORARY PROBLEMS IN HOME ECONOMICS EDUCATION. (1-6 cr [max 12 cr]; section 1 limited to 25 students, section 2 limited to 50 students; A-N only)
Consideration of topic of current concern in home economics education.

Sec 1, Nutrition and Exercise, June 18-28. (491024), 3 cr, 1300-1625 MTWThF, VoTech R380, Levine, Serfass
Application of basic nutrition to exercise, athletics, diet, and weight control. Meets with PE 5720. See Special Programs section.

Sec 2, Developing Student Discipline and Motivation, July 8-12. (291025), 2 cr, 1300-1700 MTWThF, VoTech R370, Dittman

Application of selected approaches to discipline; ways to maintain productive student behavior in both formal and informal educational settings. See Special Programs section.

R 5440. COMPUTER APPLICATIONS IN HOME ECONOMICS—June 18-28. (186223) (3 cr; limited to 22 students; 0845-1200 MTWThF and hrs ar; VoTech 230; A-N only) McClelland
Uses of computers in instruction and management of home economics programs; review of software.

5900. READINGS IN HOME ECONOMICS EDUCATION. (1-3 cr [max 12 cr]; prereq #: hrs ar; A-N only)
Independent study under tutorial guidance.

Sec 21, (791028) Rossmann

Sec 23, (591032) Plihal

Sec 22, (791031) McClelland

R 8300. RESEARCH METHODS—June 18-July 5. (191026) (3 cr; limited to 20 students; prereq 5315, #; 1625-1835 MTWThF; VoTech R370) Plihal
Methods of inquiry; descriptive and causal-comparative methods, with attention to experimentation.

8900. PROBLEMS: HOME ECONOMICS EDUCATION. (1-9 cr; prereq 8300, #; hrs ar)
Independent study of current educational problems.

Sec 21, (591029) Rossmann

Sec 23, (191034) Plihal

Sec 22, (391033) McClelland

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

SECOND TERM

5027. PRACTICUM: PLACEMENT FOR EXTENSION EXPERIENCES. (888069) (2-9 cr [max 9 cr], \$HEEd 3605 or AgEd 5027; limited to 30 students; hrs ar; off campus; S-N optional) Norenberg
See First Term.

5405. CHILD DEVELOPMENT AND PARENT EDUCATION—July 22-August 2. (691040) (1-4 cr [max 12 cr]; limited to 25 students; 0900-1200, 1300-1600 MTWThF; VoTech R380; A-N only) Thomas
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. Meets with 5920.

5430.¹ WORKSHOP: CONTEMPORARY PROBLEMS IN HOME ECONOMICS EDUCATION: Financial Planning Education—August 13-14. (691037) (1-6 cr [max 12 cr]; 0900-1500 T, 0900-1130 W; VoTech R380; A-N only) Anderson
See First Term. Teaching fundamentals; how financial independence is achieved, assessing individual situations, choosing options to achieve goals; approaches to teaching goal setting, budgeting for saving, insurance and investments, minimizing the effects of taxation and inflation. This offering for 1 credit. See Special Programs section.

5900. READINGS IN HOME ECONOMICS EDUCATION. (290148) (1-3 cr [max 12 cr]; prereq #; hrs ar; A-N only) Thomas
See First Term.

5920. DIRECTED STUDIES—July 22-August 2. (491041) (1-6 cr; limited to 25 students, prereq #; 0900-1200, 1300-1600 MTWThF; VoTech R380; S-N optional) Thomas
Opportunity for individualized learning experience in areas not covered by regular courses. This offering for 2 credits. Meets with 5405.

8900. PROBLEMS: HOME ECONOMICS EDUCATION. (088281) (1-9 cr; prereq 8300, #; hrs ar) Thomas
See First Term.

Industrial Education (Ind)

FIRST TERM

3110. CONSTRUCTION: INTERMEDIATE. (689885) (3 or 6 or 9 cr; prereq 1612, #; hrs ar; A-N only) Miletich
Individualized technical skill development in areas of house framing, concrete work, domestic wiring, plumbing, surveying, painting, paper hanging, and basic construction codes.

3111. CONSTRUCTION: ADVANCED. (489886) (3 or 6 or 9 cr; prereq 3110, #; hrs ar; A-N only) Miletich
Individualized advanced skill development in areas of forming, block and brick, commercial plumbing, industrial circuitry, landscaping, finishing, and advanced construction codes.

3120. GRAPHIC COMMUNICATIONS: INTERMEDIATE. (289887) (3 or 6 or 9 cr; prereq 1622, #; hrs ar; A-N only) Miletich
Individualized technical skill development in areas of offset printing, technical illustrating, machine and architectural drafting, photography.

3121. GRAPHIC COMMUNICATIONS: ADVANCED. (189888) (3 or 6 or 9 cr; prereq 3120, #; hrs ar; A-N only) Miletich
Individualized advanced skill development in areas of color separation, web press operation, drafting design, color renditions, air brush.

3130. MANUFACTURING: INTERMEDIATE. (989889) (3 or 6 or 9 cr; prereq 1632, #; hrs ar; A-N only) Miletich
Individualized technical skill development in areas of welding, lathe operation, milling machine operation, sheet metal construction.

3131. MANUFACTURING: ADVANCED. (289890) (3 or 6 or 9 cr; prereq 3130, #; hrs ar; A-N only) Miletich
Individualized advanced skill development in areas of numerical control and machine setup inspection, electric discharge machining, TIG welding.

3140. POWER AND ENERGY: INTERMEDIATE. (189891) (3 or 6 or 9 cr; prereq 1642, #; hrs ar; A-N only) Miletich
Individualized technical skill development in areas of digital, hydraulic and pneumatic control systems, and radio and TV repair.

3141. POWER AND ENERGY: ADVANCED. (989892) (3 or 6 or 9 cr; prereq 3140, #; hrs ar; A-N only) Miletich
Individualized advanced skill development in areas of digital, hydraulic, and pneumatic system design, electronic maintenance and repair, and alternative energy sources.

3150. TRANSPORTATION: INTERMEDIATE. (789893) (3 or 6 or 9 cr; prereq 1652, #; hrs ar; A-N only) Miletich
Individualized technical skill development in areas of small gas and marine engine repair, automotive tuneup, cooling systems, brakes, and autobody repair.

¹ Graduate students planning to register for any workshop should consult their adviser concerning the possibility of using credit for the workshop in their graduate program.

Course Descriptions

3151. TRANSPORTATION: ADVANCED. (589894) (3 or 6 or 9 cr; prereq 3150, #; hrs ar; A-N only) Miletich
Individualized advanced skill development in areas of diesel engine repair, auto engine overhaul, front end repair, automatic transmission, aircraft engine maintenance, chassis straightening.

3900. INDEPENDENT STUDY. (3 cr per qtr; prereq #: hrs ar; A-N only)
Self-directed study, preceded by classroom instruction in basic research procedures.

Sec 21, (389895) Bjorkquist	Sec 23, (089897) Miletich
Sec 22, (189896) Brown	Sec 24, (889898) Swanson

3901. INDEPENDENT STUDY. (3 cr; prereq #: hrs ar; A-N only)
Self-directed study, preceded by classroom instruction in basic research procedures.

Sec 21, (691068) Bjorkquist	Sec 23, (891070) Miletich
Sec 22, (491069) Brown	Sec 24, (691071) Swanson

3902. INDEPENDENT STUDY. (3 cr; prereq #: hrs ar; A-N only)
Self-directed study, preceded by classroom instruction in basic research procedures.

Sec 21, (291073) Bjorkquist	Sec 23, (991075) Miletich
Sec 22, (191074) Brown	Sec 24, (791076) Swanson

5100. COMMUNICATIONS OCCUPATIONAL EXPERIENCE. (389900) (1-5 cr [max 15 cr]; prereq #: hrs ar; A-N only)
Miletich

Structured/supervised employment in the communications industry. Credits allowed will be derived from the ratio of 100 clock hours of supervised work experience to each credit given the student. Total credits earned in 5100, 5101, 5102, and 5103 may not exceed 15.

5101. PRODUCTION/MANUFACTURING OCCUPATIONAL EXPERIENCE. (189901) (1-5 cr [max 15 cr]; prereq #: hrs ar; A-N only) Miletich

Structured/supervised employment in the production/manufacturing industry. Credits allowed will be derived from the ratio of 100 clock hours of supervised work experience to each credit given the student. Total credits earned in 5100, 5101, 5102, and 5103 may not exceed 15.

5102. POWER/ENERGY OCCUPATIONAL EXPERIENCE. (089902) (1-5 cr [max 15 cr]; prereq #: hrs ar; A-N only) Miletich

Structured/supervised employment in the power/energy industry. Credits allowed will be derived from the ratio of 100 clock hours of supervised work experience to each credit given the student. Total credits earned in 5100, 5101, 5102, and 5103 may not exceed 15.

5103. CONSTRUCTION OCCUPATIONAL EXPERIENCE. (089947) (1-5 cr [max 15 cr]; prereq #: hrs ar; A-N only) Miletich

Structured/supervised employment in the construction industry. Credits allowed will be derived from the ratio of 100 clock hours of supervised work experience to each credit given the student. Total credits earned in 5100, 5101, 5102, and 5103 may not exceed 15.

5112. CONSTRUCTION SPECIALIZATION. (889948) (1-9 cr; prereq Δ ; hrs ar; A-N only) Miletich
Integration of specialized technical instruction in advanced or emerging areas into courses in industrial education.

5122. GRAPHIC COMMUNICATIONS: SPECIALIZATION. (587515) (1-9 cr; prereq Δ ; A-N only) Miletich
Integration of specialized technical instruction in advanced or emerging areas into courses in industrial education.

5132. MANUFACTURING: SPECIALIZATION. (689949) (1-9 cr; prereq Δ ; hrs ar; A-N only) Miletich
Integration of specialized technical instruction in advanced or emerging areas into courses in industrial education. See Special Programs section.

5142. POWER AND ENERGY: SPECIALIZATION. (089950) (1-9 cr; prereq Δ ; hrs ar; A-N only) Miletich
Integration of specialized technical instruction in advanced or emerging areas into courses in industrial education.

5152. TRANSPORTATION: SPECIALIZATION. (889951) (1-9 cr; prereq Δ ; hrs ar; A-N only) Miletich
Integration of specialized technical instruction in advanced or emerging areas into courses in industrial education.

5305. CRITICAL ISSUES IN INDUSTRIAL EDUCATION—July 1-12. (891067) (3 cr; prereq education or grad student; 1325-1625 MTWThF; VoTech R270; A-N only) Moss
Identification, analysis, and discussion of major current problems in the field.

5900. SCHOOL-BASED PROJECT IN INDUSTRIAL EDUCATION. (1-6 cr [max 12 cr]; prereq 5305, 5325, MEEd 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 21, (489953) Bjorkquist	Sec 23, (189955) Miletich
Sec 22, (289954) Brown	Sec 24, (989956) Swanson

8900. RESEARCH PROBLEMS. (3-6-9 cr per qtr; prereq approval of candidacy; hrs ar)
Individual conferences.

Sec 21, (589958) Bjorkquist	Sec 23, (789960) Miletich
Sec 22, (389959) Brown	Sec 24, (589961) Swanson

8901. RESEARCH PROBLEMS. (3-6-9 cr per qtr; prereq approval of candidacy; hrs ar)
Individual conferences.

Sec 21, (189963) Bjorkquist
Sec 22, (089964) Brown

Sec 23, (889965) Miletich
Sec 24, (689966) Swanson

SECOND TERM

3110. CONSTRUCTION: INTERMEDIATE. (190149) (3 or 6 or 9 cr; prereq 1612, #; hrs ar; A-N only) Miletich
See First Term.

3111. CONSTRUCTION: ADVANCED. (490150) (3 or 6 or 9 cr; prereq 3110, #; hrs ar; A-N only) Miletich
See First Term.

3120. GRAPHIC COMMUNICATIONS: INTERMEDIATE. (290151) (3 or 6 or 9 cr; prereq 1622, #; hrs ar; A-N only)
Miletich
See First Term.

3121. GRAPHIC COMMUNICATIONS: ADVANCED. (190152) (3 or 6 or 9 cr; prereq 3120, #; hrs ar; A-N only) Miletich
See First Term.

3130. MANUFACTURING: INTERMEDIATE. (990153) (3 or 6 or 9 cr; prereq 1632, #; hrs ar; A-N only) Miletich
See First Term.

3131. MANUFACTURING: ADVANCED. (488317) (3 or 6 or 9 cr; prereq 3130, #; hrs ar; A-N only) Miletich
See First Term.

3140. POWER AND ENERGY: INTERMEDIATE. (790154) (3 or 6 or 9 cr; prereq 1642, #; hrs ar; A-N only) Miletich
See First Term.

3141. POWER AND ENERGY: ADVANCED. (590155) (3 or 6 or 9 cr; prereq 3140, #; hrs ar; A-N only) Miletich
See First Term.

3150. TRANSPORTATION: INTERMEDIATE. (390156) (3 or 6 or 9 cr; prereq 1652, #; hrs ar; A-N only) Miletich
See First Term.

3151. TRANSPORTATION: ADVANCED. (190157) (3 or 6 or 9 cr; prereq 3150, #; hrs ar; A-N only) Miletich
See First Term.

3900. INDEPENDENT STUDY. (3 cr per qtr; prereq #; hrs ar; A-N only)
See First Term.

Sec 21, (090158) Bjorkquist
Sec 22, (890159) Miletich

Sec 23, (190160) Moss
Sec 24, (090161) Pucel

3901. INDEPENDENT STUDY. (3 cr; prereq #; hrs ar; A-N only)
See First Term.

Sec 21, (591080) Bjorkquist
Sec 22, (391081) Miletich

Sec 23, (191082) Moss
Sec 24, (091083) Pucel

3902. INDEPENDENT STUDY. (3 cr; prereq #; hrs ar; A-N only)
See First Term.

Sec 21, (891084) Bjorkquist
Sec 22, (691085) Miletich

Sec 23, (491086) Moss
Sec 24, (291087) Pucel

5100. COMMUNICATIONS OCCUPATIONAL EXPERIENCE. (890162) (1-5 cr [max 15 cr]; prereq #; hrs ar; A-N only)
Miletich
See First Term.

5101. PRODUCTION/MANUFACTURING OCCUPATIONAL EXPERIENCE. (690163) (1-5 cr [max 15 cr]; prereq #;
hrs ar; A-N only) Miletich
See First Term.

5102. POWER/ENERGY OCCUPATIONAL EXPERIENCE. (490164) (1-5 cr [max 15 cr]; prereq #; hrs ar; A-N only)
Miletich
See First Term.

5103. CONSTRUCTION OCCUPATIONAL EXPERIENCE. (290165) (1-5 cr [max 15 cr]; prereq #; hrs ar; A-N only)
Miletich
See First Term.

5112. CONSTRUCTION: SPECIALIZATION. (288318) (1-9 cr; prereq Δ ; hrs ar; A-N only) Miletich
See First Term.

5122. GRAPHIC COMMUNICATIONS: SPECIALIZATION. (1-9 cr; prereq Δ ; A-N only) Miletich
See First Term. See Special Programs section.

Sec 1, (190166) Miletich

Sec 2, (191088) July 22-26, 3 cr, 0800-1205, 1325-1625 MTWThF, VoTech 110, Bjorkquist

Course Descriptions

5132. MANUFACTURING: SPECIALIZATION. (990167) (1-9 cr; prereq Δ ; hrs ar; A-N only) Miletich
See First Term.

5142. POWER AND ENERGY: SPECIALIZATION. (790168) (1-9 cr; prereq Δ ; hrs ar; A-N only) Miletich
See First Term.

5152. TRANSPORTATION: SPECIALIZATION. (590169) (1-9 cr; prereq Δ ; hrs ar; A-N only) Miletich

R 5600. INSTRUCTIONAL MATERIALS LABORATORY—July 29-August 9. (991089) (3-6-9 cr; limited to 25 students; prereq major, teaching exper or #; 0905-1205 MTWThF; VoTech R280; A-N only) Pucel
Laboratory and shop experiences with new materials, processes, and equipment; development of complementary instruction materials. This offering for 3 credits. See Special Programs section.

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 21, (990170) Bjorkquist
Sec 22, (790171) Miletich

Sec 23, (590172) Moss
Sec 24, (390173) Pucel

8900. RESEARCH PROBLEMS. (3-6-9 cr per qtr; prereq approval of candidacy; hrs ar)
See First Term.

Sec 21, (190174) Bjorkquist
Sec 22, (090175) Miletich

Sec 23, (890176) Moss
Sec 24, (690177) Pucel

8901. RESEARCH PROBLEMS. (3-6-9 cr per qtr; prereq approval of candidacy; hrs ar)
See First Term.

Sec 21, (490178) Bjorkquist
Sec 22, (290179) Miletich

Sec 23, (690180) Moss
Sec 24, (490181) Pucel

Vocational Education (VoEd)

FIRST TERM

R 5100. SPECIAL TOPICS IN INSTRUCTION: Authoring Vocational Instruction with Microcomputers—July 1-12. (289968) (1-6 cr [max 9 cr]; limited to 20 students; prereq #; 0905-1205 MTWThF and hrs ar; VoTech 230; A-N only) Lambrecht

Topics vary but cover planning, providing, and/or evaluating instruction. This three-credit offering introduces vocational educators and trainers in industry and business to the use of microcomputers. Exploration of various types of microcomputer/education interactions, aspects of effective microcomputer-aided education, and use of commercially available "authoring" software for the Apple II, II+, and IIe computers.

R 5300. PHILOSOPHY AND PRACTICE OF VOCATIONAL EDUCATION—June 18-28. (189969) (3 cr; limited to 50 students; 1325-1625 MTWThF and hrs ar; VoTech R385; A-N only) G Swanson
Interpretation of the purposes of vocational education in varying socioeconomic contexts; analysis of vocational fields in regard to recipients, practices, legislation, and funding.

R 5750. TRAINING IN INDUSTRY AND BUSINESS—June 18-21. (788291) (3 or 4 cr; limited to 35 students; 0905-1205 and 1325-1625 TWThF and hrs ar; VoTech R280; A-N only) R Swanson, Bjorkquist
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 3 credits.

R 5760. ORGANIZATIONAL DEVELOPMENT IN INDUSTRY AND BUSINESS—June 24-28. (088295) (3 or 4 cr; limited to 25 students; 0905-1205 and 1325-1625 MTWThF and hrs ar; VoTech R285; A-N only) McLean
Introduction to major concepts, skills, and techniques. This offering for 3 credits.

R 5780. INTERNSHIP: TRAINING AND DEVELOPMENT. (888296) (Cr ar [max 15 cr]; limited to 15 students; prereq 5750; hrs ar; S-N optional) McLean
Students apply and contract for training positions in industry and business; individual contracts describe the specific training and development responsibilities to be fulfilled during the period of internship; may be used to meet a portion of student teaching requirement providing student will still be qualified to teach in public school.

SECOND TERM

R 5102. SPECIAL TOPICS IN ADMINISTRATION: Legal Aspects of Managing Vocational Education—July 29-August 9. (291235) (3 cr; limited to 50 students; 1325-1625 MTWThF and hrs ar; VoTech R385; A-N only) Bice
Topics vary with each offering but cover leadership and management of vocational education. This offering for 3 credits seeks to aid managers of vocational education to understand laws affecting their job responsibilities. See Special Programs section.

R 5300. PHILOSOPHY AND PRACTICE OF VOCATIONAL EDUCATION—July 22-26. (290182) (3 cr; limited to 50 students; 0905-1205 and 1325-1625 MTWThF and hrs ar; VoTech R280; A-N only) Moss
See First Term.

R 5780. INTERNSHIP: TRAINING AND DEVELOPMENT. (486258) (Cr and hrs ar [max 15 cr]; limited to 15 students; prereq 5750; S-N optional) McLean
See First Term.

College of Forestry

Forest Resources, Renewable Resource Science, and Urban Forestry majors are required to complete a 3½ week Lake Itasca and Biological Station summer term between their freshman and sophomore or sophomore and junior years. Nonforestry students who have interest in forestry, outdoor education, or plant ecology may also attend the session. To attend, students must have completed 40 credits, attained a minimum cumulative grade point average of 2.00 and completed Biol 1103, Chem 1001 or 1004 and Math 1008 with a grade of at least C. It is the student's responsibility to provide the College of Forestry with a complete transcript of all course work and an application by July 15 before the Itasca session begins. Courses offered at Itasca are FR 3100, Important Forest Plants (two credits); FR 3101, Field Forest Ecology (three credits); and FR 3201, Field Forest Measurements (one credit). The intensive field training provides students with an introduction to forestry and forests in an excellent field setting. The session is timed to interfere as little as possible with summer employment.

About half of the nonforestry courses required for graduation in all College of Forestry curricula are available during the summer session on the Twin Cities campus through the various colleges. Students with deficiencies, or those desiring to graduate early, can effectively utilize the summer session to complete required courses in the biological and physical sciences, mathematics, social sciences, communications, and other areas.

OFFERED AT LAKE ITASCA FORESTRY AND BIOLOGICAL STATION¹ Fisheries and Wildlife (FW)

FIRST TERM

FR 5456. **FIELD ECOLOGY OF FISHES.** (991447) (5 cr; limited to 15 students; prereq introductory course in ecology; 0800-1700 TF) Gerking

Ecological studies, observation, and identification of fishes in their natural habitat including life histories, reproduction, behavior, food habits, interrelationships with other fishes, and general habitat requirements. Collection methods in streams and lakes.

SPECIAL TERM—AUGUST 28-SEPTEMBER 22, 1985

Registration for Itasca is administered through the College of Forestry, Office of Student Services, during early August. The Itasca session occupies the student's full time for six days per week. Most of the time is spent in the forest.

Forest Resources (FR)

FR 3100. **IMPORTANT FOREST PLANTS.** (2 cr; prereq FR 3101, FR 3201, Biol 1103)

Identification of forest plants as related to forest types.

Sec 1, (290196) Scholten

Sec 2, (190197) Scholten

Sec 3, (990198) Scholten

Sec 4, (790199) Scholten

FR 3101. **FIELD FOREST ECOLOGY.** (3 cr; prereq FR 3100, FR 3201, general chemistry)

Field examination of succession, soils, silvical characteristics, tree classification, stand structure, and the ecology of regeneration.

Sec 1, (490200) Kurmis, Sucoff

Sec 2, (290201) Kurmis, Sucoff

Sec 3, (190202) Kurmis, Sucoff

Sec 4, (990203) Kurmis, Sucoff

¹For additional courses, see Biology Program.

Course Descriptions

R 3201. FIELD FOREST MEASUREMENT. (1 cr; prereq f3100, f3101, Math 1008 or #)

Introduction to land survey, tree and stand measurement, and basic forest sampling techniques.

Sec 1, (790204) Splett

Sec 3, (390206) Splett

Sec 2, (590204) Splett

Sec 4, (190207) Splett

3225. DIRECTED STUDY EXPERIENCE. (486938) (1-5 cr; prereq #)

R 5160. PRACTICUM IN FOREST BIOLOGY AND MEASUREMENTS. (991609) (3 cr; prereq graduate student) Sucoff, Splett

Plant identification, plant dynamics, land survey, tree measurement.

OFFERED ON THE ST. PAUL CAMPUS

Fisheries and Wildlife (FW)

FIRST TERM

5393. SPECIAL PROBLEMS IN FISHERY BIOLOGY. (688901) (Cr ar; prereq #) Staff
Individual field, library, and laboratory research in various areas of fishery biology.

5398. SPECIAL PROBLEMS IN WILDLIFE BIOLOGY. (488902) (Cr ar; prereq #) Staff
Individual field, library, and laboratory research in various areas of wildlife biology.

8364.* RESEARCH IN FISHERY BIOLOGY. (288903) (Cr ar; prereq #) Staff

8377.* RESEARCH IN WILDLIFE BIOLOGY. (188904) (Cr ar; prereq #) Staff

SECOND TERM

5393. SPECIAL PROBLEMS IN FISHERY BIOLOGY. (889920) (Cr ar; prereq #) Staff
See First Term.

5398. SPECIAL PROBLEMS IN WILDLIFE BIOLOGY. (689921) (Cr ar; prereq #) Staff
See First Term.

8364.* RESEARCH IN FISHERY BIOLOGY. (489922) (Cr ar; prereq #) Staff

8377.* RESEARCH IN WILDLIFE BIOLOGY. (289923) (Cr ar; prereq #) Staff

Forest Products (ForP)

FIRST TERM

8300.* RESEARCH PROBLEMS. (090208) (Cr ar) Staff

8301.* RESEARCH PROBLEMS. (890209) (Cr ar) Staff

8302.* RESEARCH PROBLEMS. (190210) (Cr ar) Staff

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

3301. INDUSTRIAL ASSIGNMENT. (xxxxxx) (1 cr; prereq Forest Product student, registration in cooperative education program; S-N only) Bowyer
Industrial work assignment in Forest Products cooperative education program. Evaluation based on formal report written by student at end of each quarter of work assignment.

SECOND TERM

8300.* RESEARCH PROBLEMS. (190183) (Cr ar) Staff

8301.* RESEARCH PROBLEMS. (990184) (Cr ar) Staff

8302.* RESEARCH PROBLEMS. (790185) (Cr ar) Staff

Forest Resources (FR)

FIRST TERM

8100.* RESEARCH PROBLEMS IN SILVICULTURE. (090211) (Cr ar) Scholten, Alm

8101.* RESEARCH PROBLEMS IN FOREST TREE PHYSIOLOGY. (890212) (Cr ar) Sucoff, Dixon

- 8102.* RESEARCH PROBLEMS IN FOREST TREE GENETICS. (690213) (Cr ar) Mohn
- 8103.* RESEARCH PROBLEMS IN FOREST HYDROLOGY. (490214) (Cr ar) Brooks, Perry
- 8200.* RESEARCH PROBLEMS IN FOREST MANAGEMENT. (290215) (Cr ar) Hallgren, Irving, Rose
- 8201.* RESEARCH PROBLEMS IN FOREST ECONOMICS. (190216) (Cr ar) Skok, Ellefson, Gregersen, Rose
- 8202.* RESEARCH PROBLEMS IN FOREST BIOMETRY. (990217) (Cr ar) Ek, Rose, Burk
- 8203.* RESEARCH PROBLEMS IN FOREST RECREATION. (790218) (Cr ar) Merriam, Knopp
- 8204.* RESEARCH PROBLEMS IN FOREST POLICY. (590219) (Cr ar) Irving, Merriam, Skok, Ellefson, Gregersen, Hallgren
- 8205.* RESEARCH PROBLEMS IN REMOTE SENSING. (990220) (Cr ar) Bauer, Meyer

SECOND TERM

- 8100.* RESEARCH PROBLEMS IN SILVICULTURE. (590186) (Cr ar) Scholten, Alm
- 8101.* RESEARCH PROBLEMS IN FOREST TREE PHYSIOLOGY. (390187) (Cr ar) Sucoff, Dixon
- 8102.* RESEARCH PROBLEMS IN FOREST TREE GENETICS. (190188) (Cr ar) Mohn
- 8103.* RESEARCH PROBLEMS IN FOREST HYDROLOGY. (090189) (Cr ar) Brooks, Perry
- 8200.* RESEARCH PROBLEMS IN FOREST MANAGEMENT. (390190) (Cr ar) B Brown, Hallgren, Irving, Rose
- 8201.* RESEARCH PROBLEMS IN FOREST ECONOMICS. (190191) (Cr ar) Skok, Ellefson, Gregersen, Rose
- 8202.* RESEARCH PROBLEMS IN FOREST BIOMETRY. (090192) (Cr ar) Ek, Rose, Burk
- 8203.* RESEARCH PROBLEMS IN FOREST RECREATION. (890193) (Cr ar) Merriam, Knopp
- 8204.* RESEARCH PROBLEMS IN FOREST POLICY. (690194) (Cr ar) Irving, Merriam, Skok, Ellefson, Gregersen, Hallgren
- 8205.* RESEARCH PROBLEMS IN REMOTE SENSING. (490195) (Cr ar) Bauer, Meyer

OFFERED AT CLOQUET FORESTRY CENTER

Forest Resources (FR)

FIRST TERM

8105. ADVANCED FIELD SILVICULTURE. (790221) (3 cr; prereq 5101, #) 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 the laboratory. Offered alternate years.

General College

General College (GC) is the University's open-admission, general education college. It offers two-year and four-year degree programs for students who wish to combine general education courses with career-related studies; seek one of the college's occupational certificates; or want to fulfill general education requirements for transfer to a four-year professional or liberal arts program by taking courses not available elsewhere in the University.

Admission Requirements—All graduates of accredited Minnesota high schools (and many nongraduates) who demonstrate an interest in college work are eligible for admission to the General College.

Career Development and Certificate Granting Programs—Currently 10 programs are offered: aging studies, aviation, fire protection, human services generalist, law enforcement/corrections, legal assistant, marketing, open learning for the fire service, radiologic technology, and vocational teacher education.

More Information—For additional information about General College degrees, programs, or services, stop by or call the GC Counseling and Student Development office, 10 Nicholson Hall, 376-2950.

General College (GC)

(See also *Itasca Biology Program*)

FIRST TERM

R 1132. BIOLOGICAL SCIENCE: THE HUMAN BODY. (887505) (5 cr; limited to 75 students; 0800-0955 MTWThF; SciCB 125) Dearden

Problems of physical, mental, and social health are related to anatomy, physiology, and needs of the human organism. Films, televised dissections, and demonstrations supplement lectures.

R 1133. NATURE STUDY. (486132) (5 cr; limited to 20 students; offered at Lake Itasca Forestry and Biological Station) Hatch

A general natural history course for students with little or no prior training in biology. Natural histories of common Minnesota plants and animals are discussed and examined in the field from the standpoint of the informed amateur naturalist. Natural habitat associations are stressed as are techniques in field observation and identification.

R 1166. PHYSICAL SCIENCE: PRINCIPLES OF CHEMISTRY. (388309) (5 cr; limited to 50 students; 1010-1205 MTWThF; SciCB 125) Schwabacher

Fundamental principles and laws, stressing development and application of theories and their roots in experience. Topics and demonstrations deal with classification of matter, reactions, elements, atomic and molecular structure, chemical bonding theory, and other subjects that may vary from quarter to quarter. Students gain general understanding of both content and process of the science of chemistry.

R 1311. ART: GENERAL ARTS. (191060) (4 cr; §3311; limited to 30 students; 0800-0955 MTWTh; NichH 111) Byrne
Representative works of art from genre of painting, sculpture, architecture, literature, and music to discover how and why art is created and to enable students to formulate and evaluate ideas and attitudes about it. Meets with 3311.

R 1411. FUNDAMENTALS OF USAGE AND STYLE. (791059) (3 cr; limited to 30 students; 1005-1055 MTWThF; NichH 209A) Flake

Principles of grammar, usage, and style, through exercises and by writing sentences and paragraphs.

R 1421. WRITING LABORATORY: PERSONAL WRITING. (586459) (4 cr; limited to 25 students; 1010-1205 TWThF; NichH 216) Rathburn

Students read and write descriptive narratives, characterizations, and autobiographical sketches. Personal help with writing problems in laboratory. Emphasis is on clear and effective written expression.

R 1433. FUNDAMENTAL COLLEGE MATHEMATICS. (689028) (1-10 cr; initial registration should be for 3 cr; limited to 35 students; prereq GCPP math level A or B or C or 1431 or 1434 or Δ ; 0800-0955 TWTh; FOIH 101) Johnson

For students with limited background in arithmetic or elementary algebra who want to study this material at their own pace in a classroom setting using a semiprogrammed text. With aid of instructor, students select topics from the following: whole numbers, fractions, decimals, percents, signed numbers, formulas, simple graphs, ratio and proportion, sets, properties, equations, inequalities, rectangular graphs, polynomials, factoring, rational expressions, and radicals. Students may not receive credit in 1433 for equivalent work done in any other math course.

R 1465. ORAL COMMUNICATION: INTERPERSONAL COMMUNICATION. (087986) (3 cr; limited to 25 students; 0905-0955 MTWThF; NichH 107) F Benson

Students examine their own communication patterns—verbal, nonverbal, and vocal—and try to discover why they are effective or ineffective communicators, to uncover some origins of their communicative behavior, and to understand means we use to relate to each other and ways we alienate ourselves from each other. Course asks students to begin or deepen their search for identity and to aid others in their search.

R 1534. PRACTICAL LAW. (786511) (4 cr; limited to 50 students; 0800-0955 MTWThF; NichH 207) Hower

Common legal problems, formation and discharge of contracts, torts (personal injury and property damage suits), criminal law, bailments, nature and classification of real and personal property and joint ownership and tenancy.

R 1722. HOME LIFE: PARENT-CHILD RELATIONSHIPS. (791062) (4 cr; limited to 50 students; 1010-1205 MTWTh; NichH 213) Latts

Interdisciplinary course aimed at helping students develop their own philosophy of childrearing—attitudes, principles, and perspectives that will guide them in their relations with their children and in performance of their parental responsibilities. Focus on crises of parenthood. Relevant research used to emphasize principles of parent-child relations and tasks of parenthood.

R 3232. THE GROWTH OF AMERICAN INDUSTRIAL TECHNOLOGY. (391064) (5 cr; limited to 25 students; 0800-0955 MTWThF; NichH 122) Buckley

Impact of selected inventions and the present day technologies and businesses that grew from them. Focus on transportation-related technologies and businesses. Students expected to have previous college work in American history or business development.

R 3282. PSYCHOLOGY APPLIED TO SOCIAL PROBLEMS. (191065) (4 cr; prereq 1281 or equiv, 3rd-4th jr; limited to 30 students; 0800-1130 TTh; NichH 109) Brothen

Social-psychological analysis of social problems facing society today, such as drug use, crime, violence, and prejudice, and how they might be understood and solved through applications of psychological research findings.

R 3311. ART: GENERAL ARTS. (991061) (4 cr, §1311; limited to 15 students; 0800-0955 MTWTh; NichH 111) Byrne

Examines representative works of art from genres of painting, sculpture, architecture, literature, and music to discover how and why art is created and to enable students to formulate and evaluate ideas and attitudes about it. Meets with 1311.

R 3531. WRITING FOR BUSINESS AND THE PROFESSIONS. (588311) (4 cr; prereq 1412 or 1421...1425 or 1531 recommended; limited to 25 students; 1010-1205 MTWTh; NichH 107) Adamson

Students write letters, informal and formal reports, recommendations, proposals, summaries, memos—i.e., forms of writing used in business; in health, education, and welfare; and in legal professions. Content adapted to vocational needs of students enrolled. Form, clarity, economy of expression, and suitable tone stressed. *Typed final drafts required.*

R 3560. PERSONNEL ADMINISTRATION. (286133) (4 cr; limited to 50 students; 1010-1205 TWThF; ApH 150) Kroll

For both generalists and business students in certificate and baccalaureate programs—paralegal administrators, small business entrepreneurs, and other future business employers. How to pursue job and career openings and how to function more effectively as employers.

SECOND TERM

R 1312. ART: ART TODAY I. (291056) (3 cr; students may enroll for 1 or 2 quarters in any sequence; limited to 40 students; 1010-1100 MTWThF; NichH 111; S-N only) Gates

Participation in selected fields of study related to contemporary art and art activity, generally in areas such as painting, filmmaking, sculpture, architecture, and crafts.

R 1403. READING, COMPREHENSION, AND STUDY SKILLS. (888511) (3 cr; limited to 25 students; 0900-0955 MTWThF; NichH 209) Koch

Physical and mental skills involved in helping students comprehend, retain, and evaluate what they read and in enabling them to read at adequate rate of speed. Basic textbook, machines, tapes, and timed readings provide practice in reading for factual information, main ideas, concepts, and implications. Work by whole-class method, in small groups, and individually.

R 1422. WRITING LABORATORY: COMMUNICATING IN SOCIETY. (590222) (4 cr, §1423; prereq 1421; limited to 25 students; 1010-1205 MTWTh; NichH 216) Collins

How people communicate in society, and how they perceive and think, write, and talk about events. Assumptions, inferences, and distortions involved in thinking; habits and processes of observation; factual and slanted reporting; persuasive devices; and cultural and cross-cultural communication. Primarily a writing course but also involves reading and discussion.

R 1445. MATHEMATICS: INTERMEDIATE ALGEBRA. (390223) (5 cr, §1443, 1444; limited to 45 students; prereq GCPP math level D or 1435; 0800-0955 MTWThF; FolH 101)

Concepts and manipulative skills necessary for college algebra. The real number system, special products and factoring, exponents and radicals, linear equations in one and two variables, quadratic equations in one variable, progressions, inequalities, variation, and logarithms. Prospective students may have to give evidence of adequate preparation.

R 1537. PROFESSIONAL SELLING. (586140) (4 cr; limited to 30 students; 0800-0955 MTWTh; NichH 109) Nelson

Sales as an occupation; qualifications needed for successful career in selling and sales management. Principles and techniques practiced by role playing and sales demonstrations. Resource people, guest speakers, recordings, films, and discussions. Students develop salesplanning portfolios. Concurrent employment in selling or sales-related occupation recommended but not required.

Course Descriptions

R 1551. MARKETING: INTRODUCTION. (786590) (5 cr; limited to 50 students; 1010-1205 MTWThF; NichH 109) Peterson

Principles of marketing; marketing strategy, target markets, marketing mix, and segmentation in retail, industrial, and wholesale business. Current marketing events in relation to text readings.

R 1701. PSYCHOLOGY OF PERSONAL EFFECTIVENESS. (191057) (4 cr; limited to 30 students; 0800-0955 MTWTh; NichH 207) Lundy

To help students gain better understanding and acceptance of themselves and others; emphasis on psychological concepts of personal and social adjustment. Students examine their own personality development and adjustment. Class discussion and individual projects based mostly on students' experiences, needs, and interests.

R 1721. MARRIAGE, FAMILY, AND PERSONAL FULFILLMENT. (386141) (5 cr; limited to 50 students; 1010-1205 MTWThF; NichH 122) Thoen

Psychological, social, and biological aspects of marriage and family living. Helping students gain understanding of and self awareness concerning dating, selecting mates, getting married, having children, and sexuality. Adjustments outside traditional marital and family relationships.

R 3464. COMMUNICATION IN ORGANIZATIONS. (187985) (4 cr; prereq 1461 or 1465, 5 cr in psychology; limited to 30 students; 1010-1205 MTWTh; NichH 107) Amram

For managers, supervisors, and others who directly control quality of life of persons in organizations; focuses on processes and problems involved in working and communicating with people in organizational settings and on knowledge, attitudes, and skills that underlie effective behavior in organizational relationships.

R 3531. WRITING FOR BUSINESS AND THE PROFESSIONS. (787710) (4 cr; prereq 1412 or 1421 . . . 1422 or 1425 or 1531 recommended; limited to 25 students; 0800-0955 MTWTh; NichH 216) Kurak

See First Term.

R 3605. INTERVIEWING. (186142) (5 cr; limited to 30 students; prereq #: 1010-1205 MTWThF; NichH 254) Skovholt

For students who plan to enter occupations in which structured communication—particularly formal interview—is required. Development of skills related to wide spectrum of occupations. Interactive process of interview and roles of participants in dyad, variety of communication patterns in interview context, and how the interviewer affects others (and others affect the interviewer) in goal-directed dyadic interaction. Actual and simulated situations. (GrA).

R 3732. CONSUMER TRANSACTIONS AND THE LAW. (086143) (4 cr; limited to 30 students; 1010-1205 MTWThF; NichH 207) Kahn

Relationship between consumer marketplace and law; preventive law for consumer seller/buyer before, during, and after transactions. Legal self-sufficiency as cost-saving, effective consumer technique. Introduction to consumer law, deceptive practices and legal regulation, product warranty issues, security agreement regulation, debtor default and creditor collection remedies, buyer/seller remedies for contractual nonperformance, product liability for defective goods, and debt counseling and bankruptcy concerns.

Graduate School

Graduate School (Grad)

FIRST TERM

0000. STUDENT STATUS. (286536) (0 cr; prereq graduate student)

8777. THESIS CREDITS: MASTERS. (186537) (1-10 cr; open to graduate students admitted for Fall, 1983 or later)

8888. THESIS CREDITS: DOCTORAL. (986538) (1-10 cr; open to graduate students admitted for Fall, 1983 or later)

SECOND TERM

0000. STUDENT STATUS. (786539) (0 cr; prereq graduate student)

8777. THESIS CREDITS: MASTERS. (186540) (1-10 cr; open to graduate students admitted for Fall, 1983 or later)

8888. THESIS CREDITS: DOCTORAL. (986541) (1-10 cr; open to graduate students admitted for Fall, 1983 or later)

Health Sciences

SCHOOL OF DENTISTRY

Dental Hygiene (DH)

FIRST TERM

3399. INDEPENDENT STUDY. (586087) (Cr ar) Stoltenberg
Opportunity to study an area not covered in other course offerings. May include off-campus experiences.

3501. DH SUMMER RESIDENCY I. (386737) (3 cr) Stoltenberg
Advanced clinical hygiene experience to prepare for private practice employment, community work continued education, or other career opportunities.

SECOND TERM

3399. INDEPENDENT STUDY. (386088) (Cr ar) Stoltenberg
See First Term.

3502. DH SUMMER RESIDENCY II. (186738) (3 cr) Stoltenberg
See DH 3501 First Term.

Dentistry (Dent)

FIRST TERM

5054. DENTAL AUXILIARY UTILIZATION CLINIC (DAU I, II). (190059) (2 cr total) DiAngelis
Clinical experience designed to help students develop specific skills in sit-down, four-handed dentistry with emphasis on the efficient utilization of chairside assistants. Through seminars, demonstrations, and clinical practice, students work daily with trained dental assisting teaching specialists in providing restorative dental services.

5060. GENERAL DENTISTRY CLINIC (TEAM II). (590060) (2 cr; elective) Gambucci
Experience in managing patients in a manner similar to private practice. Under guidance of experienced dental practitioners, students acquire skills in performing initial exams, developing treatment plans, completing treatment, working and communicating with dental laboratories, and determining appropriate recall intervals for patients. Students provide routine restorative, endodontic, and periodontic care in the clinic.

5070. HEALTH ECOLOGY ELECTIVE. (390061) (1 cr) Martens

5075. RURAL DENTAL PRECEPTORSHIP PROGRAM. (190062) (2 cr; two 5-week assignments; elective)
Focuses on advantages of a rural practice and on career opportunities available in rural areas. Opportunities for students to gain experience in a rural practice and to develop and maintain rural ties.

5995. ADVANCED CLINICAL RESTORATIVE DENTISTRY. (688087) (Cr and hrs ar) Zidan
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.

5999. DENTAL CLINIC. (090063) (Cr ar) Jensen

8150. RESEARCH IN RESTORATIVE DENTISTRY. (488088) (Cr and hrs ar) Zidan
Organized literature review in area of specific interest of student, selection of thesis project, and completion of research and thesis.

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

5970. GENERAL PRACTICE SEMINAR I. (288710) (Cr ar) Simmons
A sequence of lectures, discussions, and seminars on topics, related to current dental practice. Correlated with clinical experiences.

5974. GENERAL PRACTICE CLINICAL ADMINISTRATION I. (288805) (Cr ar) Simmons
Residents gain field experience in Hospital Dental Clinic Administration.

5980. GENERAL PRACTICE CLINIC I. (188711) (Cr ar) Simmons
A series of planned experiences in the clinical disciplines of dentistry, Emphasis on patient care.

5984. GENERAL PRACTICE CLINIC V. (188806) (Cr ar) Simmons
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). (685092) (2 cr total) DiAngelis
See First Term.

5060. GENERAL DENTISTRY CLINIC (TEAM II). (485093) (2 cr; elective) Gambucci
See First Term.

5070. HEALTH ECOLOGY ELECTIVE. (285094) (1 cr) Martens

5075. RURAL AND INNER-CITY DENTAL PRECEPTORSHIP PROGRAM. (185095) (2 cr; two 5-week assignments; elective)
See First Term.

5460. PERIODONTICS: INDEPENDENT STUDY. (488205) (Cr and hrs ar)

5602. BIOMATERIALS: INDEPENDENT STUDY. (588194) (Cr and hrs ar)

5995. ADVANCED CLINICAL RESTORATIVE DENTISTRY. (288089) (Cr and hrs ar) Zidan
See First Term.

5999. DENTAL CLINIC. (388195) (Cr ar) Jensen

8150. RESEARCH IN RESTORATIVE DENTISTRY. (688090) (Cr and hrs ar) Zidan
See First Term.

Endodontics (Endo)

FIRST TERM

5303. ADVANCED CLINICAL ENDODONTICS. (890064) (1 cr) El Deeb
Diagnosis and treatment of clinical cases. Students assigned complex cases and explore new and unique techniques.

5313. ENDODONTIC EMERGENCY PROBLEMS. (690065) (1 cr) Jensen
Each student is responsible for all emergencies in the Endodontic Clinic during an assigned 1-week period (8 hours a day).

5323. TREATMENT PLANNING. (490066) (1 cr) El Deeb
Students are assigned to the Admissions, Treatment Planning area as part of a total treatment planning team with members drawn from other clinical divisions. Students share in the decisions of the overall treatment planning of clinical cases as they are processed in the School of Dentistry and observe how the other disciplines function in this capacity.

5333. REVIEW OF CASES. (290067) (1 cr) Jensen
Students present cases from the previous quarter for review by endodontic faculty and graduate students.

8004. RESEARCH IN ENDODONTICS. (190068) (1 cr) Messer
Organized literature review in areas of specific interest to student, selection of this project, and completion of research and thesis.

8323. ADVANCED ENDODONTIC LECTURES. (990069) (1 cr) Jensen
Pulpal and periapical pathology, diagnosis, and treatment planning.

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

8313. SEMINAR: ENDODONTICS. (290070) (2 cr) Jensen
Organized literature review in areas of interest to student, selection of a project, and completion of research and a thesis.

SECOND TERM

5303. ADVANCED CLINICAL ENDODONTICS. (585098) (1 cr) El Deeb
See First Term.

5313. ENDODONTIC EMERGENCY PROBLEMS. (385099) (1 cr) Jensen
See First Term.

5323. TREATMENT PLANNING. (185100) (1 cr) Jensen
See First Term.

5333. REVIEW OF CASES. (985101) (1 cr) El Deeb
See First Term.

Course Descriptions

8004. RESEARCH IN ENDODONTICS. (785102) (1 cr) Messer
See First Term.

8323. ADVANCED ENDODONTIC LECTURES. (585103) (1 cr) Jensen
See First Term.

Oral and Maxillofacial Surgery (OSur)

FIRST TERM

5257. AMBULATORY GENERAL ANESTHESIA. (690079) (1 cr) Gatto and staff
A clinical rotation involving experience in outpatient management utilizing intravenous sedation and general anesthesia.

5260. ORAL SURGERY CLINIC. (888072) (10 cr) Jaspers and staff
Delivery of direct patient care under controlled and supervised conditions.

5265. ORAL SURGERY COLLOQUIA. (688073) (5 cr) Jaspers and staff
Participation in seminars, teaching rounds, and specialty conferences.

5270. ORAL AND MAXILLOFACIAL RADIOLOGY REVIEW. (186196) (1 cr) Kwon
Weekly review and discussion of radiographs taken at the University Hospital relating to oral surgery procedures.

5275. ORAL PATHOLOGY REVIEW. (986197) (1 cr) Jaspers
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.

8250. ADVANCED ORAL SURGERY. (090080) (1 cr) Jaspers
Assigned clinics in University Hospitals, Veterans Administration Hospital, Hennepin County Medical Center, and School of Dentistry; rotation in general anesthesiology at University Hospitals.

8251. SEMINAR: ORAL SURGERY. (890081) (1 cr) Jaspers
Oral surgical subjects on a seminar basis.

8252. RESEARCH IN ORAL SURGERY. (690082) (Cr ar) El Deeb
Research in fields related to oral surgery.

8253. PROBLEMS IN ORAL SURGERY. (490083) (1 cr) Kwon
Current literature review.

8255. GENERAL SURGERY. (290084) (1 cr) Winter and staff
Clinical rotation on the general surgical service at Fairview Hospital, Minneapolis. Includes seminars, clinics, and operating room experience.

8258. ANESTHESIA II SEMINAR. (190085) (1 cr) Gatto and staff
Outpatient general anesthesia topics and related subjects.

SECOND TERM

5257. AMBULATORY GENERAL ANESTHESIA. (285113) (1 cr) Gatto and staff
See First Term.

5260. ORAL SURGERY CLINIC. (488074) (10 cr) Jaspers and staff
See First Term.

5265. ORAL SURGERY COLLOQUIA. (288075) (5 cr) Jaspers and staff
See First Term.

5270. ORAL AND MAXILLOFACIAL RADIOLOGY REVIEW. (786198) (1 cr) Kwon
See First Term.

5275. ORAL PATHOLOGY REVIEW. (586199) (1 cr) Jaspers
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.

8250. ADVANCED ORAL SURGERY. (185114) (1 cr) Jaspers
See First Term.

8251. SEMINAR: ORAL SURGERY. (985115) (1 cr) Jaspers
See First Term.

8252. RESEARCH IN ORAL SURGERY. (785116) (Cr ar) El Deeb
See First Term.

8253. PROBLEMS IN ORAL SURGERY. (585117) (1 cr) Jaspers
See First Term.

8255. GENERAL SURGERY. (185119) (1 cr) Winter and staff
See First Term.

8258. ANESTHESIA II SEMINAR. (585120) (1 cr) Gatto and staff
See First Term.

Oral Biology (OBio)

FIRST TERM

8001. RESEARCH IN ORAL BIOLOGY. (190071) (Cr ar) Shapiro

8002. TUTORIAL IN ORAL BIOLOGY. (990072) (Cr ar [may be repeated for cr]; 2 hrs per wk = 1 cr) Shapiro

8024. TOPICS IN ORAL BIOLOGY. (790073) (1-3 cr [may be repeated for cr]; prereq #)

SECOND TERM

8001. RESEARCH IN ORAL BIOLOGY. (385104) (Cr ar) Shapiro

8002. TUTORIAL IN ORAL BIOLOGY. (185105) (Cr ar [may be repeated for cr]; 2 hrs per wk = 1 cr) Shapiro

8024. TOPICS IN ORAL BIOLOGY. (085106) (1-3 cr [may be repeated for cr]; prereq #)

Oral Pathology (OPat)

FIRST TERM

8004. HISTOPATHOLOGY. (590074) (1 cr) Vickers

Weekly presentation of various pathologic cases in which methods of diagnosis are stressed. Clinical or radiographic aspects utilized. Covers the spectrum of oral and paraoral pathology.

8006. CURRENT LITERATURE REVIEW. (390075) (1 cr) Vickers

8014. EXFOLIATIVE CYTOLOGY OF THE ORAL MUCOSA. (190076) (2 cr) Witkop

Comparative histology of skin and normal mucosa; cytology maturation of oral mucosa compared to vaginal mucosa, techniques, stains, and smears, menstrual cycle; benign lesions of oral mucosa, toothbrushing effects; introduction to grading system for malignant lesions; X-ray and drug effects on oral mucosa; oral squamous cell carcinoma; in situ and basal cell carcinoma.

SECOND TERM

8004. HISTOPATHOLOGY. (885107) (1 cr) Vickers
See First Term.

8006. CURRENT LITERATURE REVIEW. (685108) (1 cr) Vickers

8014. EXFOLIATIVE CYTOLOGY OF THE ORAL MUCOSA. (485109) (2 cr) Witkop
See First Term.

Oral Radiology (ORad)

FIRST TERM

8100. ORAL RADIOLOGY SEMINAR. (090077) (1 cr; prereq #) Kuba

8900. ORAL RADIOLOGY RESEARCH. (890078) (Cr ar; prereq #) Kuba

SECOND TERM

8100. ORAL RADIOLOGY SEMINAR. (685111) (1 cr; prereq #) Kuba

8900. ORAL RADIOLOGY RESEARCH. (485112) (Cr ar; prereq #) Kuba

Orthodontics (Otho)

FIRST TERM

Required Courses for Graduate Students

5004. CLINICAL ORTHODONTICS. (990086) (Cr ar; prereq #) Staff

Students are assigned patients for the complete management of orthodontic and orthodontically related occlusal problems under direct staff supervision. Credits from this course may not be used for degree programs.

8203. GROWTH AND DEVELOPMENT. (790087) (Cr ar; prereq #) Staff

Head growth, development, osteology and myology. Includes both normal and abnormal morphology and function; cephalometric methods.

8207. DIAGNOSIS AND TREATMENT PLANNING. (590088) (Cr ar; prereq #) Staff

Etiology, treatment, and prognosis of clinical orthodontic patients.

8211. ORTHODONTIC SEMINAR. (390089) (Cr ar; prereq #) Staff

Review of current literature and discussion of current research and its implications.

8215. RESEARCH IN ORTHODONTICS. (790090) (Cr ar; prereq #) Staff

8219. TOPICS IN ORTHODONTICS. (590091) (Cr ar; prereq #) Staff

Studies in special topics for advanced students.

SECOND TERM

5004. CLINICAL ORTHODONTICS. (185122) (Cr ar; prereq #) Staff

See First Term.

8203. GROWTH AND DEVELOPMENT. (085123) (Cr ar; prereq #) Staff

See First Term.

8207. DIAGNOSIS AND TREATMENT PLANNING. (885124) (Cr ar; prereq #) Staff

See First Term.

8211. ORTHODONTIC SEMINAR. (685125) (Cr ar; prereq #) Staff

See First Term.

8215. RESEARCH IN ORTHODONTICS. (485126) (Cr ar; prereq #) Staff

See First Term.

8219. TOPICS IN ORTHODONTICS. (285127) (Cr ar; prereq #) Staff

See First Term.

Pediatric Dentistry (Pedo)

FIRST TERM

5414. ADVANCED CLINICAL PEDODONTICS. (390092) (Cr ar; prereq #) Till, others

Assignment of patients for treatment of difficult or unusual pedodontic problems under direct faculty supervision.

8001. RESEARCH IN PEDIATRIC DENTISTRY. (190093) (Cr ar; prereq #) Messer, others

8290. HOSPITAL PEDODONTICS I. (090094) (Cr ar; prereq #) Walker, others

Diagnosis and treatment of difficult and unusual problems in children with various handicapping conditions in the Children's Physical Medicine and Rehabilitation Center under direct faculty supervision. Includes pre-op and post-op discussion of faculty-supervised general anesthetic cases and seminar discussion of operating room techniques and procedures, pharmaceutical adjuncts for dental procedures.

8291. HOSPITAL PEDODONTICS II. (890095) (Cr ar; prereq #) Till, others

Diagnosis and treatment of pedodontic problems under direct faculty supervision at Hennepin County Medical Center. Includes participation on a rotation basis in seminars in pediatrics and anesthesia conducted by staff. Pre-op and post-op seminar discussion and evaluation of treatment plans.

8294. PEDODONTIC DIAGNOSIS AND TREATMENT PLANNING. (690096) (Cr ar; prereq #) Till, others

Systematic approach to diagnosis and treatment planning for various pedodontic problems.

SECOND TERM

5414. ADVANCED CLINICAL PEDODONTICS. (985129) (Cr ar; prereq #) Till, others

See First Term.

8001. RESEARCH IN PEDIATRIC DENTISTRY. (285130) (Cr ar; prereq #) Messer, others

8290. HOSPITAL PEDODONTICS I. (985132) (Cr ar; prereq #) Walker, others
See First Term.

8291. HOSPITAL PEDODONTICS II. (785133) (Cr ar; prereq #) Till, others
See First Term.

8293. ADVANCED PEDODONTIC TECHNIQUES. (585134) (Cr ar; prereq #) Till, others
Description and exercises in advanced pedodontic skills and techniques.

8295. INDEPENDENT PEDODONTIC STUDY. (185136) (Cr ar; prereq #) Till, others
Review of pertinent literature and preparation of a position paper on an assigned topic.

Periodontics (Pero)

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

8000. ADVANCED CLINICAL PERIODONTOLOGY. (490097) (Cr ar) Pihlstrom
Practical work in clinic in examination, diagnosis, treatment planning, and various phases of treatment of patients with periodontal disease.

8100. RESEARCH IN PERIODONTOLOGY. (290098) (Cr ar) Bandt, Herzberg
Opportunity to take part in many phases of laboratory work under way in periodontal research.

8200. LECTURES IN PERIODONTOLOGY. (190099) (Cr ar) Pihlstrom
Tissues involved in periodontal disease. Etiology and treatment of periodontal disease.

8300. SEMINAR: PERIODONTOLOGY. (890100) (Cr ar) Pihlstrom
Basic structural components of the periodontium as well as fundamental periodontal treatment procedures. The epithelial attachment, periodontal ligament, cementum, alveolar bone, and periodontal pathology. Oral hygiene and scaling and root planing. Literature reviews are required of each student. Second-year students present case reports.

Prosthodontics (Pros)

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

8001. RESEARCH IN PROSTHODONTICS. (690101) (Cr ar [may be repeated for cr]) Goodkind
Arranged with individual students upon application, after completion of a critical review of current and historical literature pertaining to the problem.

8006. ADVANCED CLINICAL PROSTHODONTICS II. (490102) (Cr ar [may be repeated for cr]; prereq #) Goodkind
Experience in prosthodontic treatment of patients having systemic complications.

8034. ADVANCED CLINICAL MAXILLOFACIAL PROSTHETICS. (290103) (Cr ar) Goodkind, Yeh
Factors involved in diagnosis and organization of a treatment plan for the maxillofacial patient and practical experience in associated clinical and laboratory procedures.

MEDICAL SCHOOL

Complete listings of courses offered by departments of the Medical School for undergraduate (prebaccalaureate) students, allied health students, medical students (pre-M.D.), and graduate students (postbaccalaureate in basic health science fields or post-M.D. in clinical fields) can be found in the *Medical School Bulletin*, *Graduate School Bulletin*, *Undergraduate Health Sciences Bulletin*, or *College of Liberal Arts Bulletin*. For further information on specific courses, write or call the appropriate health science department office. In general, admission to courses offered in the medical student curriculum (pre-M.D.) or in residency training programs in clinical fields (post-M.D.) is restricted to students previously admitted to and enrolled in those programs.

Anatomy (Anat)

FIRST TERM

3970. SPECIAL PROBLEMS. (190104) (2 cr. prereq #) Staff
Guided individual reading or study.

Course Descriptions

8156. ADVANCED ANATOMY. (990105) (1-6 cr; prereq #) Staff
Individual problems in gross anatomy, embryology, histology, or neuroanatomy.

8204. RESEARCH IN ANATOMY. (790106) (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.

SPECIAL TERMS: THREE- OR SIX-WEEK COURSES (Register once in Term I)

5304. HEAD AND NECK ANATOMY FOR MEDICAL/DENTAL RESIDENTS. (590107) (5 cr; prereq participation in a residency in the Medical School or School of Dentistry) Robertson and staff

5500. GENERAL GROSS ANATOMY. (390108) (3-4½ cr; prereq Years 3 and 4) Robertson

5501. THE EXTREMITIES. (190109) (3-4½ cr; prereq Years 3 and 4) Robertson

5502. HEAD AND NECK. (590110) (3-4½ cr; prereq Years 3 and 4) Robertson

5508. THE THORAX. (390111) (3-4½ cr; prereq Years 3 and 4) Robertson

5509. THE ABDOMEN. (190112) (3-4½ cr; prereq Years 3 and 4) Robertson

5510. PERINEUM, GENITAL-URINARY SYSTEM AND PELVIS. (090113) (3-4½ cr; prereq Years 3 and 4) Robertson

SECOND TERM

3970. SPECIAL PROBLEMS. (685139) (2 cr; prereq #) Staff
See First Term.

8156. ADVANCED ANATOMY. (085140) (1-6 cr; prereq #) Staff
See First Term.

8204. RESEARCH IN ANATOMY. (885141) (1-10 cr; prereq #) Staff
See First Term.

Anesthesiology (Anes)

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

Elective Courses

5181. EXTERNSHIP IN CLINICAL PRACTICE OF ANESTHESIOLOGY. (890114) (9 cr; University Hospitals; MTWThF; Mayo B515) Buckley, staff
Primarily for family practice and surgery tracks, although open to others in limited number. Fundamentals of clinical anesthesia with emphasis on airway and ventilatory management, resuscitation, evaluation of the unconscious patient, choice of agents and techniques, practice administration of general and regional anesthesia, pre- and post-anesthetic management.

5286. DIRECTED STUDY, ANESTHESIA TOPICS/PROJECT: CLINICAL. (988712) (cr ar; prereq CRNA, regis B.S. in nurs anes, #)

Required Courses for Graduate Students

8265. GENERAL ANESTHESIA. (690115) (12 cr; MTWThF; Mayo B515) Buckley, staff
Instruction and experience in general anesthesia.

8266. REGIONAL ANESTHESIA. (490116) (4 cr; MTWThF; Mayo B515) Buckley, staff
Observation, instruction, and administration in all types of local, regional, and spinal anesthesia.

8267. PRE- AND POST-ANESTHETIC EVALUATION. (290117) (2 cr; 1430-1520 MTWThF; Mayo B580) Buckley, staff
Selection of proper anesthetic agent and technique, premedication and observation of recovery from anesthesia.

8268. SEMINAR: ANESTHESIOLOGY. (190118) (2 cr; Mayo B580) Buckley, staff
Review of literature, reporting of case problems, and discussion of research work in progress within the department.

8269. RESEARCH IN ANESTHESIA. (990119) (Cr and hrs ar) Buckley, staff
Anesthesia problems in experimental laboratory or in hospital.

Biochemistry (MdBc)

Elective Courses

FIRST TERM

5053. **PROBLEMS IN BIOCHEMISTRY.** (290120) (1-10 cr; may be taken one or both terms; prereq 5101 or 5751; hrs ar) Staff
Special work arranged with qualified students.

8290. **CURRENT RESEARCH TECHNIQUES.** (190121) (1-3 cr; prereq major in biochemistry, #)

8300. **RESEARCH IN BIOCHEMISTRY.** (990122) (Cr and hrs ar) Staff

SECOND TERM

5053. **PROBLEMS IN BIOCHEMISTRY.** (485143) (1-10 cr; may be taken one or both terms; prereq 5101 or 5751; hrs ar) Staff
See First Term.

8290. **CURRENT RESEARCH TECHNIQUES.** (285144) (1-3 cr; prereq major in biochemistry, #)

8300. **RESEARCH IN BIOCHEMISTRY.** (185145) (Cr and hrs ar) Staff

Dermatology (Derm)

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

5181. **CLINICAL PROBLEMS.** (790123) (Cr ar; prereq regis med; 1500-1630 W, MoosT 2520) Dahl, Gentry, Goltz, Manick, others

5182. **PRECEPTORSHIP IN DERMATOLOGY.** (590124) (Cr ar; prereq regis med) Dahl, Gentry, Goltz, Manick, others

5183. **ADVANCED DERMATOLOGY.** (390125) (Cr ar; prereq 5181 or 5182) Dahl, Gentry, Goltz, Manick, others

5184. **SPECIAL COURSE.** (190126) (Cr ar) Manick

5185. **RESEARCH IN DERMATOLOGY.** (090127) (Cr ar; prereq 5181 or 5182) Dahl

8225. **CLINICAL DERMATOLOGY.** (890128) (Cr ar; 0800-1625 MTWThF) Dahl, Gentry, Goltz, others

8226. **CLINICAL SEMINAR.** (690129) (Cr ar; 1300-1630 WF; PWB 4-272) Goltz, Gentry, others
Conference twice weekly on diagnosis and treatment of skin conditions.

8227. **HISTOLOGY OF THE SKIN.** (090130) (Cr ar; 1400-1500 M, 1500-1630 W; PWB 4-272) Goltz, Orkin, others
Includes histopathology, histochemistry, and fluorescence microscopy.

8228. **RESEARCH IN DERMATOLOGY.** (890131) (Cr ar) Goltz, Dahl, Hordinsky, others

8229. **ELECTRON MICROSCOPY IN DERMATOLOGY.** (690132) (Cr ar) Zelickson, others

8230. **FUNCTIONAL BIOLOGY OF THE SKIN.** (490133) (Cr ar) Goltz, Dahl, others

8231. **CLINICS: DERMATOLOGY: NONDERMATOLOGISTS.** (290134) (Cr ar) Goltz, others

8232. **SEMINAR: DERMATOLOGIC HISTOPATHOLOGY, MYCOLOGY.** (190135) (Cr ar) Goltz, others

Family Practice and Community Health (FPCH)

SPECIAL TERM: JULY 1-SEPTEMBER 30

Required Courses

8201. **CLINICAL FAMILY MEDICINE.** (590138) (9 cr; hrs ar) Sutherland, staff

8208. **FAMILY MEDICINE CONFERENCE.** (390139) (1 cr; hrs ar) Sutherland, staff

8210. **FAMILY MEDICINE GRAND ROUNDS.** (790140) (0-1 cr; hrs ar) Sutherland, staff

8212. **CLINICAL PSYCHIATRY ROUNDS.** (590141) (1 cr; hrs ar) Kelly, staff

Course Descriptions

Elective Courses

- 5504. MEDICAL ETHICS.** (390142) (2 cr; 1400-1530 W; PWB 6-240) Nelson
Seminar on six current ethical issues confronting physicians in contemporary primary care medicine. The student will assess relevant multiple orientations, values, social and religious factors, and countervailing judgment. Regular attendance and participation in class sessions and discussions is expected. Each week a case study and readings will be assigned. The student will write a brief outline of an issue of interest.
- 5516. RESEARCH IN HUMAN SEXUALITY.** (190143) (Cr ar; prereq #) Staff
Clinical and/or laboratory research related to human sexuality; adapted to interests of student and faculty. Involves ongoing research projects in areas such as incest, rape, transsexualism, results of penile implantation, prostitution, sex offenses and sexual dysfunction. Contact: Sharon Satterfield, M.D. (376-7520), to make arrangements.
- 5550. AMBULATORY CARE.** (191633) (9 cr; prereq med students only, #: hrs ar) Allemeier
- 5585. SEXUAL PROBLEMS IN CLINICAL PRACTICE.** (090144) (Cr ar; prereq med students only #: hrs ar) Satterfield, staff
- 5590. EMERGENCY MEDICINE FOR FAMILY PHYSICIANS.** (588504) (9 cr) Lilja
- 5960. BASIC RESEARCH METHODS SEMINAR AND PRACTICUM.** (287444) (4 cr; hrs ar) Holloway
- 5967. INTRODUCTION TO HEALTH DATA SYSTEMS.** (486566) (Cr ar) O'Leary, staff
- 5968. COMPUTERS IN THEORY AND PRACTICE.** (988080) (Cr ar 2 cr) Krogh
- 8207. SEMINAR: COMMON DISEASES SEEN IN FAMILY PRACTICE.** (890145) (1 cr; hrs ar) Sutherland, staff
- 8209. FAMILY MEDICINE X-RAY CONFERENCE.** (690146) (1 cr; hrs ar) Sutherland, staff
- 8253. RESEARCH PROBLEMS.** (490147) (Cr ar; prereq #: hrs ar) O'Leary, staff

Laboratory Medicine (LMed)

FIRST TERM

- 5139. ADVANCED MICROBIOLOGY.** (690227) (Cr ar; prereq #) Balfour
- 5169. RESEARCH: HUMAN GENETICS.** (490228) (Cr ar; prereq #) Eaton
- 5170. ADVANCED PROBLEMS: MEDICAL GENETICS.** (290229) (Cr ar; prereq #) Eaton
- 5179. CHEMISTRY SEMINAR.** (690230) (1 cr; prereq #) Steffes
- 5180. ADVANCED CHEMISTRY.** (490231) (Cr ar; prereq #) Benson, staff
- 5273. ADVANCED IMMUNOLOGY.** (290232) (Cr ar; prereq #) Azar
- 5768. ADVANCED HEMATOLOGY.** (190233) (Cr ar; prereq #) Brunning
- 8235. ADVANCED CLINICAL LABORATORY MEDICINE.** (990234) (Cr ar; prereq #) Benson
- 8236. RESEARCH ON CLINICAL LABORATORY PROBLEMS.** (790235) (Cr ar; prereq #) Benson

SECOND TERM

- 5139. ADVANCED MICROBIOLOGY.** (985146) (Cr ar; prereq #) Balfour
- 5169. RESEARCH: HUMAN GENETICS.** (785147) (Cr ar; prereq #) Eaton
- 5170. ADVANCED PROBLEMS: MEDICAL GENETICS.** (585148) (Cr ar; prereq #) Eaton
- 5179. CHEMISTRY SEMINAR.** (385149) (1 cr; prereq #) Steffes
- 5180. ADVANCED CHEMISTRY.** (785150) (Cr ar; prereq #) Benson, staff
- 5273. ADVANCED IMMUNOLOGY.** (585151) (Cr ar; prereq #) Azar
- 5768. ADVANCED HEMATOLOGY.** (385152) (Cr ar; prereq #) Brunning
- 8235. ADVANCED CLINICAL LABORATORY MEDICINE.** (185153) (Cr ar; prereq #) Benson
- 8236. RESEARCH ON CLINICAL LABORATORY PROBLEMS.** (085154) (Cr ar; prereq #) Benson

Laboratory Medicine and Pathology (LaMP)

Courses for Medical and Undergraduate Students

SPECIAL TERMS: THREE- OR SIX-WEEK COURSES

- 5101. GENERAL PATHOLOGY.** (2-6 cr; prereq regis med fr or pathobiology grad; lect 0915-1000 MTThF; MoosT 2650; A-N only) Dehner
Lab 1, (686176) 1015-1200 MTh, MoosT 3331
Lab 2, (486177) 1315-1500 MTh, MoosT 3331

5113. **SURGICAL PATHOLOGY.** (590236) (Cr ar; prereq Year 2) Rosai
5114. **SURGICAL PATHOLOGY (Hennepin County Medical Center).** (390237) (Cr ar; prereq Year 2) Anderson
5115. **SURGICAL PATHOLOGY (Veterans Hospital).** (190238) (Cr ar; prereq Year 2) Limas
5118. **ENDOCRINE PATHOLOGY (St. Paul-Ramsey Medical Center).** (090239) (Cr ar; prereq Year 2) Haus, Lakatua
5125. **CHRONOBIOLOGY.** (390240) (Cr ar; prereq Year 2, #) Halberg
5141. **PROBLEMS: EXPERIMENTAL PATHOLOGY.** (190241) (Cr ar; prereq Year 2, #) Staff
5150. **ANATOMIC PATHOLOGY (University Hospitals).** (090242) (Cr ar) Burke, Snover
5151. **ANATOMIC PATHOLOGY: HOSPITAL SETTING (Hennepin County Medical Center).** (890243) (Cr ar) Anderson
5152. **ANATOMIC PATHOLOGY (Veterans Hospital).** (690244) (Cr ar; prereq Year 2) Posalaky
5153. **ANATOMIC PATHOLOGY: HOSPITAL SETTING (St. Paul-Ramsey Medical Center).** (490245) (Cr ar; prereq Year 2) Posalaky
5158. **CARDIAC PATHOLOGY (Miller Hospital).** (290246) (Cr ar; prereq Year 2, #) Edwards
5180. **ANATOMIC AND CLINICAL PATHOLOGY IN A HOSPITAL SETTING (Abbott-N.W.).** (291042) (Cr ar; prereq #) Kostich
5181. **LABORATORY AND CLINICAL HEMATOLOGY.** (190247) (Cr ar; prereq #) Brunning
5182. **LABORATORY STUDIES OF GENETIC DISORDERS.** (990248) (Cr ar; prereq #) Eaton
5184. **IMMUNOHEMATOLOGY IN BLOOD BANKING.** (790249) (Cr ar; prereq #) McCullough
5185. **LABORATORY PROBLEMS IN BLOOD COAGULATION.** (288691) (Cr ar; prereq #) Edson
5190. **LABORATORY MEDICINE IN A COMMUNITY HOSPITAL (Duluth).** (190250) (Cr ar; prereq Years 3 and 4) Larson
5192. **LABORATORY MEDICINE FOR PRIMARY CARE (Virginia).** (990251) (Cr ar; prereq Years 3 and 4) Knabe
5193. **CLINICAL PATHOLOGY EXTERNSHIP (Hibbing Hospital).** (790252) (Cr ar; prereq #) Nollet, Eilers
5194. **COMPUTER APPLICATIONS IN MEDICINE.** (287377) (Cr ar; prereq #) Connelly
5195. **COMPUTER APPLICATIONS IN MEDICAL RESEARCH.** (187378) (Cr ar; prereq #) Connelly
5203. **CLINICAL BLOOD BANK IMMUNOLOGY (Minneapolis War Memorial Blood Bank).** (590253) (Cr ar; prereq Years 3 and 4) Polesky

Medical Technology (MedT)

FIRST TERM

5082. **APPLIED CLINICAL CHEMISTRY.** (390254) (4 cr; prereq 5063, 5111, #)
Application of basic methods and techniques in chemistry in the clinical laboratory.
5085. **APPLIED CLINICAL HEMATOLOGY.** (190255) (4 cr; prereq 5067, 5076, #)
Application of basic methods and techniques in hematology in the clinical laboratory, morphology of blood cells, application of techniques in hemostasis.
5086. **APPLIED CLINICAL IMMUNOHEMATOLOGY.** (090256) (4 cr; prereq 5066, #)
Application of basic methods and techniques in serology and immunology in the clinical laboratory. Blood grouping and cross-matching for transfusions.
5088. **APPLIED DIAGNOSTIC MICROBIOLOGY.** (890257) (4 cr; prereq 5102, #)
Identification of bacteria by microscopic techniques. Correlation with clinical cases. Identification of parasites and fungi.
5090. **SPECIAL LABORATORY METHODS.** (690258) (2 cr; prereq #)
Special assignment on an individual basis in a special area of experience within the clinical laboratory; field experience.

SECOND TERM

5082. **APPLIED CLINICAL CHEMISTRY.** (885155) (4 cr; prereq 5063, 5111, #)
See First Term.
5085. **APPLIED CLINICAL HEMATOLOGY.** (685156) (4 cr; prereq 5067, 5076, #)
See First Term.
5086. **APPLIED CLINICAL IMMUNOHEMATOLOGY.** (485157) (4 cr; prereq 5066, #)
See First Term.

Course Descriptions

5088. APPLIED DIAGNOSTIC MICROBIOLOGY. (285158) (4 cr; prereq 5102. #)
See First Term.

5090. SPECIAL LABORATORY METHODS. (485160) (2 cr; prereq #)
See First Term.

Medicine (Med)

SPECIAL TERMS: THREE- OR SIX-WEEK COURSES

Elective Courses for Undergraduate Students

5500. ADVANCED INTERNAL MEDICINE. (490259) (9 cr and hrs ar) Peterson

5501. MEDICINE EXTERNSHIP I. (690261) (9 cr and hrs ar) Peterson

5505. INFECTIOUS DISEASE RESEARCH. (190264) (9 cr and hrs ar) Sabath

5509. RESEARCH IN RHEUMATOLOGY. (990265) (9 cr and hrs ar) Messner

5511. RESEARCH IN GASTROENTEROLOGY. (590267) (9 cr and hrs ar) Levitt

5512. RESEARCH IN HEMATOLOGY. (390268) (9 cr and hrs ar) Jacob

5518. RESEARCH IN ENDOCRINOLOGY. (190269) (9 cr and hrs ar) Oppenheimer

5521. INFECTIOUS DISEASES, CLINICAL ASPECTS. (590270) (9 cr and hrs ar) Jordan

5522. GASTROENTEROLOGY. (390271) (9 cr and hrs ar) Olson

5523. MEDICAL ENDOCRINOLOGY AND METABOLISM. (190272) (9 cr and hrs ar) Barbosa

5525. CARDIOVASCULAR MEDICINE. (090273) (9 cr and hrs ar) Bache

5527. CONTEMPORARY PROBLEMS IN INVESTIGATIVE CARDIOLOGY. (890274) (9 cr and hrs ar) Bache

5528. CLINICAL HEMATOLOGY. (690275) (9 cr and hrs ar) Howe

5531. CLINICAL RHEUMATOLOGY. (490276) (Cr and hrs ar) Hathaway

5532. PULMONARY DISEASE. (290277) (9 cr and hrs ar) Hertz, Bitterman

5533. CLINICAL ALLERGY. (990279) (Cr and hrs ar) Blumenthal

5548. CLINICAL GENETICS. (190281) (9 cr and hrs ar) King

5554. FLUID, ELECTROLYTE, ACID-BASE METABOLISM. (990282) (9 cr and hrs ar) Ma

5556. MEDICAL NEPHROLOGY. (590284) (9 cr and hrs ar) Hostetter

5557. RESEARCH IN NEPHROLOGY. (390285) (18 cr and hrs ar) Hostetter

5562. NEPHROLOGY. (190286) (9 cr and hrs ar) Rao

5570. CLINICAL MEDICINE IN THE GENERAL CLINICAL RESEARCH CENTER. (090287) (9 cr and hrs ar) Bantle

5572. AMBULATORY INTERNAL MEDICINE. (890288) (9 cr and hrs ar) Spilane

5575. AMBULATORY CARE MEDICINE AT HENNEPIN COUNTY MEDICAL CENTER. (187381) (9 cr per period; hrs ar) Bloss

5576. EXTERNSHIP IN GERIATRICS AT V.A. MEDICAL CENTER. (487538) (9 cr) Miles

Students function as interns on a geriatric and intermediate care ward and assume responsibility for two new patients each week. Students are directly responsible to attending staff physicians; attend general medical conferences and patient care conferences, and assigned readings relevant to care of patients.

5583. DIAGNOSIS, EVALUATION, AND CARE OF ADULTS AND CHILDREN WITH CANCER. (090290) (9 cr and hrs ar) Ramsay

5591. INTERNAL MEDICINE FOR THE AMBULATORY OUTPATIENT. (287539) (9 cr) Howe

Provides the advanced medical student with a broad exposure to adult medicine as practiced in the outpatient setting of a busy, multispecialty clinic. Development of the student's diagnostic and therapeutic skills. Participation in general internal medicine clinics for approximately five half-days, and various medical subspecialty clinics selected by the student the other five half-days.

5594. PSYCHIATRY IN MEDICINE: CONSULTATION-LIAISON. (490293) (9 cr and hrs ar) Popkin

5597. RESEARCH IN OCCUPATIONAL HEALTH. (290294) (9 cr and hrs ar) Johnson

Elective Courses for Graduate Students

- 8201. **CLINICAL MEDICINE.** (590303) (Cr and hrs ar) Ferris, staff
- 8202. **CLINICAL CONFERENCE.** (390304) (1 cr and hrs ar) Ferris, staff
- 8203. **CLINICAL RADIOLOGY CONFERENCE.** (190305) (1 cr and hrs ar) Ferris, staff
- 8204. **PATHOLOGICAL CONFERENCE.** (090306) (1 cr and hrs ar) Ferris, staff
- 8205. **ELECTROCARDIOGRAPHIC CONFERENCE.** (890307) (1 cr and hrs ar) Tuna
- 8206. **NEPHROLOGY SEMINAR.** (690308) (3 cr and hrs ar) Hostetter
- 8209. **TUMOR CLINICAL CONFERENCE.** (490309) (1 cr and hrs ar) Kennedy, staff
- 8210. **INFECTIOUS DISEASE SEMINAR.** (890310) (Cr and hrs ar) Jordan
- 8211. **DISEASES OF THE CARDIOVASCULAR SYSTEM.** (690311) (Cr and hrs ar) Cohn, staff
- 8212. **DISEASES OF THE CHEST.** (490312) (Cr and hrs ar) Bitterman
- 8213. **DISEASES OF THE KIDNEY.** (190314) (Cr and hrs ar) Ferris, staff
- 8214. **DISEASES OF DIABETES, ENDOCRINOLOGY, AND METABOLISM.** (990315) (Cr and hrs ar) Oppenheimer, staff
- 8215. **DISEASES OF HEMATOLOGY.** (590317) (Cr and hrs ar) Jacob, staff
- 8216. **DISEASES OF GASTROENTEROLOGY.** (390318) (Cr and hrs ar) Wilson, staff
- 8217. **DISEASES OF ONCOLOGY.** (190319) (Cr and hrs ar) Kennedy, staff
- 8220. **RESEARCH IN MEDICINE.** (590320) (Cr and hrs ar) Ferris, staff
- 8221. **TOPICS IN MEDICINE.** (390321) (Cr and hrs ar) Ferris, staff
- 8223. **TOPICS IN RELATED BASIC SCIENCE.** (190322) (Cr and hrs ar) Ferris, staff

Microbiology (MicB)

FIRST TERM

- 5970. **DIRECTED STUDIES.** (687540) (Cr ar; prereq #) Rogers, staff
- 5990. **UNDERGRADUATE RESEARCH.** (487541) (Cr ar; prereq #) Rogers, staff
- 8990. **RESEARCH IN MICROBIOLOGY.** (090323) (Cr and hrs ar; prereq #) Plagemann, staff
Graduate students with the requisite preliminary training may elect research project outside their thesis work.

SECOND TERM

- 5970. **DIRECTED STUDIES.** (287542) (Cr ar; prereq #) Rogers, staff
- 5990. **UNDERGRADUATE RESEARCH.** (187543) (Cr ar; prereq #) Rogers, staff
- 8990. **RESEARCH IN MICROBIOLOGY.** (185162) (Cr and hrs ar; prereq #) Plagemann, staff
See First Term.

Neurology (Neur)

SPECIAL TERMS: SIX- AND TWELVE-WEEK COURSES

- 5120. **SELECTED PROBLEMS IN NEUROLOGY.** (190331) (Cr ar; prereq regis med) Staff
- 5510. **EXTERNSHIPS IN CLINICAL NEUROLOGY.** (990332) (Cr ar; prereq regis med) Klassen, staff
- 5541. **PEDIATRIC NEUROLOGY—NEUROCHEMISTRY.** (790333) (Cr ar; prereq regis med) Swaiman
- 5542. **PEDIATRIC NEUROLOGY.** (988693) (Cr ar; prereq regis med) Greenberg
- 5544. **CLINICAL ELECTROENCEPHALOGRAPHY.** (590334) (Cr ar; prereq regis med) Torres
- 5545. **ELECTROMYOGRAPHY.** (390335) (Cr ar; prereq regis med) Kennedy
- 5570. **IMMUNOLOGY.** (190336) (Cr ar; prereq regis med) Ansari

Course Descriptions

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

- 8200. CLINICAL NEUROLOGY.** (090337) (Cr ar) Klassen, staff
- 8201. CLINICAL PEDIATRIC NEUROLOGY.** (890338) (Cr ar) Swaiman, staff
- 8202. RESEARCH.** (690339) (Cr ar) Klassen, staff
- 8203. APPLIED ELECTROENCEPHALOGRAPHY.** (090340) (Cr ar) Torres
- 8204. APPLIED ELECTROMYOGRAPHY.** (890341) (Cr ar) Kennedy
- 8205. APPLIED NEUROPATHOLOGY.** (690342) (Cr ar) Mastrì
- 8236. RESEARCH: NEUROPATHOLOGY.** (490343) (Cr ar) Mastrì
- 8705. NEUROLOGICAL-NEUROSURGICAL CONFERENCE.** (290344) (1 cr, §Rad 5163, §Surg 8318) Staff

Neurosurgery (NSu)

SPECIAL TERMS: THREE- AND SIX-WEEK COURSES

Elective Courses for Undergraduate Students

- 5500. NEUROSURGERY EXTERNSHIP (University Hospitals).** (190345) (4.5 or 9 cr; prereq regis med; MTWThF) Chou, Seljeskog, Erickson, Maxwell, Haines, Turner
- 5510. NEUROSURGERY EXTERNSHIP (Veterans Administration Hospital).** (590348) (4.5 or 9 cr; prereq regis med; MTWThF) Maxwell, Dennis A. Turner
- 5511. NEUROSURGERY EXTERNSHIP (Hennepin County Medical Center).** (390349) (4.5 or 9 cr; prereq regis med; MTWThF) Rockswold
- 5512. NEUROSURGERY EXTERNSHIP (St. Paul-Ramsey Medical Center).** (790350) (4.5 or 9 cr; prereq regis med; MTWThF) Reynaldo Castillo
- 5520. NEUROSURGERY INVESTIGATION.** (390352) (9 cr; prereq regis med; MTWThF; Diehl F109-110 and G134-144) Ebner
- 5530. NEUROPSYCHOLOGY.** (890355) (9 cr; prereq regis med; ar; Mayo C667) Meier
- 5550. NEUROPHYSIOLOGICAL LITERATURE SEMINAR.** (490357) (1 cr; prereq Medical School course in physiology or equiv with #; 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.** (290358) (4 cr; MTWThF; Mayo B524) Chou, Seljeskog, Erickson, Maxwell, Haines, Turner
Neurosurgical fellow assists in instruction of clinical clerks and interns, studies problems in diagnosis at University and affiliated hospitals.
- 8308. NEUROSURGICAL PROBLEMS AND MANAGEMENT.** (190362) (4 cr; MTWThF; Mayo B401) Chou, Seljeskog, Erickson, Maxwell, Haines, Turner
Neurosurgical fellow acts as house surgeon at University and affiliated hospitals.
- 8311. OPERATIVE NEUROSURGERY.** (390366) (4 cr; MTWThF; Mayo B401) Chou, Seljeskog, Erickson, Maxwell, Haines, Turner
Neurosurgical fellow acts as first assistant for operations at University and affiliated hospitals and later may be permitted to operate.
- 8316. NEUROSURGICAL RESEARCH.** (090368) (6 cr; MTWThF; Diehl F109-110 and G134-144) Chou, Seljeskog, Bloedel, Erickson, Haines, Turner
Problems in experimental or clinical surgery.
- 8318. NEURORADIOLOGICAL CONFERENCE.** (890369) (1 cr; 1325-1415 F; Mayo C231-Todd Amph) Chou, Seljeskog, Erickson, Maxwell, Haines, Turner
A review of X-ray films and case histories on neurosurgical service.
- 8320. NEUROSURGICAL CONFERENCE.** (890372) (2 cr; 0800-1100 Sat; Mayo B507) Chou, Seljeskog, Bloedel, Erickson, Maxwell, Haines, Turner
In-depth review of selected topics in basic and clinical neurosurgery.

8322. NEUROSURGERY-OPHTHALMOLOGY SEMINAR—PART I. (390383) (1 cr; 0800-0850 T; offered Su and W; Sta 51, Mayo 524) Staff
Review and discussion of topics.

8323. NEUROSURGERY-OPHTHALMOLOGY SEMINAR—PART II. (590382) (1 cr; prereq 8322; T; offered F and S) Staff
Advanced review and discussion of topics.

8324. READINGS: NEUROBIOLOGY. (190384) (1 cr; 1600-1800 Th; DVCCRC 114) Ebner

8330. NEUROSURGERY LITERATURE SEMINAR. (790378) (2 cr; 1st and 2nd Th evenings) Staff
Review and discussion of current literature relating to neurosurgery and the neurosciences.

Obstetrics and Gynecology (Obst)

SPECIAL TERMS: JUNE 21-JULY 30 AND AUGUST 2-SEPTEMBER 10

Elective Courses for Undergraduate Students

5500. EXTERNSHIP IN OBSTETRICS AND GYNECOLOGY. (090399) (9 cr; prereq Years 3 and 4) Julian, staff
Clinical experience that includes total care of inpatients and outpatients on obstetrics and gynecology service at Hennepin County Medical Center, North Memorial Hospital, St. Joseph's Hospital, St. Mary's Hospital, St. Paul-Ramsey Medical Center, United Hospitals, Group Health, Fairview Hospital, University Hospitals, and St. Luke's Hospital, Duluth. Emphasis on medical aspects of obstetrics and gynecology.

5520. OBSTETRICS AND GYNECOLOGY EXTERNSHIP IN CLINICAL PRACTICE. (790400) (4.5 cr; prereq Years 3 and 4) Julian, staff
Practical community experience in obstetrics and gynecology under preceptorship of one or more practicing members of clinical staff. Both office and hospital practice included.

5540. ADVANCED EXTERNSHIP IN OBSTETRICS AND GYNECOLOGY. (590401) (Cr ar; prereq 5500) Julian, staff
Full-time clinical experience as acting intern on obstetrical and gynecological service at Hennepin County Medical Center, St. Paul-Ramsey Medical Center, or University Hospitals.

5560. RESEARCH IN REPRODUCTION. (390402) (Cr ar; prereq Years 3 and 4) Julian, staff
Topics selected for each student.

5575. GYNECOLOGICAL PATHOLOGY AND DIAGNOSTIC CYTOLOGY. (190403) (9 cr; prereq 5500) Julian, 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. (090404) (9 cr; prereq 5500) Julian
Full-time preceptorship in clinical obstetrics and gynecology, in outstate Minnesota, offered by AHEC. Student will receive per diem expenses. Similar to 5520, but in smaller community.

Courses for Graduate Students

8201. ADVANCED OBSTETRICS AND GYNECOLOGY. (390531) (Cr ar) Tagatz, staff

8205. ADVANCED OBSTETRICS AND GYNECOLOGY. (190532) (Cr ar) Tagatz, staff

8209. ADVANCED OBSTETRICS AND GYNECOLOGY. (090533) (Cr ar) Tagatz, staff

8210. ADVANCED OBSTETRICS AND GYNECOLOGY. (890534) (Cr ar) Tagatz, staff

8213. ADVANCED OBSTETRICS AND GYNECOLOGY. (990542) (Cr ar) Tagatz, staff

8217. SEMINAR IN OBSTETRICS AND GYNECOLOGY. (590544) (Cr ar) Tagatz, staff

8221. SEMINAR IN OBSTETRICS AND GYNECOLOGY. (190546) (Cr ar) Tagatz, staff

8222. GYNECOLOGICAL ONCOLOGY. (090547) (Cr ar) Tagatz, staff

8223. GYNECOLOGICAL ONCOLOGY. (690549) (Cr ar) Tagatz, staff

8224. GYNECOLOGICAL ENDOCRINOLOGY—PART I. (890551) (Cr ar) Tagatz, staff

8225. GYNECOLOGICAL ENDOCRINOLOGY—PART II. (290554) (Cr ar) Tagatz, staff

8226. OBSTETRICAL PHYSIOLOGY AND ANESTHESIOLOGY. (590561) (Cr ar) Tagatz, staff

8230. RESEARCH IN REPRODUCTION. (090564) (Cr ar) Tagatz, staff

Ophthalmology (Oph)

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

- 5100. INTRODUCTION TO OPHTHALMOLOGIC PATHOLOGY. (490567) (1 cr) Cameron
- 8101. CLINICAL OPHTHALMOLOGY. (490570) (8 cr) Staff
- 8131. PRACTICAL OCULAR SURGERY. (290571) (3 cr) Staff
- 8142. PATHOLOGY LABORATORY. (790574) (2 cr) Cameron
- 8152. OPHTHALMOLOGY LABORATORY. (590575) (15 cr) Doughman
- 8155. SPECIAL TOPICS. (190577) (Cr ar) Staff

Orthopaedic Surgery (OrSu)

SPECIAL TERMS: THREE- AND SIX-WEEK COURSES

Elective Courses for Undergraduate Students

- 5180. ORTHOPAEDICS I. (190586) (Cr ar; prereq regis med)
- 5185. ORTHOPAEDICS II. (990587) (Cr ar; prereq regis med)
- 5186. RESEARCH PROBLEMS IN ORTHOPAEDIC SURGERY. (990590) (Cr ar; prereq regis med)
- 5187. EXTERNSHIP IN ORTHOPAEDIC SURGERY AND FRACTURES. (790591) (Cr ar; prereq regis med)
St. Paul-Ramsey Medical Center.
- 5188. EXTERNSHIP IN ORTHOPAEDIC SURGERY AND FRACTURES. (190594) (Cr ar; prereq regis med)
Gillette Children's Hospital, St. Paul.
- 5190. EXTERNSHIP IN ORTHOPAEDIC SURGERY AND FRACTURES. (690597) (Cr ar; prereq regis med)
Veterans Hospital.
- 5191. ORTHOPAEDIC EXTERNSHIP AT HENNEPIN COUNTY MEDICAL CENTER. (290599) (Cr ar; prereq regis med)

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

Required Courses for Graduate Students

- 8401. ORTHOPAEDIC CONFERENCE. (090600) (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. (290604) (5 cr) Gustilo, staff
Orthopaedic fellow acts as house surgeon on the fracture service at Hennepin County Medical Center.
- 8404. FRACTURES. (190605) (5 cr) Comfort, staff
Orthopaedic fellow acts as house surgeon on the fracture service at St. Paul-Ramsey Medical Center.
- 8405. ORTHOPAEDIC DIAGNOSIS. (790607) (3 cr) Thompson, Bradford, House, Robinson, Hunter, Craig, Ogilvie
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. (390609) (5 cr) Vanden Brink, staff
Orthopaedic fellow acts as house surgeon at Gillette Children's Hospital.
- 8408. ORTHOPAEDIC PROBLEMS AND MANAGEMENT. (790610) (5 cr) Thompson, Bradford, House, Premer, Robinson, Hunter, Craig, Ogilvie
Orthopaedic fellow acts as house surgeon at University and Veterans Hospitals.
- 8409. ORTHOPAEDIC PROBLEMS AND MANAGEMENT. (190613) (5 cr) Winter, Lonstein
Orthopaedic fellow acts as house surgeon on the orthopaedic service at Fairview Hospital.
- 8410. ORTHOPAEDIC PATHOLOGY. (690616) (2 cr) Thompson, Bradford, House, Premer, Robinson, Hunter, Craig, Ogilvie
Seminar for systematic review of pathology of ossified tissues and soft tissues of the extremities.
- 8411. ORTHOPAEDIC OPERATIVE SURGERY. (490620) (5 cr) Thompson, Bradford, House, Premer, Robinson, Hunter, Craig, Ogilvie
Orthopaedic fellow acts as first assistant at operations at University and affiliated hospitals and later may be permitted to operate.

8412. ORTHOPAEDIC ANATOMY. (790624) (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. (390626) (5 cr) Thompson, Bradford, House, Robinson, Hunter, Craig, Ogilvie
Problems in experimental or clinical surgery, University Hospitals.

Otolaryngology (Otol)

SPECIAL TERMS: THREE-, SIX-, AND TWELVE-WEEK COURSES

5500. GENERAL—ENT ELECTIVE. (690633) (4.5 cr)
5501. ACTING INTERNSHIP—ENT ELECTIVE. (490634) (9 cr)
5503. RESEARCH: BASIC SCIENCE—ENT ELECTIVE. (290635) (9 or 18 cr)

SPECIAL TERM: EIGHT-WEEK COURSES

8220. RESEARCH. (190636) (18 cr)
8230. CLINICAL OTORHINOLARYNGOLOGY. (790638) (6 cr)
8231. SURGERY OF EAR, NOSE, THROAT. (990640) (4 cr)
8232. MAXILLOFACIAL SURGERY. (790641) (1 cr)
8233. PLASTIC, RECONSTRUCTIVE SURGERY: HEAD, NECK. (590642) (1 cr)
8234. ANATOMY: HEAD, NECK, TEMPORAL BONE DISSECTION. (390643) (2 cr)
8235. ROENTGENOLOGY OF HEAD, NECK. (090645) (2 cr)
8236. PHARMACOLOGY. (890646) (2 cr)
8237. ENDOSCOPY. (690647) (2 cr)
8238. PATHOLOGY OF EAR, NOSE, THROAT. (490648) (2 cr)
8239. OTONEUROLOGY. (690650) (2 cr)
8240. ALLERGY. (490651) (2 cr)
8241. TUMOR CLINIC. (190653) (1 cr)
8242. AUDIOLOGY AND SPEECH PATHOLOGY. (990654) (2 cr)
8243. INTRODUCTION: RESEARCH METHODOLOGY. (590656) (2 cr)
8244. SEMINAR: CURRENT LITERATURE. (390657) (1 cr)
8245. MASTER'S THESIS RESEARCH. (090659) (Cr ar)
8246. PH.D. THESIS RESEARCH. (190661) (Cr ar)
8248. READINGS IN HEARING (AUDIOLOGY) PHYSIOLOGY. (090662) (Cr ar)

Pathobiology (Path)

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

Courses for Graduate Program

5101. PATHOLOGY. (Cr ar; prereq pathobiology grad student or Δ ; lect 0915-1000 MTThF; MoosT 2650) Staff
Lab 1, (686274) 1015-1200 MTh, MoosT 3331, 3337, 3343, 3349
Lab 2, (486275) 1315-1500 MTh, MoosT 3331, 3337, 3343, 3349
5104. AUTOPSIES. (690664) (Cr ar; prereq regis grad med or #) Staff
5113. SURGICAL PATHOLOGY. (290666) (Cr ar; prereq regis grad med or #) Dehner
5140. SEMINAR: EXPERIMENTAL CHRONOBIOLOGY. (790669) (1 cr; prereq #) Halberg
5141. PROBLEMS IN EXPERIMENTAL AND CLINICAL CHRONOBIOLOGY. (990671) (Cr ar; prereq #) Halberg
5169. RESEARCH: HUMAN GENETICS. (790672) (Cr ar; prereq #) Eaton
5170. ADVANCED PROBLEMS IN MEDICAL GENETICS. (590673) (Cr ar; prereq #) Eaton, staff

Course Descriptions

8201. RESEARCH. (190675) (Cr ar; prereq #) Benson, staff

Students with the necessary preliminary training may elect research either as a major or minor in pathobiology.

8207. RESEARCH IN EXPERIMENTAL AND CLINICAL CHRONOBIOLOGY. (090676) (Cr ar; prereq #) Halberg

8273. ADVANCED IMMUNOBIOLOGY. (890677) (6 cr; prereq #) Kersey or Azar

Pediatrics (Ped)

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

Elective Courses

5501. PEDIATRIC CLERKSHIP (University Hospitals, Hennepin County Medical Center, St. Paul-Ramsey Medical Center, St. Paul Children's Hospital; may also be taken with a private practitioner but must be arranged with the course director). (690678) (Cr ar) Satran

5503. PEDIATRIC CLERKSHIP WITH OUTSTATE CLINICIANS. (987978) (cr ar) Satran

5504. PEDIATRIC CLINICAL ASPECTS OF PEDIATRIC PSYCHOLOGY (University Hospitals). (187551) (Cr ar) Chang

5512. PEDIATRIC ACTING INTERNSHIP. (890680) (Cr ar) Satran

5515. CHILD DEVELOPMENT AT ST PAUL-RAMSEY MEDICAL CENTER. (690681) (Cr ar) Davis

5520. PEDIATRIC OUTPATIENT. (490682) (Cr ar; prereq #) Satran

5522. AMBULATORY PEDIATRICS AT HENNEPIN COUNTY MEDICAL CENTER. (190684) (Cr ar) Tobin

5523. OUTPATIENT EXTERNSHIP AT COMMUNITY UNIVERSITY HEALTH CARE CENTER. (990685) (Cr ar; prereq 5501, 5503, 5512, Med 5502) Smelker

5532. CLINICAL ALLERGY AND IMMUNOLOGY AT UNIVERSITY HOSPITALS. (790686) (Cr ar; prereq 5501, 5503, 5512, Med 5502) Page

5534. PEDIATRIC CARDIOLOGY AT UNIVERSITY HOSPITALS. (390688) (Cr ar; prereq 5501, 5503, 5512, Med 5502) Moller

5535. INFECTIOUS DISEASE. (390691) (Cr ar; prereq 5501, 5503, 5512, Med 5502) Ferrieri

5536. PEDIATRIC HEMATOLOGY-ONCOLOGY AT UNIVERSITY HOSPITALS. (190692) (Cr ar; prereq 5501, 5503, 5512 or Med 5502) Nesbit

5537. PEDIATRIC ENDOCRINOLOGY AND METABOLISM (University Hospitals). (387550) (Cr ar) Ulstrom

5538. PEDIATRIC GASTROENTEROLOGY. (890694) (Cr ar; prereq 5501, 5503, 5512 or Med 5502) Sharp

5539. NEONATAL MEDICINE EXTERNSHIP. (690695) (Cr ar; prereq 5501, 5502 or Med 5502) Boros or Thompson

5540. PEDIATRIC NEUROLOGY. (490696) (Cr ar) Swaiman

5543. PEDIATRIC NEPHROLOGY. (290697) (Cr ar; prereq 5501, 5503, 5512 or Med 5502) Michael

5544. PULMONARY DISEASE IN PEDIATRICS. (190698) (Cr ar; prereq 5501, 5503, 5512 or Med 5502) Warwick

5545. DIAGNOSIS, EVALUATION, AND CARE OF ADULTS AND CHILDREN WITH CANCER. (990699) (Cr ar) Ramsay

5548. PEDIATRIC GENETICS. (690700) (9 cr; prereq 5501, 5503, 5512 or Med 5502) Pierpont

5553. ADOLESCENT MEDICINE (University Hospitals). (388696) (9 cr) Blum

5555. NEONATAL CHECKUP (St. Joseph's Hospital, Marshfield, WI). (188697) (Cr ar) Opitz

5556. CLINICAL PEDIATRICS CLERKSHIP (Marshfield Clinic, WI). (088698) (Cr ar) Blau

8200. GRADUATE SEMINAR: PEDIATRICS. (290702) (1.5 cr) Staff

8202. PEDIATRICS CLINICS. (990704) (Cr ar; prereq #) Staff

8204. RESIDENCY IN PEDIATRICS. (590706) (Cr ar; prereq #) Staff

8206. PEDIATRIC SPECIAL INTEREST. (190708) (Cr ar; for grad students who have completed at least 1½ yrs of general grad pediatric training; prereq #) Staff

8208. PEDIATRIC RESEARCH. (390710) (Cr ar; prereq #) Krivit, staff

Pharmacology (Phcl)

FIRST TERM

5109. **PROBLEMS IN PHARMACOLOGY.** (090712) (Cr and hrs ar; prereq #) Shideman, staff
8203. **RESEARCH IN PHARMACOLOGY.** (087552) (Cr and hrs ar; prereq #) Shideman, staff

SECOND TERM

5109. **PROBLEMS IN PHARMACOLOGY.** (885172) (Cr and hrs ar; prereq #) Shideman, staff
8203. **RESEARCH IN PHARMACOLOGY.** (887553) (Cr and hrs ar; prereq #) Shideman, staff

Physical Medicine and Rehabilitation (PMed)

SPECIAL TERM: JULY 1-SEPTEMBER 30

8200. **PHYSICAL MEDICINE SERVICE.** (690714) (Cr and hrs ar) Staff
8205. **READINGS.** (290716) (1 cr; 0900-0955 M; Mayo 825) Kottke
8206. **CONFERENCE ON PHYSICAL MEDICINE AND REHABILITATION.** (558521) (Cr ar; 0800-0900 F) Magness
8207. **BASIC AND APPLIED PHYSIATRY.** (586347) (Cr ar; 0800-0900 M) Staff
8212. **ELECTRODIAGNOSIS AND ELECTROMYOGRAPHY.** (888086) (Cr and hrs ar) Benninghoff
8220. **SEMINAR IN PHYSICAL MEDICINE AND REHABILITATION.** (388522) (Cr ar; 0800-0900 W) Staff

Occupational Therapy

- 5396, 5397. **FIELDWORK EDUCATION.** (990718) (190720) (Cr ar; for sr OT students) Eliason
Six months of supervised training in affiliated hospitals and community centers.

Physical Therapy

FIRST TERM

8103. **PHYSICAL THERAPY CLINIC.** (790722) (Cr ar; prereq physical therapy) Ellingham, Pavley
8130. **CURRENT LITERATURE SEMINAR IN PHYSICAL THERAPY.** (587384) (1 cr; prereq #) Scudder, Amundson
8170. **SPECIAL TOPICS.** (490701) (1 cr; prereq #) Amundson, staff
8185. **PROBLEMS IN PHYSICAL THERAPY.** (190703) (Cr ar; prereq physical therapy) Staff
8193. **RESEARCH PROBLEMS IN PHYSICAL THERAPY.** (790705) (Cr ar; prereq physical therapy) Amundson, Allison
8195. **RESEARCH IN PHYSICAL THERAPY.** (390707) (Cr ar; prereq #) Amundsen, staff

SECOND TERM

5255. **CLINICAL TRAINING.** (787383) (3 cr; limited to PT students in the professional program; hrs ar at affiliated hospitals) Ellingham
Five weeks of supervised practice at affiliated hospitals.
8103. **PHYSICAL THERAPY CLINIC.** (685173) (Cr ar; prereq physical therapy) Ellingham, Pavley
8130. **CURRENT LITERATURE SEMINAR IN PHYSICAL THERAPY.** (987382) (1 cr; prereq #) Scudder, Amundson
8170. **SPECIAL TOPICS.** (485174) (1 cr; prereq #) Amundson, staff
8185. **PROBLEMS IN PHYSICAL THERAPY.** (285175) (Cr ar; prereq physical therapy) Staff
8193. **RESEARCH PROBLEMS IN PHYSICAL THERAPY.** (185176) (Cr ar; prereq physical therapy) Amundson, Allison
8195. **RESEARCH IN PHYSICAL THERAPY.** (985177) (Cr ar; prereq #) Amundsen, staff

Course Descriptions

Physiology (Phsl)

FIRST TERM

3051. HUMAN PHYSIOLOGY. (590723) (5 cr; primarily for baccalaureate nursing students and physical therapy students; prereq biology and 1 yr college chemistry; 1325-1415 MW, 1115-1205 and 1430-1625 TTh, 1325-1520 F, MoosT 2-530; lab 1430-1730 MW, MoosT 3-110) Staff
Introduction to human physiology.

5113. PROBLEMS IN PHYSIOLOGY. (090709) (Cr and hrs ar) Staff
Topics assigned for laboratory study; conferences and readings.

5552. READINGS IN PHYSIOLOGY. (190711) (Cr and hrs ar) Staff
Topics selected for each student; written reviews prepared and discussed.

5553. RESEARCH IN PHYSIOLOGY. (890713) (Cr and hrs ar) Staff

8113. PROBLEMS IN PHYSIOLOGY. (490715) (Cr and hrs ar) Staff
Topics assigned for laboratory study; conferences and readings.

8202. READINGS IN PHYSIOLOGY. (790719) (Cr and hrs ar) Staff
Topics selected for each student; written reviews prepared and discussed.

8203. RESEARCH IN PHYSIOLOGY. (190717) (Cr and hrs ar) Staff

SECOND TERM

5552. READINGS IN PHYSIOLOGY. (285788) (Cr and hrs ar) Staff
See First Term.

5553. RESEARCH IN PHYSIOLOGY. (185789) (Cr and hrs ar) Staff

8202. READINGS IN PHYSIOLOGY. (485790) (Cr and hrs ar) Staff
See First Term.

8203. RESEARCH IN PHYSIOLOGY. (285791) (Cr and hrs ar) Staff

Psychiatry

Adult Psychiatry (AdPy)

SPECIAL TERM: JUNE 24-SEPTEMBER 13

5105. ADULT INPATIENT PSYCHIATRY FOR HEALTH CARE PSYCHOLOGY INTERNS. (088765) (Cr ar; prereq #)
Sines

5107. HUMAN BEHAVIOR—June 18-July 24. (888654) (4 cr; 1015-1100 T, 0915-1000 W, MoosT 2650) Kroll

5109. ADULT PSYCHIATRY. (185081) (9 cr per period; prereq med student) Olson

Clinical exposure to psychiatric problems in the general practice of psychiatry in acute care hospital and community settings. Experience in clinical evaluation and follow-up of patients with acute illness. Contact Arthur Aufderheide, M.D., St. Luke's Hospital, 915 East First Street, Duluth (218/727-6636, ext. 660).

5110. CONTEMPORARY HOSPITAL PSYCHIATRY. (985082) (9 cr per period; prereq med student) Cowan
Experience with evaluation and treatment techniques currently practiced in a general hospital mental health center. The student will be assigned two or three new patients per week, having primary responsibility for care under the supervision of the attending physician and working with the multidisciplinary treatment staff. Contact Arthur Aufderheide, M.D., at St. Luke's Hospital, 915 East First Street, Duluth (218/727-6636, ext. 660).

5120. LEARNING PSYCHIATRY: DIAGNOSIS, MANAGEMENT, AND TREATMENT (Veterans Administration Medical Center). (785083) (9 cr per period; prereq med student) Magraw

Clinical experience in working with psychiatric patients, emphasizing the development of interviewing and diagnostic skills, knowledge of appropriate treatment modalities, programming treatments, and use of the multidisciplinary team approach in overall treatment.

5500. PSYCHIATRY EXTERNSHIP (Abbott-Northwestern; Anoka State Hospital; Hennepin County Medical Center; St. Paul-Ramsey Medical Center; University Hospitals; or Veterans Administration Hospital). (785097) (9 cr per period; prereq regis med) Eckert

A requirement for all third-year medical students. Prepares medical students to recognize, diagnose, and care for patients with psychiatric disorders encountered in most medical practices.

5507. CLINICAL RESEARCH IN PSYCHIATRY (University Hospitals, Station 61). (885110) (9 cr per period; prereq med student) Heston
General adult psychiatry with emphasis on pharmacological treatment and research. Work with inpatients and outpatients.

5511. PSYCHIATRY IN MEDICINE: CONSULTATION-LIAISON (University Hospitals). (385121) (9 cr per period; prereq med student) Popkin
Students assist in psychiatric consultation to other services in University Hospitals under direct supervision of staff.

5514. SUBSTANCE ABUSE AND RELATED PSYCHIATRIC DISORDERS (University Hospitals). (488771) (9 cr per period; prereq med student) Westermeyer
Students will be involved with cases over a spectrum of services from inpatient, to an intensive outpatient program or partial hospitalization, to outpatient follow-up. Cases will involve both alcohol and drug abuse, and combinations of these two with their associated medical and psychiatric conditions.

5515. NEUROPSYCHOLOGY (University Hospitals). (185128) (9 cr per period; prereq med student) Meier
Screening for impairments of higher cortical functions as a basis for differentiating functional from organic determinants of behavior change. Fundamental clinical competencies in application of screening battery established.

5516. ST. MARY'S REHABILITATION CENTER—ADULT CHEMICAL DEPENDENCY PROGRAM (St. Mary's Rehabilitation Center). (185131) (4.5 or 9 cr per period; prereq med student) Mann
As a member of a multidisciplinary treatment team, the student becomes a cofacilitator of patient and family group therapy sessions; involvement in inpatient service and outpatient program.

5518. COMMUNITY PSYCHIATRY (Five-County Human Development Program, Inc., Braham). (385135) (9 cr per period; prereq med student) Walton
Participation as a physician member of a multidisciplinary team composed of health science students and mental health professionals.

5521. COMMUNITY PSYCHIATRY (Dakota County Mental Health Center). (085137) (9 cr per period; prereq med student) Nagobads
Experience in outpatient community psychiatry. Useful for students considering family practice.

5530. INDEPENDENT STUDY. (885138) (Up to 9 cr per period; prereq med student; hrs ar) Heston
Completion of individual projects or study courses in psychiatry or basic sciences.

5602. CLINICAL PSYCHOPHARMACOLOGY SEMINAR. (685142) (1 cr; prereq #: hrs ar) Abuzzahab
Structured discussion of current problems in clinical psychopharmacology.

SPECIAL TERM: JUNE 24-SEPTEMBER 13

5800. CASE CONFERENCE; PSYCHIATRY IN MEDICINE. (185159) (1 cr; prereq MD or #) Popkin, Brantner

5801. CONSULTATION-LIAISON PSYCHIATRY. (285161) (Cr ar; prereq MD) Popkin, staff

8201. CLINICAL PSYCHIATRY. (785164) (Up to 12 cr per qtr; hrs ar) Staff

8203. ADVANCED CLINICAL PSYCHIATRY. (585165) (Up to 12 cr per qtr; hrs ar) Staff

8205. SPECIAL ASSIGNMENTS. (885169) (Up to 12 cr per qtr; hrs ar) Staff

8206. RESEARCH. (185170) (Up to 12 cr per qtr; hrs ar) Staff

8208. SURVEY OF PHYSIOLOGICAL TREATMENTS. (085168) (2 cr; hrs ar) Eckert

8209. CLINICAL PSYCHOATHOLOGY. (386589) (3-4 cr; hrs ar) Sines

8221. SEMINAR: CURRENT LITERATURE (Hennepin County Medical Center). (085171) (1 cr; hrs ar) Simon

8265. READINGS, PSYCHOSOMATIC MEDICINE, CONSULTATION-LIAISON PSYCHIATRY. (185167) (Cr ar [max 3]; prereq MD, #) Popkin

8970. DIRECTED STUDY. (385166) (Up to 9 cr per qtr; hrs ar) Staff

Child and Adolescent Psychiatry (CAPy)

SPECIAL TERM: JUNE 24-SEPTEMBER 13

5203. CHILD AND ADOLESCENT OUTPATIENT PSYCHIATRY FOR HEALTH CARE PSYCHOLOGY INTERNS. (785178) (1-5 cr; prereq #) Staff
Experience in assessment and therapeutic interventions with children, adolescents, and families in an outpatient child and adolescent psychiatric setting.

5204. DIAGNOSTIC METHODS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY. (585179) (1 cr; prereq med student, #: hrs ar) Staff
Multidisciplinary evaluations of children, adolescents, and their families are presented for discussion, dynamic and diagnostic formulations, and disposition planning in conference setting.

Course Descriptions

- 5501. PEDIATRIC, PEDIATRIC NEUROLOGY: PSYCHIATRIC LIAISON.** (288688) (9-18 cr; prereq med student, #)
- 5520. OUTPATIENT CLINICAL CHILD AND ADOLESCENT PSYCHIATRY FOR PRIMARY CARE TRAINEES.** (188689) (cr ar; prereq med student, #)
- 5602. INTRODUCTORY READINGS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY.** (785181) (3 cr; hrs ar) Garfinkel, staff
Assigned readings and discussions with faculty. A survey course; includes child development, diagnostic and therapeutic techniques, and psychopathology.
- 5603. INPATIENT CLINICAL CHILD PSYCHIATRY.** (585182) (9 cr per term; prereq med student; hrs ar) Realmuto
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.** (385183) (3 cr; prereq MD and/or #, basic psychopath course, current supervised involvement in treatment of cases)
- 5609. CHILD DEVELOPMENT.** (185184) (3 cr; prereq MD and/or #)
- 8100. READINGS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY.** (085185) (1 cr; hrs ar) Garfinkel, staff
Comprehensive review of the classical and contemporary literature in the field of child, adolescent, and family psychiatry including growth and development, diagnostic and therapeutic techniques, and psychopathology, with supplemental course work in other departments and schools.
- 8110. DIAGNOSTIC METHODS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY.** (885186) (1 cr; hrs ar) Greenberg, staff
See 5204.
- 8120. THERAPEUTIC METHODS IN CHILD, ADOLESCENT, AND FAMILY PSYCHIATRY.** (685187) (1 cr; hrs ar) Staff
See 5206.
- 8200. OUTPATIENT CLINICAL CHILD AND ADOLESCENT PSYCHIATRY.** (485188) (3 cr; 15-30 hrs per wk) Jensen
Supervised diagnostic and therapeutic experiences in an outpatient setting.
- 8212. CLINICAL INPATIENT CHILD PSYCHIATRY.** (285189) (3 cr; 15-30 hrs per wk) Realmuto, staff
Supervised diagnostic and therapeutic experiences in an inpatient, multidisciplinary child psychiatry unit with an emphasis on group and milieu therapies.
- 8214. INPATIENT CLINICAL ADOLESCENT PSYCHIATRY.** (685190) (3 cr; hrs ar) Staff
Supervised diagnostic and therapeutic experiences in an inpatient, multidisciplinary adolescent psychiatry unit with an emphasis on group and milieu therapies.
- 8216. PEDIATRIC—PSYCHIATRY LIAISON.** (485191) (3 cr; prereq med student, #: hrs ar) Pearson
See 5500.
- 8228. RESEARCH IN CHILD AND ADOLESCENT PSYCHIATRY.** (285192) (1 cr; hrs ar) Greenberg, Yellin
Research design, methodology, and current research projects are reviewed with faculty members and invited guests.

Radiology (Rad)

SPECIAL TERM: THREE-WEEK COURSES

Elective Courses for Third- and Fourth-Year Students

- 5101. EXTERNSHIP: DIAGNOSTIC RADIOLOGY (University Hospitals).** (785200) (Cr and hrs ar; prereq regis med) Gedgudas, staff
- 5102. EXTERNSHIP: DIAGNOSTIC RADIOLOGY (Veterans Administration Hospital).** (185193) (Cr and hrs ar; prereq regis med) Reinke
- 5103. EXTERNSHIP: DIAGNOSTIC RADIOLOGY (Hennepin County Medical Center).** (985194) (Cr and hrs ar; prereq regis med) Tsai
- 5104. EXTERNSHIP: DIAGNOSTIC RADIOLOGY (St. Paul-Ramsey Medical Center).** (785195) (Cr and hrs ar; prereq regis med) L'Heureux
- 5105. EXTERNSHIP: DIAGNOSTIC RADIOLOGY (St. Luke's Hospital, Duluth).** (585196) (Cr and hrs ar; prereq regis med) Ahrens, staff
- 5140. SPECIAL PROBLEMS: ROENTGENOLOGY.** (385197) (Cr and hrs ar; prereq regis med) Gedgudas, staff
- 5240. SPECIAL PROBLEMS: NUCLEAR MEDICINE.** (185198) (Cr and hrs ar; prereq regis med) Loken, staff
- 5530. EXTERNSHIP: NUCLEAR MEDICINE.** (085199) (Cr and hrs ar; prereq regis med) Loken, staff

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

Required Courses for Graduate Students

0121. MEDICAL ROENTGENOLOGIC CONFERENCE. (385202) (No cr; 1130-1200 T; Mayo C321-Todd Amph) Gedgaudas, staff

Weekly meetings with the medical staff at which all the important medical cases that have used X-ray diagnostic procedures are reviewed from both the clinical and roentgenologic points of view.

0122. PEDIATRIC ROENTGENOLOGIC CONFERENCE. (185203) (No cr; 0930-1000 MTWThF; Mayo B167-Rigler Library) Day

Daily meetings with the pediatric staff at which all the important pediatric cases that have used X-ray diagnostic procedures are reviewed from both the clinical and roentgenologic points of view.

0123. SURGICAL ROENTGENOLOGIC CONFERENCE. (085204) (No cr; 0905-0955 S; Mayo C321-Todd Amph) Amplatz

Weekly meetings with the surgical staff at which all the important surgical cases that have used X-ray diagnostic procedures are reviewed from both the clinical and roentgenologic points of view.

0124. NEUROSURGICAL ROENTGENOLOGIC CONFERENCE. (885205) (No cr; 1325-1415 F; Mayo C321-Todd Amph) Gold

Weekly meetings with the neurosurgical staff at which all the important neurosurgical cases that have used X-ray diagnostic procedures are reviewed from both the clinical and roentgenologic points of view.

0125. CARDIOVASCULAR ROENTGENOLOGIC CONFERENCE. (685206) (No cr; 1200-1300 Th; Mayo B167-Rigler Library) Amplatz

8100. GASTROINTESTINAL ROENTGENOLOGY. (485207) (Cr ar; prereq #) Feinberg

8101. UROLOGIC ROENTGENOLOGY. (285208) (Cr ar; prereq #) Goldberg

8102. NEUROLOGICAL ROENTGENOLOGY. (185209) (Cr ar; prereq #) Gold

8103. CARDIOVASCULAR ROENTGENOLOGY. (485210) (Cr ar; prereq #) Amplatz

8104. PEDIATRIC ROENTGENOLOGY. (285211) (Cr ar; prereq #) Day

8105. PULMONARY ROENTGENOLOGY. (185212) (Cr ar; prereq #) Gedgaudas, staff

8150. RESEARCH: ROENTGENOLOGY. (985213) (Cr ar) Gedgaudas, staff
Problems in roentgen diagnosis.

8200. NUCLEAR MEDICINE. (785214) (Cr ar) Loken, staff

8450. RESEARCH: RADIATION BIOLOGY, NUCLEAR MEDICINE. (585201) (Cr ar) Staff

Surgery (Surg)

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

Elective Courses for Undergraduate Students

5500. EXTERNSHIP IN GENERAL SURGERY (University and Affiliated Hospitals). (585215) (Cr ar; prereq regis med) Cerra, staff

5501. EMERGENCY ROOM EXTERNSHIP. (388701) (9 cr; prereq regis med) Cerra

5502. EXTERNSHIP IN THE SURGICAL INTENSIVE CARE UNIT. (188702) (9 cr; prereq regis med)

5503. RESEARCH PROBLEMS IN SURGERY. (088703) (9 cr; prereq regis med; S-N only) Sutherland

5523. EXTERNSHIP IN COLON AND RECTAL SURGERY (Veterans Administration Hospital). (385216) (4.5 cr; offered all periods except 5; prereq regis med; 3 weeks) Goldberg

Required Courses for Graduate Students

8200. CLINICAL SURGICAL PROBLEMS AND MANAGEMENT. (185217) (5 cr; ar MTWThF) Najarian, staff

8201. SURGERY-ROENTGENOLOGY-PATHOLOGY CONFERENCE. (085218) (1 cr; 1600-1730 F; Mayo C321-Todd Amph) Najarian

8202. SURGICAL RESEARCH. (885219) (5 cr; ar MTWThF; Sur Res Lab) Staff

8203. SURGERY COMPLICATIONS AND RESEARCH CONFERENCE. (185220) (1 cr; 1640-1730 T; PWB 11-157) Najarian, staff

8207. TRANSPLANTATION AND BONE MARROW CONFERENCE. (085221) (1 cr; 1640-1730 Th; PWB 11-157) Najarian

Therapeutic Radiology (TRad)

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

5340. SPECIAL PROBLEMS IN RADIATION THERAPY. (885222) (Cr ar; prereq regis med)
5505. EXTERNSHIP IN RADIATION THERAPY. (088488) (Cr ar; prereq regis med) Levitt, Kim, Lee, Potish
5506. CANCER DIAGNOSIS AND TREATMENT. (888489) (Cr ar; prereq regis med) Levitt, Kim, Lee, Potish
5507. ADVANCED EXTERNSHIP IN RADIATION THERAPY. (685223) (Cr ar; prereq regis med) Levitt, Kim, Lee, Potish
5508. SPECIAL PROBLEMS IN RADIATION BIOLOGY. (485224) (Cr ar)
5512. DOSIMETRY OF INTERNAL AND EXTERNAL RADIATION. (285225) (1 cr; 0830-0930 W; 1243 HSUnitJ) Khan, Werner, Deibel, Gerbi
5540. SPECIAL PROBLEMS IN RADIOLOGICAL PHYSICS. (185226) (Cr ar; prereq regis med) Khan
8300. RADIATION THERAPY. (985227) (Cr ar)
8310. FUNDAMENTALS OF RADIATION THERAPY. (785228) (1 cr; 1600-1700 M; 1243 HSUnitJ)
8315. RADIATION THERAPY PATHOLOGY. (585229) (1 cr)
8320. RADIATION THERAPY TREATMENT PLANNING PROBLEMS. (985230) (1 cr)
8325. RADIATION THERAPY PEDIATRICS ONCOLOGY. (785231) (1 cr)
8350. RESEARCH IN RADIATION THERAPY. (585232) (Cr ar)
8410. SEMINAR: RADIATION BIOLOGY. (385233) (1 cr; prereq #) Song, Buchsbaum, Vallera
8450. RESEARCH IN RADIATION BIOLOGY. (185234) (Cr ar) Song, Buchsbaum, Vallera
8550. RESEARCH IN RADIOLOGICAL PHYSICS. (085235) (Cr ar) Khan

Urologic Surgery (Urol)

FIRST TERM

5180. EXTERNSHIP IN UROLOGY. (885236) (Cr and hrs ar) Staff

Required Courses for Graduate Students

8250. UROLOGICAL SURGERY. (685237) (4 cr; 0900-1200 MTThF; Main OR-H) Fraley, others
Urological fellow first assists at operations in the University Hospitals and later is permitted to operate under supervision of the staff.
8251. CYSTOSCOPY AND UROLOGICAL DIAGNOSIS. (485238) (4 cr; 0800-1200 MTWThF; Cysto Suite) Fraley, others
Urological fellow performs cystoscopies and other diagnostic procedures.
8252. UROLOGICAL CONFERENCE. (285239) (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. (685240) (4 cr) Fraley, others
Problems in experimental and clinical surgery.
8254. UROLOGICAL SEMINAR. (485241) (3 cr) Fraley, others
8255. UROLOGICAL-RADIOLOGICAL CONFERENCE. (285242) (3 cr; 1300-1400 MTWThF; Mayo A503) Fraley, others
8256. UROLOGICAL-PATHOLOGICAL CONFERENCE. (185243) (3 cr; 1640-1700 W; Mayo A503) Fraley, others
8257. SELECTED TOPICS: GENITOURINARY SYSTEM. (987494) (2 cr) Fraley, others

SECOND TERM

5180. EXTERNSHIP IN UROLOGY. (385815) (Cr and hrs ar) Staff

Required Courses for Graduate Students

8250. UROLOGICAL SURGERY. (685819) (4 cr; 0900-1200 MTThF; Main OR-H) Fraley, others
See First Term.

8251. CYSTOSCOPY AND UROLOGICAL DIAGNOSIS. (185825) (4 cr; 0800-1200 MTWThF; Cysto Suite) Fraley, others
See First Term.

8252. UROLOGICAL CONFERENCE. (285810) (4 cr; 1600-1700 F, Ward Rds, Sta 57; 0900-1100 S, Sta 57 Conf Rm) Fraley, others
See First Term.

8253. RESEARCH: UROLOGY. (185816) (4 cr) Fraley, others
See First Term.

8254. UROLOGICAL SEMINAR. (085820) (3 cr) Fraley, others

8255. UROLOGICAL-RADIOLOGICAL CONFERENCE. (285824) (3 cr; 1300-1400 MTWThF; Mayo A503) Fraley, others

8256. UROLOGICAL-PATHOLOGICAL CONFERENCE. (686968) (3 cr; 1630-1700 W; Mayo A503) Fraley, others

DEPARTMENT OF MORTUARY SCIENCE

Mortuary Science (Mort)

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

3080. PRACTICUM IN FUNERAL SERVICE. (985244) (15 cr; prereq have completed all requirements for graduation, with exception of 3080, Δ ; S-N grading)

Practical experience in a funeral home as assigned by the department; reports and assigned readings in funeral service literature.

SCHOOL OF NURSING

Nursing (Nurs)

FIRST TERM

5799. SELF-DIRECTED STUDY. (785245) (Cr ar; prereq any two of the following: 5611, 5612, 5613, 5614, written contract with instructor, #; may be used to meet any portion of nursing elective cr requirement) Staff

Sec 1. Opportunity for students to engage in learning experiences not provided for in established nursing elective courses.

8001. SPECIAL EDUCATIONAL EXPERIENCES IN NURSING. (485465) (Cr ar; prereq Δ) Staff
Various learning experiences planned to meet individual needs.

8009. SPECIAL TOPICS IN NURSING. (785469) (Cr ar; prereq #) Staff

8060. ADVANCED CLINICAL NURSING. (585487) (Cr ar; prereq #) Staff

8509. SPECIAL TOPICS IN NURSING EDUCATION. (585490) (Cr ar; prereq #) Staff

8609. SPECIAL TOPICS IN NURSING SUPERVISION. (185492) (Cr ar; prereq #) Staff

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

The following 5000-level courses are offered for RN students only.

R 5615. SYNTHESIS IN COMPLEX NURSING SITUATIONS. (5 cr; prereq 5407, 5611, 5612, 5613, 5614, FScN 3602; hrs ar)

Clinical course designed to allow students to synthesize the knowledge and skills acquired in the four prerequisite synthesis courses into comprehensive and effective care of individuals and groups experiencing complex disruptive life events.

Clinical ar 1. (391386) ar
 2. (191387) ar

R 5616. SYNTHESIS IN COMPLEX NURSING SITUATIONS II. (5 cr; prereq 5407, 5611, 5612, 5613, 5614; FScN 3602; hrs ar)

Clinical course designed to enable students to synthesize the knowledge and skills acquired in the four prerequisite synthesis courses into comprehensive and effective care of individuals and groups experiencing complex disruptive life events.

Clinical ar 1. (891389) ar
 2. (191390) ar

Course Descriptions

5799. SELF-DIRECTED STUDY. (785522) (Cr ar; prereq any two of the following: 5611, 5612, 5613, 5614...written contract with instructor, #; may be used to meet any portion of nursing elective cr requirement) Staff

Sec 2. See First Term.

5999. CLINICAL STUDY. (Cr ar; prereq 5407, any two of the following: 5611, 5612, 5613, 5614)
Opportunity to utilize the research process in the design and implementation of a limited study that focuses on implications for nursing practice.

1. (688512) ar
2. (586302) ar

R 8011. MORAL AND ETHICAL POSITIONS IN NURSING. (685531) (3 cr; prereq Δ ; 1215-1500 F) Weise
Influence of moral and ethical positions on behavior and decision making in nursing. Emphasis on bases for positions taken, such as selected moral and ethical theories, rights and responsibilities, and conflict.

R 8014. RESEARCH IN NURSING. (985535) (3 cr; prereq inferential statistics, Δ ; 0915-1200 W) Feldman
Research processes and methodologies appropriate to nursing. Analysis of research reports.

R 8030. NURSING INTERVENTION MODELS. (185539) (8 cr; prereq 8011 or *8011, 8012; 0915-1100 and 1215-1400 T, Med-Surg cln ar) Burns
Developing, providing and evaluating nursing intervention with a specified client population.

8050. PROBLEMS IN NURSING. (485482) (1-9 cr; prereq #) Staff
Individual study of a problem.

8314. NURSE-MIDWIFERY MANAGEMENT DURING CHILDBEARING. (891554) (9-10 cr; prereq #; 0915-1300 W) Dineen

For students wanting to complete requirements for nurse-midwifery certification. Emphasis on labor and delivery management with opportunity to improve skills throughout childbearing period.

R 8415. NURSE CLINICIAN ROLE DEVELOPMENT. (485580) (6-9 cr; prereq any Nursing Focus I course, a course dealing with the health care delivery system; 0915-1200 T) Snyder
Selection and development of a role, either a nurse clinician-specialist or nurse clinician-generalist. Aspects of the role may include patient care, consultation, staff development, research, coordination, and collaboration.

R 8451. TEACHING NURSING. (587708) (4 cr; prereq any sec of 8030, *course in learning theory and #; 0915-1145 TTh) Corcoran
Use of theories of learning to develop an intervention model for teaching nursing. Testing the intervention model in simulated situations.

SECOND TERM

8001. SPECIAL EDUCATIONAL EXPERIENCES IN NURSING. (185632) (Cr ar; prereq Δ) Staff
See First Term.

8009. SPECIAL TOPICS IN NURSING. (785634) (Cr ar; prereq #) Staff

8051. SPECIAL TOPICS IN NURSING RESEARCH. (386303) (1-9 cr) Staff
Seminar and/or individual study in nursing research.

8060. ADVANCED CLINICAL NURSING. (885785) (3-9 cr; prereq Δ , #) Staff

8509. SPECIAL TOPICS IN NURSING EDUCATION. (685786) (Cr ar; prereq #) Staff

8609. SPECIAL TOPICS IN NURSING SUPERVISION. (485787) (Cr ar; prereq #) Staff

COLLEGE OF PHARMACY

Pharmacy (Phar)

FIRST TERM

5210. TERMINOLOGY OF THE HEALTH SCIENCES. (685271) (2 cr, §HSU 5210; HSUnit F 5-135) McKennell
Programmed learning format to familiarize students with the language of the health sciences.

5290. SPECIALTY CLERKSHIPS. (888167) (Cr ar) Cloyd
Practice experience with specialized populations.

5970. DIRECTED STUDIES. (988158) (1-5 cr; prereq #)

5999. SPECIAL PROBLEMS. (788159) (Cr ar; prereq #)

SPECIAL TERM: JUNE 24-SEPTEMBER 13

5390. COMMUNITY PRACTICE CLERKSHIP. (286911) (8-12 cr; prereq 3rd yr pharmacy student; S-N only) Benson

5392. HOSPITAL PRACTICE CLERKSHIP. (991206) (8-12 cr; prereq 3rd yr pharmacy student; S-N only) Mann

5396. PHARM.D. CLERKSHIP. (088345) (12 cr; prereq 5312 or #; S-N only) Cloyd
Monitoring of patient drug therapy in University Hospitals and other affiliated institutions.

SECOND TERM

5210. TERMINOLOGY OF THE HEALTH SCIENCES. (985390) (2 cr, §HSU 5210, HSUnit F 5-135) McKennell
Programmed learning format to familiarize students with the language of the health sciences.

5290. SPECIALTY CLERKSHIPS. (088166) (Cr ar) Cloyd
See First Term.

5970. DIRECTED STUDIES. (688154) (1-5 cr; prereq #)

5999. SPECIAL PROBLEMS. (488155) (Cr ar; prereq #)

SCHOOL OF PUBLIC HEALTH

Biometry (PubH)

FIRST TERM

5400. INTRODUCTION TO QUANTITATIVE METHODS IN THE BIOLOGIC AND HEALTH SCIENCES. (785035) (4 cr; for students majoring in the biological and health sciences; prereq Biol 1009, Chem 1004, Math 1111 or 1201 or #; 0800-0930 MTWThF; PWB 5-224) Le
Basic quantitative methods for the design and analysis of clinical and laboratory studies in biology and the health sciences.

5446. BIOCOMPUTING CONSULTING SEMINAR. (585036) (3 cr; prereq biometry major, 5432, 5452 or #) Staff
Overview of computer hardware, operating systems, languages, and program packages for health science applications. Case examples illustrate roles and responsibilities of the project manager in analyzing the requirements of the health science client, designing and specifying computer interfaces, and supervising the development, training, documentation, and evaluation.

5456. BIOMETRY CONSULTING SEMINAR. (385037) (Cr ar; prereq biometry major) Boen, staff
Consultant and consultee interaction; communication and formulation of the biometric problem. Role and responsibility of the biometrician. Robustness and relevance of frequently used analytical techniques. Internship experiences.

5470. TOPICS IN BIOMETRY. (185038) (Cr ar; prereq #) Staff
Selected readings with discussion based on these readings.

8400. SEMINAR IN BIOMETRY. (085039) (Cr ar) Staff

8449. TOPICS IN BIOMETRY. (385040) (Cr ar; prereq 5450 and #) Staff
Studies in special topics for advanced students.

8450. RESEARCH IN BIOMETRY. (185041) (Cr ar) Staff
Opportunities for qualified students to pursue research work.

SECOND TERM

5446. BIOCOMPUTING CONSULTING SEMINAR. (185064) (3 cr; prereq biometry major, 5432, 5452 or #) Gatewood
See First Term.

5456. BIOMETRY CONSULTING SEMINAR. (985065) (Cr ar; prereq biometry major) Boen
See First Term.

5470. TOPICS IN BIOMETRY. (785066) (Cr ar; prereq #) Staff
See First Term.

8400. SEMINAR IN BIOMETRY. (585067) (Cr ar) Staff

8449. TOPICS IN BIOMETRY. (385068) (Cr ar; prereq 5450 and #) Staff
See First Term.

8450. RESEARCH IN BIOMETRY. (185069) (Cr ar) Staff
See First Term.

Dental Public Health (PubH)

FIRST TERM

5654. TOPICS: DENTAL PUBLIC HEALTH. (085042) (Cr ar; prereq student in dental public health or #) Staff
Selected readings with discussion based on these readings.

5657. INDEPENDENT STUDY: DENTAL PUBLIC HEALTH. (885043) (Cr ar; prereq student in dental public health or #)
Block, staff
Independent study, under tutorial guidance, of selected problems and current issues in the field of dental health and dental health services.

5660. FIELD EXPERIENCE: DENTAL PUBLIC HEALTH. (685044) (Cr ar; prereq student in dental public health or #)
Supervised field experience in selected community or public health agencies and institutions.

5663. ADMINISTRATIVE RESIDENCY IN DENTAL PUBLIC HEALTH. (485045) (Cr ar; prereq student in dental public health or #) Block, staff, clinical preceptors
Eleven months of field work in an approved community or public health agency, delivery of dental services and implementation of programs, solution of management problems, and special projects. Preparation of formal report.

SECOND TERM

5654. TOPICS: DENTAL PUBLIC HEALTH. (585070) (Cr ar; prereq student in dental public health or #) Staff
See First Term.

5657. INDEPENDENT STUDY IN DENTAL PUBLIC HEALTH. (385071) (Cr ar; prereq student in dental public health or #) Block, staff
See First Term.

5660. FIELD EXPERIENCE: DENTAL PUBLIC HEALTH. (185072) (Cr ar; prereq student in dental public health or #)
Block, staff
See First Term.

5663. ADMINISTRATIVE RESIDENCY IN DENTAL PUBLIC HEALTH. (085073) (Cr ar; prereq student in dental public health or #) Block, staff, clinical preceptors
See First Term.

Environmental Health (PubH)

FIRST TERM

5150. TOPICS IN ENVIRONMENTAL HEALTH. (285046) (Cr ar; prereq #) Staff
Selected readings with discussions of problems.

8002. FIELD OBSERVATION OF SELECTED PUBLIC HEALTH PRACTICES. (Cr ar; prereq #) Staff
Sec 1, (185033) Environmental health students only.

8150. RESEARCH: ENVIRONMENTAL HEALTH. (185047) (1-6 cr) Staff

SECOND TERM

5150. TOPICS IN ENVIRONMENTAL HEALTH. (885074) (Cr ar; prereq #) Staff
See First Term.

8002. FIELD OBSERVATION OF SELECTED PUBLIC HEALTH PRACTICES. (Cr ar; prereq #) Staff
Sec 1, (285063)---Environmental health students only

8150. RESEARCH: ENVIRONMENTAL HEALTH. (685075) (1-6 cr) Staff

Epidemiology (PubH)

See the Special Programs section for a series of courses offered through Continuing Education and Extension.

FIRST TERM

5379. EPIDEMIOLOGY AND THE PRACTICE OF PUBLIC HEALTH. (985048) (2 cr; prereq epidemiology student or #) Staff
Selected readings with discussion based on these readings.

8330. RESEARCH: EPIDEMIOLOGY. (785049) (Cr ar) Staff

Opportunities offered by the School of Public Health and various cooperating organizations for qualified students to pursue research work.

SECOND TERM

5379. EPIDEMIOLOGY AND THE PRACTICE OF PUBLIC HEALTH. (485076) (2 cr; prereq epidemiology student or #) Staff

See First Term.

5390. NUTRITION INTERVENTION. (188196) (2 cr; prereq one nutrition course or #: 1325-1515 MTWTh; HSUnitF 2-120) Mullis.

Examines the various nutrition intervention strategies presently utilized in health programs. Process of selecting appropriate strategies and evaluating their usefulness in relation to program objectives is also discussed.

8330. RESEARCH: EPIDEMIOLOGY. (285077) (Cr ar) Staff

See First Term.

8387. RESEARCH IN PHYSIOLOGICAL HYGIENE AND RELATED AREAS. (188845) (Cr ar; prereq physiological hygiene major and #) Staff

Health Education (PubH)

FIRST TERM

R 3001. PERSONAL AND COMMUNITY HEALTH. (885026) (3 cr, §3004, §GC 3114; meets with 3003, 3004; 1010-1205 MWF; MoosT 2-690) Rothenberger

Fundamental principles of health conservation and disease prevention.

R 3003. FUNDAMENTALS OF ALCOHOL AND DRUG ABUSE. (191342) (2 cr, §3004; meets with 3001, 3004; 1010-1205 TTh; MoosT 2-690) 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.

R 3004. BASIC CONCEPTS IN PERSONAL AND COMMUNITY HEALTH. (685027) (5 cr, §3001, §3033, §GC 3114; 1010-1205 MTWThF; MoosT 2-690) Rothenberger

Introduction to scientific, sociocultural, and attitudinal aspects of communicable and degenerative diseases, environmental and occupational health hazards, alcohol and drug problems; emphasis on role of education in health conservation, disease control, and drug abuse.

5004. FIELD INSTRUCTION IN PUBLIC HEALTH. (088149) (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. (285029) (Cr ar; prereq advance proposal and #) Staff

Individualized, directed instruction. Selected readings in public health with discussion based on these readings.

5006. INTRODUCTION TO COMMUNITY HEALTH. (685030) (5 cr, §5016; prereq pharmacy student, nursing student, other health professional or #: 0800-0955 MTWThF; MoosT 2-690) Greene

Lectures, discussions, seminars, individualized readings on critical and current issues in community health, emphasizing public health programs and controversies.

5015. TOPICS IN INTERDISCIPLINARY STUDIES. (485031) (Cr ar; prereq #) Staff

Individualized, directed instruction. Selected readings in interdisciplinary studies with discussion based on these readings.

5081. INTERNSHIP IN FAMILY AND COMMUNITY STUDIES. (088779) (Cr ar; prereq health education major)

One quarter of full-time supervised health education internship in community and family settings.

5082. INTERNSHIP IN OCCUPATIONAL HEALTH STUDIES. (786413) (Cr ar; prereq health education student) Veninga

One quarter of full-time supervised health education internship in a workplace and/or occupational health.

5083. INTERNSHIP IN HEALTH POLICIES AND PLANNING. (586414) (Cr ar; prereq health education student) Staff

One quarter of full-time supervised health education internship in educational aspects of health planning and/or health policy development.

5090. RESEARCH TOPICS IN HEALTH EDUCATION. (386415) (4-8 cr; prereq health education student) Carlaw, Veninga

Scholarly review of health education research and experience in a selected area for a Plan B project.

5096. TOPICS—RESEARCH. (186416) (Cr ar; prereq health education student) Carlaw, staff

Original research in or secondary analysis of data sets related to health education.

Course Descriptions

5097. TOPICS—SELECTED READINGS. (086417) (Cr ar; prereq health science grad student) Carlaw, staff
Study of a topic in health education not covered in available courses.

5888. BEHAVIORAL MEDICINE. (987608) (1-4 cr; prereq PhD candidate and 400 hrs clerkship experience or #; S-N only) Hung

8002. FIELD OBSERVATION OF SELECTED PUBLIC HEALTH PRACTICES. (Cr ar; prereq #) Staff
Sec 1, (185033)—Environmental health students only. Sec 2, (985034)—Other students majoring in public health.

SECOND TERM

5004. FIELD INSTRUCTION IN PUBLIC HEALTH. (088152) (Cr ar; prereq#)
See First Term.

R 5005. TOPICS IN PUBLIC HEALTH. (885060) (Cr ar; prereq advance proposal and #) Staff
See First Term.

5015. TOPICS IN INTERDISCIPLINARY STUDIES. (685061) (Cr ar; prereq #) Staff
See First Term.

5083. INTERNSHIP IN HEALTH POLICIES AND PLANNING. (386950) (Cr ar; prereq health education student) Mills
See First Term.

5090. RESEARCH TOPICS IN HEATH EDUCATION. (091309) (4-8 cr; prereq health education student) Carlaw, Veninga
See First Term.

5096. TOPICS—RESEARCH. (391310) (Cr ar; prereq health education student) Carlaw, staff
See First Term.

5097. TOPICS—SELECTED READINGS. (886919) (Cr ar; prereq health science grad student) Carlaw, staff
See First Term.

8002. FIELD OBSERVATION OF SELECTED PUBLIC HEALTH PRACTICES. (Cr ar; prereq #) Staff
Sec 1, (285063)—Environmental health students only. Sec 2, (488012)—Other students majoring in public health.

Hospital and Health Care Administration (PubH)

FIRST TERM

5758. HOSPITAL AND OTHER HEALTH CARE ORGANIZATIONS FINANCIAL STATEMENT ANALYSIS. (688395) (4 cr; prereq 5757; 1800-2100 Th; MoosT 2-520) 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, (588390) 1515-1700 TTh, MoosT 2-520, Weckwerth Sec 2, (887956) ar

5774. ADMINISTRATIVE AND PROFESSIONAL RELATIONSHIPS WITHIN THE AMBULATORY CARE FACILITY—July 14-26. (888010) (15 cr; prereq 5773) 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 14-26 (388391) (15 cr; prereq 5775) Weckwerth, staff
A 12-month program consisting of an on-campus and independent 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 14-26. (585053) (25 cr; prereq present employment as administrator of patient care [director of nursing or equivalent], 5778 and #) Weckwerth, Manthey, 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 14-26. (288478) (15 cr; prereq 5785) 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.

8763. EXTERNAL FORCES AFFECTING HEALTH SERVICES DELIVERY. (191356) (3 cr; prereq PhD students in hospital administration) 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. (091357) (3 cr; prereq 8763) Weckwerth

Tutorial guidance and supervised course development covering research design, application, analysis, and presentation in health services delivery.

8782. RESEARCH PRACTICUM. (3 cr; prereq PhD student in hospital administration) 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, (088782) ar

Sec 2, (891358) ar

8796. TOPICS IN HEALTH ECONOMICS. (385054) (3 cr; prereq hospital administration student in or #; 0800-1205 TTh; OwreH 2-210) Dahl

General principles of health economics applied to current issues in health. Implications for health policy derived and discussed.

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

5746. CLERKSHIP. (888394) (3 cr for 10 wks; prereq 5744) Bieter, Staff

Survey and solution of management problem within a local health services organization and preparation of formal report.

SECOND TERM

5770. TOPICS: HOSPITAL AND HEALTH CARE ADMINISTRATION. (588826) (Cr ar; prereq hospital administration student or #)

See First Term.

5773. MANAGEMENT AND ORGANIZATION WITHIN THE AMBULATORY CARE FACILITY—July 21-August 2. (688011) (15 cr; prereq current employment as ambulatory care administrator, and #) 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 21-August 2. (585084) (15 cr; prereq current employment as health care facility administrator or #) 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 12-23. (385085) (25 cr; prereq 5774, 5776, 5786, 5788 or #) Weckwerth, staff

A 10-month program consisting of an on-campus residential session and off-campus 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 21-August 2. (188408) (25 cr; prereq present employment as administrator of patient care [director of nursing or equivalent] or #) Weckwerth, Manthey, 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 21-August 2. (188479) (15 cr; prereq current employment as mental health facility administrator or #) Weckwerth, staff

A 12-month program beginning with an on-campus residential session and involving off-campus independent study that includes periodic seminars and monthly dialogue with program preceptors. Principles of management, organizational behavior, personnel, problem solving and decision making, financial management, mental health professionals and paraprofessionals, and mental health programs and services.

8763. EXTERNAL FORCES AFFECTING HEALTH SERVICES DELIVERY (191325) (3 cr; prereq PhD students in hospital administration) Weckwerth

See First Term.

Course Descriptions

8764. RESEARCH APPLICATIONS TO HEALTH SERVICES DELIVERY. (091326) (3 cr; prereq 8763) Weckwerth
See First Term.

8782. RESEARCH PRACTICUM. (3 cr; prereq PhD student in hospital administration) Litman, Weckwerth, Staff
See First Term.

Sec 1, (888847) ar

Sec 2, (891327) ar

Maternal and Child Health (PubH)

FIRST TERM

5614. FIELD EXPERIENCE IN MATERNAL, CHILD HEALTH. (185055) (Cr ar; prereq MCH grad student; S-N only) ten
Bensel, Splett

Field experiences are selected by the student to meet career goals.

5649. TOPICS IN MATERNAL, CHILD HEALTH. (Cr ar; prereq #) ten Bensel

Selected readings in maternal and child health with discussion based on these readings.

Sec 1, (085056)

Sec 2, (186545)

SECOND TERM

5614. FIELD EXPERIENCE: MATERNAL, CHILD HEALTH. (185086) (Cr ar; prereq MCH grad student; S-N only) ten
Bensel, Splett

See First Term.

5649. TOPICS: MATERNAL AND CHILD HEALTH. (Cr ar; prereq #) ten Bensel

See First Term.

Sec 1, (085087)

Sec 2, (086546)

Public Health Administration (PubH)

FIRST TERM

5703. PUBLIC HEALTH ADMINISTRATION CLERKSHIP. (885057) (Cr ar; prereq student in public health
administration or #)

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. (685058) (Cr ar; prereq student in the public health
administration or #) Block

Supervised field experience at a management level in selected community or public health agencies and institutions.

5707. INDEPENDENT STUDY: PUBLIC HEALTH ADMINISTRATION. (188392) (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.

5723. ADMINISTRATION RESIDENCY. (787609) (Cr ar; prereq public health administration grad student or #)

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.

5739. TOPICS: PUBLIC HEALTH ADMINISTRATION. (088393) (Cr ar; prereq student in public health administration or
#) Block

Selected readings with discussion based on these readings.

SECOND TERM

5703. PUBLIC HEALTH ADMINISTRATION CLERKSHIP. (885088) (Cr ar; prereq student in public health administra-
tion or #)

See First Term.

5704. FIELD EXPERIENCE: PUBLIC HEALTH ADMINISTRATION. (685089) (Cr ar; prereq student in public health
administration or #) Block

See First Term.

5707. INDEPENDENT STUDY: PUBLIC HEALTH ADMINISTRATION. (088409) (1-12 cr; prereq public health
administration student or #; S-N only)

See First Term.

5723. ADMINISTRATION RESIDENCY. (387614) (Cr ar; prereq public health administration grad student or #)

See First Term.

5739. TOPICS: PUBLIC HEALTH ADMINISTRATION. (388410) (Cr ar; prereq student in public health administration or #) Block
See First Term.

Public Health Nursing (PubH)

FIRST TERM

5510. RESEARCH METHODOLOGY IN PUBLIC HEALTH NURSING. (1-3 cr; prereq #) Staff
Guidance in development of study design, implementation, and analysis.

Sec 1, (491346) Aroskar	Sec 5, (291350) McGovern
Sec 2, (291347) Berkseth	Sec 6, (191351) Spradley
Sec 3, (191348) Lentsch	Sec 7, (991352) Salmon
Sec 4, (991349) Ostwald	

5513. TOPICS: ADULT HEALTH. (388150) (1-3 cr; prereq #) Ostwald
Individualized, directed instruction of selected problems and current issues in adult health for public health nurses.

5515. SEMINAR: ISSUES IN ADULT HEALTH. (586686) (2 cr; prereq #) Ostwald
In-depth exploration of contemporary issues in adult health. Facilitation of student's integration of issues in the area of adult health with major issues in nursing and public health.

5519. HEALTH MAINTENANCE IN THE COMMUNITY: CONTINUUM OF CARE. (Cr ar; prereq #) Lentsch, Ostwald
Exploration of comprehensive multidisciplinary, multisystems approaches to maintenance of wellness in populations with long-term health problems. Independent study.

Sec 1, (791353) Lentsch

Sec 2, (591354) Ostwald

5530. PUBLIC HEALTH NURSING PRACTICUM—June 18. (488396) (1-4 cr; prereq #: 1300-1600 T; PWB 5-224; S-N only) Aroskar

Guided application of education and/or management concepts and theories to the delivery of indirect public health nursing services in community-based settings.

5532. PUBLIC HEALTH NURSING SEMINAR II: RESEARCH STUDIES IN PUBLIC HEALTH NURSING. (391355) (1 cr; prereq #) Ostwald

Seminar for presentation and critique of completed research. Required of all public health nursing (MPH) students.

5547. TOPICS: PUBLIC HEALTH PRACTICE WITH CHILD POPULATIONS. (188157) (1-3 cr; prereq #) Berkseth
Selected topics in public health.

5552. NURSING ADMINISTRATION SEMINAR III. (186657) (1-3 cr) Spradley
Analysis of the "state of the art" of nursing administration in the context of the external organization environment. Synthesis with public health practice.

5575. TOPICS IN PUBLIC HEALTH NURSING. (485059) (Cr ar; prereq #) Staff
Individualized learning experiences arranged with Public Health Nursing faculty.

5585. PUBLIC HEALTH NURSING. (891618) (4 cr; prereq current RN licensure, #)
Prepares registered nurses to provide public health nursing to families and groups. Using a health promotion framework, nurses assist families in assessing and managing their own health care. Nursing strategies for providing health promotion services to groups and communities. Opportunity to gain theory, knowledge and clinical skills provided through a concurrent lecture and practicum format.

5592. PLANNING AND COORDINATING AN EMPLOYEE HEALTH SERVICE PROGRAM—June 18-July 1. (488009) (3 cr; prereq occupational health nursing students; 0915-1100 MTWThF, and 1315-1500 T, August 14; PWB 5-206) McGovern

Role development of the occupational health nurse. Specialists related to various organizational structures, employee benefits program, and the health needs of workers. Students participate in evaluation component of an employee health program.

5597. TOPICS: INJURY PREVENTION IN THE WORKPLACE, COMMUNITY AND HOME. (288092) (1-3 cr; prereq basic course in epidemiology) Gerberich
Selected projects: provides an opportunity for students to pursue projects relevant to injury problems.

8597. RESEARCH: INJURY PREVENTION IN THE WORKPLACE, COMMUNITY AND HOME. (188093) (3-6 cr; prereq basic courses in epidemiology, statistics, 5534 or #) Gerberich
Provides an opportunity for students to develop independent and comprehensive research efforts relevant to injury prevention.

SECOND TERM

5510. RESEARCH METHODOLOGY IN PUBLIC HEALTH NURSING. (1-3 cr; prereq #) Staff

Sec 1, (191311) Aroskar	Sec 5, (991318) McGovern
Sec 2, (091312) Berkseth	Sec 6, (791319) Spradley
Sec 3, (891313) Lentsch	Sec 7, (991321) Salmon
Sec 4, (191317) Ostwald	

See First Term.

Course Descriptions

5513. TOPICS: ADULT HEALTH. (888153) (1-3 cr; prereq #) Ostwald
See First Term.

5519. HEALTH MAINTENANCE IN THE COMMUNITY: CONTINUUM OF CARE. (Cr ar; prereq #) Staff
See First Term.

Sec 1, (591323) Lentsch

Sec 2, (391324) Ostwald

5531. PUBLIC HEALTH NURSING PRACTICUM—August 20. (485062) (1-4 cr; prereq #: S-N only; 0900-1230 T; PWB 5-224) Aroskar, Lentsch
See 5530 First Term.

5532. PUBLIC HEALTH NURSING SEMINAR II: RESEARCH STUDIES IN PUBLIC HEALTH NURSING—August 21. (188165) (1 cr; prereq #: 0900-1600 W; PWB 5-224) Ostwald
A seminar for presentation and critique of completed research. Required of all public health nursing (MPH) students.

5547. TOPICS: PUBLIC HEALTH PRACTICE WITH CHILD POPULATIONS. (288156) (1-3 cr; prereq #) Berkseth
See First Term.

5575. TOPICS: PUBLIC HEALTH NURSING. (085090) (Cr ar; prereq #) Staff
See First Term.

5597. TOPICS: INJURY PREVENTION IN THE WORKPLACE, COMMUNITY, AND HOME. (988094) (1-3 cr; prereq basic course in epidemiology) Gerberich
See First Term.

5597. RESEARCH: INJURY PREVENTION IN THE WORKPLACE, COMMUNITY AND HOME. (788095) (3-6 cr; prereq basic courses in epidemiology, statistics, 5334 or #) Gerberich
See First Term.

Public Health Nutrition (PubH)

FIRST TERM

5900. FIELD COURSE I: PUBLIC HEALTH NUTRITION. (687604) (1-12 cr; prereq public health nutrition student) Splett, Staff
Placement in approved agency with opportunity for experience in nutritional aspects of public health programs.

5909. TOPICS IN PUBLIC HEALTH NUTRITION. (287606) (1-12 cr; prereq public health nutrition student or #) Brown, Staff
Independent study.

SECOND TERM

5900. FIELD COURSE IN PUBLIC HEALTH NUTRITION. (387709) (1-12 cr; prereq public health nutrition student) Splett
See First Term.

5903. NUTRITIONAL ASSESSMENT. (187610) (2 cr; prereq 3xxx level nutrition course or equiv or #: 1325-1515 MTWTh; MoosT 2-580) Brown
Theoretical base and application of nutritional assessment methods to communities and individuals.

5909. TOPICS: PUBLIC HEALTH NUTRITION. (987611) (1-12 cr; prereq #) Brown, staff
See First Term.

Veterinary Public Health (PubH)

FIRST TERM

5326. RESEARCH IN ANIMAL/HUMAN HEALTH. (288397) (Cr ar; prereq VPH major or #) Staff
Research in the relationship of animal health to human health.

SECOND TERM

5326. RESEARCH IN ANIMAL/HUMAN HEALTH. (885091) (Cr ar; prereq VPH major or #) Staff
See First Term.

College of Home Economics

Undergraduate and graduate majors as well as practicing professionals will find a variety of useful courses offered by the College of Home Economics. Units within the college offering courses include the department of Design, Housing, and Apparel, the department of Family Social Science, the department of Food Science and Nutrition; the School of Social Work; and the Center for Youth Development and Research. Some of the courses will interest teachers for licensure purposes. Further information may be obtained by writing Gertrude Strinden, College of Home Economics, University of Minnesota, St. Paul, MN 55108. (See also Home Economics Education and Vocational and Technical Education listings under the College of Education.)

Design (Dsgn)

FIRST TERM

R 1501. **INTRODUCTION TO DESIGN.** (991593) (3 cr; 0800-0850 MTWThF; McNH 33) Jirousek
Awareness of design in the near environment.

R 1521. **DESIGN PROCESS COLOR.** (590978) (4 cr; limited to 24 students; 0800-1200 MWF; McNH 262) Wrolstad
Color concepts and their application to design.

R 1525. **DESIGN PROCESS: TWO-DIMENSIONAL DESIGN I.** (390979) (4 cr; limited to 24 students; 0800-1200 MWF; McNH 258)
Experiments with principles of two-dimensional design.

R 5571. **SPECIAL TOPICS IN APPLIED DESIGN.** (2-6 cr)

Sec 1, Weaving: Flat to Sculptural. (586090) 4 cr, prereq #, limited to 18 students, 0900-1200 MTWTh, McNH 16, Birmingham

Exploration of pattern weaves on a two-dimensional surface and three-dimensional, sculptural aspects of weaving.

Sec 2, Creative Production of Identity Through Graphic Processes. (591063) 4 cr, prereq 3525 or #, limited to 20 students, 0900-1200 MTWThF, McNH B3 and VoTech 110, Abell, Weber

A concentrated workshop to integrate design and graphic communication technology for production of visual identification.

R 5574. **SPECIAL TOPICS IN INTERIOR DESIGN.** (Max 9 cr)

Sec 1, Facilities Management for Interior Designers, June 18-28. (590981) 3 cr, prereq #, limited to 24 students, 0900-1130 MTWThF, McNH 216, Nagle

Exploration of the management framework, programming, and space planning requirements of businesses and corporations through in-depth presentation on the design aspects of facilities management.

Sec 2, Kitchen Planning, July 8-19. (390982) 4 cr, limited to 12 students, 0900-1200 MTWThF, McNH 316, Ginthner

Kitchen designing from the conceptual stage through the solution. Human factors, criteria for work areas, and application of the design principles. Meets with Hsg 5573, section 2.

SECOND TERM

R 3527. **DESIGN PROCESS: THREE-DIMENSIONAL DESIGN.** (086093) (4 cr; prereq 1525 or equiv; limited to 24 students; 0800-1200 MWF; McNH B3)

Study and application of principles of three-dimensional design.

Family Social Science (FSoS)

FIRST TERM

R 5001. **HUMAN SEXUAL BEHAVIOR—June 25-July 11.** (686582) (4 cr; prereq 15 cr in psychology or sociology; 0830-1400 TTh; McNH 197) Thibault

Nature of sexual functions, sexual development, ethnics and attitudes, research problems. Students pick up syllabus in McNeal Hall 290 for assignments to be completed before class begins. **Syllabus available by June 7 in 290 McNeal Hall. Students are expected to complete and return some assignments by June 21, the Friday before the first class meeting.**

Course Descriptions

¶ 5025. PARENTING. (286116) (4 cr; prereq 5200 or 5202, CPsy 1301; 0900-1200 MW; McNH 198) Budd Parenting methods, the child's development from infancy through adolescence. Designed to help students identify differing parenting techniques, develop their own parenting approach, and conduct parenting classes.

¶ 5200. FAMILY RELATIONSHIPS. (889044) (5 cr, §Soc 5501; prereq Psy 1001 or equiv, Soc 1001 or equiv; 1330-1600 MWTh; BioSci 18) Olson, Truchsess

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.

5219. PROBLEMS IN FAMILY FINANCIAL MANAGEMENT. (191017) (3-4 cr; prereq 3001 or 3260, 5260 or #; 1400-1630 MW; McNH 197) Gage

Financial management processes, modification of management behavior by application of behavioral techniques.

5230. INDEPENDENT STUDY. (689045) (1-5 cr [max 16 cr]; prereq #) Staff

¶ 5240. SPECIAL TOPICS IN FAMILY SOCIAL SCIENCE: Introduction to Family Therapy. (789053) (2-6 cr per qtr [max 16 cr]; prereq set by instructor; 1400-1630 TTh, McNH 197) Maddock

Therapy and techniques for counseling families from a systems perspective; emphasis on basic theories and techniques for evaluating family interaction and dysfunction. For those interested in improving skills in family therapy, and for home economics educators as an introduction to field. This offering for 3 credits.

8251. PROBLEMS: FAMILY SOCIAL SCIENCE. (389055) (1-5 cr; prereq #; hrs ar) Staff

8252. PROBLEMS: FAMILY SOCIAL SCIENCE. (189056) (4 cr; prereq #; hrs ar) Staff

8270. PRACTICUM: FAMILY RESEARCH. (588759) (1-5 cr; prereq #; hrs ar) Staff

SECOND TERM

3001. COMMUNICATION SKILLS AND INTERVIEWING TECHNIQUES: AN INTRODUCTION. (791627) (3 cr; prereq 1001; 1400-1630 TTh; McNH 197) Macy

Introductory training and experience in various communication skills and interviewing techniques for undergraduates. Integration of didactic and experiential training, and preparation for more advanced course work in the department.

¶ 3260. HOME MANAGEMENT PRINCIPLES—July 22-August 14. (287489) (3 cr; prereq AgEc 1030; 1200-1500 TTh; McNH 198) Rettig

Development of a theoretical systems framework to analyze behavior in families with emphasis on managerial aspects of behavior: goal setting, planning, and implementing in use of resources.

5230. INDEPENDENT STUDY. (190224) (1-5 cr [max 16 cr]; prereq #) Staff

5240. SPECIAL TOPICS; VIOLENCE IN THE FAMILY. (091018) (4 cr; family studies course recommended; 1000-1200 TWTh; McNH 197) Latts

The various forms of abuse (physical, psycho-emotional, sexual) found among family members—spouses, parents and children, siblings. Attention given to factors that bring about or inhibit violence in the family.

5249. FIELDWORK: DIRECTED COMMUNITY WORK EXPERIENCE. (091021) (3-5 cr per qtr [max 15 cr]; prereq 5200 and #; 0930-1130 T; McNH 198) Zimmerman

Directed preprofessional work experience with families; social, medical, and/or educational orientation. This offering for 3 credits.

8251. PROBLEMS: FAMILY SOCIAL SCIENCE. (090225) (1-5 cr; prereq #; hrs ar) Staff

8252. PROBLEMS: FAMILY SOCIAL SCIENCE. (890226) (4 cr; prereq #; hrs ar) Staff

8270. PRACTICUM: FAMILY RESEARCH. (988760) (1-5 cr; prereq #; hrs ar) Staff

Food Science and Nutrition (FScN)

FIRST TERM

¶ 3600. PRINCIPLES OF NUTRITION. (988905) (4 cr; limited to 25 students; prereq Biol 1011 and Chem 1004 or equiv; 0800-0955 MWF, 0905-0955 TTh; FScN 15)

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

5111. INDEPENDENT STUDY IN FOOD SCIENCE AND NUTRITION. (788906) (1-5 cr [may be repeated for cr]; prereq Δ ; hrs ar) Staff

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

5321. INDEPENDENT STUDY IN FOOD MICROBIOLOGY. (588907) (1-5 cr; prereq sr, Δ ; hrs ar) Staff

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

R 5404. CURRENT ISSUES IN FOOD AND NUTRITION—June 20-July 3. (388908) (3 cr; limited to 25 students; prereq 15 cr in food science and nutrition or #: 0905-1135 MTWThF; ABLMS 125) Levine
Evaluation of popular and scientific literature as it deals with nutrition, food additives, food safety, food fads, health foods, environmental contamination, the consumer movement, naturally occurring food toxicants, processed foods, synthetic foods, organically grown foods.

8401. INDEPENDENT STUDY: FOOD SCIENCE. (188909) (1-5 cr; prereq #: hrs ar) Staff
Independent study and written reports.

8621. INDEPENDENT STUDY: NUTRITION. (588910) (1-9 cr; prereq Δ ; hrs ar) Staff
Independent study and written reports.

SECOND TERM

1102. TECHNOLOGY OF FOOD PROCESSING. (189924) (4 cr; prereq high school chemistry and biology; 0800-0955 MWF; 0905-0955 TTh; ABLMS 125)
Introduction to the technology of processing and distributing foods with reference to the prevention of biological, physical, and chemical deterioration. Changes in food composition, microbiological safety, food laws and regulations, technologies of the major food processes such as canning, freezing, drying, and cereal and oilseed processing.

5111. INDEPENDENT STUDY IN FOOD SCIENCE AND NUTRITION. (989925) (1-5 cr [may be repeated for cr]; prereq Δ ; hrs ar) Staff
See First Term.

5321. INDEPENDENT STUDY IN FOOD MICROBIOLOGY. (789926) (1-5 cr; prereq sr, Δ ; hrs ar) Staff
See First Term.

8401. INDEPENDENT STUDY: FOOD SCIENCE. (589927) (1-5 cr; prereq Δ ; hrs ar) Staff
See First Term.

8621. INDEPENDENT STUDY: NUTRITION. (389928) (1-9 cr; prereq #: hrs ar) Staff
See First Term.

Housing (Hsg)

FIRST TERM

3580. INTERNSHIP IN HOUSING. (790994) (5-15 cr [max 15]; prereq completion of half of professional sequence and #: S-N only)
International, intercultural, or other directed work in a community that offers a variety of housing experiences.

R 5573. SPECIAL TOPICS IN HOUSING. (max 9 cr)

Sec 1, Housing: The Community as Classroom, June 24-July 5. (190989) 3 cr, limited to 24 students, 0900-1130 MTWThF, McNH 212, Franklin
Workshop in current housing issues; affordable housing; housing alternatives for special populations, and adequacy of various house forms in meeting user needs.

Sec 2, Kitchen Planning, July 8-19. (190992) 4 cr; limited to 12 students; 0900-1200 MTWThF, McNH 316, Yust
Kitchen designing from the conceptual stage through the solution. Human factors, criteria for work areas, and application of the design principles. Meets with Dsgn 5574, section 2.

Social Work (SW)

FIRST TERM

3970. DIRECTED STUDIES. (388729) (1-15 cr; prereq #, majors only)

R 5211. ADVANCED THEORIES OF HUMAN GROWTH AND CHANGE. (191602) (3-4 cr; limited to 30 students; 1615-1845 TTh; KoltH S133) Quam
Socio-psycho-biological factors associated with individual and group development as applied to social work practice.

R 5414. FUNDAMENTALS OF SOCIAL GROUP WORK. (391226) (3-4 cr, \$6414; prereq 3005; limited to 30 students; 1645-1915 MW; KoltH S132) Edleson
Analysis of basic principles of social group work practice applicable to both task and treatment groups. The small group as a social process to achieve task and treatment goals. Sociophilosophic orientation, theoretical frames of reference, application of structure, task and process variables, use of member-to-member interactions, group goal settings, and professional relationships with groups, with individual members, and with systems external to small group.

Course Descriptions

8501. ETHNO-CULTURAL CONCEPTS IN SOCIAL WORK PRACTICE. (786332) (3-4 cr; limited to 30 students; 0915-1100 MW; VinH 203) Stewart

Relation of ethno-cultural concepts to the development of social welfare policies and services, and social work practice. Critical examination of commonalities that integrate ethnocultural dimensions, and identification of significant orientations toward welfare issues and practices among the four major ethnic minority groups. The contribution of each to effective relationships with the social service delivery system.

8020. FIELD INSTRUCTION II. (489631) (4 cr or cr ar by # [max 12 cr required]; prereq 8010; hrs ar) Johnston

8970. DIRECTED STUDY. (488706) (Cr ar; prereq #)
Independent study under tutorial guidance.

8990. RESEARCH PROJECTS. (191227) (Cr ar [max 6 cr])

SECOND TERM

3970. DIRECTED STUDIES. (788730) (1-15 cr; prereq #, majors only)

85010. CHILD SEXUAL ABUSE—ISSUES AND INTERVENTIONS. (791224) (3 cr; prereq 1001, 3005, jr, sr or grad in social work; limited to 50 students; 1615-1945 MW; VinH 1) Gilgun

Methods and strategies for dealing with families in which child sexual abuse has occurred, including a non-coercive method of helping children discuss their own sexual abuse. Contemporary research and theory. Questions to be discussed: Does the mother always know? Is the child the seducer? Is adult-child sexual interaction a misuse of power?

85111. CONTEMPORARY POLICY AND PROGRAMS IN SOCIAL WELFARE. (591225) (3-4 cr; prereq grad standing or 12 cr social sciences; limited to 30 students; 1615-1845 TTh; KoltH S132) Pandey
Framework for analysis of concepts and principles in social policy for social welfare programs and services.

8020. FIELD INSTRUCTION II. (390528) (4 cr or cr ar by #; prereq 8010; hrs ar) Johnston

8970. DIRECTED STUDY. (488818) (Cr ar; prereq #)
Independent study under tutorial guidance.

8990. RESEARCH PROJECTS. (787576) (Cr ar [max 6 cr])

Textiles and Clothing (TexC)

FIRST TERM

81643. APPAREL INDUSTRIES. (791045) (4 cr; prereq Econ 1002 or AgEc 1030; 0800-1000 MWF; McNH 146) Badenoch

Structure, operation, and problems of domestic and foreign apparel industries including ready-to-wear, couture, and auxiliary fashion sector; interrelationships with the textile industry and distributors.

83662. AESTHETICS OF CLOTHING. (191048) (3 cr; prereq Psy 1001, Dsgn 1501 or #; limited to 20 students; 1000-1245 TTh; McNH 470) DeLong

Perception of design elements and artistic principles for clothing applied in specific laboratory problems.

5003. COOPERATIVE EDUCATION PROGRAM. (089057) (4-8 cr, 5003-5004†; not for grad cr; prereq sr, f5004, #; minimum GPA 2.50; hrs ar; S-N only)

A planned work experience relating activity in business, industry, or government to the student's area of study. Written consent of faculty supervisor prior to registration is required.

5004. COOPERATIVE EDUCATION INTEGRATIVE PAPER. (889058) (2-4 cr, 5003-5004†; not for grad cr; prereq sr, f5003, #; hrs ar; A-N only)

Paper analyzing a problem encountered in the planned work experience in terms of the student's area of study.

85626. RECYCLING PROCESSES. (591046) (3 cr; prereq 5621; 0900-1030 MWF; McNH 363) Johnson
Principles and practices in recovery of initial appearance and properties of textile products; application to restoration of historic textile materials; water pollution by effluent from wet cleaning processes.

8621. READINGS IN TEXTILES. (689059) (1-3 cr; prereq #; hrs ar) R Johnson
Independent reading useful for individual programs but not available in other course offerings.

8625. PROBLEMS: TEXTILES AND CLOTHING. (889061) (3-9 cr [max 9 cr]; prereq #; hrs ar) R Johnson
Independent study in the physical behavioral aspects of textiles and/or clothing.

8661. READINGS IN CLOTHING. (689062) (1-3 cr; prereq minimum 12 cr in TexC courses, #; hrs ar) Grindere
Independent study; survey of literature in selected areas related to human behavioral aspects of clothing and textiles. Written reports.

8862. SOCIOCULTURAL LITERATURE OF DRESS. (391047) (3 cr; A-N only; 1030-1245 MTh; McNH 363) Grindere

Orientation to classic readings; historic bases for key ideas.

8663. PROBLEMS: CLOTHING AND TEXTILES. (489063) (3-9 cr [max 9 cr]; prereq #; hrs ar) Grindereing
Independent study in human behavioral aspects of clothing or textiles.

SECOND TERM

8621. READINGS IN TEXTILES. (391050) (1-3 cr; prereq #; hrs ar) R Johnson
See First Term.

8625. PROBLEMS: TEXTILES AND COTHING. (186893) (3-9 cr [max 9 cr]; prereq #; hrs ar) R Johnson
See First Term.

8661. READINGS IN CLOTHING. (890260) (1-3 cr; prereq minimum 12 cr in TexC courses. #; hrs ar) Grindereing
Independent study; survey of literature in selected areas related to human behavioral aspects of clothing and textiles.
Written reports.

8663. PROBLEMS: CLOTHING AND TEXTILES. (490262) (3-9 cr [max 9 cr]; prereq #; hrs ar) Grindereing
Independent study in human behavioral aspects of clothing or textiles.

Center for Youth Development and Research (YoSt)

FIRST TERM

5120. INDEPENDENT STUDY IN YOUTH STUDIES. (289064) (Cr ar [max 12 cr per qtr]; prereq #; hrs ar) Staff
Independent reading and/or research under faculty supervision.

SECOND TERM

5120. INDEPENDENT STUDY IN YOUTH STUDIES. (790266) (Cr ar [max 12 cr per qtr]; prereq #; hrs ar) Staff
See First Term.

Law School

Calendar

June 3	Monday	First day of Summer Session classes
July 4-5	Thursday Friday	Independence Day HOLIDAY
July 26	Friday	Last Day of Summer Session classes
July 29-31	Monday Tuesday Wednesday	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 \$110.33 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 31, 1985. Information is available in the college office, 290 Law Building, 229 19th Avenue South, University of Minnesota, Minneapolis, MN 55455 or call (612) 376-3344.

*Tuition is subject to change.

SPECIAL TERM: EIGHT WEEK COURSES, June 3-July 31

5100. TAXATION I. (391131) (3 cr; 1035-1150 MTWTh; Law 55) Schoettle

Introduction to the federal income tax as it applies to individual and business income; gross income, exclusions, deductions, basis, capital gains, and tax procedure with some reference to current topics of tax policy and public finance.

5150. TRUSTS AND ESTATES (487975) (3 cr; 1200-1315 MTWTh; Law 50, 65) Waterbury

Legal doctrines implementing gratuitous transfers of property, including topics from the law governing intestate succession, wills, administration of decedents estates, common nonprobate transfers, trusts, trust administration and future interests.

5210. ANTITRUST. (191132) (3 cr; 1035-1150 MTWTh; Law 50, 65) Raskind

Basic antitrust concepts: limitations on price and output decisions, market power, monopolization, and attempted monopolization; horizontal collaboration, vertical control of distributional systems; mergers under federal and state law.

5230. ADVANCED TORTS. (087972) (3 cr; 0910-1025 MTWTh; Law 50, 65) Marshall

Study of injuries to relational interests, including defamation, privacy (a relational interest in some contexts, not in others), misuse of legal procedure, business torts, interference with family relations, and wrongful death actions. If time permits, the course will deal also with the no-fault auto compensation system in Minnesota.

5600. PROFESSIONAL RESPONSIBILITIES. (586672) (2 cr; 0800-0900 MTWTh; Law 50, 55) Morrison

Lawyer's responsibilities to clients, the profession, the administration of justice and society; content and role of formal standards of professional ethics.

College of Liberal Arts

College of Liberal Arts courses primarily seek to provide knowledge and understanding of the world and of the social and intellectual problems of modern life through exploration of both historical and contemporary subject matter. Although many courses are designed for specialized or professional interests, almost all contribute to general education and broad knowledge. Courses are open not only to CLA degree candidates but also to students enrolled in other colleges inside and outside of the University. They serve students who are making progress toward graduate or undergraduate degrees or who are interested in personal or professional enrichment.

CLA summer courses offer a wide selection from the regular curriculum. In addition, many courses from business, medical, scientific, agricultural, and other divisions of the University are open to CLA summer students who have completed the necessary prerequisites.

Summer session registration does not of itself constitute admission to CLA or to the Graduate School; students working toward degrees or wishing to attend during the regular academic year must file standard admission applications.

Students should be aware that credit, cancel-add, and other procedures in summer sometimes differ from those of the regular year. Problems or questions may be brought to the CLA summer session advising office, B18 Johnston Hall.

CLA SUMMER-ONLY IN-PERSON REGISTRATION OFFICE HOURS—FIRST TERM

May 31	8:00 a.m.-4:00 p.m.
June 3	8:00 a.m.-6:00 p.m.
June 4-7	11:00 a.m.-3:00 p.m.
June 10-14	No Registration
June 17	8:00 a.m.-6:00 p.m.

CLA SUMMER-ONLY IN-PERSON REGISTRATION OFFICE HOURS—SECOND TERM

July 18, 19	8:00 a.m.-4:00 p.m.
July 22	8:00 a.m.-6:00 p.m.

Students may register on the first day of a class without penalty.

MAIL REGISTRATION

Summer-only students registering in the College of Liberal Arts may register by mail for first term courses. Students may register for Term I courses in this section as well as for Term I courses in Architecture, Astronomy, Biology, Chemistry, Child Psychology, Computer Science, Geology, Mathematics, and Physics. Mail registration is not permitted in the Graduate School, for 8xxx courses, for courses that require a Registration Override Permit (e.g., closed courses or courses that require instructor, department, or college approval as listed in the prerequisite statement), or for courses and workshops listed in this bulletin which have special registration instructions.

Students interested in courses that may close early should plan to register in person on May 31. Courses which closed by the end of the first day of summer-only registration last summer include Accounting 1025, Arts, Studio 1701, Computer Science 3105, Economics 5331, English 1018, German 1101, Mathematics 1131, Psychology 1004, Spanish 1102 and 1101-1102-1103 (10-week), and Speech 3641. A course number preceded by an **R** in this bulletin indicates a limited enrollment course; other courses do not limit the number of students who may register.

Course Descriptions

Qualified students may obtain registration materials from the Summer Session office, either by calling 373-2925 or by sending in the yellow request card found at the back of this bulletin. All mail registration **must be received by May 22** in order to be processed in time for the start of the summer session. Any student who registers by mail and then decides not to attend classes should notify the CLA Student Information Office (612/373-2877) as early as possible so that an official cancellation can be processed. Courses registered for but not attended must be paid for or officially cancelled.

Afro-American Studies (Afro)

FIRST TERM

1021. INTRODUCTION TO AFRICAN STUDIES. (390738) (4 cr; 0915-1000 MTWThF; BlegH 350) Coifman
Diverse elements of the African studies curriculum, content, and methodology; historical perspective and course content.

3970. DIRECTED STUDIES. (988189) (1-15 cr per term; prereq #, Δ, CLA approval)

5970. DIRECTED STUDIES. (188084) (1-6 cr per term; prereq #, Δ, CLA approval; qualified sr and grad students may register with # for work on tutorial basis)

SECOND TERM

3970. DIRECTED STUDIES. (285869) (1-6 cr per term; prereq #, Δ, CLA approval)

5970. DIRECTED STUDIES. (288206) (1-6 cr per term; prereq #, Δ, CLA approval, qualified sr and grad students may register with # for work on tutorial basis)

American Indian Studies (AmIn)

FIRST TERM

3810. FIELD PRACTICE IN INDIAN STUDIES. (590754) (3-9 cr per term; prereq soph or jr or sr, #, Δ)
Supervised field practice in approved agencies serving Indian clients.

5990. DIRECTED RESEARCH. (086806) (4-15 cr per term; prereq by petition only)
Independent research under faculty guidance.

SECOND TERM

3810. FIELD PRACTICE IN INDIAN STUDIES. (890758) (3-9 cr per term; prereq soph or jr or sr, #, Δ)
See First Term.

5990. DIRECTED RESEARCH. (886869) (4-15 cr per term; prereq by petition only)
See First Term.

American Studies (AmSt)

FIRST TERM

1003. AMERICAN CULTURE: 1920s TO THE PRESENT. (090760) (4 cr; limited to 49 students; 1115-1205 MTWThF; LindH 305) Staff

The development and transformation of culture among Americans. Interdisciplinary approach; organized around the interpretation of four types of culturally significant material: events, literary documents, artifacts, and places.

3970. DIRECTED STUDIES. (089124) (1-15 cr; prereq #, Δ, CLA approval) Staff

8970. READINGS IN AMERICAN CIVILIZATION. (689126) (Cr and hrs ar; prereq consent of program chair) Staff

SECOND TERM

1002. AMERICAN CULTURE: MID-19TH CENTURY TO 1920s. (685870) (4 cr; limited to 49 students; 1115-1205 MTWThF; LindH 305) Staff

See 1001 First Term.

3970. DIRECTED STUDIES. (190278) (1-15 cr; prereq #, Δ, CLA approval) Staff

8970. READINGS IN AMERICAN CIVILIZATION. (790283) (Cr and hrs ar; prereq consent of program chair) Staff

Ancient Near Eastern and Jewish Studies

Ancient Near Eastern and Jewish Studies (ANEJ)

FIRST TERM

3251. THE MODERN STUDY OF THE OLD TESTAMENT. (991559) (4 cr; 0800-0955 MW; FolH 303) Reisman
Methods employed in the study of the Old Testament, including textual criticism, the anthropological approach, form criticism, the sociological approach, the history of religion, and the uses of archaeology in interpreting the text.

5970. DIRECTED STUDIES. (189311) (1-4 cr; prereq #, Δ, CLA approval)
Guided individual reading or study.

SECOND TERM

1002. THE BIBLE; PROPHECY. (191558) (4 cr; 0900-1055 MW; FolH 110) Paradise
Survey of Israelite prophets with emphasis on Amos, Hosea, Isaiah, Jeremiah, Ezekiel, and Second Isaiah. Israelite prophecy compared with other ancient and contemporary examples of oracular speakers. Prophetic contributions to Israelite religion, personality of prophets, politics and prophetic reaction. Introduction to textual analysis and biblical scholarship.

3002. THE BIBLE: PROPHECY. (691670) (4 cr, §1002; 0900-1055 MW; FolH 110) Paradise
See 1002. Meets with 1002.

5970. DIRECTED STUDIES. (190417) (1-4 cr; prereq #, Δ, CLA approval)
See First Term.

Hebrew (Hebr)

FIRST TERM

5970. DIRECTED READINGS. (789313) (Cr ar; for advanced students wishing to work on special problems; prereq 3013, #, Δ, CLA approval)

SECOND TERM

5970. DIRECTED READINGS. (890419) (Cr ar; for advanced students wishing to work on special problems; prereq 3013, #, Δ, CLA approval)

Jewish Studies (JwSt)

FIRST TERM

3126. MODERN JUDAISM. (091004) (4 cr; 0900-1055 TTh; FolH 110) Zahavy
Jewish theology, religion, and ideology in the 19th and 20th centuries. American Judaism: orthodox, conservative, reform, religious, and communal organizational structures. Zionism in Europe and America. Hasidism.

5970. DIRECTED STUDIES. (891005) (1-12 cr [max 12 cr]; prereq #, Δ, CLA approval)
Guided individual reading or study.

SECOND TERM

5970. DIRECTED STUDIES. (190420) (1-12 cr [max 12 cr]; prereq #, Δ, CLA approval)
See First Term.

Anthropology (Anth)

FIRST TERM

1101. HUMAN ORIGINS. (787397) (5 cr, §1101H; 0905-0955 MTWThF; VinH 2) Gibbon
World prehistory as investigated by archaeologists; methods and concepts used by archaeologists in studying of prehistoric human biological and cultural development.

1102. INTRODUCTION TO SOCIAL AND CULTURAL ANTHROPOLOGY. (587398) (5 cr, §1115, §5102; 1115-1205 MTWThF; VinH 2) Rowe
Varieties and range of human behavior as revealed through comparative study of cultures in all parts of the world.

Course Descriptions

3101. HISTORY OF ANTHROPOLOGY. (790770) (4 cr; prereq 1102 and 15 cr in 3xxx and 5xxx courses; 1010-1100 MTWThF; VinH 2) Penn

Beginnings of anthropology as a discipline; associated intellectual climate and context. Subfields of archaeology, ethnology, physical anthropology, and linguistics.

R 3376. FIELD RESEARCH IN ARCHAEOLOGY. (187980) (10 cr; limited to 16 students; prereq 1101 and #) Staff
See section on Special Programs.

3970. DIRECTED STUDIES. (189129) (Cr and hrs ar; prereq #, Δ, CLA approval) Staff

5970. DIRECTED READINGS. (387399) (2-4 cr; prereq #, Δ, CLA approval)
Qualified students may register for work on tutorial basis.

8211. ADVANCED FIELD TECHNIQUES IN ARCHAEOLOGY. (187400) (3 cr; hrs ar) Staff

8950. DIRECTED STUDIES. (489130) (Cr and hrs ar; prereq grad student, #) Staff

SECOND TERM

1102. INTRODUCTION TO SOCIAL AND CULTURAL ANTHROPOLOGY. (387404) (5 cr, §1115, §5102; 1115-1205 MTWThF; AndH 210) Gerlach

See First Term.

3970. DIRECTED STUDIES. (190295) (Cr and hrs ar; prereq #, Δ, CLA approval) Staff

5102. PRINCIPLES OF CULTURAL ANTHROPOLOGY. (190773) (4 cr, §1102; prereq jr standing or #; 1010-1100 MTWThF; VinH 1) Staff

Elements of cultural anthropology. Range and variability of human behavior. Principles of cultural dynamics.

5151. CULTURAL CHANGE AND DEVELOPMENT. (385989) (4 cr; prereq 1102 or 5102 or #; 0905-0955 MTWThF; VinH 2) Rowe

Processes of cultural change; invention, diffusion, and acculturation. Effects of colonialism, urbanization, and modernization. Analysis of developing societies. Applied anthropology.

5970. DIRECTED READINGS. (187405) (2-4 cr; prereq #, Δ, CLA approval)
See First Term.

8950. ADVANCED RESEARCH. (990296) (Cr and hrs ar; prereq #) Staff

Arabic—See South and Southwest Asian Studies

Art History (ArH)

FIRST TERM

3008. HISTORY OF ANCIENT ART. (286441) (4 cr, §1008; 1010-1100 MTWThF; JonesH 207A) Asher
Architecture, sculpture, and painting of selected early cultures; stress on those contributing to the development of Western art.

3011. HISTORY OF RENAISSANCE AND BAROQUE ART. (290733) (4 cr; 1115-1205 MTWThF; JonesH 207A) 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. (186442) (4 cr; 0905-0955 MTWThF; JonesH 207B) Simon
Major monuments and concepts of the modern period: sculpture, architecture, painting, and prints.

3014. ART OF INDIA. (887410) (4 cr; 1220-1310 MTWThF; Jones 207A) Asher
Indian sculpture and architecture from the prehistoric Indus Valley civilization through the major historical periods. Hindu and Buddhist art from 300 B.C. to A.D. 1200.

3970. DIRECTED STUDIES. (986846) (1-5 cr; prereq #, Δ, college approval)
Guided individual reading or study.

3971. MAJOR PROJECT. (487412) (1 cr; prereq art history major, 3895, #) Staff
Completion of a research paper begun in a 5xxx-level project course.

5313. ITALIAN HIGH RENAISSANCE ARCHITECTURE, SCULPTURE, AND PAINTING. (190734) (4 cr; prereq 3011 or grad student or #; 0905-0955 MTWThF; JonesH 207A) Canedy
Leonardo da Vinci, Michelangelo, Raphael, and Titian and lesser artists working in Florence, Rome, Venice, and northern Italy. Painting emphasized.

5970. DIRECTED STUDIES. (688297) (1-5 cr; prereq sr, #, Δ, CLA approval) Staff
Guided individual reading or study.

8995-8996-8997. MUSEOLOGY II, III, IV. (289131) (189132) (989133) (5 cr; required for MA candidates in museology; prereq Δ) Staff
 Apprenticeship program in museum practices. Four hours a day internship activity in various departments of museums participating in the program—education, conservation, curatorial.

SECOND TERM

3009. HISTORY OF MEDIEVAL ART. (790297) (4 cr; 0905-0955 MTWThF; JonesH 207B) Steyaert
 Medieval architecture, painting, and sculpture from early Christian to Gothic period.

3142. ARTS OF EGYPT AND THE NEAR EAST. (990735) (4 cr; 1010-1100 MTWThF; JonesH 207A) Smith
 The arts and architecture of Egypt, Mesopotamia, and Persia from prehistoric times to the conquests of Alexander the Great.

3936. ARTS OF BLACK AFRICA. (790736) (4 cr; 1220-1310 MTWThF; JonesH 207A) Smith
 Major developments in the arts and architecture of black Africa. Artistic diversity regarding elements of style, chronology, and functional importance.

3970. DIRECTED STUDIES. (386446) (1-5 cr; prereq #, Δ , college approval) Staff
 See First Term

3971. MAJOR PROJECT. (187414) (1 cr; prereq art history major, 3895, #) Staff
 See First Term.

5441. AGE OF REVOLUTION: FRENCH PAINTING FROM 1789 TO 1848. (590737) (5 cr; prereq one 3xxx art history course or graduate student or #; 1010-1100 MTWThF; Jones 207B) Marling
 Major styles and movements in France and their leading exponents: neoclassicism—David, romanticism—Corot and Delacroix; early realism—Millet and Daumer.

5970. DIRECTED STUDIES. (590298) (1-5 cr; prereq sr, #, Δ , CLA approval) Staff
 See First Term.

8995-8996-8997. MUSEOLOGY II, III, IV. (990301) (190300) (390299) (5 cr; required for MA candidates in museology; prereq Δ) Staff
 See First Term.

Arts, Studio (ArtS)

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.

FIRST TERM

R 1101. DRAWING I. (4 cr; each section limited to 25 students)

Introduction to studio work; exploration of contemporary and traditional methods. Work from nature, various drawing mediums.

Sec 1, (789134) 0800-0955 MTWThF, ArtB 160, Cowette

Sec 2, (887424) 0800-0955 MTWThF, ArtB 140, Somberg

Sec 3, (887425) 1010-1205 MTWThF, ArtB 160, Cowette

R 1105. BEGINNING PAINTING. (389136) (4 cr; limited to 25 students; 1010-1205 MTWThF; ArtB 151) Somberg
 Contemporary and traditional surfaces in oil and acrylic media.

R 1302. SCULPTURE. (385880) (4 cr; limited to 20 students; 1010-1205 MTWThF; ArtB 65, 90) Baldwin
 Study of structure with emphasis on form and space. Clay, plaster, wood. Mold making and casting.

R 1404. COLOR. (285872) (4 cr; limited to 25 students, \$1104; prereq 1101; 0800-0955 MTWThF; ArtB 150) Bethke
 Color and its visual implications.

R 1510. PRINTMAKING: INTAGLIO. (089138) (4 cr per term [max 8 cr]; limited to 9 students; 0800-0955 MTWThF; ArtB 170) Myers

Intaglio printing processes. Intensive study of etching, engraving, and collagraphic techniques in their creative context.

R 1701. PHOTO MEDIUM. (4 cr; each section limited to 20 students) Henkel

The photographic medium and its background and meaning today. Lectures on contemporary and historical use of photography. Methods of use of camera, film development, and enlarging. Emphasis on the creative process.

Sec 1, (087700) 0800-0955 MTWThF, ArtB 120

Sec 2, (985874) 1010-1205 MTWThF, ArtB 120

R 1811. CERAMICS: HAND BUILDING. (088300) (4 cr; limited to 20 students; 0800-0955 MTWThF; ArtB 10) Hoard
 Introduction to hand-building techniques for individual creative expression.

Course Descriptions

¶ 3110. DRAWING. (889139) (4 cr per term [max 12 cr]; limited to 15 students; prereq 1102, 1401; 1010-1205 MTWThF; ArtB 140) Rowan

From model, still life, and nature; individual creative expression in various mediums. Meet with 5110.

¶ 3160. WATERCOLOR. (487426) (4 cr per term [max 12 cr]; limited to 15 students; prereq 1101, 1401, 1404 or #; 1012-1205 MTWThF; ArtB 141) Myers

Transparent watercolor, gouache, casein, tempera. Figure, still life, landscape, abstract design, Meets with 5160.

¶ 3420. WORKSHOP: ABSTRACTION IN NATURE. (190790) (4 cr; limited to 12 students; prereq 1102; 0800-0955 MTWThF; ArtB 141) Rowan

Visual explorations of process of reducing nature's multiplicity to various levels of abstraction. Work in various color and black/white media. Students may choose watercolor, acrylic, oil pastel, ink, or charcoal. Slide lectures, discussions and critiques. Meets with 5420.

¶ 3510. PRINTMAKING: INTAGLIO. (785875) (4 cr per term [max 12 cr]; limited to 6 students; prereq 1401, 4 cr of 1510 or #; 0800-0955 MTWThF; ArtB 170) Myers

Intaglio techniques on metal and collagraph. Embossing.

3970. DIRECTED STUDY. (1-5 cr per term [max 8 cr]; prereq 24 cr in studio arts and #, Δ, CLA approval)

Sec 1, (590799) Baldwin

Sec 9, (090791) Hoard

Sec 2, (385877) Bethke

Sec 14, (890792) Myers

Sec 4, (788100) Cowette

Sec 18, (490794) Rowan

Sec 7, (986782) Hallman

Sec 19, (290800) Somberg

Sec 8, (188103) Henkel

3980. DIRECTED INSTRUCTION. (1-5 cr per term [max 8 cr]; prereq #, Δ, CLA approval)

Students assist in teaching a course they have completed.

Sec 1, (990802) Baldwin

Sec 9, (790803) Hoard

Sec 2, (185881) Bethke

Sec 14, (390805) Myers

Sec 4, (588101) Cowette

Sec 18, (190806) Rowan

Sec 8, (088104) Hendler

Sec 19, (090807) Somberg

¶ 5110. DRAWING. (089141) (4 cr per term [max 16 cr]; limited to 10 students; prereq 12 cr of 3110 or #; 1010-1205 MTWThF; ArtB 140) Rowan

Drawing in all mediums from life. Meets with 3110.

¶ 5160. WATERCOLOR. (187428) (4 cr per term [max 16 cr]; limited to 10 students; prereq 12 cr of 3160 or #; 1010-1205 MTWThF; ArtB 141) Myers

Advanced watercolor techniques, aesthetic directions. Individual concepts and development of sensibilities. Meets with 3160.

5190. DRAWING AND PAINTING. (3-4 cr; max 16 cr; prereq #, Δ non-majors)

Sec 4, (191561) Cowette

Sec 19, (791563) Somberg

Sec 18, (991562) Rowan

5390. SCULPTURE. (588714) (3-4 cr; max 16 cr; prereq #, Δ non-majors) Baldwin

¶ 5420. WORKSHOP: ABSTRACTION IN NATURE. (190796) (4 cr; limited to 13 students; prereq 1102; 0800-0955 MTWThF; ArtB 141) Rowan

See 3420. Meets with 3420.

¶ 5510. PRINTMAKING: INTAGLIO. (158878) (4 cr per term [max 16 cr]; limited to 5 students; prereq 12 cr of 3510 or #; 0800-0955 MTWThF; ArtB 170) Myers

Color processes, intaglio and combined techniques

5590. PRINTMAKING. (591564) (3-4 cr; max 16 cr; prereq #, Δ non-majors) Myers

5790. PHOTOGRAPHY. (391565) (3-4 cr; max 16 cr; prereq #, Δ non-majors) Henkel

5890. CERAMICS AND GLASS WORKING. (191566) (3-4 cr; max 16 cr; prereq #, Δ) Hoard

5970. DIRECTED STUDY. (1-5 cr per term [max 12 cr]; prereq 24 cr in studio arts and #, Δ, CLA approval)

Sec 1, (690809) Baldwin

Sec 9, (090810) Hoard

Sec 2, (085882) Bethke

Sec 14, (890811) Myers

Sec 4, (388102) Cowette

Sec 18, (690812) Rowan

Sec 8, (888105) Henkel

Sec 19, (088118) Somberg

8110. DRAWING. (4 cr per term [max 12 cr]; prereq #)

Sec 4, (091567) Cowette

Sec 19, (691569) Somberg

Sec 18, (891568) Rowan

8120. PAINTING. (4 cr per term [max 24 cr]; prereq #)

Sec 4, (891571) Cowette

Sec 19, (491573) Somberg

Sec 18, (691572) Rowan

8330. SCULPTURE: CAST METAL. (988774) (4 cr [max 12 cr]; prereq #)

8510. PRINTMAKING. (4 cr per term [max 36 cr]; prereq #)

Sec 2, (291574) Bethke

Sec 14, (191575) Myers

8710. PHOTOGRAPHY. (991576) (4 cr per term [max 24 cr]; prereq #) Henkel

8810. CERAMICS. (791577) (4 cr per term [max 24 cr]; prereq #) Hoard

SECOND TERM

R 1101. DRAWING I. (4 cr; limited to 25 students)

See First Term.

Sec 1, (887701) 0800-0955 MTWThF, ArtB 141, Roode

Sec 2, (890825) 1010-1205 MTWThF, ArtB 140, Feinberg

R 1102. DRAWING II. (790302) (4 cr; limited to 25 students; prereq 1101; 1010-1205 MTWTh; ArtB 150) Gray

See First Term.

R 1301. SCULPTURE. (885883) (4 cr; limited to 20 students; 1010-1205 MTWThF; ArtB 50) Rose

Study of structure with emphasis on form and space. Direct construction in metal.

R 1520. PRINTMAKING: LITHOGRAPHY. (685884) (4 cr per term [max 8 cr]; limited to 9 students; 0800-0955 MTWThF; ArtB 176) Krepps

Planographic printing from stones and metal plates. Image-making, processing, printing, and presenting in the creative context.

R 1701. PHOTO MEDIUM. (787433) (4 cr; limited to 20 students; 0800-0955 MTWThF; ArtB 120) Hallman

The photographic medium and its background and meaning today. Lectures on contemporary and historical use of photography. Methods of use of camera, film development, and enlarging. Emphasis on the creative process.

R 1811. CERAMICS: HANDBUILDING. (188305) (4 cr; limited to 20 students; 1010-1205 MTWThF; ArtB 10) Lane

See First Term.

R 3110. DRAWING. (290313) (4 cr per term [max 12 cr]; limited to 15 students; prereq 1102, 1401; 0800-0955 MTWThF; ArtB 150) Gray

See First Term. Meets with 5110.

R 3120. PAINTING. (790316) (4 cr per term [max 12 cr]; limited to 15 students; prereq 1105, 1401, 1404, and 4 cr of 3110 or #; 1010-1205 MTWThF; ArtB 151) Roode

See First Term. Meets with 5120.

R 3430. PAPERMAKING. (190832) (4 cr per term [max 12 cr]; limited to 12 students; prereq ArtS 1401, one 1 xxx Studio Arts or #; 1010-1205 MTWThF; ArtB 35) Krepps

Creative and traditional approaches to papermaking. Meets with 5430.

R 3520. PRINTMAKING: LITHOGRAPHY. (985888) (4 cr per term [max 12 cr]; limited to 6 students; prereq 1401, 4 cr of 1520 or #; 0800-0955 MTWThF; ArtB 176) Krepps

Planographic techniques on stones and plates.

R 3710. PHOTOGRAPHY. (788307) (4 cr per term [max 12 cr]; limited to 20 students; prereq 1401, 1701 or Jour 3301 or #; 1010-1205 MTWThF; ArtB 120) Hallman

Photographic controls and processes. Related photosensitive media. Creative processes suited to individual interests.

3970. DIRECTED STUDY. (1-5 cr per term [max 8 cr]; prereq 24 cr in studio arts and #, Δ, CLA approval)

Sec 5, (485885) Feinberg

Sec 11, (185877) Lane

Sec 6, (285886) Gray

Sec 16, (190840) Roode

Sec 7, (390836) Hallman

Sec 17, (090841) Rose

Sec 10, (890839) Krepps

3980. DIRECTED INSTRUCTION. (1-5 cr per term [max 8 cr]; prereq #, Δ, CLA approval)

See First Term.

Sec 5, (185890) Feinberg

Sec 11, (785892) Lane

Sec 6, (985891) Gray

Sec 16, (190846) Roode

Sec 7, (690843) Hallman

Sec 17, (990847) Rose

Sec 10, (490844) Krepps

R 5110. DRAWING. (890324) (4 cr per term [max 16 cr]; limited to 10 students; prereq 12 cr of 3110 or #; 0800-0955 MTWThF; ArtB 150) Gray

See First Term. Meets with 3110.

R 5120. PAINTING. (690325) (4 cr per term [max 16 cr]; limited to 10 students; prereq 12 cr of 3120 or #; 1010-1205 MTWThF; ArtB 151) Roode

Various media. Individual problems. Meets with 3120.

5190. DRAWING AND PAINTING. (3-4 cr [max 16 cr]; prereq #, Δ, non-major)

Sec 5, (591578) Feinberg

Sec 16, (791580) Roode

Sec 6, (391579) Gray

Course Descriptions

- 5390. SCULPTURE.** (591581) (3-4 cr [max 16 cr]; prereq #, Δ non-major) Rose
- R 5430. PAPERMAKING.** (790834) (4 cr per term [max 12 cr]; limited to 10 students; prereq 12 cr of 3430 or #; 1010-1205 MTWThF; ArtB 35) Krepps
See 3430. Meets with 3430.
- R 5520. PRINTMAKING: LITHOGRAPHY.** (785889) (4 cr per term [max 16 cr]; limited to 5 students; prereq 12 cr 3520 or #; 0800-0955 MTWThF; ArtB 176) Krepps
Specialized work in color printing and planographic techniques.
- 5590. PRINTMAKING.** (391582) (3-4 cr [max 16 cr]; prereq #, Δ non-major) Krepps
- 5790. PHOTOGRAPHY.** (191583) (3-4 cr [max 16 cr]; prereq #, Δ non-major) Hallman
- 5890. CERAMICS AND GLASS WORKING.** (091584) (3-4 cr [max 16 cr]; prereq # Δ) Lane
- 5970. DIRECTED STUDY.** (1-5 cr per term [max 12 cr]; prereq 24 cr in studio arts and #, Δ, CLA approval)
- | | |
|--------------------------|------------------------|
| Sec 5, (585893) Feinberg | Sec 11, (185895) Lane |
| Sec 6, (385894) Gray | Sec 16, (790851) Roode |
| Sec 7, (590849) Hallman | Sec 17, (590852) Rose |
| Sec 10, (990850) Krepps | |
- 8110. DRAWING.** (4 cr per term [max 12 cr]; prereq #)
- | | |
|--------------------------|------------------------|
| Sec 5, (891585) Feinberg | Sec 16, (491587) Roode |
| Sec 6, (691586) Gray | |
- 8120. PAINTING.** (4 cr per term [max 24 cr]; prereq #)
- | | |
|--------------------------|------------------------|
| Sec 5, (291588) Feinberg | Sec 16, (491590) Roode |
| Sec 6, (191589) Gray | |
- 8710. PHOTOGRAPHY.** (291591) (4 cr per term [max 24 cr]; prereq #) Hallman
- 8810. CERAMICS.** (191592) (4 cr per term [max 24 cr]; prereq #) Lane

Chinese—See East Asian Studies

Classical Studies

*Classics (Clas)*¹

FIRST TERM

- 1042. GREEK AND ROMAN MYTHOLOGY I.** (188523) (4 cr; 0905-0955 MTWTh; FolH 308) Hershbell
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.** (185024) (3 cr, §3045; independent and optional assistance labs ar; **orientation** 0800-0850 T, June 18 or 1220-1310 W, June 19 or 1325-1415 Th, June 20; FolH 308)
- 1048. TECHNICAL TERMS OF THE MEDICAL AND BIOLOGICAL SCIENCES.** (085025) (2 cr, §1141, §3048; prereq 1045 or 11045; independent and optional assistance labs ar; **orientation** 0800-0850 T, June 18 or 1220-1310 W, June 19 or 1325-1415 Th, June 20; FolH 308)
- 1141. GREEK AND LATIN TERMINOLOGY FOR NURSING.** (886046) (3 cr, §1048; independent and optional assistance labs ar; **orientation** 0800-0850 T, June 18, or 1220-1310 W, June 19, or 1325-1415 Th, June 20; FolH 308) Greek and Latin prefixes, suffixes, and roots basic to the vocabulary of nursing through computer-assisted instruction. Meets with 1045.
- 3046. ADVANCED ETYMOLOGY: VOCABULARY OF THE SCIENCES AND HUMANITIES.** (686047) (2 cr; prereq 1045 or 11045; independent and optional assistance labs ar; **orientation** 0800-0850 T, June 18, or 1220-1310 W, June 19, or 1325-1415 Th, June 20; FolH 308)
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. Meets with 1045.
- 3082. GREEK TRAGEDY IN TRANSLATION: AESCHYLUS, SOPHOCLES, EURIPIDES.** (391145) (4 cr, §5082; prereq 8 cr in English literature or in foreign literature or Δ; 1115-1205 MTWTh; FolH 305) Hershbell
Origin of European drama as distinct literary form; characteristics of Greek tragedy; ancient theatres and theatrical conventions. Selected tragedies. Problems related to cultural patterns of the time. Meets with 5082.
- 3970. DIRECTED STUDIES.** (786850) (1-5 cr per qtr; prereq #, Δ, college approval)
Guided individual reading or study.

¹Knowledge of Greek or Latin is not required.

5082. GREEK TRAGEDY IN TRANSLATION: AESCHYLUS, SOPHOCLES, EURIPIDES. (191146) (4 cr, §3082; 1115-1205 MTWTh; FolH 305) Hershbell
Meets with 3082. Additional work required.

5970. DIRECTED STUDIES. (088183) (1-5 cr; prereq #, Δ, CLA approval)
Guided individual reading or study.

SECOND TERM

1042. GREEK AND ROMAN MYTHOLOGY I. (286505) (4 cr; 0905-0955 MTWTh; FolH 308) Rochefort
See First Term.

1045. BASIC PROGRAM IN TECHNICAL TERMINOLOGY AND WORK STUDY. (191138) (3 cr, §3045; 11048, 1141, 3046; independent and optional assistance labs ar; **orientation** 0800-0850 M, July 22, or 1220-1310 T, July 23, or 1325-1415 W July 24; FolH 305)

1048. TECHNICAL TERMS OF THE MEDICAL AND BIOLOGICAL SCIENCES. (991139) (2 cr, §3048; prereq 1045 or 11045; independent and optional assistance labs ar; **orientation** 0800-0850 M, July 22, or 1220-1310 T, July 23, or 1325-1415 W, July 24; FolH 305)

1141. GREEK AND LATIN TERMINOLOGY FOR NURSING. (291140) (3 cr, §1048; independent and optional assistance labs ar; **orientation** 0800-0850 M, July 22, or 1220-1310 T, July 23, or 1325-1415 W, July 24; FolH 305)
See First Term. Meets with 1045.

3046. ADVANCED ETYMOLOGY: VOCABULARY OF THE SCIENCES AND HUMANITIES. (191141) (2 cr; prereq 1045 or 11045; independent and optional assistance labs ar; **orientation** 0800-0850 M, July 22, or 1220-1310 T, July 23, or 1325-1415 W, July 24; FolH 305)
See Term I. Meets with 1045.

3083. ARISTOPHANES AND ROMAN DRAMA IN TRANSLATION: ARISTOPHANES, MENANDER, PLAUTUS, TERENCE, SENECA. (991142) (4 cr, §5083; prereq 8 cr in English literature or in foreign literature or Δ; 1115-1205 MTWTh; FolH 305) Rochefort
Greek and Roman comic theatre; several comedies discussed. Roman tragic drama as exemplified by tragedies of Seneca. Meets with 5083.

5083. ARISTOPHANES AND ROMAN DRAMA IN TRANSLATION: ARISTOPHANES, MENANDER, PLAUTUS, TERENCE, SENECA. (791143) (4 cr, §3083; prereq 8 cr in English literature or in foreign literature or Δ; 1115-1205 MTWTh; FolH 305) Rochefort
Greek and Roman comic theatre; several comedies discussed. Roman tragic drama as exemplified by tragedies of Seneca. Meets with 3083. Advanced independent work required.

5970. DIRECTED STUDIES. (591144) (1-5 cr; prereq #, Δ, CLA approval)
Guided individual reading or study.

Latin (Lat)

FIRST TERM

3001. BEGINNING LATIN: INTENSIVE ACCELERATED. (989147) (10 cr, §1101-1102-1103, §3051-3052; 0905-1205 MTWThF; FolH 203) Erickson
Ten class hours weekly, plus individual and small group sessions. Grammar, syntax, composition, and reading. See Special Programs section.

3970. DIRECTED STUDIES. (788680) (1-5 cr; prereq #, Δ, CLA approval)
Guided individual reading or study.

5970. DIRECTED STUDIES. (486180) (1-5 cr; prereq #, Δ, CLA approval)
Guided individual reading or study.

SECOND TERM

3104. LATIN READINGS. (990346) (5 cr; prereq 1104 or equiv or #; 1115-1205 MTWThF; KoltH S139) Staff
Reading of selected Latin authors, development of reading proficiency, introduction to cultural and literary studies as in 1104, with advanced assignments. Meets with 8120.

3970. DIRECTED STUDIES. (286178) (1-5 cr; prereq #, Δ, CLA approval)
See First Term.

5970. DIRECTED STUDIES. (186179) (1-5 cr; prereq #, Δ, CLA approval)
See First Term.

8120. LATIN TEXT COURSE. (790347) (4 cr; prereq 3052 or Δ; restricted to students in depts other than Classics; 1115-1205 MTWThF; KoltH S139) Staff
For nonmajors who wish text work in Latin for a minor or related field. Meets with 3104. Supplementary work at the discretion of the instructor. Meets with 3104.

Communication Disorders (CDIS)

FIRST TERM

3100. CLINICAL AND RESEARCH OBSERVATION. (789148) (2 cr; limited to 33 students; prereq deptl written permission; S-N only; 0800-1200 W; MoosT 6296) Starr, Moller
Supervised observation of clinical procedures such as evaluation and treatment of persons with communication disorders or of research relating to normal and disordered communication.

5508. VOICE DISORDERS. (590740) (4 cr; 0905-1100 TTh; FolH 303) Starr, Haroldson
Physical and physiological bases of normal voice production, Voice disorders (pitch, loudness, quality) and their symptomatology, etiology, and clinical management. Laryngectomy and other organic disorders.

5900. TOPICS IN COMMUNICATION DISORDERS. (prereq #)

Sec 1. Stuttering: Current Treatments for Children—July 2, 3, 9-11, 16-18. (390741) 3 cr, 1325-1520 MTWThF, ShevH 125, Martin

Sec 2. Cochlear Implants and the Perception of Sound—June 18-21, 25-28. (090743) 4 cr, 0900-1200 MTWThF, ShevH 119, Bilger

Sec 3. Methods for Evaluating New Tests in Speech-Language Pathology—June 18-21, 25-28. (890744) 4 cr, 1330-1630 MTWThF, ShevH 119, Bilger

5970. DIRECTED STUDIES. (589152) (Cr or [may be repeated for cr]; prereq #, Δ, CLA approval) Staff
Directed readings and preparation of reports on selected subjects.

8512. SEMINAR: LANGUAGE RETARDATION. (190742) (3 cr; 1010-1205 WF; ar) Broen
Causation, diagnosis, and current research techniques.

8520. CLINICAL EDUCATION IN SPEECH-LANGUAGE PATHOLOGY. (389153) (2, 4, or 6 cr [may be repeated for cr]; prereq #) Staff

8521. CLINICAL EDUCATION IN SPEECH-LANGUAGE PATHOLOGY. (187436) (2, 4, or 6 cr [may be repeated for cr]; prereq #) Staff

8720. CLINICAL EDUCATION IN AUDIOLOGY. (189154) (2, 4, or 6 cr [may be repeated for cr]; prereq #) Staff

8721. CLINICAL EDUCATION IN AUDIOLOGY. (087437) (2, 4, or 6 cr [may be repeated for cr]; prereq #) Staff

8990. DIRECTED RESEARCH. (089155) (Cr or [may be repeated for cr]; prereq #) Staff
Open to graduate students engaged in research.

SECOND TERM

5900. TOPICS IN COMMUNICATION DISORDERS: Industrial Hearing Conservation. (986054) (4 cr; 0905-1100 MWF; FolH 303) Ward

Areas of knowledge relevant to successful implementation of a hearing conservation program conforming to federal and local regulations, including: sound measurement and estimation of noise exposures by dosimetry; quantitative effects of noise exposure on hearing and nonauditory functions, and concept of risk; nature and basis of existing federal and state exposure limits; manual and automatic audiometric techniques; evaluation of ear protective devices; educational techniques essential to establishment and acceptance of hearing conservation programs; evaluation of success of programs.

5970. DIRECTED STUDIES. (590351) (Cr or [may be repeated for cr]; prereq #, Δ, CLA approval) Staff
See First Term.

8520. CLINICAL EDUCATION IN SPEECH-LANGUAGE PATHOLOGY. (190353) (2, 4, or 6 cr [may be repeated for cr]; prereq #) Staff

8521. CLINICAL EDUCATION IN SPEECH-LANGUAGE PATHOLOGY. (587434) (2, 4, or 6 cr [may be repeated for cr]; prereq #) Staff

8720. CLINICAL EDUCATION IN AUDIOLOGY. (090354) (2, 4, or 6 cr [may be repeated for cr]; prereq #) Staff

8721. CLINICAL EDUCATION IN AUDIOLOGY. (387435) (2, 4, or 6 cr [may be repeated for cr]; prereq #) Staff

8990. DIRECTED RESEARCH. (690356) (Cr or [may be repeated for cr]; prereq #) Staff
See First Term.

Composition and Communication (Comp)

FIRST TERM

1011. WRITING PRACTICE I. (5 cr; each section limited to 28 students) Staff

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, (487636) 0905-0955 MTWThF, LindH 315, (ESL or Δ)

Sec 2, (287637) 1010-1100 MTWThF, 1 hr arranged, KolH S134

Sec 3, (691619) 1115-1205 MTWThF, 1 hr arranged, KolH S134

¶ 1027. **INTERMEDIATE EXPOSITORY WRITING.** (4 cr; each section limited to 25 students; prereq fulfillment of Writing Practice requirement; students matriculated before fall 1982 must have completed 1001, Comm 1001, or equiv) Staff

Mastery of expository forms (e.g., comparison, analysis, evaluation); control of tone and diction to achieve a clear, accurate style.

Sec 1, (789179) 0800-0850 MTWThF, LindH 315

Sec 2, (488138) 0905-0955 MTWThF, LindH 320

¶ 3027. **ADVANCED EXPOSITORY WRITING.** (4 cr; each section limited to 20 students; prereq the Writing Practice requirement or equiv) Staff

Introduction to narration, description, proof, and persuasion; proper framing of arguments and analysis; use and evaluation of sources for longer papers.

Sec 1, (286066) 0905-0955 MTWThF, LindH 325

Sec 2, (986734) 1010-1100 MTWThF, LindH 315

¶ 3031. **TECHNICAL WRITING FOR ENGINEERS.** (4 cr; each section limited to 20 students; prereq the Writing Practice requirement or equiv) Staff

Focus on the form and style of technical, engineering writing in reports, documentation, and correspondence. Exercises and frequent practical examples, tied as much as possible to student's major field.

Sec 1, (987639) 0800-0850 MTWThF, LindH 325

Sec 2, (288139) 0905-0955 MTWThF, LindH 340

Sec 3, (986748) 1010-1100 MTWThF, LindH 325

¶ 3032. **PREPROFESSIONAL WRITING FOR BUSINESS.** (490746) (4 cr; limited to 20 students; prereq the Writing Practice requirement or equiv; 0905-0955 MTWThF; LindH 215) Staff

Focus on the rhetoric, form, and style of business writing in reports, case studies, and correspondence. Exercises and frequent practical examples, tied as much as possible to the student's major field. This course fulfills senior business-writing requirement for the School of Management.

SECOND TERM

¶ 1011. **WRITING PRACTICE I.** (5 cr; each section limited to 28 students) Staff

See First Term.

Sec 1, (187641) 0800-0850 MTWThF, 1 hr arranged, LindH 315

Sec 2, (987642) 1010-1100 MTWThF, 1 hr arranged, LindH 315

¶ 1027. **INTERMEDIATE EXPOSITORY WRITING.** (787643) (4 cr; limited to 25 students; prereq fulfillment of Writing Practice requirement; students who matriculated before fall 1982 must have completed 1001, Comm 1001 or equiv; 1115-1205 MTWThF; LindH 315) Anson

See First Term.

¶ 3027. **ADVANCED EXPOSITORY WRITING.** (290747) (4 cr; limited to 20 students, prereq the Writing Practice requirement or equiv; 0905-0955 MTWThF; LindH 320) Bridwell

See First Term.

¶ 3031. **TECHNICAL WRITING FOR ENGINEERS.** (4 cr; each section limited to 20 students; prereq the Writing Practice requirement or equiv) Staff

See First Term.

Sec 1, (587644) 0800-0850 MTWThF, LindH 320

Sec 2, (186884) 0905-0955 MTWThF, LindH 315

¶ 3032. **PREPROFESSIONAL WRITING FOR BUSINESS.** (4 cr; each section limited to 20 students; prereq the Writing Practice requirement or equiv) Staff

See First Term.

Sec 1, (387645) 1010-1100 MTWThF, BlegH 360

Sec 2, (188201) 1115-1205 MTWThF, BlegH 105

East Asian Studies

Chinese (Chn)

See Special Programs section for Minnesota-Nankai Summer Intensive Chinese Language Institute.

FIRST TERM

3970. **DIRECTED STUDIES.** (787416) (1-4 cr; prereq #, Δ, college approval) Staff

5970. **DIRECTED STUDIES.** (788484) (1-4 cr; prereq #, Δ, college approval) Staff

Course Descriptions

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 semester credits] 10 hours with principal instructor, 10 hours with drillmaster; 0800-1205 MTWThF; CivMinE 213)

R 1011, Sec 5, (391128) June 18-July 10, 5 cr

R 1012, Sec 5, (191129) July 11-August 1, 5 cr

R 1013, Sec 5, (591130) August 2-23, 5 cr

SECOND TERM

3970. DIRECTED STUDIES. (286035) (1-4 cr; prereq #, Δ, college approval) Staff

5970. DIRECTED STUDIES. (186036) (1-4 cr; prereq #, Δ, college approval) Staff

East Asian Studies (EAS)

FIRST TERM

3468. PEOPLE'S REPUBLIC OF CHINA: THE COMMUNIST REVOLUTION, 1900 TO PRESENT. (186120) (4 cr, §Hist 3468, 5468; 0905-0955 MTWThF; BlegH 245) 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. (786119) (1-15 cr; prereq #, Δ, college approval) Staff

SECOND TERM

1463. INTRODUCTION TO EAST ASIA IN MODERN TIMES. (586123) (4 cr, §Hist 1463, 3463; 1115-1205 MTWThF; FolH 104) Marshall
Decline of Asian empires, rise of European and American imperialism; Asian responses: nationalism, social revolution, reintegration, modernization in China, Japan, Vietnam, Korea; retreat of European and American empires. Meets with Hist 1463 and Hist 3463.

3970. DIRECTED STUDIES. (386124) (1-15 cr; prereq #, Δ, college approval) Staff

Japanese (Jpn)

FIRST TERM

3970. DIRECTED STUDIES. (588681) (1-4 cr; prereq #, Δ, college approval) Staff

5970. DIRECTED STUDIES IN JAPANESE. (888816) (1-4 cr; prereq #, Δ, CLA approval) Staff

SECOND TERM

3970. DIRECTED STUDIES. (288707) (1-4 cr; prereq #, Δ, college approval) Staff

5970. DIRECTED STUDIES IN JAPANESE. (088846) (1-4 cr; prereq #, Δ, CLA approval) Staff

Economics (Econ)

See also Public Affairs

FIRST TERM

R **1001. PRINCIPLES OF MACROECONOMICS.** (4 cr, §1004, §1014, §3001, §3002; each section limited to 40 students; prereq 3rd-4th fr)

Principles underlying economic activity and the economic institutions within which economic units function. National income, money and banking, business cycles, and international trade.

Sec 1, (889156) 0800-0850 MTWThF, BlegH 130

Sec 2, (689157) 0905-0955 MTWThF, AndH 250

Sec 3, (489158) 1010-1100 MTWThF, AndH 230

Sec 4, (289159) 1115-1205 MTWThF, BlegH 250

Sec 5, (689160) 1220-1310 MTWThF, BlegH 145

R 1002. PRINCIPLES OF MICROECONOMICS. (4 cr, §1005, §1015, §3001, §3002; each section limited to 40 students; prereq 3rd-qr fr)

Demand and supply, competition and monopoly, and the distribution of income.

Sec 1, (489161) 0800-0850 MTWThF, BlegH 240

Sec 2, (289162) 0905-0955 MTWThF, BlegH 250

Sec 3, (189163) 1010-1100 MTWThF, BlegH 250

Sec 4, (186148) 1115-1205 MTWThF, BlegH 155

R 3101. MICROECONOMIC THEORY. (989164) (4 cr, §3105, §5151; no cr SMgt student; limited to 50 students; prereq 1001, 1002, Math 1111 or equiv or #: 1010-1100 MTWThF; BlegH 150)

Behavior of firms and industries under competitive and monopolistic conditions; factors influencing production, price, and advertising decisions. Meets with 5151.

R 3102. MACROECONOMIC THEORY. (789165) (4 cr, §5152; limited to 45 students; prereq 1001, 1002, Math 1111 or equiv or #: 1115-1205 MTWThF; BlegH 440)

Determinants of national income, employment, and price level; aggregate consumption and investment. Meets with 5152.

R 3105. MANAGERIAL ECONOMICS. (588289) (4 cr, §3101, §BGS 3001; limited to 45 students; prereq 1001, 1002, 1 qtr calculus. School of Management students; 0905-0955 MTWThF; BlegH 240)

Theory of the firm; managerial decision problems. Demand theory. Production technology and cost concepts. Pricing and output decisions. Investment behavior.

R 3501. LABOR ECONOMICS. (391243) (4 cr, §5531; limited to 50 students, not open to economics majors; prereq 1001, 1002 or equiv; 1115-1205 MTWThF; BlegH 240) Simler

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.

R 3701. MONEY AND BANKING. (4 cr, §5701, §5721; each section limited to 50 students; prereq 1001, 1002 or equiv; not open to economics majors)

Historical development, present characteristics, and economic role of financial institutions. Commercial banking, the Federal Reserve system and monetary policy.

Sec 1, (188515) 1115-1205 MTWThF, BlegH 150

Sec 2, (688140) 1220-1310 MTWThF, BlegH 135

3970. DIRECTED STUDIES. (589166) (Cr ar; prereq 1002, #, Δ, CLA approval)

R 5151. ELEMENTS OF ECONOMIC ANALYSIS: FIRM AND HOUSEHOLD. (389167) (3 cr, §3101; limited to 15 students; prereq 1001, 1002, 1 qtr calculus, grad student or #: 1010-1100 MTWThF; BlegH 150) Richter

Individual decision making by households and firms under conditions of monopoly, competition; some welfare economics. Meets with 3101.

R 5152. ELEMENTS OF ECONOMIC ANALYSIS: INCOME AND EMPLOYMENT. (189168) (3 cr, §3102; limited to 15 students; prereq 1001, 1002, 1 qtr calculus, grad student or #: 1115-1205 MTWThF; BlegH 440)

Determinants of national income, employment, and price level; aggregate consumption, investment, and asset holding. Meets with 3102.

R 5301. ECONOMIC DEVELOPMENT. (089169) (4 cr, §5331; limited to 35 students; prereq 1001, 1002 or equiv; not open to economics majors; 1115-1205 MTWThF; BlegH 215) Smith

Problems of economic growth in low income countries. Theory of aggregate and per capita income growth. Role of population growth, productivity increases and capital formation. Allocation of resources between consumption and investment and among sectors. International assistance and trade. Meets with 5331.

R 5331. ECONOMIC DEVELOPMENT. (389170) (4 cr, §5301; limited to 25 students; prereq 3101, 3102 or equiv or #: 1115-1205 MTWThF; BlegH 215) Smith

See 5301. Meets with 5301.

R 5401. INTERNATIONAL ECONOMICS. (189171) (4 cr, §5431; limited to 50 students; not open to economics majors; prereq 1001, 1002 or equiv; 1010-1100 MTWThF; BlegH 215) Smith

The case for free trade. Effects of tariffs; protection of infant industries; common markets. Balancing international receipts and payments, the role of exchange rates, international monetary reform. Meets with 5431.

R 5431. INTERNATIONAL ECONOMICS. (089172) (4 cr, §5401; limited to 50 students; prereq 3102, 3103 or equiv or #: 1010-1100 MTWThF; BlegH 440) Staff

See 5401.

R 5721. MONEY AND BANKING. (889173) (4 cr, §3701, §5701; limited to 50 students; prereq 3102 or equiv; 0905-0955 MTWThF; BlegH 145)

Historical development, present characteristics, and economic role of financial institutions. Commercial banking, the Federal Reserve system and monetary policy.

R 5831. COST-BENEFIT ANALYSIS. (191244) (4 cr; limited to 50 students; prereq 3103; 0800-0850 MTWThF; BlegH 145)

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.

Course Descriptions

5970. DIRECTED STUDIES. (689174) (Cr ar; prereq #, Δ , CLA approval) Staff
Areas useful to individual programs and objectives not available in regular course offerings.

8990. INDIVIDUAL GRADUATE RESEARCH. (489175) (Cr ar) Staff

SECOND TERM

R 1001. PRINCIPLES OF MACROECONOMICS. (4 cr, §1004, §1014, §3001, §3002; each section limited to 45 students; prereq 3rd-qr fr)
See First Term.

- Sec 1, (190359) 0800-0850 MTWThF, BlegH 250
- Sec 2, (490360) 0905-0955 MTWThF, BlegH 435
- Sec 3, (786153) 1010-1100 MTWThF, BlegH 250
- Sec 4, (591628) 1010-1100 MTWThF, BlegH 135

R 1002. PRINCIPLES OF MICROECONOMICS. (4 cr, §1005, §1015, §3001, §3002; each section limited to 40 students; prereq 3rd-qr fr)
See First Term.

- Sec 1, (290361) 0800-0850 MTWThF, BlegH 235
- Sec 2, (990363) 0900-0955 MTWThF, BlegH 250
- Sec 3, (790364) 1010-1100 MTWThF, BlegH 235
- Sec 4, (590365) 1115-1205 MTWThF, BlegH 235

R 3101. MICROECONOMIC THEORY. (4 cr, §3105, §5151; no cr SMgt student; section 1 limited to 50 students; prereq 1001, 1002, Math 1111 or equiv or #)

See First Term. Meets with 5151.

- Sec 1, (190367) 0905-0955 MTWThF, BlegH 150, Richter
- Sec 2, (190370) 0905-0955 MTWThF, BlegH 155, Kudrle (August 19-September 20)

R 3102. MICROECONOMIC THEORY. (090371) (4 cr, §5152; limited to 50 students; prereq 1001, 1002, Math 1111 or equiv or #; 1115-1205 MTWThF; BlegH 250)

See First Term. Meets with 5152.

R 3103. WELFARE ECONOMICS. (690373) (4 cr; limited to 50 students; prereq 3101 or 3101H or equiv; 1015-1105 MTWThF; AndH 230) Coen

Introduction to welfare economics. Economic efficiency and the conditions necessary to sustain it. Conflicts between the efficiency and income distribution goals. How market structure and public policies increase or decrease efficiency.

R 3105. MANAGERIAL ECONOMICS. (988290) (4 cr, §3101, §BGS 3001; limited to 45 students; prereq 1001, 1002, 1 qtr calculus. School of Management student; 1010-1100 MTWThF; BlegH 155) Richter

See First Term.

R 3601. INDUSTRIAL ORGANIZATION AND ANTITRUST POLICY. (091245) (4 cr, §5631; limited to 30 students; not open to economics majors; prereq 1001, 1002 or equiv; 1010-1100 MTWThF, BlegH 215)

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.

R 3701. MONEY AND BANKING. (490374) (4 cr, §5701, §5721; limited to 50 students; prereq 1001, 1002 or equiv; not open to economics majors; 0905-0955 MTWThF; BlegH 235)

See 3701 First Term.

R 3801. ELEMENTS OF PUBLIC FINANCE. (691247) (4 cr, §5821; limited to 30 students; prereq 1001, 1002 or equiv; not open to Econ majors; 0905-0955 MTWThF; BlegH 240)

Tax and expenditure policies, primarily at federal level. Impact of tax structure on the distribution of income. Evaluation of public programs. Optimal mix of public and private sector output. Meets with 5821.

3970. DIRECTED STUDIES. (290375) (Cr ar; prereq 1002, #, Δ , CLA approval)

R 5151. ELEMENTS OF ECONOMIC ANALYSIS: FIRM AND HOUSEHOLD. (3 cr, §3101; section 1 limited to 15 students; prereq 1001, 1002, 1 qtr calculus, grad student or #)

See First Term. Meets with 3101.

- Sec 1, (190376) 0905-0955 MTWThF, BlegH 150, Richter
- Sec 2, (990377) 0905-0955 MTWThF, BlegH 155, Kudrle (August 19-September 20)

R 5152. ELEMENTS OF ECONOMIC ANALYSIS: INCOME AND EMPLOYMENT. (590379) (3 cr, §3102; limited to 15 students; prereq 1001, 1002, 1 qtr calculus, grad student or #; 1115-1205 MTWThF; BlegH 250)

See First Term. Meets with 3102.

R 5307. COMPARATIVE ECONOMIC SYSTEMS. (686159) (4 cr, §5337; limited to 35 students; prereq 1001, 1002 or equiv; not open to Econ majors; 1010-1100 MTWThF; BlegH 240) Smith

Functions of economic systems; market economy, liberal socialism, centrally planned economy. American and Soviet economies. Meets with 5337.

5337. COMPARATIVE ECONOMIC SYSTEMS. (886161) (4 cr, §5307; limited to 25 students; prereq 3101, 3102 or #; 1010-1100 MTWThF; BlegH 240) Smith
See 5307. Meets with 5307.

5401. INTERNATIONAL ECONOMICS. (086157) (4 cr, §5431; limited to 50 students; not open to economics majors; prereq 1101, 1002 or equiv; 1115-1205 MTWThF; BlegH 240) Smith
See First Term.

5631. INDUSTRIAL ORGANIZATION AND ANTITRUST POLICY. (891246) (4 cr, §3601; limited to 30 students; prereq 3101; 3103 recommended; 1010-1100 MTWThF, BlegH 215)
See 3601. Meets with 3601.

5821. ELEMENTS OF PUBLIC FINANCE. (491248) (4 cr, §3801; limited to 20 students; prereq 3101...3103 recommended; 0905-0955 MTWThF; BlegH 240)
See 3801. Meets with 3801.

5970. DIRECTED STUDIES. (990380) (Cr ar; prereq #, Δ, CLA approval) Staff
See First Term.

8990. INDIVIDUAL GRADUATE RESEARCH. (790381) (Cr ar) Staff

English Language and Literature (Engl)

FIRST TERM

1009. INTRODUCTION TO THE STUDY OF LITERATURE. (188327) (4 cr; limited to 36 students; 1115-1205 MTWThF; LindH 217) Longhurst

Reading of selected literary works with emphasis on learning basic techniques and terminology of literary study; major literary forms, traditions, conventions, frames of reference, metrics, the critical reading of literary works in general, and the conventions employed in the presentation of literary criticism and scholarship.

1016. INTRODUCTION TO AMERICAN LITERATURE. (289176) (4 cr; limited to 40 students; 1115-1205 MTWThF; LindH 302)

Critical discussion of and writing about selected works of American literature. Typical authors: Poe, Hawthorne, Whitman, Dickinson, Twain, Frost, Fitzgerald.

1017. INTRODUCTION TO MODERN POETRY. (491654) (4 cr; 1010-1100 MTWThF; LindH 229) Browne
Critical discussion of and writing about selected modern poems. Typical authors: Dylan Thomas, Robert Frost, Marianne Moore, W. B. Yeats, Thomas S. Hardy, e.e. cummings.

1018. INTRODUCTION TO MODERN FICTION. (586526) (4 cr; limited to 40 students; 0905-0955 MTWThF; LindH 217) Longhurst

Critical discussion of and writing about selected modern novels and stories. Typical authors: Conrad, Lawrence, Joyce, Woolf, Hemingway, Faulkner, Nabokov.

1104. INTRODUCTION TO POETRY WRITING. (486101) (4 cr; limited to 25 students; prereq completion of writing practice or equiv; 1115-1310 MW; LindH 320) Browne

Workshop for beginning students. Discussion of student poems, numerous assignments, formal experiments. No manuscript prerequisite.

1671. THE SHORT STORY. (386527) (4 cr; limited to 40 students; 0800-0850 MTWThF; LindH 302) Brennan
Lecture introduction to short stories, with some emphasis on the history and diversity of the form. Typical authors: Poe, Chekhov, Lawrence, Joyce, Kafka, Welty, Faulkner.

3116. THE RENAISSANCE. (291655) (4 cr; 0800-0850 MTWThF; LindH 305) Haley
Major and representative works of the Renaissance (1485-1660). Typical authors: More, Sidney, Spenser, Shakespeare, Donne, Milton.

3118. THE ROMANTIC AGE. (191656) (4 cr; 1010-1100 MTWThF; LindH 217) Brennan
Major and representative works of the romantic period (1798-1832). Typical authors: Blake, Wordsworth, Coleridge, Byron, Shelley, Keats.

3241. SHAKESPEARE. (189177) (4 cr, §3243; limited to 36 students; 0905-0955 MTWThF; LindH 229) Clayton
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.

3357. MODERN BRITISH LITERATURE. (091150) (4 cr; limited to 40 students; 1010-1100 MTWThF; LindH 302) Reed

Historical survey of important authors, intellectual currents, movements, conventions, genres, and themes. 1939-1975. Typical authors: Cary, Greene, Murdoch, Fowles, Beckett, Osborne, Pinter, Stoppard, Hughes, and Larkin.

3412. SURVEY OF AMERICAN LITERATURE. (891148) (4 cr; limited to 40 students; 0800-0850 MTWThF; LindH 217) Solotaroff

Historical survey of important authors, intellectual currents, movements, conventions, genres, and themes. Lecture course, with wide reading. Thoreau and Melville through James (1850-1900).

3413. SURVEY OF AMERICAN LITERATURE. (991657) (4 cr; limited to 40 students; 0905-0955 MTWThF; MechE 302) Gener

Historical survey of important authors, intellectual currents, movements, conventions, genres, and themes. Lecture course, with wide reading. Stephen Crane through World War II (1900-1945).

Course Descriptions

R 3455. AMERICAN SHORT STORY. (791658) (4 cr; limited to 40 students; 1115-1205 MTWThF; LindH 229) Gener Typical authors: Irving, Poe, Hawthorne, Twain, Crane, Cather, Faulkner, Welty, Bellow.

R 3851. THE ENGLISH LANGUAGE. (989178) (4 cr, §5851; limited to 40 students; 0800-0850 MTWThF; LindH 229) MacLeish

An introduction to the English language including English grammars, phonetics and phonology, British and American dialects, and native language acquisition.

R 3910. TOPICS IN ENGLISH AND AMERICAN LITERATURE: Comedy Classics, 1600-1900. (586106) (4 cr; limited to 40 students; 0905-0955 MTWThF; LindH 203) Haley

Introduction to comic masterpieces from Shakespeare to the present. Reading of a half-dozen plays and narratives such as *The Comedy of Errors*, *Tartuffe*, *Candide*, *School for Scandal*, *Joseph Andrews*, *Don Juan*, *The Importance of Being Earnest*.

3963H. HONORS THESIS. (191163) (4 cr; prereq honors candidacy in English and consent of English honors adviser)

3970. DIRECTED STUDIES. (186691) (1-15 cr per term; prereq #, Δ, CLA approval)

Guided individual reading or study.

3980. DIRECTED INSTRUCTION. (691149) (Cr ar; prereq #, Δ, CLA approval)

R 3152. 19TH CENTURY ENGLISH NOVEL. (086529) (4 cr; limited to 40 students; 1115-1310 TTh; LindH 215) Hirsch Novels by such authors as Scott, Dickens, the Brontes, Thackeray, Eliot, and Hardy.

R 5221. CHAUCER I: THE CANTERBURY TALES. (891151) (5 cr; limited to 40 students; 1010-1100 MTWThF; LindH 203) MacLeish

Reading *The Canterbury Tales*; Chaucer's language. Prerequisite to all other courses in Middle English literature (5215-5222).

R 5610. 20TH-CENTURY WRITERS: Kurt Vonnegut. (491153) (4 cr; limited to 40 students; 0800-0850 MTWThF; LindH 215) Reed

Vonnegut's nine novels, from *Player Piano* to *Jailbird*. Their social commentary and the social contexts in which they were written, relevant biography, technique, theme, and form.

R 5671. THEORY OF THE NOVEL. (291154) (4 cr; limited to 40 students; 1010-1100 MTWThF; LindH 215) Solotaroff Readings in theoretical criticism of the novel with application to selected *British and American fiction*.

R 5851. STRUCTURE OF MODERN ENGLISH. (191155) (4 cr, §3851; limited to 40 students; 0905-0955 MTWThF; LindH 302) Escure

Modern English grammar: phonology, syntax, and semantics; variations and change.

5970. DIRECTED STUDY IN WRITING. (686730) (1-4 cr; prereq #, Δ, CLA approval)

Projects in writing poetry, fiction, drama, and nonfiction, or study of ways to improve writing.

8970. INDEPENDENT READING. (086692) (1-15 cr; prereq #)

SECOND TERM

R 1009. INTRODUCTION TO THE STUDY OF LITERATURE. (591659) (4 cr; 0800-0850 MTWThF; LindH 229) Critical reading of selected literary works with emphasis on basic techniques and terminology of literary study; major *literary forms, traditions, and conventions*; frames of reference; metrics; conventions of literary criticism and scholarship.

R 1016. INTRODUCTION TO AMERICAN LITERATURE. (086532) (4 cr; limited to 40 students; 1115-1310 MW; LindH 215) Roth

Critical discussion of and writing about selected works of American literature. Typical authors: Poe, Hawthorne, Whitman, Dickinson, Twain, Frost, Fitzgerald.

R 1018. INTRODUCTION TO MODERN FICTION. (591158) (4 cr; limited to 40 students; 1010-1100 MTWThF; LindH 229) Anson

Critical discussion of and writing about selected modern poems. Typical authors: Conrad, Lawrence, Joyce, Woolf, Hemingway, Faulkner, Nabokov.

R 1030. INTRODUCTION TO LITERATURE: WOMEN WRITERS. (991660) (4 cr; 0800-0850; LindH 215)

Course description available before registration from the Undergraduate Studies Office.

R 1101. INTRODUCTION TO FICTION WRITING. (886094) (4 cr; limited to 25 students; 1115-1310 MW; LindH 303) Delattre

Principles of composition in the art of fiction.

R 1671. THE SHORT STORY. (791661) (4 cr; 0905-0955 MTWThF; LindH 302)

Lecture introduction to short stories, with some emphasis on the history and diversity of the form. Typical authors: Poe, Chekhov, Lawrence, Joyce, Kafka, Welty, Faulkner.

R 3111. SURVEY OF ENGLISH LITERATURE. (791157) (4 cr; limited to 40 students; 0905-0955 MTWThF; LindH 229) Savage

Historical survey of major figures, movements, and trends in English literature. Chaucer to Marvell, including Spenser, Shakespeare, and Donne.

R 3242. SHAKESPEARE. (090385) (4 cr; limited to 36 students; 0800-0850 MTWThF; LindH 302) Staff

Plays from the middle and late periods. All sections read *King Lear*, *Macbeth*, *The Tempest*, and three or four others.

R 3851. THE ENGLISH LANGUAGE. (690387) (4 cr, §5851; limited to 40 students; 1010-1100 MTWThF; LindH 302) Bridwell

See First Term.

3963H. HONORS THESIS. (091164) (4 cr; prereq honors candidacy in English and consent of English honors adviser)

3970. DIRECTED STUDIES. (486695) (1-15 cr per term; prereq #, Δ, CLA approval)
Guided individual reading or study.

3980. DIRECTED INSTRUCTION. (991156) (Cr ar; prereq #, Δ, CLA approval)

■ 5261. MILTON. (591161) (4 cr; limited to 40 students; 1010-1100 MTWThF; LindH 215) O'Brien
Paradise Lost, *Samson Agonistes*, minor poems, *Areopagitica*, and often *Paradise Regained*.

■ 5753. LITERATURE AND THE OTHER ARTS. (591662) (4 cr; 1115-1310 TTh; LindH 215) Furia
Informal exploration of relationships of literature to theatre, music, painting, sculpture, and architecture; how they influence one another and how their aesthetic and social roles are similar and different. Readings in English and American literature and in aesthetic theory; recordings, gallery visits.

5970. DIRECTED STUDY IN WRITING. (186917) (1-4 cr; prereq #, Δ, CLA approval)
Projects in writing poetry, fiction, drama, and nonfiction, or study of ways to improve writing.

■ 8050. STUDIES IN SPECIAL TOPICS: RECENT LITERARY THEORY. (391663) (4 cr; 0905-0955 MTWThF; LindH 215) Anderson

8970. INDEPENDENT READING. (286696) (1-15 cr; prereq #)

Foreign Study (FoSt)

FIRST TERM

0010. STUDY ABROAD. (286648) (prereq permission of study abroad adviser; 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. (186649) (prereq permission of study abroad adviser)
Same as 0010; for half-time but less than three-quarter-time study.

0090. STUDY ABROAD. (486650) (prereq permission of study abroad adviser)
Same as 0010; for program of more than three-quarter but less than full-time.

0120. STUDY ABROAD. (286651) (prereq permission of study abroad adviser)
Same as 0010; for program of full-time study abroad.

5960. SPAN SEMINAR FOR FOREIGN STUDY. (189180) (6 cr; prereq approval before Nov 1984 by a faculty selection committee) Kelsey, Kagan, Mielke, Buckstead
Preparation for independent study in British Isles, Japan, Malawi, and Thailand, investigating history, social and political ambience, and culture.

SECOND TERM

0010. STUDY ABROAD. (186652) (prereq permission of study abroad adviser)
See First Term.

0060. STUDY ABROAD. (986653) (prereq permission of study abroad adviser)
See First Term.

0090. STUDY ABROAD. (786654) (prereq permission of study abroad adviser)
See First Term.

0120. STUDY ABROAD. (586655) (prereq permission of study abroad adviser)
See First Term.

5960. SPAN INDEPENDENT PROJECT. (687702) (6 cr; prereq satisfactory completion of first term) Kelsey, Kagan, Mielke, Buckstead
Following an 8-week stay in British Isles, Japan, Malawi, and Thailand, participants prepare and submit a project growing from their study at home and abroad.

French and Italian

French (Fren)

FIRST TERM

■ 1101. BEGINNING FRENCH. (5 cr; each section limited to 30 students)

Sec 1, (989181) 0905-1100 MTWThF, Arch 20

Sec 2, (789182) 0905-1100 MTWThF, FolH 307

Sec 3, (387497) 0905-1100 MTWThF, LindH 303

Course Descriptions

R 1102. BEGINNING FRENCH. (589183) (5 cr; limited to 30 students; prereq 1101 or 1 yr high school French; 0800-0955 MTWThF; Arch 45)

R 1103. BEGINNING FRENCH. (389184) (5 cr; limited to 30 students; prereq 1102 or 2 yrs high school French; 0800-0955 MTWThF; FolH 105)

R 1104. INTERMEDIATE FRENCH. (189185) (5 cr; limited to 30 students; prereq 1103 or 3 yrs high school French; 1010-1205 MTWThF; FolH 105)

R 3015. FRENCH CONVERSATION AND COMPOSITION. (089186) (5 cr; limited to 15 students; prereq 1105; 1010-1205 MWF; FolH 103) Robinson

Combines traditional conversational and composition courses. Orthoepic in approach, seeking command of French both in pronunciation and grammar. Includes pastiche work, free composition, and translation from and into French.

R 3016. ADVANCED FRENCH COMPOSITION AND CONVERSATION. (889187) (5 cr; limited to 15 students; prereq 3015 or #; 1010-1205 MWF; FolH 302)

R 3101. INTRODUCTION TO FRENCH LITERARY TEXTS: POETRY. (191275) (4 cr; limited to 25 students; prereq 3015 or equiv; 0905-1100 MWF; FolH 110)

Approaches to literary analysis and techniques examined through critical reading. Aims beyond, but focuses on, poetry.

3601. FRENCH LITERATURE IN ENGLISH TRANSLATION. (988287) (5 cr [cr does not count toward French major]; taught in English; 1220-1415 MWF; FolH 209) Akehurst

Representative works from medieval times to present examined through movements, genres, or themes.

3970. DIRECTED READINGS. (689188) (1-5 cr; prereq undergrad, #, Δ, college approval)

R 5900. TOPICS IN FRENCH LITERATURE: Aesthetic Conventions of Renaissance and Baroque Literature (891277) (4 cr; limited to 25 students; prereq 3209 or above; 1220-1415 MWF; FolH 208) Conley

8970. DIRECTED READINGS. (489189) (1-5 cr; prereq # and consent of dept chair; 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.

R 1101-1102-1103†. BEGINNING FRENCH. (15 cr for both terms; limited to 30 students; 0905-1205 MTWThF; KoltH S136)

R 1101, Sec 5, (889190) June 18-July 10, 5 cr

R 1102, Sec 5, (689191) July 11-August 1, 5 cr

R 1103, Sec 5, (489192) August 2-23, 5 cr

SECOND TERM

R 1102. BEGINNING FRENCH. (490388) (5 cr; limited to 30 students; prereq 1101 or 1 yr high school French; 0905-1100 MTWThF; FolH 104)

R 1103. BEGINNING FRENCH. (290389) (5 cr; limited to 30 students; prereq 1102 or 2 yrs high school French; 0800-0955 MTWThF; FolH 406)

R 1104. INTERMEDIATE FRENCH. (690390) (5 cr; limited to 30 students; prereq 1103 or 3 yrs high school French; 0905-1100 MTWThF; FolH 105)

R 1105. INTERMEDIATE FRENCH. (490391) (5 cr; limited to 30 students; prereq 1104; 1010-1205 MTWThF; FolH 50)

R 3015. FRENCH COMPOSITION AND CONVERSATION. (290392) (5 cr; limited to 15 students; prereq 1105; 1010-1205 MWF; FolH 108)

See First Term.

R 3016. ADVANCED FRENCH COMPOSITION AND CONVERSATION. (190393) (5 cr; limited to 15 students; prereq 3015 or #; 1010-1205 MWF; FolH 302) Sivert

R 3289. TOPICS IN 20TH-CENTURY FRENCH LITERATURE. (191267) (4 cr; limited to 20 students; prereq 3101; 0905-1100 MWF; FolH 103) Preckshot

3602. FRENCH LITERATURE IN ENGLISH TRANSLATION. (788288) (5 cr [cr does not count toward French major]; taught in English; 1220-1415 MWF; FolH 209) Waldauer

Representative works from medieval times to present examined through movements, genres, or themes.

3970. DIRECTED READINGS. (990394) (1-5 cr; prereq undergrad, #, Δ, college approval) Staff

8970. DIRECTED READINGS. (790395) (1-5 cr; prereq # and consent of dept chair; hrs ar) Staff

French and Italian (Frlt)

SECOND TERM

R 3608. NEW WAVE CINEMAS. (088524) (4 cr; does not count toward French major; knowledge of French and Italian helpful but not necessary; 1220-1415 MWF; FolH 303)

Film work of directors recasting classical traditions of Europe and America. Film theories of the western, B-genre; political cinema: Godard, Resnais, Rivette, Pasolini, Antonioni, Bertolucci.

Italian (Ital)

FIRST TERM

3970. DIRECTED STUDIES. (188098) (1-5 cr; prereq undergrad, #, Δ, college approval) Staff
Guided individual reading or study.

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.

R 1101-1102-1103†. BEGINNING ITALIAN. (15 cr for both terms; limited to 30 students; 0905-1205 MTWThF; FolH 204) Martinez, Pipa

A course with speaking objectives based on an audiolingual approach. Students learn to understand and express fundamental structures of the language. Includes audiovisual aids.

R 1101, Sec 5, (289193) June 18-July 10, 5 cr

R 1102, Sec 5, (189194) July 11-August 1, 5 cr

R 1103, Sec 5, (989195) August 2-23, 5 cr

Geography (Geog)

FIRST TERM

3211. EAST ASIA. (591192) (4 cr, §5211; 0905-0955 MTWThF; BlegH 445) Hsu

Physical and human geography of China, Korea, and Japan; population pressure, economic development, and international relations.

3331. ECONOMIC GEOGRAPHY. (087504) (4 cr; 1010-1100 MTWThF; BlegH 350) Sheppard

World patterns of economic activity; levels of development; appraisal of resources, production, circulation, and consumption; principles, models, and planning of economic behavior.

3940. DIRECTED FIELD STUDY. (186741) (2-4 cr; prereq #) Staff

Guided individual field study.

3970. DIRECTED STUDIES. (789196) (1-15 cr per qtr; prereq #, Δ, college approval) Staff

5211. EAST ASIA: REGIONAL ANALYSIS. (191194) (4 cr, §3211; prereq 5 cr in geography or #; 0905-0955 MTWThF; BlegH 445) Hsu

Aspects of East Asian life. The effects, within a traditional context, of population growth and modern technology on the transformation of society and reorganization of space.

8970. DIRECTED READINGS. (589197) (1-5 cr) Staff

SECOND TERM

3161. EUROPE. (691555) (4 cr; 1010-1100 MTWThF; BlegH 435) Rice

Cultural-economic realms in Europe (excluding U.S.S.R.); areal organization of each realm.

3381. POPULATION GEOGRAPHY. (191186) (4 cr; 1220-1310 MTWThF; BlegH 445) 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. (886743) (2-4 cr; prereq #) Staff

Guided individual field study.

3970. DIRECTED STUDIES. (590396) (1-15 cr per qtr; prereq #, Δ, college approval) Staff

8970. DIRECTED READINGS. (390397) (1-5 cr) Staff

Course Descriptions

German (Ger)

FIRST TERM

R 1101. BEGINNING AND INTERMEDIATE GERMAN: CLASSROOM INSTRUCTION. (389198) (5 cr, §1010, §1110, §1201; limited to 25 students; 0800-0955 MTWThF; FolH 205) Fullerton
Structure, listening and reading comprehension, writing, speaking.

R 1104. BEGINNING AND INTERMEDIATE GERMAN: CLASSROOM INSTRUCTION. (388293) (5 cr, §1204; limited to 25 students; prereq 1103 or 15 cr of 1110 or placement; 0905-1100 MTWThF; FolH 208) Wakefield
See 1101.

R 3011. CONVERSATION AND COMPOSITION. (191284) (4 cr; limited to 20 students; prereq 1105 or placement; 0905-1010 MTWThF; FolH 104) Taraba
Spoken German; composition; development of vocabulary; grammar review.

R 3104. READING AND ANALYSIS OF PROSE. (991285) (4 cr; limited to 25 students; required of all German majors; prereq 1105 or #: 1115-1205 MTWThF; FolH 104) Taraba
Reading fluency; appreciation of literary values through literary interpretation and familiarization with critical terminology.

R 3601. GERMAN LITERATURE IN TRANSLATION: MEDIEVAL LITERATURE. (186151) (4 cr [does not count toward German major or minor]; limited to 30 students; may be used in fulfillment of Route II, Part B of BA foreign language requirement; knowledge of German not required; 1115-1205 MTWThF; FolH 209) Liberman

8990. READING AND RESEARCH. (688817) (3-6 cr; prereq #)

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

R 1101-1102-1103†. BEGINNING AND INTERMEDIATE GERMAN: CLASSROOM INSTRUCTION. (15 cr for both terms; §1010, §1110, §1201-1202-1203, 1210; limited to 25 students; 0905-1205 MTWThF; KolH S135)
Structure, listening and reading comprehension, writing, speaking. 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.

R 1101, Sec 5, (189199) June 18-July 10, 5 cr

R 1102, Sec 5, (989200) July 11-August 1, 5 cr

R 1103, Sec 5, (789201) August 2-23, 5 cr

R 1110. BEGINNING GERMAN: INDIVIDUALIZED READING, LISTENING, WRITING. (287508) (1-15 cr per qtr [first 3 cr must be completed as one unit; 15 cr max], §1010, §1101-1102-1103, §1201-1202-1203, 1210; limited to 50 students; 1010-1100 T (first meeting only) [plus additional hours arranged]; PillsH 110)
Structure, writing, and comprehension. Students work at own pace with book, computer, audio and video tapes, earning credit as they progress through material. Teacher available for consultation and testing 7 hours per week.

SECOND TERM

R 1102. BEGINNING AND INTERMEDIATE GERMAN: CLASSROOM INSTRUCTION. (190398) (5 cr, §1010, §1110, §1201-1202, 1210; limited to 25 students; prereq 1101; 0800-0955 MTWThF; FolH 205) Hirschbach
See 1101 First Term.

R 1105. BEGINNING AND INTERMEDIATE GERMAN: CLASSROOM INSTRUCTION. (188294) (4 cr, §1205; limited to 25 students; prereq 1104 or placement; 0905-1100 TWThF; FolH 203)
See 1101 First Term.

R 3012. CONVERSATION AND COMPOSITION. (591290) (4 cr; limited to 20 students; prereq 3011; 1010-1100 MTWThF; FolH 205) Weiss
Spoken German; composition; development of vocabulary; grammar review.

R 3603. GERMAN LITERATURE IN TRANSLATION: MODERN LITERATURE. (091293) (4 cr [does not count toward German major or minor]; limited to 30 students; may be used in fulfillment of Route II, Part B of BA foreign language requirement; knowledge of German not required; 1010-1100 MTWThF; FolH 208) Plummer

R 3610. GERMAN AUTHORS OR TOPICS IN TRANSLATION: The German Empire. (886158) (4 cr [does not count toward German major or minor]; limited to 30 students; may be used in fulfillment of Route II, Part B of BA foreign language requirement; knowledge of German not required; 1115-1205 MTWThF; FolH 207) Weiss
A study of the social, political, and cultural changes in the German Empire (1871-1918) as reflected in the literature of the time.

8990. READING AND RESEARCH. (487510) (3-6 cr; prereq #)

Hebrew—See Ancient Near Eastern and Jewish Studies

History (Hist)

FIRST TERM

1002. INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES. (691118) (4 cr per qtr, §1002H, §3002; not open to jrs, srs; 1115-1205 MTWThF; BlegH 245) Thayer
Revolution, liberalism, and nationalism to 1870. Meets with 3002.

1052. ANCIENT CIVILIZATION. (491119) (4 cr per qtr, §3052; 0905-0955 MTWThF; BlegH 260) J Evans
History and civilization of the ancient world, 500-146 B.C. Meets with 3052.

1101. INTRODUCTION TO MEDIEVAL HISTORY. (891120) (4 cr; 1010-1100 MTWThF; BlegH 210) Bachrach
Europe from the decline of Rome to the early Renaissance: politics, institutions, society, economy, and culture of the Middle Ages.

1301. AMERICAN HISTORY. (691605) (4 cr, §1301H; 1010-1100 MTWThF; BlegH 155) Howe
Colonial era and early national period from the Revolution through Civil War and Reconstruction.

1301H. HONORS COURSE: AMERICAN HISTORY. (491606) (4 cr, §1301; prereq #; 1010-1100 MTWThF; BlegH 155)
Howe
See 1301. Meets with 1301.

1432. HISTORY OF AFRICA: 1800 TO PRESENT. (691121) (4 cr, §3432; 0905-0955 MTWThF; BlegH 210) Kaba
Colonial rule, the forced restructuring and underdevelopment of African economies, African resistance, nationalism, and the problems of independence. Meets with 3432.

3002. INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES. (491122) (4 cr per qtr, §1002, §1002H, 1115-1205 MTWThF; BlegH 245) Thayer
See 1002. Meets with 1002.

3052. ANCIENT CIVILIZATION. (291123) (4 cr per qtr, §1052; 0905-0955 MTWThF; BlegH 260) J Evans
See 1052. Meets with 1052.

3200. REVOLUTION IN THE THIRD WORLD: NICARAGUA, CUBA, MOZAMBIQUE, SOUTH AFRICA, AND CHINA. (991125) (4 cr; 1115-1205 MTWThF; BlegH 210) Isaacman

3425. HISTORY OF MEXICO: THE 19TH AND 20TH CENTURIES. (586512) (4 cr; 0800-0850 MTWThF; BlegH 260) McCaa
The struggle for land and liberty from the Hidalgo revolt to the age of oil.

3432. HISTORY OF AFRICA: 1800 TO PRESENT. (791126) (4 cr, §1432; 0905-0955 MTWThF; BlegH 210) Kaba
See 1432. Meets with 1432.

3468. PEOPLE'S REPUBLIC OF CHINA: THE COMMUNIST REVOLUTION: 1900 TO PRESENT. (786251) (4 cr, §5468, §EAS 3468; 0905-0955 MTWThF; BlegH 245) Farmer
Introduction of Marxism to China, rise of Communist Party, and development of a rural guerrilla movement. The career of Mao Tse-tung and developments in the People's Republic: The Great Leap, Cultural Revolution, Gang of Four. Meets with 5468 and EAS 3468.

3505. SURVEY OF THE MIDDLE EAST. (891649) (4 cr, §MESA 3505, §MESA 5505; 1010-1100 MTWThF; BlegH 435) Farah
Lands and peoples of the Middle East, historical evolution of Middle East civilizations and societies, the status of Middle East countries in world affairs. Meets with MESA 3505.

3637. RUSSIAN HISTORY FROM PETER THE GREAT TO THE PRESENT. (186254) (4 cr; 1010-1100 MTWThF; BlegH 260) Stavrou
The period since Peter the Great.

3823. UNITED STATES IN THE 20TH CENTURY: 1960 TO PRESENT. (086255) (4 cr; 1010-1100 MTWThF; BlegH 115) Spear
The conflicts of the 1960s; the New Frontier and Great Society; the Black struggle for freedom; the Vietnam war; the New Left and counter-culture; the women's movement and gay liberation; Watergate and the uncertainties of the 1970s; the Reagan counter-revolution.

3883. HISTORY OF AMERICAN FOREIGN RELATIONS. (686257) (4 cr; 1115-1205 MTWThF; BlegH 260) Brauer
American foreign relations during the cold war, 1941 to present.

3970. DIRECTED STUDIES. (589202) (1-15 cr; prereq #, Δ, college approval)
Guided individual reading or study. Open to qualified students for 1 or more quarters.

3990. DIRECTED RESEARCH. (389203) (1-15 cr; prereq #, Δ, college approval)
Qualified students, with consent of instructor, work on a tutorial basis.

Course Descriptions

5285. DIPLOMATIC HISTORY OF EUROPE: 1871-1918. (888525) (4 cr; 1010-1100 MTWThF; BlegH 245) Kieft
Bismarck alliance system; Eastern question; overseas imperialism; World War I.

5468. PEOPLE'S REPUBLIC OF CHINA: THE COMMUNIST REVOLUTION: 1900 TO PRESENT. (586252) (4 cr,
§3468, §EAS 3468; 0905-0955 MTWThF; BlegH 245) Farmer
See 3468. Meets with 3468 and EAS 3468.

5970. DIRECTED STUDIES. (189204) (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. (089205) (1-15 cr; prereq #, Δ, CLA approval)
Qualified senior and graduate students may register for work on tutorial basis.

SECOND TERM

1001. INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES. (791112) (4 cr per qtr,
§1001H, §3001; not open to jrs, srs; 0905-0955 MTWThF; BlegH 260) Tracy
Western European civilization to 1715. Meets with 3001.

1053. ANCIENT CIVILIZATION. (591113) (4 cr per qtr, §3053; 0905-0955 MTWThF; BlegH 105) Kelly
History and civilization of the ancient world, 146 B.C. to A.D. 337. Meets with 3053.

1302. AMERICAN HISTORY. (886581) (4 cr, §1302H; 0800-0850 MTWThF; BlegH 135) Green
Modern America from 1880 to present. Meets with 1302H.

1302H. HONORS COURSE: AMERICAN HISTORY. (086580) (4 cr, §1302; prereq #; 0800-0850 MTWThF; BlegH 135)
Green
See 1302. Meets with 1302.

1422. THE WORLD AND THE WEST. (287511) (4 cr, §3422; 0800-0850 MTWThF; BlegH 245) Kopf
An integrated survey of the political, economic, and cultural interaction between the peoples of Europe, Africa, America, and Asia. Twentieth century world of renaissance, nationalism, modernization, and counter-modernization, 1850 to present.

1463. INTRODUCTION TO EAST ASIA IN MODERN TIMES. (786265) (4 cr, §3463, §EAS 1463; 1115-1205 MTWThF;
FolH 104) Marshall
Decline of Asian empires; European and American imperialism; Asian responses: nationalism, social revolution, reintegration, modernization in China, Japan, Vietnam, Korea; retreat of European and American empires. Meets with 3463 and EAS 1463.

3001. INTRODUCTION TO MODERN EUROPEAN HISTORY SINCE THE MIDDLE AGES. (391114) (4 cr per qtr,
§1001, §1001H; 0905-0955 MTWThF; BlegH 260) Tracy
See 1001. Meets with 1001.

3053. ANCIENT CIVILIZATION. (191115) (4 cr per qtr, §1053; 0905-0955 MTWThF; BlegH 105) Kelly
See 1053. Meets with 1053.

3422. THE WORLD AND THE WEST. (187512) (4 cr, §1422; 0800-0850 MTWThF; BlegH 245) Kopf
See 1422.

3424. HISTORY OF MEXICO: PRE-COLUMBIAN PERIOD THROUGH INDEPENDENCE. (091116) (4 cr; 1010-1100
MTWThF; BlegH 260) Schwartz
Indian cultures of Mexico prior to the conquest and subsequent contact between Europeans and Indians during the formation of Mexican society.

3463. INTRODUCTION TO EAST ASIA IN MODERN TIMES. (586266) (4 cr, §1463, §EAS 1463; 1115-1205 MTWThF;
FolH 104) Marshall
See 1463. Meets with 1463 and EAS 1463.

3616. FRANCE IN THE HIGH MIDDLE AGES. (086269) (4 cr; 1115-1205 MTWThF; BlegH 245) Reyerson
A history of the growth of royal power during the era of the Capetian monarchy, 987-1328.

3633. HISTORY OF GERMANY: EMPIRE TO HITLER, 1848-1945. (191110) (4 cr; 1010-1100 MTWThF; BlegH 245)
Rudolph
Unification, political and economic development, growth of socialism, World War I and revolution, the Weimar years, the Nazi seizure of power.

3835. HISTORY OF CIVIL LIBERTIES AND CIVIL RIGHTS IN THE UNITED STATES. (191608) (4 cr; 0905-0955
MTWThF; BlegH 245) Murphy
The conceptual and institutional development of liberty, equality, and justice in America, and subsequent application or nonapplication of these principles throughout our national history. The role of civil liberties and civil rights in modern America.

3970. DIRECTED STUDIES. (890405) (1-15 cr; prereq #, Δ, college approval)
See First Term.

3990. DIRECTED RESEARCH. (690406) (1-15 cr; prereq #, Δ, college approval)
See First Term.

5381. MINNESOTA HISTORY WORKSHOP: Topics in Minnesota History—July 22-August 2. (286584) (5 cr; first time repeaters register for 5970, sec 2; limited to 50 students)

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. This summer's workshop topic is *Going to Work: People and Places in the Industrial Age*. Classes meet at the Minnesota Historical Society, 690 Cedar Avenue, St. Paul, 8:30 a.m. to 4:30 p.m. See Special Programs section.

5970. DIRECTED STUDIES. (1-15 cr; prereq #, Δ, CLA approval)

See First Term.

Sec 1, (888301) 1-15 cr

Sec 2, (186585) 5 cr, for students who are repeating Hist 5381, Minnesota History Workshop. See Special Programs section (July 22-August 2)

5990. DIRECTED RESEARCH. (490407) (1-15 cr; prereq #, Δ, CLA approval)

See First Term.

Honors Seminar (HSem)

FIRST TERM

3010. RELIGION, FREEDOM, AND REVOLUTION IN THE MODERN WORLD. (690891) (4 cr; prereq jr, sr, CLA Honors or #: 1115-1300 TTh; SocSci 307) Kaba

The role of religious beliefs and organizations in the development of modern nationalism and revolution. Includes Christian millenarianism, Islamic fundamentalism, and liberation theology in Asia, Africa, and Latin America.

SECOND TERM

3020. MUSIC IN A CENTURY OF CHANGE. (890890) (4 cr; prereq jr, sr, CLA Honors or #: 1015-1200 TTh; WulH 7A) Lubet

Uses 20th-century music to explore the shaping forces of Modernism: interdependence, technology, and the threat of annihilation and how composers have responded to or attempted to ignore these forces. Covers major compositional trends of century from Impressionism to performance art.

Humanities (Hum)

FIRST TERM

1001. HUMANITIES IN THE MODERN WORLD I. (889206) (4 cr, §Rhet 1301; limited to 70 students; 0800-0955 MW; OwreH 2210) Leppert

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.

1002. HUMANITIES IN THE MODERN WORLD II. (891201) (4 cr, §Rhet 1302; limited to 70 students; 0800-0955 MW; Phys 131) Archer

Romanticism, liberalism, socialism; industrial revolution, materialism, cult of the individual and some counter statements; 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.

3191. TOPICS: GREEK CIVILIZATION: The Perception of the Human in Ancient Greece. (691202) (4 cr; prereq 1111 or #: 1010-1205 MW; limited to 20 students; VinH 206) Roshwald

Interdisciplinary consideration of specialized problems in Greek art, thought, society, with attention to critical theory and method.

3677. SELF-REALIZATION IN 20TH-CENTURY LITERATURE. (286164) (4 cr; limited to 50 students; prereq jr or sr or #: 1010-1205 TTh; MechE 302) Kliger

Quest for meaning and the process of individuation in works of 20th-century literature.

3970. DIRECTED STUDIES. (688302) (Cr ar; prereq #, Δ, college approval)

Guided individual reading or study.

5930. HUMANITIES PROSEMINAR: Authenticity, Wholeness, and Individuation. (491203) (3 cr; prereq sr; limited to 15 students; 1010-1205 W; LindH 216) Kliger

Review of humanities materials: arts, sciences, and civilization.

5970. DIRECTED STUDIES. (488141) (Cr ar; prereq jr or sr or grad student, #, Δ, CLA approval)

Guided individual reading or study.

Course Descriptions

SECOND TERM

R 1003. HUMANITIES IN THE MODERN WORLD III. (291204) (4 cr, §Rhet 1303; limited to 70 students; 1010-1205 MW; MurH 308) 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.

R 1301. THE LIFE OF THE MIND: INTRODUCTION TO METHODS IN THE HUMANITIES. (987513) (4 cr; limited to 40 students; 0800-0955 MW; FolH 209) Hershbell

Nature of the humanities explored through interpretation of major works from literature, rhetoric, history, philosophy, the visual arts, music, and film. Humanities knowledge and its place in a liberal education.

R 1393. TOPICS: ROMAN CIVILIZATION: Roman Views on Death and Dying. (191205) (4 cr; prereq 1113 or #: limited to 20 students; 0800-0955 TTh, FolH 209) Hershbell

Interdisciplinary consideration of specialized problems in Roman art, thought, society, with attention to critical theory and method.

3701. COMEDY: TEXT AND THEORY. (186165) (4 cr; limited to 175 students; 1010-1205 TTh; Phys 166) Thomas
Interdisciplinary survey of comedy through time and across world cultures in literature, drama, folk ritual and tale, social convention, language, sport, film.

3970. DIRECTED STUDIES. (787514) (Cr ar; prereq #, Δ, college approval)

See First Term.

5970. DIRECTED STUDIES. (086482) (Cr ar; prereq jr or sr or grad student, #, Δ, CLA approval)

See First Term.

Interdepartmental Study (ID)

Interdepartmental Independent Study is an individual learning experience arranged between the student and University faculty members to explore areas of inquiry not covered by regular courses and in which the subject crosses departmental lines. Work is carried out independently, under the direction of members of the faculty, with approval from each instructor and from the Office for Special Learning Opportunities (220 Johnston Hall). For study projects of 1 to 15 credits, students should register for ID 3970. For projects that are not interdepartmental in nature, students may be able to plan a Directed Study registration through the appropriate department (Directed Study 3970).

FIRST TERM

3970. INTERDEPARTMENTAL DIRECTED STUDIES. (689207) (1-15 cr; prereq consult with Office for Special Learning Opportunities, college approval)

Individual projects, readings, and research in areas that cross departmental lines.

SECOND TERM

3970. INTERDEPARTMENTAL DIRECTED STUDIES. (988516) (1-15 cr; prereq consult with Office for Special Learning Opportunities, college approval)

See First Term.

International Relations (IntR)

FIRST TERM

3960. FIELD STUDIES/INTERNSHIP IN INTERNATIONAL STUDIES. (890999) (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. (688705) (1-15 cr; prereq #, Δ, college approval) Staff

Guided individual reading or study.

R 5910. TOPICS IN INTERNATIONAL POLICY ANALYSIS—U.S. Policy Towards Mexico and Central America. (791000) (4 cr; prereq international relations major or #: 1015-1100 MTWThF, Law 45) Miller

Proseminar. Synthesis of analytic approaches to international policy problems.

Italian—See French and Italian

Jewish Studies—See Ancient Near Eastern and Jewish Studies

Journalism and Mass Communication (Jour)

Departmental consent for courses marked with a delta (Δ) must be obtained in 18C Murphy Hall. When a typing prerequisite is listed, testing must be arranged through 18C Murphy Hall. Contact that office for a schedule. 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 Director of Undergraduate Studies. Journalism and Mass Communication students must have official major status before taking 3xxx and 5xxx-level journalism courses.

FIRST TERM

1002. VISUAL COMMUNICATION. (186506) (2 cr; 1115-1310 TWTh; MurH 105; A-N only) Schwartz
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.

3101. REPORTING. (887522) (4 cr; prereq profjour major status, grad students type 30 wpm, Δ ; 1010-1205 MTWThF; MurH 212; A-N only) Ismach
Fact gathering and journalistic writing. Problems in judgment and handling of news and features.

3173. MAGAZINE WRITING. (391307) (4 cr; prereq 3101, Δ ; 0905-0955 MTWThF; MurH 212; A-N only) Roberts
Writing feature articles for general, class, and trade publications; market free-lance methods.

3321. BASIC MEDIA GRAPHICS. (491301) (4 cr; prereq professional journalism major status, #, Δ ; 0905-1205 MTWTh; MurH 315, 320; A-N only) Craig
Basic introduction to mass media graphics, including design principles and history, production technology, typographic legibility research and analysis of printing and production costs.

3970. DIRECTED STUDIES. (288660) (1-4 cr per term; prereq major status for profjour, mass comm students, #, Δ , CLA approval; A-N only) Staff
Guided individual reading or study.

5274. SOCIAL, ECONOMIC, AND REGULATORY ASPECTS OF ADVERTISING. (291302) (4 cr; prereq sr or grad status, Δ ; 1010-1205 TWTh; MurH 308; A-N only) Busterna
Advertising as an institution. Social and economic criticism of advertising. Ethics in advertising. Advertising regulation and self-regulation.

5501. COMMUNICATION AND PUBLIC OPINION I. (991304) (4 cr; prereq 16 cr in social science depts; 0800-0850 MTWThF; BlegH 245; A-N only) Carter
Theories of communication process and of persuasion and attitude change. Functions of interpersonal and mediated communication in diffusion of information and in opinion formation.

5615. HISTORY OF VISUAL COMMUNICATION IN THE MASS MEDIA. (791305) (4 cr; 0905-1205 MF; MurH 105; A-N only) Schwartz
Social history of photography, film, and video. Informational, documentary, and entertainment functions of visual communication. Organizational structures, visual styles, and audiences.

5801. INTERNATIONAL COMMUNICATION. (591306) (4 cr; prereq 16 cr in social science depts; 1115-1205 MTWThF; MurH 311; A-N only) Lee
Global telecommunications, channels and artifacts of international mass communication. Problems in the free flow of information. Roles of international organizations, journalism. Mass communication in social, political, educational, economic development; implications for conflict resolution.

5970. ADVANCED PROJECTS IN JOURNALISM. (489211) (1-4 cr [max 8 cr]; prereq major status for profjour, mass comm students, B avg, #, Δ , CLA approval; A-N only) Staff

8970. ADVANCED PROJECTS IN MASS COMMUNICATION. (289212) (1-4 cr [max 8 cr]; prereq grad major or minor in mass comm, #, Δ ; A-N only) Staff
Individual research.

Course Descriptions

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

R 1003. PRODUCING MASS MEDIA MESSAGES. (4 cr, prereq 1001, fr composition or exemption, Δ; lec 0905-0955 TTh; MurH 105; A-N only) Ward

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.

- Lab 1, (491296) 1010-1100 T, MurH 435
- Lab 2, (291297) 1010-1100 W, MurH 435
- Lab 3, (191298) 1010-1100 Th, MurH 435
- Lab 4, (991299) 1010-1100 F, MurH 435

R 1004. INFORMATION FOR MASS COMMUNICATION. (691300) (4 cr; prereq fr composition or exemption, 1003, Δ; 1010-1100 TWTh; MurH 105; A-N only) Hansen

Introduction to information resources for professional and academic work in mass communication; techniques for locating, retrieving, appraising, and verifying information acquired from public records, libraries, research institutions, data bases, and interviews.

SECOND TERM

R 1001. INTRODUCTION TO MASS COMMUNICATION. (186321) (2 cr; 1115-1205 MTWThF; MurH 105; A-N only) 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.

R 3970. DIRECTED STUDIES. (188661) (1-4 cr per qtr; prereq major status for prof jour, mass comm students, #, Δ, CLA approval; A-N only) Staff
See First Term.

5251. PSYCHOLOGY OF ADVERTISING. (687988) (4 cr, §Psy 5751; prereq Psy 1001; 0905-0955 MTWThF; MurH 308; A-N only) Jones

Psychological principles, research techniques, and applications in advertising and selling. Consumer attitudes and behavior. Psychological mechanisms upon which effectiveness of advertisements and commercials depends.

5549. PUBLIC RELATIONS. (391596) (4 cr; prereq 16 cr in social science depts; 1010-1100 MTWThF; MurH 311; A-N only) Lindsay

History and development of public relations practice and principles. Process and applications in a variety of institutional settings. Analysis and critique of public relations in contemporary society.

5601. HISTORY OF JOURNALISM. (191308) (4 cr; 1115-1205 MTWThF; MurH 311, A-N only) Dicken-Garcia
Development of American newspapers and periodicals from beginnings in Europe to present day; rise of radio and television, relation of communications developments to political, economic, and social trends.

R 5970. ADVANCED PROJECTS IN JOURNALISM. (290408) (1-4 cr [max 8 cr]; prereq major status for prof jour, mass comm students, B avg, #, Δ, CLA approval; A-N only) Staff

R 8970. ADVANCED PROJECTS IN MASS COMMUNICATION. (190409) (1-4 cr [max 8 cr]; prereq grad major or minor in mass comm, #, Δ; A-N only) Staff
Individual research.

Latin—See Classical Studies

Linguistics (Ling)

FIRST TERM

3001. INTRODUCTION TO LINGUISTICS. (789215) (5 cr, §3005, §5001; 1010-1205 MWF, 1010-1100 TTh; FolH 205)
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.

3301. PHONETICS. (589216) (5 cr, §5003, §5301; prereq 3001 or † 3001 or #; 1325-1520 MTWThF; FolH 50)
Physiology and acoustics of speech sounds; practice and drill in production and perception. Meets with 5003 and 5301.

5001. INTRODUCTION TO LINGUISTICS. (389217) (5 cr, §3001, §3005; prereq grad standing or #; 1010-1205 MWF, 1010-1100 TTh; FolH 205)
Meets with 3001.

5003. APPLIED PHONETICS. (189218) (5 cr, §3301, §5301; not open to linguistics majors; prereq 5001 or † 5001 or #; 1325-1520 MTWThF; FolH 50)
Primarily for teachers of English as a second language. Meets with 3301 and 5301.

5301. PHONETICS. (089219) (5 cr, §3301, §5003; prereq 3001 or 5001 or † 5001 or #; 1325-1520 MTWThF; FolH 50)
See 3301. Meets with 3301 and 5003.

Music (Mus)

(See also *Music Education under College of Education.*)

FIRST TERM

1001. FUNDAMENTALS OF MUSIC. (4 cr; prereq non-music majors) Anderson
Basic musical elements, functional relationships and structures. Systems of musical notation and analysis. Musical practices of various times and styles.

Sec 1. (389220) 0905-0955 MTWThF, WullH 320

Sec 2. (189221) 1010-1100 MTWThF, WullH 320

1160. VOICE: CLASS LESSONS. (089222) (2 cr term [max 6 cr]; 1220-1310 MTWThF; ScottH 19) Ware
Fundamentals of vocal production: posture, respiration, phonation, articulation.

1507. SURVEY OF MELODIC AND HARMONIC PROCEDURES. (889223) (3 cr; prereq #: 0800-0850 MTWThF; ScottH 103) Damschroder
Principles of melodic and harmonic structure.

1517. EAR-TRAINING AND SIGHT-SINGING. (689224) (3 cr; prereq #: 0905-0955 MTWThF; ScottH 103) Damschroder
Development of aural skills with concentration on sight-singing, interval recognition, melodic and harmonic dictation, and vocal improvisation.

1791. INTRODUCTION TO ELECTRONIC MUSIC. (186327) (4 cr; prereq 4 cr in music or #: 1010-1205 TWTh; ScottH 103) Uitan
Musical literature to which electronic materials contribute. Listening, discussing, and reading. Exercises in use of equipment.

3970. DIRECTED STUDIES. (489225) (1-15 cr; prereq #, Δ , college approval; hrs ar; ScottH 104) Staff
Independent research and study under faculty guidance. Subjects selected according to strengths and interests of individual students.

5377. THE ADOLESCENT SINGING VOICE. (787545) (3 cr; prereq 3xxx clearance in voice for vocal majors or 6 cr of applied voice for non-vocal majors; 0800-0955 TTh; WullH 30) Ware
Principles of voice in teaching adolescent singers. Directed teaching, required readings, and study of relevant repertoire.

5385. CHORAL CONDUCTING. (091035) (4 cr; prereq #: 1010-1100 MTWThF; WullH 30) Lancaster
Choral conducting—hand techniques, sound control, articulation, breath control, intonation.

5440. ENSEMBLE. (188708) (1 cr; 0905-1100 TTh; ScottH 108) Kim

Courses in Applied Music

Offerings in applied music are classified according to eight modes: elective (with or without credit), principal, major, secondary required, secondary elective, principal beyond requirement, major beyond requirement minor and three levels: 1xxx (prefix 1), 3xxx (prefix 3), and graduate level (prefix 8). A student may not register for a course in applied music for credit until he or she has passed the required applied entrance examination. The examining committee will determine the mode(s) for which a student may register. Students should consult with the School of Music, 106 Scott Hall, regarding the mode and level of applied music appropriate for fulfillment of specific requirements for their degree program. To register for 3xxx-level credit in applied music, the student must have completed 12 credits at the 1xxx level on the appropriate instrument and must pass a qualifying examination.

Courses in applied music carry 2 credits (minimum of 5 hours of private lessons) per summer term. Fees for non-music majors are based on individual lessons: \$96 for 0-2 credits. Music and music education majors at the x2xx, x3xx, or x4xx level are exempt from payment of these fees as are M.F.A. and D.M.A. students taking applied music at the 83xx level. Majors at the x5xx, x6xx, or x7xx level pay \$32 for 2 credits.

The music fees are treated as course fees; that is, they are applied *in addition to tuition for all students in each summer term.*

Call numbers for courses in applied music must be listed on the Course Request form and are available in 106 Scott Hall.

FIRST TERM COURSES IN APPLIED MUSIC (MusA)

Instrument	Elective	Principal	Major	Secondary Required	Secondary Elective	Principal Beyond Requirement	Major Beyond Requirement	Minor	Instructor
Fee	\$ 96	—	—	—	\$ 32	\$ 32	\$ 32	\$ 32	
Piano	1101	1201	1301	1401	1501	1601	1701		Freed
Harpichord	1102	1202	1302	1402	1502	1602	1702		Ar
Organ	1103	1203	1303	1403	1503	1603	1703		Ar
Voice	1104	1204*	1304*	1404	1504	1604	1704		Ware, Weller
Violin	1105	1205	1305	1405	1505	1605	1705		Kim
Viola	1106	1206	1306	1406	1506	1606	1706		Ar
Cello	1107	1207	1307	1407	1507	1607	1707		Ar
Double Bass	1108	1208	1308	1408	1508	1608	1708		Ar
Flute	1109	1209	1309	1409	1509	1609	1709		Ar
Oboe	1111	1211	1311	1411	1511	1611	1711		Ar
Clarinet	1112	1212	1312	1412	1512	1612	1712		Ar
Saxophone	1113	1213	1313	1413	1513	1613	1713		Ar
Bassoon	1114	1214	1314	1414	1514	1614	1714		Ar
French Horn	1115	1215	1315	1415	1515	1615	1715		Ar
Trumpet	1116	1216	1316	1416	1516	1616	1716		Baldwin
Trombone	1117	1217	1317	1417	1517	1617	1717		Ar
Bartone	1118	1218	1318	1418	1518	1618	1718		Ar
Tuba	1119	1219	1319	1419	1519	1619	1719		Ar
Percussion	1121	1221	1321	1421	1521	1621	1721		Ar
Harp	1122	1222	1322	1422	1522	1622	1722		Ar
Guitar	1123	1223	1323	1423	1523	1623	1723		Ar
Accordion					1524				Ar
Sitar					1525				Ar
Piano	3101	3201	3301	3401	3501	3601	3701	3801	Freed
Harpichord	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	Ware, Weller
Violin	3105	3205	3305	3405	3505	3605	3705	3805	Kim
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

*1430-1530 TTh, ScottH 108

FIRST TERM COURSES IN APPLIED MUSIC (MusA)

Instrument	Elective	Principal	Major	Secondary Required	Secondary Elective	Principal Beyond Requirement	Major Beyond Requirement	Minor	Instructor
Fee	\$ 96	—	—	—	\$ 32	\$ 32	\$ 32	\$ 32	
Trumpet	3116	3216	3316	3416	3516	3616	3716	3816	Baldwin
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	8201	8301	8401	8501	8601	8701		Freed
Harpichord	5102	8202	8302	8402	8502	8602	8702		Ar
Organ	5103	8203	8303	8403	8503	8603	8703		Ar
Voice	5104	8204*	8304*	8404	8504	8604	8704		Ware, Weller
Violin	5105	8205	8305	8405	8505	8605	8705		Kim
Viola	5106	8206	8306	8406	8506	8606	8706		Ar
Cello	5107	8207	8307	8407	8507	8607	8707		Ar
Double Bass	5108	8208	8308	8408	8508	8608	8708		Ar
Flute	5109	8209	8309	8409	8509	8609	8709		Ar
Oboe	5111	8211	8311	8411	8511	8611	8711		Ar
Clarinet	5112	8212	8312	8412	8512	8612	8712		Ar
Saxophone	5113	8213	8313	8413	8513	8613	8713		Ar
Bassoon	5114	8214	8314	8414	8514	8614	8714		Ar
French Horn	5115	8215	8315	8415	8515	8615	8715		Ar
Trumpet	5116	8216	8316	8416	8516	8616	8716		Baldwin
Trombone	5117	8217	8317	8417	8517	8617	8717		Ar
Baritone	5118	8218	8318	8418	8518	8618	8718		Ar
Tuba	5119	8219	8319	8419	8519	8619	8719		Ar
Percussion	5121	8221	8321	8421	8521	8621	8721		Ar
Harp	5122	8222	8322	8422	8522	8622	8722		Ar
Guitar	5123	8223	8323	8423	8523	8623	8723		Ar
Accordion					8524				Ar
Sitar					8525				Ar

*1430-1530 TTh, ScottH 108

Course Descriptions

- 5440. ENSEMBLE.** (188708) (1 cr; prereq #: 0905-1100 TTh; ScottH 108) Kim
Performance of chamber music of major and minor composers: sonatas, trios, quartets, quintets, other forms. Combination of vocal and instrumental chamber ensemble materials.
- 5602. HISTORY OF OPERA.** (891036) (3 cr; prereq 9 cr in history of music, art, theater, or European history from 1600, or #: 1325-1415 MTWThF; ScottH 103) Sutton
Origins of opera; development as a musicodramatic form through analysis of libretto and music of representative masterpieces of the late Renaissance, baroque, classical, romantic, and contemporary periods.
- 5804. FOLK AND TRADITIONAL MUSIC: CROSS-CULTURAL SURVEY.** (591631) (4 cr; 0905-0955 MTWThF; ScottH 19) Kagan
Music of the peoples of the world in topical and geographic format. Comparative study of musical styles, behavior, and concepts in varied societies and cultures. Field recordings and filmed performances.
- 5861. INTRODUCTION TO ETHNOMUSICOLOGY.** (391632) (5 cr; prereq #: 1010-1100 MTWThF; ScottH 19) Kagan
Scope, aims, methods, and resources of research in ethnomusicology. Preliterate, folk, and high-art music of the world—style, usage, and function. Musical typology and comparative studies.
- 5950. TOPICS IN MUSIC.**
Sec 1, Wagner's Ring Cycle. (491038) 4 cr, prereq 1606 or #, 1220-1310 MTWThF, ScottH 103, Laudon
Wagner's theory and practice in *Der Ring*.
Sec 2, Introduction to Schenkerian Analysis. (291039) 3 cr, prereq 3503, 1115-1310 MWF, WullH 30, Damschroder
Study and application of the analytical techniques developed by Heinrich Schenker. Extensive analysis of compositions from the 18th and 19th centuries.
- 8990.* SPECIAL PROBLEMS.** (289226) (2-12 cr; prereq 5841; hrs ar; ScottH 104) Kagan, Laudon

SECOND TERM

- 1001. FUNDAMENTALS OF MUSIC.** (190412) (4 cr; prereq non-music majors, 0905-0955 MTWThF; WullH 320) Baldwin
See First Term.
- 1508. SURVEY OF MELODIC AND HARMONIC PROCEDURES.** (990413) (3 cr; prereq #: 0800-0850 MTWThF; ScottH 3) Fetter
See 1507 First Term.
- 1518. EAR-TRAINING AND SIGHT-SINGING.** (790414) (3 cr; prereq #: 0905-0955 MTWThF; ScottH 3) Lubet
See 1517 First Term.
- 3970. DIRECTED STUDIES.** (590415) (1-15 cr; prereq #, Δ, college approval; hrs ar; ScottH 104) Staff
See First Term.
- 5666. STRAVINSKY.** (988306) (4 cr; prereq 12 cr in music, 3506; 1010-1100 MTW, 1010-1205 Th; ScottH 3) Jackson
Changing styles and aesthetic principles of Stravinsky as seen in representative compositions and writings; contributions to artistic life in Europe and America (particularly ballet).
- 5950. TOPICS IN MUSIC: Metaphor and Musical Expression.** (991030) (4 cr; 1325-1415 MTWThF; WullH 7A) McClary
Use of metaphor in the interpretation of meaning in musical gesture and process. Validity of metaphorical insight in criticism of artworks. Verbal articulation of musical perceptions and responses.
- 8990.* SPECIAL PROBLEMS.** (390416) (2-12 cr; prereq 5841; hrs ar; ScottH 104) Fetter, Jackson, Lubet, McClary

Courses in Applied Music

Information about second term courses in applied music appears on the following pages.

SECOND TERM COURSES IN APPLIED MUSIC (MusA)

Instrument	Elective	Principal	Major	Secondary Required	Secondary Elective	Principal Beyond Requirement	Major Beyond Requirement	Minor	Instructor
Fee	\$ 96	—	—	—	\$ 32	\$ 32	\$ 32	\$ 32	
Piano	1101	1201	1301	1401	1501	1601	1701		McNab
Harpichord	1102	1202	1302	1402	1502	1602	1702		Ar
Organ	1103	1203	1303	1403	1503	1603	1703		Ar
Voice	1104	1204	1304	1404	1504	1604	1704		Ar
Violin	1105	1205	1305	1405	1505	1605	1705		Ar
Viola	1106	1206	1306	1406	1506	1606	1706		Ar
Cello	1107	1207	1307	1407	1507	1607	1707		Ar
Double Bass	1108	1208	1308	1408	1508	1608	1708		Ar
Flute	1109	1209	1309	1409	1509	1609	1709		Ar
Oboe	1111	1211	1311	1411	1511	1611	1711		Ar
Clarinet	1112	1212	1312	1412	1512	1612	1712		Ar
Saxophone	1113	1213	1313	1413	1513	1613	1713		Ar
Bassoon	1114	1214	1314	1414	1514	1614	1714		Ar
French Horn	1115	1215	1315	1415	1515	1615	1715		Ar
Trumpet	1116	1216	1316	1416	1516	1616	1716		Ar
Trombone	1117	1217	1317	1417	1517	1617	1717		Ar
Baritone	1118	1218	1318	1418	1518	1618	1718		Ar
Tuba	1119	1219	1319	1419	1519	1619	1719		Ar
Percussion	1121	1221	1321	1421	1521	1621	1721		Ar
Harp	1122	1222	1322	1422	1522	1622	1722		Ar
Guitar	1123	1223	1323	1423	1523	1623	1723		Ar
Accordion					1524				Ar
Sitar					1525				Ar
Piano	3101	3201	3301	3401	3501	3601	3701	3801	McNab
Harpichord	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

SECOND TERM COURSES IN APPLIED MUSIC (MusA)

Instrument	Elective	Principal	Major	Secondary Required	Secondary Elective	Principal Beyond Requirement	Major Beyond Requirement	Minor	Instructor
Fee	\$ 96	—	—	—	\$ 32	\$ 32	\$ 32	\$ 32	
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	8201	8301	8401	8501	8601	8701		McNab
Harpsichord	5102	8202	8302	8402	8502	8602	8702		Ar
Organ	5103	8203	8303	8403	8503	8603	8703		Ar
Voice	5104	8204	8304	8404	8504	8604	8704		Ar
Violin	5105	8205	8305	8405	8505	8605	8705		Ar
Viola	5106	8206	8306	8406	8506	8606	8706		Ar
Cello	5107	8207	8307	8407	8507	8607	8707		Ar
Double Bass	5108	8208	8308	8408	8508	8608	8708		Ar
Flute	5109	8209	8309	8409	8509	8609	8709		Ar
Oboe	5111	8211	8311	8411	8511	8611	8711		Ar
Clarinet	5112	8212	8312	8412	8512	8612	8712		Ar
Saxophone	5113	8213	8313	8413	8513	8613	8713		Ar
Bassoon	5114	8214	8314	8414	8514	8614	8714		Ar
French Horn	5115	8215	8315	8415	8515	8615	8715		Ar
Trumpet	5116	8216	8316	8416	8516	8616	8716		Ar
Trombone	5117	8217	8317	8417	8517	8617	8717		Ar
Baritone	5118	8218	8318	8418	8518	8618	8718		Ar
Tuba	5119	8219	8319	8419	8519	8619	8719		Ar
Percussion	5121	8221	8321	8421	8521	8621	8721		Ar
Harp	5122	8222	8322	8422	8522	8622	8722		Ar
Guitar	5123	8223	8323	8423	8523	8623	8723		Ar
Accordion					8524				Ar
Sitar					8525				Ar

Philosophy (Phil)

FIRST TERM

1001. LOGIC. (089317) (5 cr; 0905-0955 MTWThF; VinH 301) Earman
Application of formal techniques for evaluating arguments.

1004. INTRODUCTION TO POLITICAL PHILOSOPHY. (791207) (5 cr; 1115-1310 TWTh; Arch 30) Root
Central concepts and principal theories of political philosophy.

3003. GENERAL HISTORY OF WESTERN PHILOSOPHY. (591208) (5 cr; 1115-1205 MTWThF; VinH 301) Gunderson
Modern philosophy from Descartes through Hume.

3201. SYMBOLIC LOGIC I. (186294) (5 cr, §5201; 0905-0955 MTWThF; LindH 305) Hanson
Development of a formalized language. Syntax and semantics of sentential and first order predicate logic, deductive systems. Meets with 5201.

3970. DIRECTED STUDIES. (889318) (1-5 cr; prereq #, Δ, college approval) Staff

5201. SYMBOLIC LOGIC I. (986295) (5 cr, §3201; 0905-0955 MTWThF; LindH 305) Hanson
Development of a formalized language. Syntax and semantics of sentential and first order predicate logic, deductive systems. Meets with 3201.

5970. DIRECTED STUDIES. (089320) (1-5 cr; prereq #, Δ, CLA approval) Staff

8970. DIRECTED STUDY AND RESEARCH. (489323) (1-4 cr; prereq passed written prelim exam for the PhD in philosophy) Staff

SECOND TERM

1001. LOGIC. (490472) (5 cr; 1115-1205 MTWThF; MoosT 2520) Dolan
See First Term.

1002. INTRODUCTION TO PHILOSOPHY. (291218) (5 cr; 0905-0955 MTWThF; VinH 6) Savage
Problems, principal methods, and schools of philosophy; historical and contemporary views.

3001. GENERAL HISTORY OF WESTERN PHILOSOPHY. (191219) (5 cr; 0905-0955 MTWThF; AndH 230) Hopkins
Greek philosophy, pre-Socratics, Socrates, Plato, Aristotle.

3302. MORAL PROBLEMS OF CONTEMPORARY SOCIETY. (686288) (5 cr; 1010-1100 MTWThF; VinH 203) Patricia Kitcher
Analyses of selected moral problems of current interest.

3970. DIRECTED STUDIES. (190482) (1-5 cr; prereq #, Δ, college approval) Staff

5970. DIRECTED STUDIES. (090483) (1-5 cr; prereq #, Δ, CLA approval) Staff

8970. DIRECTED STUDY AND RESEARCH. (690485) (1-4 cr; prereq passed written prelim exam for the PhD in philosophy) Staff

Political Science (Pol)

FIRST TERM

1001. AMERICAN GOVERNMENT AND POLITICS. (189342) (5 cr; 0905-1100 TWTh; AndH 330) Walcott
Principles, organization, processes, functions of government, and the interplay of political forces in the United States. Attention throughout to current issues.

1026. AMERICAN FOREIGN POLICY. (391372) (4 cr; 1010-1100 MTWThF; BlegH 330) Sampson
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.

1041. CONTEMPORARY POLITICAL IDEOLOGIES. (191373) (4 cr; 1115-1205 MTWThF; BlegH 130) Ball
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.

3070. DIRECTED FIELD STUDIES. (188773) (1-4 cr; prereq #, Δ)

3080. INTERNSHIP. (388178) (4 cr [max 8 cr]; prereq Δ; S-N only)

Internship with government or community organizations, arranged by the department and awarded competitively.

Course Descriptions

3110H. HONORS WORK IN SELECTED FIELDS. (386673) (3 or 6 cr per term [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—Politics, Hollywood Style: Images of Politics in the American Film. (689370) (4 cr; prereq 1001 or equiv or #; 1010-1205 MWF; AndH 210) Shaw

Analysis and evaluation of the images of American politics in selected, American-made commercial films, which will be viewed in class.

3331. MINNESOTA GOVERNMENT AND POLITICS. (189373) (4 cr; 1001 recommended; 0905-0955 MTWThF; BlegH 330) Backstrom

The Minnesota political system; demographic and cultural setting, political and governmental processes, contemporary policies.

3477 (formerly 3773). POLITICAL DEVELOPMENT. (891375) (4 cr; prereq 1054 or 3051 or #; 0905-1100 TWTh; RangC 610) Duvall

Political problems of new nations; political consequences of traditional society, problems of developing new institutional forms and procedures.

3659. AMERICAN POLITICAL THOUGHT. (488303) (4 cr; 1010-1100 MTWThF; BlegH 115) Fogelman

From colonial times to present: Puritanism; Revolution; Constitution; utopianism; sectionalism and pluralism; anarchism, socialist, populist, and syndicalist thought; social Darwinism; conservatism; political thought in law and literature.

3970. DIRECTED STUDIES. (888802) (1-6 cr; prereq #, Δ , college approval)

5478 (formerly 5448). GOVERNMENT AND POLITICS OF AFRICAN COUNTRIES. (691376) (4 cr; prereq 3051 or non-political science grad student or #; 1220-1310 MTWThF; BlegH 120) Nimtz

Political institutions and behavior in sub-Saharan African countries in their social and cultural settings; class and tribal structure; parties and elections; source and nature of ideologies; economic and social policies.

5810. ADVANCED TOPICS IN INTERNATIONAL POLITICS AND FOREIGN POLICY: The Arms Race and Arms Control. (491377) (4 cr; prereq 3835 or 3836 or non-political science graduate student or #; 1010-1100 MTWThF; BlegH 240) Hopmann

Investigation and analysis of the major efforts that have been made in the past 35 years to try to bring the nuclear arms race under control; evaluation of the strategic assumptions that underlie the current Soviet-American arms race, and an analysis of ways in which arms control might provide an alternative mechanism to unlimited arms buildups.

SECOND TERM

1001. AMERICAN GOVERNMENT AND POLITICS. (291378) (5 cr; 1010-1205 TWTh; BlegH 130) Weko

Principles, organization, processes, functions of government, and the interplay of political forces in the U.S. Current issues.

1025. WORLD POLITICS. (191379) (4 cr; 0905-0955 MTWThF; BlegH 135)

Contemporary international relations; forms of state interaction; problems of conflict and cooperation.

3051. INTRODUCTION TO POLITICAL ANALYSIS. (491380) (5 cr; 1010-1100 MTWThF; BlegH 135) Edwards

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. (588776) (1-4 cr; prereq #, Δ)

3080. INTERNSHIP. (088202) (4 cr [max 8 cr]; prereq Δ ; S-N only)

See First Term.

3110H. HONORS WORK IN SELECTED FIELDS. (291381) (3 or 6 cr per term [6 cr max]; open only to political science honors program majors; prereq 3109H)

See First Term.

3306. THE AMERICAN PRESIDENCY. (788520) (4 cr; prereq 1001 or equiv or #; 1115-1205 MTWThF; BlegH 255) Simon

The office and individual presidents; organizational characteristics of the Executive Office and individual qualities of decision making; relationships with Congress, the bureaucracy, parties, interest groups, media, and public opinion.

3309. JUDICIAL PROCESS. (288304) (4 cr; prereq 1001 or equiv or #; 1010-1100 MTWThF; BlegH 105) Hendrickson

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.

3321. ISSUES IN AMERICAN PUBLIC POLICY. (191382) (4 cr; 0905-0955 MTWThF; BlegH 255) Gray

Major public policy issues in such areas as social welfare and education; political forces molding policy choices and impact of such choices.

3970. DIRECTED STUDIES. (988841) (1-6 cr; prereq #, Δ , college approval)

5410. ADVANCED TOPICS IN GOVERNMENT AND POLITICS: Comparative Political Economy. (991383) (4 cr;

prereq 3051 or non-political science graduate student or #; 1115-1205 MTWThF; BlegH 215) Freeman

Varying topics of current analytic or policy importance in comparative politics.

5767. PUBLIC OPINION AND VOTING BEHAVIOR. (791630) (5 cr; prereq 1001 or equiv or #: 0800-0850 MTWThF; BlegH 130) Flanigan
Major factors influencing electoral decisions; political attitude formation and change. Data analysis laboratory required.

Psychology (Psy)

FIRST TERM

1001. INTRODUCTION TO PSYCHOLOGY. (689515) (5 cr; 0800-0955 MTWThF; AndH 310) Staff
Introduction to study of human behavior. Prerequisite for all advanced courses in psychology.

R 1004. INTRODUCTORY LABORATORY PSYCHOLOGY. (4 cr; each section limited to 24 students; prereq soph, 1001 or #1001)

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, (489516) 0905-1205 MF, 0905-1100 W, E1H 150

Sec 2, (289517) 1325-1625 MF, 1325-1520 W, E1H 150

Sec 3, (189518) 0905-1205 MF, 0905-1100 W, E1H 160

Sec 4, (391629) 1325-1625 MF, 1325-1520 W, E1H 160

1011. CAREER DECISION MAKING. (391601) (2 cr; 1315-1445 TTh; ChDev 105)

Designed to help CLA students identify their interests, values, and skills in regard to career options. Individual and group projects, investigating possible vocations and learning effective job seeking techniques.

3011. INTRODUCTION TO PSYCHOLOGY OF LEARNING. (289520) (4 cr; prereq 1001, 1005 or Biol 1107 or #: 1115-1205 MTWThF; E1H N119) Peterson

Basic methods in study of learning. Fundamental concepts and principles governing the learning process.

3012. INTRODUCTION TO APPLICATIONS OF CONTEMPORARY LEARNING PRINCIPLES. (286360) (4 cr; prereq 1001, 3011 or #: 0905-1055 TTh; E1H 50) Gershenson

Survey of a broad range of applications of modern learning theory in education, mental retardation, drug abuse, business, and mental health.

3101. INTRODUCTION TO PERSONALITY. (189521) (4 cr, §5101; prereq 1001; 0905-0955 MTWThF; NichH 213) Tellegen

Concepts of personality, personality theory, empirical research in the field of personality, personality assessment.

3201. INTRODUCTION TO SOCIAL PSYCHOLOGY. (186358) (4 cr; prereq 1001; 0905-0955 MTWThF; E1H N119) Snyder

Theories and research in social psychology. Effects upon the individual's attitudes and behavior of other persons, mass communications, and group membership.

3801. INTRODUCTION TO STATISTICAL METHODS. (091391) (4 cr; prereq 1001 or equiv, Math 0009; 0800-0850 MTWThF; E1H N119) Cudeck

Quantification as it pertains to research problems in psychology. Descriptive and inferential statistics, including hypothesis testing and some nonparametric statistics. Examples from various areas of psychology.

R 3960. UNDERGRADUATE SEMINAR. (891392) (1-5 cr; prereq 1001, #: limited to 15 students) Staff

3970. DIRECTED STUDIES. (789523) (1-8 cr; prereq #, Δ, college approval) Staff

Independent reading leading to written paper or oral or written examination.

3990. DIRECTED RESEARCH. (086708) (1-8 cr per term; prereq #, Δ) Staff

Individual empirical research projects leading to written report.

5201. SOCIAL PSYCHOLOGY. (788310) (4 cr; prereq 1001, 3201 or honors or grad or #: 1010-1100 MTWThF; E1H N119) Staff

Classical and contemporary theories and research in social psychology with emphasis on social influence and group dynamics.

5202. ATTITUDES AND SOCIAL BEHAVIOR. (186361) (4 cr; prereq 1001, 3201, or #: 1315-1405 MTWThF; E1H N227) Borgida

Attitude theory, measurement and attitude change research in social psychology; focus on structure, function, and formation of attitudes, relationship between attitudes and various social behaviors, and examination of basic principles of attitude change.

5206. RESEARCH METHODS IN SOCIAL PSYCHOLOGY. (686484) (4 cr; prereq 1001, 3201, 3801, or # or grad; 1115-1205 MTWThF; E1H N227) Staff

Overview of randomized and quasi-experimental designs suitable for research in social psychology. Validity, operational, and ethical issues in social psychological research.

Course Descriptions

5901H. HONORS PROJECT. (987981) (1-8 cr; prereq sr, #) Staff
Critical literature review or empirical study.

8519. PRACTICUM IN REHABILITATION COUNSELING. (589524) (3 cr; prereq 8503 or #; hrs ar)
Counseling experience with physically and emotionally disabled clients in approved public and private rehabilitation agencies.

8520. FIELDWORK IN APPLIED PSYCHOLOGY. (389525) (1-6 cr; prereq #; hrs ar)

8560. INTERNSHIP IN COUNSELING PSYCHOLOGY. (189526) (1-6 cr; prereq #; hrs ar)

8620. PRACTICUM IN CLINICAL PSYCHOLOGY. (089527) (1-6 cr; prereq #; hrs ar)
Field experience in professional work in clinical settings.

8670. INTERNSHIP IN CLINICAL PSYCHOLOGY. (689529) (2-4 cr; prereq PhD candidate in clinical psychology program and consent of director of clinical psychology training program; hrs ar)

8980. DIRECTED TEACHING IN PSYCHOLOGY. (089530) (1-6 cr; prereq #) Staff

8990.* RESEARCH PROBLEMS. (889531) (1-6 cr; hrs ar) Staff

SECOND TERM

1001. INTRODUCTION TO PSYCHOLOGY. (290490) (5 cr; 0800-0955 MTWThF; MoosT 2620) Fox, Weiss, others
See First Term.

R 1005. INTRODUCTORY LABORATORY PSYCHOLOGY. (4 cr; each section limited to 24 students; prereq soph, 1004)

See 1004 First Term.

Sec 1, (990492) 0905-1205 MF, 0905-1100 W, E11H 50

Sec 2, (790493) 1325-1625 MF, 1325-1520 W, E11H 60

Sec 3, (590494) 0905-1205 MF, 0905-1100 W, E11H 60

3061. INTRODUCTION TO PHYSIOLOGICAL PSYCHOLOGY. (986362) (4 cr, §5061; prereq 1001, 1005 or Biol 1011 or #; 1215-1305 MTWThF; E11H N119) Roberts

Survey of neural mechanisms of motivation, emotion, sleep-wakefulness cycle, learning, and communication in animals and humans.

3206. APPLIED SOCIAL PSYCHOLOGY. (786363) (4 cr; prereq 1001 and 3201; 1010-1100 MTWThF; E11H N227) Staff
Review applications of social psychological theories to such areas as jury selection, media, behavioral medicine, desegregation, advertising, victimology, and juvenile delinquency and energy conservation programs.

3604. INTRODUCTION TO ABNORMAL PSYCHOLOGY. (491394) (4 cr, §5604; prereq 1001; 0800-0850 MTWThF; E11H N119) Staff

Surveys the field of abnormal psychology. Etiologies of behavioral disorders; available treatment.

3607. SURVEY OF CLINICAL INTERVENTION METHODS. (691393) (4 cr; prereq 3604 or 5604; 1000-1100 MTWThF; E11H N119) Staff

Therapeutic procedures for dealing with abnormal behavior in children and adults. Focus on theory and philosophy of particular schools of therapy rather than specific methods of behavior change.

R 3960. UNDERGRADUATE SEMINAR. (388083) (1-5 cr; prereq 1001, #; limited to 15 students) Staff

3970. DIRECTED STUDIES. (190496) (1-8 cr; prereq #, Δ, college approval; hrs ar) Staff
See First Term.

3990. DIRECTED RESEARCH. (886709) (1-8 cr per term; prereq #, Δ) Staff
See First Term.

5011. THEORIES OF LEARNING AND COGNITION. (090497) (4 cr; prereq 3011, except for students in honors sequence and grad students; 1115-1205 MTWThF; E11H N119) Peterson

Major theories of learning and contemporary theories of information processing and cognition.

5014. PSYCHOLOGY OF HUMAN LEARNING AND MEMORY. (586364) (4 cr; prereq 1005 or 3011 or 3051 or #, except students in honors sequences, grads; 0905-0955 MTWThF; E11H N119) Fox
Processes and principles in human learning and memory. Feedback, instruction and learning, individual differences in learning, cognitive processes in learning and retention, theories of human memory.

5054. PSYCHOLOGY OF LANGUAGE. (291395) (4 cr; prereq 3011, except for students in honors sequence and grad students; 1010-1100 MTWThF; BuH 123) Fletcher

Theories and experimental evidence in past and present conceptions of psychology of language.

5134. INTRODUCTION TO BEHAVIORAL GENETICS. (187579) (4 cr; prereq 3124 or 5126; 0905-1100 TTh; E11H 50) Krauss

Methodology appropriate to analyzing contribution of genetic and environmental factors to variance observed in normal and abnormal traits in man and animals. Intelligence, neuroses, and psychoses. Independent variable will be genotype of an organism.

5751. PSYCHOLOGY OF ADVERTISING. (787982) (4 cr, §Jour 5251; prereq 1001: 0905-0955 MTWThF; MurH 308) Jones

Psychological principles, research techniques, and applications in advertising and selling. Relevant consumer attitudes and behavior. Psychological mechanisms upon which effectiveness of advertisements and commercials depends. Meets with Jour 5251.

5901H. HONORS PROJECT. (587983) (1-8 cr; prereq sr, #) Staff

See First Term.

8519. PRACTICUM IN REHABILITATION COUNSELING. (690499) (3 cr; prereq 8503 or #; hrs ar)

See First Term.

8520. FIELDWORK IN APPLIED PSYCHOLOGY. (288481) (1-6 cr; prereq #: hrs ar)

8560. INTERNSHIP IN COUNSELING PSYCHOLOGY. (090502) (1-6 cr; prereq #: hrs ar)

8620. PRACTICUM IN CLINICAL PSYCHOLOGY. (690504) (1-6 cr; prereq #: hrs ar)

See First Term.

8670. INTERNSHIP IN CLINICAL PSYCHOLOGY. (290506) (2-4 cr; prereq PhD candidate in clinical psychology program and consent of director of clinical psychology training program; hrs ar)

8980. DIRECTED TEACHING IN PSYCHOLOGY. (190507) (1-6 cr; prereq #) Staff

8990.* RESEARCH PROBLEMS. (790509) (1-6 cr; hrs ar) Staff

Russian and East European Studies

Russian (Russ)

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 INTENSIVE RUSSIAN. (15 cr for both terms; 0800-1100 MTWThF; KoltH S132) Speaking, reading, and understanding Russian through acquisition of basic patterns of speech.

1101, Sec 5, (889626) June 18-July 10, 5 cr

1102, Sec 5, (689627) July 11-August 1, 5 cr

1103, Sec 5, (489628) August 2-23, 5 cr

Scandinavian Languages

Finnish (Fin)

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 the first two courses (third is optional) and may not enroll in other summer courses during Term I.**

FIRST TERM

3001-3002. READING FINNISH. (591595) (491668) (5 cr each; 0905-1230 MTWThF; KoltH S139) Vahamaki

For students with little or no knowledge of Finnish. Introduction to the basic and most frequent vocabulary, the inflectional and derivational systems, and the basic syntax of Finnish with emphasis on reading comprehension. See Special Programs section.

SECOND TERM

3003. READING FINNISH. (291669) (5 cr; prereq 3002: 0905-1045 MTWThF; KoltH S139) Vahamaki

See 3001-3002 First Term. Application to texts of varying degree of difficulty as well as of various genres. See Special Programs section.

Scandinavian (Scan)

FIRST TERM

3613. CHILDREN'S LITERATURE IN SCANDINAVIA. (291011) (4 cr; 1115-1205 MTWThF; FolH 308) Mishler
Representative works with emphasis on different critical methods of interpretation. Readings in English for nonmajors.

3970. DIRECTED STUDIES. (191012) (1-5 cr; prereq #, Δ, college approval)

5615. IBSEN AND THE BEGINNINGS OF THE MODERN DRAMA. (791014) (4 cr; 0905-0955 MTWThF; FolH 50)
Stockenstrom

The plays of Ibsen; his role as founder of modern European drama. Readings in English for nonmajors.

5970. DIRECTED STUDIES. (991013) (1-15 cr per qtr; prereq #, Δ, CLA approval)

Sociology (Soc)

FIRST TERM

1001. INTRODUCTION TO SOCIOLOGY. (089690) (4 cr; 0905-0955 MTWThF; AndH 230) J Clark

Introduction to the scientific study of human social behavior. Overview of the major theories, methods, concepts and research findings. Examination of the characteristics of the basic social units (social relations, groups, organizations, institutions, society), their patterns of interrelation and processes of change.

3102. INTRODUCTION TO CRIMINAL BEHAVIOR AND SOCIAL CONTROL. (791403) (4 cr, §3103; prereq 3101; 1010-1100 MTWThF; BlegH 255) Kruttschnitt

Basic issues in criminology and the sociology of law and social control organizations.

3201. PRINCIPLES OF SOCIAL PSYCHOLOGY. (391405) (5 cr; prereq 1001; lect 0905-0955 MTWThF; BlegH 440; lab 1010-1100 TTh; BlegH 120) Reynolds

Ideas and findings related to social psychology; experience in developing empirically based knowledge in social science. Meets with 5201.

3315. LATIN AMERICA SOCIETIES IN TRANSITION. (886516) (4 cr; prereq 8 cr in sociology, economics, anthropology or political science or #; 1010-1100 MTWThF; BlegH 225) Carter

Relationship of population, technology, and organization structure to levels of modernization among Latin American nations. Differentiation, diffusion, innovation, and social conflict as precipitants of social change.

3352. SOCIOLOGY OF CULTURAL FORMS. (191406) (4 cr; 1115-1205 MTWThF; BlegH 205) Heitzeg

Social development and usage of cultural forms, including art, music, theatre, popular arts, folk arts, and forms of social communication.

3501. THE FAMILY SYSTEM. (091407) (4 cr; prereq 1001 or #; 1115-1205 MTWThF; BlegH 135)

The family in contemporary American society with attention to historical and cross-cultural comparisons; interrelationships with other social institutions, socialization, patterns of mate selection, life cycle processes, and processes and norms of human sexuality.

3801. SOCIOLOGICAL METHODS I: DESCRIPTIVE STATISTICS. (5 cr; each section limited to 20 students; prereq basic algebra or Math 0009; lect 1115-1205 MTWThF; BlegH 255) T Anderson

Descriptive statistics in analysis of sociological data, measures of central tendency, deviation, correlation and regression graphs, simple treatment of three and four variables, probability.

Lab 1, (987592) 1220-1310 MW, BlegH 410

Lab 2, (187591) 1220-1310 TTh, BlegH 410

3811. COMPUTER USAGE FOR SOCIAL STATISTICS. (891408) (1 cr, †3801 recommended; 1010-1100 MW; BlegH 105; S-N only) Rasmussen

Elementary computer usage in social statistics applications. Use of statistical program packages for analysis of sociological data.

3970. DIRECTED STUDIES. (689692) (1-15 cr per term; prereq #, Δ, college approval) Staff

Guided individual reading or study.

5102. CRIMINOLOGY. (091410) (4 cr; prereq 3101, 3102 or #; 1115-1205 MTWThF; BlegH 105) J Clark

Nature and types of crime, problems in measurement of incidence and trends, and review of sociological theories of crime causation. Implications for crime prevention and control.

5161. CRIMINAL LAW IN AMERICAN SOCIETY. (891411) (4 cr, §CJS 5101; 0905-0955 MTWThF; Law 45) Samaha

Purposes and principles of criminal law; proper limits of criminal sanction and suggested reforms in existing criminal law.

5201. INTRODUCTION TO SOCIAL PSYCHOLOGY. (691412) (4 cr [no cr for sociology majors]; prereq 8 cr in

sociology, anthropology, psychology, political science, or economics; 0905-0955 MTWThF; BlegH 440) Reynolds

Meets with 3201 lecture.

5952. YOUTH IN MODERN SOCIETY. (288514) (4 cr, §SPFE 5125; prereq 1001 or equiv or #: 1115-1205 MTWThF; PeikH 25) S Clark

Youth in advanced societies; youth as a social entity; functions of youth in industrial societies; roles in family, education, politics and government, economy and work, welfare and religion; youth organizations, social movements and subcultures; empirical research and cross-cultural perspectives. Meets with SPFE 5125.

5970. DIRECTED STUDIES. (489693) (1-15 cr per term; prereq #, Δ, CLA approval) Staff

Guided individual reading or study.

8090. TOPICS. (188473) (1-4 cr; prereq #) Staff

SECOND TERM

1001. INTRODUCTION TO SOCIOLOGY. (190529) (4 cr; 0905-0955 MTWThF; BlegH 130) Thornton

See First Term.

3101. INTRODUCTION TO AMERICAN CRIMINAL JUSTICE. (191396) (4 cr, §CJS 3101; 1010-1100 MTWThF; Law 45) Samaha

Components and dynamics as well as philosophical underpinnings of the criminal justice system.

3401. PRINCIPLES OF SOCIAL ORGANIZATION. (791398) (5 cr; prereq 1001, 3801 or equiv; lect 0905-0955 MTWThF; BlegH 335; lab 0800-0855 TTh; BlegH 335) Cooperman

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. Meets with 5401.

3503. SEX, ROMANCE, AND RELATIONSHIPS. (591399) (4 cr; prereq 1001; 1115-1205 MTWThF; BlegH 135)

Sociological perspectives on sexual socialization; ideas of masculinity and femininity; history and functions of love and romance; characteristics of romantic relationships, intimacy, emotionality, sexuality, exclusivity, sexual deviance in relation to sexual norms.

3802. SOCIOLOGICAL METHODS II: STATISTICAL INFERENCE. (587594) (5 cr; prereq 3801 or equiv or #: lect 1115-1205 MTWThF; BlegH 210; lab 1220-1310 MW; BlegH 410) T Anderson

Statistical inferences, probability, hypothesis tests, use of statistical reasoning in analysis of sociological data.

3970. DIRECTED STUDIES. (590530) (1-15 cr per term; prereq #, Δ, college approval) Staff

See First Term.

5108. CURRENT ISSUES IN CRIME CONTROL. (291400) (4 cr, §CJS 5207; prereq 3102 or #: 1115-1205 MTWThF; BlegH 260) Kruttschnitt

Criminal justice policies examined from perspective of courts, legislature, community, and interest groups; impact of changes in policy on society and social control agencies.

5401. SOCIAL ORGANIZATION. (191401) (4 cr [no cr for sociology majors]; prereq 8 cr in sociology, anthropology, psychology, political science or economics; 0905-0955 MTWThF; BlegH 335) Cooperman

Theories of social structure, social stratification, community structure, status groups, the nature of social power, social control processes, aspects of formal organizations, and rational actor models for decentralized social processes. Meets with 3401.

5701. ANALYTICAL SOCIAL THEORY. (991402) (4 cr; prereq 8 cr in social science or #: 1010-1100 MTWThF; BlegH 255) Cooperman

Major problems of sociological theory; main types: positivistic, rationalistic, idealistic; major theoretical concepts.

5970. DIRECTED STUDIES. (690535) (1-15 cr per term; prereq #, Δ, CLA approval) Staff

See First Term.

8090. TOPICS. (490536) (1-4 cr; prereq #) Staff

South and Southwest Asian Studies

Arabic (Arab)

FIRST TERM

5970. DIRECTED STUDIES. (188148) (Cr ar; prereq #, Δ, CLA approval) Staff

Course Descriptions

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 ARABIC. (15 cr for both terms; 0900-1200 MTWThF; KoltH S133) Abdallah Fundamentals of Arabic, based on audiolingual method; aural comprehension, pronunciation, practical reading knowledge, and basic grammar.

- 1101, Sec 5. (589314) June 18-July 10, 5 cr
1102, Sec 5. (389315) July 11-August 1, 5 cr
1103, Sec 5. (189316) August 2-23, 5 cr

SECOND TERM

5970. DIRECTED STUDIES. (186716) (Cr ar; prereq #, Δ, CLA approval) Staff

Middle Eastern And South Asian Studies (MESA)

See also *History*.

FIRST TERM

3505. SURVEY: THE MIDDLE EAST. (091648) (4 cr, §5505, §Hist 3505; 1010-1100 MTWThF; BlegH 435) Farah, Caesar
Cultural, religious, and scholarly achievements of Middle Eastern peoples from pre-Islamic times to the present. Meets with Hist 3505.

Spanish and Portuguese

Spanish (Span)

FIRST TERM

¶ 1101. BEGINNING SPANISH: ORAL APPROACH. (5 cr, §Chic 1201; each section limited to 25 students)
Emphasis on speaking and understanding Spanish; pronunciation; writing and reading skills; basic grammar; cultural aspects of language and civilizations of Spain and Spanish America.

- Sec 1, (289694) 0800-0955 MTWThF, FolH 305
Sec 2, (189695) 0800-0955 MTWThF, KoltH S134

¶ 1102. BEGINNING SPANISH: ORAL APPROACH. (989696) (5 cr, §Chic 1202; limited to 25 students; prereq 1101 or 1 yr high school Spanish; 0905-1100 MTWThF; NichH 209)
See 1101.

¶ 1103. BEGINNING SPANISH: ORAL APPROACH. (789697) (5 cr, §Chic 1203; limited to 25 students; prereq 1102 or 2 yrs high school Spanish; 0905-1100 MTWThF; JonesH 11)
See 1101.

¶ 1104. INTERMEDIATE SPANISH, ORAL APPROACH: INTERPRETATION OF MODERN PROBLEMS. (589698) (4 cr; limited to 25 students; prereq 1103 or 3 yrs high school Spanish; 0940-1105 MTWThF; JonesH 4)
Continued emphasis on speaking and comprehension; development of reading and writing skills based on materials from *Spain and Spanish American dealing with current issues*. Grammar review; frequent compositions and oral presentation to build vocabulary.

¶ 1105. INTERMEDIATE SPANISH, ORAL APPROACH: DISCUSSIONS OF MODERN LITERATURE AND THE PRESS. (691314) (4 cr; limited to 25 students; prereq 1104 or 4 yrs high school Spanish; 0940-1105 MTWThF; FolH 304)
See 1104.

¶ 3002. READING FOR SPEED AND COMPREHENSION. (389699) (3 cr; limited to 20 students; prereq 1105 or equiv 1010-1100 MTWTh; FolH 50) Costa-Lima
Concentrated, individualized approach to sharpen reading skills, expand vocabulary, improve comprehension. Sight-reading drills, speed tests, word study, reading aloud. Variety of practical and literary materials at graded levels of difficulty.

R 3614. DON QUIXOTE: A STUDY OF LOST ILLUSIONS. (587580) (4 cr [cr does not count toward Spanish or Portuguese major but may be used toward Route II language requirement]; taught in English; limited to 30 students; 1115-1205 MTWThF; FolH 50) Spadaccini

Study of the novel in many facets: the "madness" of its characters, the relation of their actions and attitudes to the theme of reality/illusion and to the society of their times.

3970. DIRECTED STUDIES. (491315) (1-5 cr per term; prereq #, Δ, college approval)

Guided individual reading or study.

3973. MAJOR PROJECT. (486793) (2 cr)

Guided individual project for Spanish majors. Used to fulfill graduation requirements. Office of Undergraduate Studies has details.

5711. THE STRUCTURE OF MODERN SPANISH: PHONOLOGY. (291316) (4 cr; prereq 10 cr from 3001-3005 series or #; 1115-1205 MTWThF; FolH 304) Mantini

Theoretical and practical aspects of Spanish sound system. Segmentals (vowels and consonants) and suprasegmentals (intonation, stress, and juncture). Dialectal differences.

5910. TOPICS IN SPANISH PENINSULAR LITERATURE: SPANISH DRAMA (Cervantes). (189700) (4 cr per qtr [max 12 cr]; prereq 3104 or SpPt 3104 or Δ; 1430-1520 MTWThF; FolH 302) Zahareas

Students are exposed to major issues or approaches of Spanish literature by treating important groups, movements, trends, issues, methods, genres. Specific approaches depend on topic and instructor.

5970. DIRECTED READINGS. (989701) (1-5 cr per term [max 15 cr]; for MA and PhD candidates; 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.

8970. DIRECTED READINGS IN ROMANCE LANGUAGES. (789702) (Cr and hrs ar; mainly for PhD candidates) Staff

Authors and topics not otherwise offered. Weekly meetings based on student's research and analysis. Student and instructor agree on plan of reading or particular topics, figures, issues, etc. Readings in Spanish and/or Spanish-American areas.

8980. ADVANCED RESEARCH IN SEMIOTIC/STRUCTURAL ANALYSIS OF SPANISH-AMERICAN LITERARY TEXTS. (886385) (4 cr; 1325-1415 MTWThF; FolH 302) Jara

Challenging Spanish-American literary texts as semiotic processes, both to illuminate their structural machinery of meaning and to open their semiotic projection to the symbolic activity pervading Spanish-American cultural and social environment.

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.

R 1101-1102-1103. BEGINNING SPANISH. (15 cr for both terms; limited to 25 students; 0800-1100 MTWThF; section 5, FolH 107, sec 6, FolH 207)

See 1101 First Term.

R 1101, Sec 5, (589703) June 18-July 10, 5 cr

R 1102, Sec 5, (389704) July 11-August 1, 5 cr

R 1103, Sec 5, (189705) August 2-23, 5 cr

R 1101, Sec 6, (089706) June 18-July 10, 5 cr

R 1102, Sec 6, (889707) July 11-August 1, 5 cr

R 1103, Sec 6, (689708) August 2-23, 5 cr

SECOND TERM

R 1101. BEGINNING SPANISH: ORAL APPROACH. (290537) (5 cr, §Chic 1201; limited to 25 students; 0800-0955 MTWThF; KolH S134)

See First Term.

R 1102. BEGINNING SPANISH: ORAL APPROACH. (990539) (5 cr, §Chic 1202; limited to 25 students; prereq 1101 or 1 yr high school Spanish; 0905-1100 MTWThF; LindH 325)

See 1101 First Term.

R 1103. BEGINNING SPANISH: ORAL APPROACH. (190541) (5 cr, §Chic 1203; limited to 25 students; prereq 1102 or 2 yrs high school Spanish; 0905-1100 MTWThF; FolH 305)

See 1101 First Term.

Course Descriptions

- R 1104. INTERMEDIATE SPANISH, ORAL APPROACH: INTERPRETATION OF MODERN PROBLEMS.** (191320) (4 cr; limited to 25 students; prereq 1103 or 3 yrs high school Spanish; 0940-1105 MTWThF; FoIH 306)
See 1104 First Term.
- R 1105. INTERMEDIATE SPANISH, ORAL APPROACH: DISCUSSIONS OF MODERN LITERATURE AND THE PRESS.** (890548) (4 cr; limited to 25 students; prereq 1104 or 4 yrs high school Spanish; 0940-1105 MTWThF; FoIH 304)
See 1104 First Term.
- R 3003. ADVANCED GRAMMAR WORKSHOP.** (386382) (3 cr; limited to 20 students; prereq 1105 or equiv; 1010-1100 MTWTh; FoIH 209) Jones
Difficult language structures, patterns, and usage. Directed study and practice to correct individual problem areas. Emphasis on accuracy in oral and written expression.
- 3970. DIRECTED STUDIES.** (386883) (1-5 cr per term; prereq #, Δ, college approval)
Guided individual reading or study.
- 3973. MAJOR PROJECT.** (286794) (2 cr)
See First Term.
- 5920. TOPICS IN SPANISH-AMERICAN LITERATURE.** (791322) (4 cr per term [max 12 cr]; prereq 3104 or SpPt 3104 or Δ; 1220-1310 MTWThF; FoIH 103) Vidal
Important groups, movements, trends, methods, genres. Specific approaches depend on topic and instructor.
- 5970. DIRECTED READINGS.** (790557) (1-5 cr per qtr [max 15 cr]; for MA and PhD candidates; prereq #, Δ, CLA approval; hrs ar) Staff
See First Term.
- 8970. DIRECTED READINGS IN ROMANCE LANGUAGES.** (390559) (Cr and hrs ar) Staff
See First Term.

Portuguese (Port)

FIRST TERM

- 5940. FIGURES IN LUSO-BRAZILIAN LITERATURE.** (491220) (4 cr; prereq Span 3104 or SpPt 3104 or Δ; 1220-1310 MTWThF; FoIH 103) Sousa
One major writer or group of writers whose work has had an impact on thought, literature, or social problems. Specific approaches depend on topic and instructor.

Speech-Communication (Spch)

See also *Rhet 1222*.

For special department offerings see the Organizational and Small Group Communication Workshops in the Special Programs section.

FIRST TERM

- R 1101. FUNDAMENTALS OF SPEECH COMMUNICATION: ORAL COMMUNICATION.** (4 cr, §1441; each section limited to 24 students)
Study and application of essential elements in oral communication. Criticism and response to oral discourse. Individual speaking.
Sec 1, (489709) 0800-0850 MTWThF, FoIH 306
Sec 2, (889710) 0905-0955 MTWThF, FoIH 306
- 1102. FUNDAMENTALS OF SPEECH COMMUNICATION: COMMUNICATION PROCESS.** (689711) (4 cr; 1010-1100 MTWThF; FoIH 209) Petronio
Variables in intrapersonal, interpersonal, and group communication.
- R 1313. ANALYSIS OF ORAL ARGUMENT.** (186389) (4 cr; limited to 25 students; 0800-0850 MTWThF; FoIH 307)
Strategies for analyzing and evaluating arguments received aurally. Problems in listening and responding to argument.
- R 3203. RADIO PRODUCTION.** (591287) (4 cr; limited to 14 students; prereq 3201; 1220-1310 MTWThF; EddyH 28) Reist
Equipment and staff organization; program design and presentation. Organization, writing, production, direction, and performance of radio news and musical, dramatic, and documentary programs.
- 3211. DETERMINANTS OF BROADCAST PROGRAMMING.** (391288) (4 cr; 0800-0955 MTW; FoIH 209) Browne
Historical development and contemporary aspects of broadcast programming. Roles of governmental, industrial, and public organizations in influencing programming decisions. Problem areas in programming.

3451. INTERCULTURAL COMMUNICATION: THEORY AND PRACTICE. (286391) (4 cr; prereq planning an intercultural experience; 0800-0850 MTWThF; FolH 406) Braithwaite
Theories of intercultural communication; factors influencing intercultural communication for students wishing to become both knowledgeable and proficient in interaction across cultures.

R 3641. DISCUSSION AND CONFERENCE METHODS. (088314) (4 cr; limited to 30 students; prereq 1101 or 1101H or #: 0905-0955 MTWThF; FolH 406) McArthur
Cooperative thinking in task-oriented groups. Planning, preparing for, participating in, and leading private and public meetings.

3970. DIRECTED STUDIES. (289713) (Cr ar [cr does not count toward speech-communication major]; prereq at least one course in speech-communication, #, Δ, college approval)
Individual study projects in speech-communication. Consultation with an instructor who agrees to supervise the project is required.

3980. DIRECTED INSTRUCTION. (189714) (1-4 cr per term [max 8 cr...cr does not count toward speech-communication major]; S-N only; prereq #, Δ, college approval)
Students work with an instructor in planning and teaching an undergraduate course.

R 5261. THE COMMUNICATIVE PROCESSES OF TELEVISION—June 18-July 3. (786394) (4 cr; limited to 25 students; prereq 3211 or #: 1325-1520 MTWThF; FolH 110) Bantz
Television as a system of communicative processes; the organizational processes of televised communicators, television content as a link between communicators and communicatees, and how viewers use television. See Special Programs section.

R 5402. PROBLEMS IN INTERPERSONAL COMMUNICATION. (191289) (4 cr; prereq 3401 or #: 1115-1205 MTWThF; FolH 307) McArthur
Factors contributing to misunderstanding, disagreement, and cessation of contact in dyads.

R 5404. LANGUAGE, CULTURE, AND EDUCATION. (887584) (4 cr; limited to 20 students, §SeEd 5404; prereq 1102, 3401 or #: 0905-0955 MTWThF; PeikH 155) Piche
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.

R 5411. SMALL GROUP COMMUNICATION. (686517) (4 cr; limited to 40 students; prereq 3641 or #: 1220-1310 MTWThF; FolH 406; A-N only) Bormann
Communication and dynamics within the small, task-oriented group. Group cohesiveness, leadership, role structure, information processing, and decision-making.

R 5414. AUTHORITY AND POWER IN TASK-ORIENTED COMMUNICATION—June 18-30. (589717) (4 cr; limited to 60 students; S-N only; prereq 3641 or #: 1615-1815 MTWThF; 0900-1730 Sat Sun; FolH 308) Shapiro
Authority and power in task-oriented groups. Small group, intergroup, and large group laboratory experiences. Verbal and nonverbal processes that operate in and among groups to facilitate or inhibit effective leadership and followership. See Special Programs section.

R 5422. INTERVIEWING AND COMMUNICATION. (191292) (4 cr; limited to 30 students; prereq 1101, 6 cr in social science or #: 1010-1100 MTWThF; FolH 306) Braithwaite
Theory and practice in the information interview. Interpersonal perception, empathy, and cognitive structure in dyadic communication. Experience in interviewing and communication analysis. Research in interpersonal and mass communication.

5441. COMMUNICATION IN HUMAN ORGANIZATIONS—June 18-July 3. (188313) (4 cr; prereq 1102 or 3401, 3641 or 5411 or grad student; 1535-1800 MTWThF; FolH 209) Bantz
Communication in organizational settings. Organizational structure and dynamics and their effect on the communication process. See Special Programs section.

5618. HISTORY AND CRITICISM OF AMERICAN PUBLIC ADDRESS. (891294) (4 cr; prereq 1101, Psy 1001; 1325-1415 MTWThF; FolH 306) Bormann
History and criticism of political speech in the U.S. from the Revolution to the present.

5970. DIRECTED READINGS. (989715) (Cr ar; prereq 9 cr in 3xxx-5xxx-level speech courses, #, Δ, CLA approval)
Directed reading and preparation of reports on selected subjects.

8201. INTRODUCTION TO SURVEY RESEARCH IN SPEECH-COMMUNICATION. (386396) (3 cr; prereq 8101 or Jour 8001 or #: 1115-1310 MW; first meeting T; FolH 306) Petronio
Survey research-based projects in broadcasting and public address; design and execution of small-scale survey research-based study with emphasis on method problems.

8990. RESEARCH. (789716) (Cr ar)
Open to graduate students engaged in research on special problems.

SECOND TERM

R 1101. FUNDAMENTALS OF SPEECH COMMUNICATION: ORAL COMMUNICATION. (190563) (4 cr, §1441; limited to 24 students; 0800-0850 MTWThF; FolH 306)
See First Term.

Course Descriptions

- ¶ 1313. ANALYSIS OF ORAL ARGUMENT.** (886399) (4 cr; limited to 25 students; 0905-0955 MTWThF; FolH 307)
See First Term
- ¶ 3201. INTRODUCTION TO BROADCASTING PRODUCTION.** (690566) (4 cr; limited to 22 students; 1115-1205 MTWThF; RarigC 610) Bart
Basic practice and theory. Projects in performance, scripting, and studio production.
- ¶ 3204. STUDIO TELEVISION PRODUCTION.** (290568) (4 cr; prereq 3201; limited to 18 students; 1325-1415 MTWThF; RarigC 610) Bart
Advanced experience in producing and directing through a variety of in-studio projects.
- 3401. THEORIES OF PERSON-TO-PERSON COMMUNICATION.** (591449) (4 cr; prereq 1102 or #, Psy 1001; 0905-0955 MTWThF; FolH 50) Sykes
Theories of interpersonal communication and their usefulness for particular purposes.
- 3601. APPROACHES TO PUBLIC DISCOURSE.** (888315) (4 cr; prereq 1101; 0800-0850 MTWThF; FolH 308) Scott
Theoretical systems intended to explain or direct the creation of public discourse. Traditional rhetoric to contemporary perspectives. Using theory to explain the practice of public discourse.
- 3605. PUBLIC SPEAKING.** (586400) (4 cr; prereq 1101; 1010-1100 MTWThF; FolH 307) Scott
Principles of preparing and presenting public speeches; *directed practice in public speaking; consideration of function of public speaking in contemporary life.*
- ¶ 3641. DISCUSSION AND CONFERENCE METHODS.** (991450) (4 cr; limited to 30 students; prereq 1101 or 1101H or #; 1115-1205 MTWThF; FolH 306)
See First Term.
- 3970. DIRECTED STUDIES.** (190580) (Cr ar [cr does not count toward speech-communication major]; prereq at least one course in speech-communication, #, Δ , college approval)
See First Term.
- 3980. DIRECTED INSTRUCTION.** (890582) (1-4 cr per term [max 8 cr...cr does not count toward speech-communication major]; S-N only; prereq #, Δ , college approval)
See First Term.
- ¶ 5405. NONVERBAL COMMUNICATION: THEORY AND RESEARCH.** (791451) (4 cr; limited to 25 students; 1220-1310 MTWThF; FolH 50) Sykes
Nonverbal (extra-linguistic) elements and dimensions of interpersonal communication. Nonverbal categories examined to include gesture, facial expression, posture, clothing, and environment.
- 5431. THE PROCESS OF PERSUASION.** (186402) (4 cr; prereq 1102, Psy 1001; 1115-1205 MTWThF; FolH 406) Howell
Theories of modern motivational communication. Analysis of the process of social control through persuasive speech.
- 5970. DIRECTED READINGS.** (490584) (Cr ar; prereq 9 cr in 3xxx-5xxx-level speech courses, #, Δ , CLA approval)
See First Term.
- 8431. SEMINAR IN PERSUASION.** (591452) (3 cr; prereq 5431; 1325-1520 TTh; FolH 307) Howell
Literature of persuasion, methods in study of persuasion.
- 8990. RESEARCH.** (790588) (Cr ar)
See First Term.

Statistics (Stat)

FIRST TERM

- 1051. INTRODUCTION TO IDEAS OF STATISTICS.** (389718) (4 cr; prereq high school higher algebra; 0905-0955 MTTh, 0905-1100 WF; VinH 311)
Presentation and analysis of data. Probabilistic models for inference. Inference and decision procedures. Emphasis on concepts rather than computation.
- ¶ 3091. INTRODUCTION TO PROBABILITY AND STATISTICS.** (088328) (4 cr, §5121, §5131; limited to 40 students; prereq differential and integral calculus; 1010-1100 MTTh, 1010-1205 WF; VinH 1)
Elementary probability and probability distributions, sampling and elements of statistical inference. Treatment is more mathematical than 1051.
- ¶ 5021. STATISTICAL ANALYSIS I.** (187582) (5 cr; prereq college algebra or #; 0905-1005 MTWThF, 1325-1455 TTh; ClaOff B25)
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.** (189719) (4 cr, §5131-5132-5133; prereq Math 1231 or 1331 or 1621; 1115-1205 MWf, 1010-1205 TTh; VinH 311)
Univariate and multivariate distributions, law of large numbers, sampling, likelihood methods, estimation and hypothesis testing.

5890. SENIOR PAPER. (386656) (2 cr; prereq sr statistics major)

Satisfies senior project requirement for majors. Directed study. Paper on specified area, a consulting project, or original computer program.

SECOND TERM

R 3091. INTRODUCTION TO PROBABILITY AND STATISTICS. (4 cr, §5121, §5131; each section limited to 40 students; prereq differential and integral calculus)

See First Term.

Sec 1, (590592) 0905-0955 MTTh, 0905-1100 WF, VinH 311

Sec 2, (088068) 1010-1105 MTTh, 1010-1205 WF, MechE 221

5122. THEORY OF STATISTICS. (490598) (4 cr, §5131-5132-5133; prereq 5121; 1115-1205 MWF, 1010-1205 TTh; VinH 311)

Confidence intervals, testing hypotheses, regression, analysis of variance and covariance, distribution-free methods.

Studio Arts—See Arts, Studio

Theatre Arts (Th)

See also *Honors Institute in Theatre for high school students*, page 47.

FIRST TERM

3172. HISTORY OF THE THEATRE. (691328) (4 cr; prereq 1101, 1504; 1010-1205 MTWTh; RarigC 275) Gadberry
Western theatre from Renaissance to present.

R 3321. ADVANCED ACTING: CHARACTERIZATION. (389721) (4 cr; limited to 18 students; prereq 1326; 0800-0955 MTWThF; RarigC 210) Reid

Presentation of scenes from plays with emphasis on characterization.

3412H. HONORS COURSE: TUTORIAL SEMINAR IN THEATRE ARTS. (988659) (0-3 cr [limited to 3 cr for cum laude and magna cum laude...up to 3 addtl cr through X regis for summa cum laude]; prereq theatre arts honors candidate and Δ)

5100. THEATRE PRACTICUM. (189722) (1-6 cr; prereq written permission, #, Δ) Staff

Arranged individual creative projects in production of approved plays. Playwriting, directing, acting, and design.

5110. THEATRE PERFORMANCE. (089723) (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.

R 5718. THEATRE MANAGEMENT AND PROMOTION. (286407) (4 cr; limited to 15 students; prereq 1504, sr or grad or #; 1220-1415 MTWTh; RarigC 275) Neely

Theory and practice in ticket office procedures, house management, publicity, and promotion; special problems in college, community, children's, and professional theatre.

5720. PLAYS IN PRODUCTION AND PERFORMANCE. (888329) (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. (188330) (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. (289727) (1-6 cr; prereq 9 cr in theatre, #, Δ, CLA approval) Staff

Directed reading and preparation of reports on selected subjects.

8980. DIRECTED INSTRUCTION. (689725) (1-3 cr; prereq Δ) Staff

Teaching experience in an area in which the student does not hold a teaching assistantship but in which he or she may be required to teach as a professional. Limited to students qualified by course work in the area to be taught.

8990. RESEARCH. (489726) (Cr ar; prereq # and Δ) Staff

Open to graduate students engaged in research on special problems.

SECOND TERM

R 1101. INTRODUCTION TO THE THEATRE—July 22-August 16. (991335) (4 cr; limited to 35 students; 0905-1100 MTWThF; RarigC 190) Ballet

History and theory of plays and playwrights.

Course Descriptions

R 1301. BEGINNING ACTING FOR NON-THEATRE MAJORS. (791336) (4 cr; limited to 35 students; prereq 1101 or 1101; 0905-1100 MTWThF; RarigC 10) Moulton
Introduction to the background and techniques of the acting process.

R 1321. BEGINNING ACTING: CREATIVE APPROACH. (187596) (4 cr; limited to 20 students; prereq 1101, 1504, and 3rd qtr freshman or above; 1220-1415 MTWThF; RarigC 90) Berry
Beginning Stanislavskian technique and improvisational exercises leading to elementary scene study.

R 1504. ELEMENTS OF TECHNICAL THEATRE—July 22-August 16. (591337) (4 cr; limited to 40 students; prereq 1101 or 1101; 0800-0855 MTWThF; RarigC 190; lab ar) Brockman, Crellin, Josal, Montgomery
The practice of the arts and crafts of the theatre: scenery, construction and painting, stage operation, theatre lighting, costuming.

3412H. HONORS COURSE: TUTORIAL SEMINAR IN THEATRE ARTS. (087597) (0-3 [limited to 3 cr cum laude and magna cum laude . . . up to 3 addtl cr through X regis for summa cum laude]; prereq theatre arts honors candidate and Δ)

R 3513. TECHNICAL THEATRE PRODUCTION I. (191339) (4 cr; limited to 40 students; prereq 1504; 0905-1100 MTWThF; RarigC 275; lab ar) Brockman, Josal
Theory and practice of design and execution of stage scenery and properties.

5100. THEATRE PRACTICUM. (587885) (1-6 cr; prereq written permission #, Δ) Staff
Arranged individual creative projects in production of approved plays. Playwriting, directing, acting, and design.

5110. THEATRE PERFORMANCE. (887598) (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.

5502. ADVANCED MAKEUP FOR THE STAGE—July 23-August 15. (591340) (2 cr; prereq 1502 or equiv or grad student; 1325-1520 TTh; RarigC 45) Crellin
Advanced makeup design including facial casting, prosthetics, and hair ventilating.

5720. PLAYS IN PRODUCTION AND PERFORMANCE. (387600) (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. (187601) (1-3 cr [max 6 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.

R 5940. TOPICS IN THEATRE: DESIGNING THE HIGH SCHOOL ONE-ACT PLAY—July 23-August 15. (391341) (2 cr; 1115-1310 TTh; RarigC 275) Brockman

R 5950. TOPICS IN THEATRE: DIRECTING THE HIGH SCHOOL ONE-ACT PLAY—July 22-August 14. (091343) (2 cr; 1115-1310 MW; RarigC 185) Aday

5970. DIRECTED READINGS. (588731) (1-6 cr; prereq 9 cr in theatre, #, Δ , CLA approval) Staff
Directed reading and preparation of reports on selected subjects.

8980. DIRECTED INSTRUCTION. (087602) (1-3 cr; prereq Δ) Staff
Teaching experience in an area in which the student does not hold a teaching assistantship but in which he or she may be required to teach as a professional. Limited to students qualified by course work in the area to be taught.

8990. RESEARCH. (887603) (Cr ar; prereq # and Δ) Staff
Open to graduate students engaged in research on special problems.

Urban Studies (UrbS)

FIRST TERM

3900. INTERNSHIP. (189728) (1-6 cr per term [max 12 cr], prereq jr or sr and Δ ; 1730-1930 M; BlegH 360) Edwards
A weekly seminar integrating the internship experience with the academic program. Should be taken during or immediately after the internship.

3970. DIRECTED STUDIES. (488091) (2-6 cr; prereq #, Δ , CLA approval) Staff

Women's Studies (WoSt)

FIRST TERM

R 1006. INTRODUCTION TO WOMEN'S STUDIES. (591239) (4 cr; limited to 40 students; 1115-1205 MTWThF; Phys 143) Geiger
Women's studies as a discipline; brief history of feminism; overview of issues related to the current and rapidly changing role and status of women.

R 3001. THE BIOLOGY OF WOMEN. (991237) (4 cr; prereq Biol 1011 or Phsl 1001 or #; limited to 40; 0905-0955 MTWThF; MurH 311) Staff

Physiology, anatomy, and endocrine chemistry relevant to women's lifecycles and reproductive functioning.

3970. DIRECTED STUDIES. (687571) (1-15 cr; prereq #, Δ, college approval)

3980. DIRECTED INSTRUCTION. (487572) (1-5 cr; prereq #, Δ, college approval)

3990. DIRECTED RESEARCH. (287573) (1-5 cr; prereq #, Δ, college approval)

5970. DIRECTED STUDIES. (688753) (1-5 cr [max 12 cr]; prereq #, Δ, CLA approval)

8970. DIRECTED STUDIES. (791238) (1-8 cr; prereq #, Δ)

SECOND TERM

R 3502. WOMEN AND THE ARTS. (086367) (4 cr; prereq introductory work in music, art, drama, dance, film, or other arts; limited to 40 students; 1115-1205 MTWThF; VinH 1) McClary

Art by or about women. Focus may be on one or more forms of artistic expression.

R 3910. TOPICS IN WOMEN'S STUDIES: Contemporary Feminist Issues. (991240) (4 cr; limited to 30 students; 0930-1100 TWTh; LindH 217) Scheman

Contemporary and controversial issues relevant to feminist theory and activity. Issues range from theoretical problems in feminist thought to topical issues such as the abortion question, the use of reproductive technologies, the role of women in current affairs. Examination of how we choose values and make decisions in everyday life. Meets with 5910.

3970. DIRECTED STUDIES. (588843) (1-15 cr; prereq #, Δ, college approval)

3980. DIRECTED INSTRUCTION. (188828) (1-5 cr; prereq #, Δ, college approval)

3990. DIRECTED RESEARCH. (886368) (1-5 cr; prereq #, Δ, college approval)

R 5910. TOPICS IN WOMEN'S STUDIES: Contemporary Feminist Issues. (791241) (4 cr; limited to 10 students; 0930-1100 TWTh; LindH 217) Scheman

See 3910. Meets with 3910.

5970. DIRECTED STUDIES. (288755) (1-5 cr; max 12 cr; prereq #, Δ, college approval)

8970. DIRECTED STUDIES. (591242) (1-8 cr; prereq #, Δ)

School of Management

SUMMER-ONLY ADMISSION

Students who have completed or have in progress 90 or more quarter credits (60 or more semester credits) and plan to take the majority of their summer credits in the School of Management will be admitted for summer-only status. In addition to the Summer-Only Registration form (in the back of this bulletin), students will be required to complete the School of Management Summer-Only Form obtained in 225 Management/Economics.

Students with fewer than 90 completed (or in-progress) quarter credits (60 semester credits) who plan to register for DSci 1050 (formerly QA 1050) and/or Accounting 1024 or 1025 should enroll as College of Liberal Arts summer-only students.

ADMISSION TO DEGREE PROGRAMS

Students are admitted to School of Management degree programs only in the fall and spring quarters. Admission to a degree program requires completion of specific pre-management courses, proof of credits in progress to total 80 by the time of entrance to the School of Management, and a minimum overall grade point average of 2.70 for the regular program, and 2.80 for the accounting program in all transferable credits. Space permitting, students with a 2.50 overall average may be considered for admission to the regular program. Grades in the "tool" courses must average 2.50 for the regular program, 2.80 for the accounting program. Information about pre-management course requirements and graduation requirements is available in the Undergraduate Studies Office, 225 Management/Economics.

REGISTRATION INSTRUCTIONS FOR 3xxx AND 5xxx SCHOOL OF MANAGEMENT COURSES

- *Students who have completed or have in progress fewer than 90 quarter credits (60 semester credits)*—registration in 3xxx and 5xxx School of Management courses is **not** permitted.
- *School of Management undergraduate, adult special, and summer-only students*—no School of Management approval required.
- *University of Minnesota, Twin Cities degree-seeking students (except GC students) who have completed or have in progress 90 or more quarter credits prior to registration*—no School of Management approval required.
- *General College degree-seeking students who have completed or have in progress 90 or more quarter credits prior to registration*—consult your advising office for further information.
- *Non-School of Management adult special or summer-only students*—you must have completed or have in progress 90 quarter credits (60 semester credits) and must obtain a Registration Override Permit in 225 Management/Economics for each course.

Accounting (Acct)

Refer to registration instructions at the beginning of the School of Management section before attempting to register for 3xxx and 5xxx courses.

**SPECIAL TERM: SEVEN-WEEK COURSES
JUNE 18-AUGUST 1**

R 1024.¹ PRINCIPLES OF FINANCIAL ACCOUNTING I. (3 cr; each section limited to 42 students; prereq 3rd-qr fr; A-N only)

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

Sec 1, (588941) 0800-0900 MTWTh, BlegH 110

Sec 2, (388942) 0800-0900 MTWTh, BlegH 220

Sec 3, (188943) 0910-1010 MTWTh, BlegH 110

Sec 4, (088944) 1020-1120 MTWTh, BlegH 110

Sec 5, (888945) 1020-1120 MTWTh, BlegH 220

R 1025.¹ PRINCIPLES OF FINANCIAL ACCOUNTING II. (3 cr; each section limited to 42 students; prereq 1024; A-N only)

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

Sec 1, (688946) 0800-0900 MTWTh, BlegH 205

Sec 2, (488947) 0910-1010 MTWTh, BlegH 220

R 3001. MANAGERIAL ACCOUNTING. (887391) (4 cr; limited to 42 students; prereq 1025; A-N only; 1015-1200 MWTh; BlegH 230)

Accounting analysis and reports for management and investor decision making. Emphasis on planning and control reporting.

R 3101. ACCOUNTING THEORY AND PRACTICE I. (288948) (4 cr; limited to 42 students; §8101; prereq 1025; A-N only; 1215-1400 MWTh; BlegH 110)

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

R 3102. ACCOUNTING THEORY AND PRACTICE II. (188949) (4 cr; limited to 42 students; §8101; prereq 3101; A-N only; 0800-0945 MWTh; BlegH 230)

Concepts and problems in accounting for specific assets and equities.

R 3201. COST ACCOUNTING. (488950) (4 cr; limited to 42 students; prereq 3001, MIS 3099, QA 3055; A-N only; 0800-0945 MWTh; BlegH 420)

Process and standard costs, behavior of costs under varying conditions, cost allocations, variance analysis, capital budgeting.

R 5125. AUDITING PRINCIPLES AND PROCEDURES. (288951) (4 cr; limited to 42 students; prereq 3102 and 3201; A-N only; 0800-0945 MWTh; BlegH 215)

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

R 5135. INCOME TAX ACCOUNTING. (188952) (4 cr; limited to 42 students; prereq 1025; A-N only; 1015-1200 MWTh; BlegH 420)

Individual, partnership, and corporation taxation; emphasizes income tax planning.

R 5180. ADVANCED ACCOUNTING. (988953) (4 cr; limited to 42 students; prereq 3102; 1215-1400 MWTh; BlegH 220)

Consolidated statements, partnerships, fiduciary, international and fund accounting.

Business Administration (BA)

Refer to registration instructions at the beginning of the School of Management section before attempting to register for 3xxx courses.

FIRST TERM

R 3998. INDEPENDENT STUDY. (788954) (Cr ar [may be repeated for cr]; limited to 10 students; prereq consent of faculty member willing to supervise the study) Staff

Student-initiated project and/or independent course of study.

SECOND TERM

R 3998. INDEPENDENT STUDY. (489970) (Cr ar [may be repeated for cr]; limited to 10 students; prereq consent of faculty member willing to supervise the study) Staff

See First Term.

¹Common Final Exam, Thursday, August 1, 0800-1000, WilleyH 125/175.

Course Descriptions

Business, Government, and Society (BGS)

Refer to registration instructions at the beginning of the School of Management section before attempting to register for 3xxx courses.

FIRST TERM

R 3002. BUSINESS AND SOCIETY. (588955) (4 cr; limited to 50 students; prereq jr or sr; 0800-0955 MTWTh; BlegH 135; A-N only) Gilbert

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

R 3004. INTERNATIONAL BUSINESS. (4 cr; each section limited to 45 students; A-N only) Holloway, Bhat
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.

Sec 1, (986006) 0800-0955 MTWTh, BlegH 150, Fleming

Sec 2, (290859) 0905-1100 MTWTh, BlegH 130, Holloway, Bhat

SECOND TERM

R 3004. INTERNATIONAL BUSINESS. (586008) (4 cr; limited to 45 students; 1010-1205 MTWTh; BlegH 150; A-N only)

Bhat, Holloway

See First Term.

Business Law (BLaw)

Refer to registration instructions at the beginning of the School of Management section before attempting to register for 3xxx courses.

FIRST TERM

R 3058. INTRODUCTION TO LAW, AND THE LAW OF CONTRACTS AND AGENCY. (4 cr, §8158; each section limited to 50 students; prereq Econ 1002 or equiv; A-N only)

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

Sec 1, (388956) 0800-0850 MTWThF, BlegH 435

Sec 2, (188957) 0905-0955 MTWThF, BlegH 435

Decision Sciences (DSci)

Refer to registration instructions at the beginning of the School of Management section before attempting to register for 3xxx courses.

FIRST TERM

R 1050. ELEMENTARY MANAGERIAL STATISTICS. (491170) (4 cr, §QA 1050; limited to 50 students; prereq Math 1111 or equiv or Math 1131; lect 0900-1130 MTh; AndH 370; lab 0900-1015 TF; BlegH 230; A-N only)

Introduction to quantitative decision making. Probabilistic and statistical techniques in decision making, data analysis, and management information systems; e.g., laws of probability, sampling, estimation, and regression.

R 3055. INTRODUCTION TO MANAGEMENT SCIENCES. (191172) (4 cr, §QA 3055; limited to 50 students; prereq 1050, Math 1142 or equiv; lect 0900-1130 TTh, lab 0900-1015 MW; BlegH 235; A-N only)

Analytical approaches and quantitative reasoning in management problems; problem formulation, analytical methods for solution, and use of computer models. Management science concepts, decision theory, simulation, linear programming, implementation.

8990. READINGS IN DECISION SCIENCES. (991173) (Cr ar; prereq # and Grad Sch Mgmt approval; A-N only)

8995. GRADUATE RESEARCH IN DECISION SCIENCES. (791174) (Cr ar; prereq # and Grad Sch Mgmt approval; A-N only)

SECOND TERM

R 1050. ELEMENTARY MANAGERIAL STATISTICS. (091178) (4 cr, §QA 1050; limited to 50 students; prereq Math 1111 or equiv or Math 1131; lect 0900-1130 MTh, lab 0900-1015 TF; BlegH 440; A-N only)
See First Term.

R 3055. INTRODUCTION TO MANAGEMENT SCIENCES. (891182) (4 cr, §QA 3055; limited to 50 students; prereq 1050, Math 1142 or equiv; lect 0900-1130 MW, lab 0900-1015 TTh; BlegH 120; A-N only)
See First Term.

8990. READINGS IN DECISION SCIENCES. (691183) (Cr ar; prereq # and Grad Sch Mgmt approval; A-N only)

8995. GRADUATE RESEARCH IN DECISION SCIENCES. (491184) (Cr ar; prereq # and Grad Sch Mgmt approval; A-N only)

Finance (BFin)

Refer to registration instructions at the beginning of the School of Management section before attempting to register for 3xxx courses.

FIRST TERM

R 3000. FINANCE FUNDAMENTALS. (4 cr, §MBA 8040; each section limited to 50 students; prereq Acct 3001 or 1051; A-N only)

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

Sec 1, (088958) 0815-0945 MTWTh, BlegH 125

Sec 2, (888959) 1000-1130 TWThF, BlegH 125, Rosko

R 3300. INVESTMENT MANAGEMENT AND FINANCIAL MARKETS. (188960) (4 cr, §8300; limited to 40 students; prereq 3000; 1115-1230 MTWTh; BlegH 225)

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

R 8150. THEORY OF FINANCE. (086126) (4 cr; limited to 37 students; prereq MBA 8040 or #, grad mgmt/IR student or Grad Sch Mgmt approval; 1730-2000 TTh; BlegH 330)

A rigorous introduction to the modern theory of finance. Discussion of *inter alia*, capital budgeting, capital structure, dividend policy, asset pricing, the application of option pricing to corporate finance, and the efficiency of financial markets.

R 8300. INVESTMENTS AND SECURITY ANALYSIS. (191096) (4 cr; limited to 35 students; prereq 8150, 8200 or #, grad Mgmt/IR student or Grad Sch Mgmt approval; 1730-2000 MW; BlegH 330) Resnick

An introduction to investment decision making for individuals and institutions. Discussion of *inter alia*, alternative methods of choosing securities and managing portfolios, with special emphasis given to the risk-return characteristics of securities.

SECOND TERM

R 3000. FINANCE FUNDAMENTALS. (289971) (4 cr, §MBA 8040; limited to 50 students; prereq Acct 3001 or 1051; A-N only; 0900-1030 MTWTh; BlegH 125)

See First Term.

R 3100. FINANCIAL MANAGEMENT. (991092) (4 cr; limited to 37 students; prereq 3000; A-N only; 0915-1030 MTWTh; BlegH 330)

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

R 3300. INVESTMENT MANAGEMENT AND FINANCIAL MARKETS. (189972) (4 cr, §8300; limited to 40 students; prereq 3000; 0930-1200 TTh; Bleg 415) Alexander

See First Term.

Course Descriptions

R 3500. REAL ESTATE INVESTMENT ANALYSIS. (986121) (4 cr; limited to 40 students; prereq 3000 and Econ 1002 or equiv; 0930-1200 MW; BlegH 205)

Analysis and economic aspects of investments in real property including cash flows; accounting depreciation vs. market value depreciation or appreciation; financing methods and costs; sources of funds; measures of return on investment.

R 8200. FINANCIAL MARKETS AND INTEREST RATES. (791093) (4 cr; limited to 37 students; prereq MBA 8040 or #, grad mgmt/IR student or Grad Sch Mgmt approval; 1730-2000 MW; BlegH 330)

Survey of financial markets of modern economies and introduction to theory of how interest rates in the various markets are related. Discussion of *inter alia*, interest rate term structure, relationship between interest rate and exchange rate, inflation and interest rates, and use of financial futures.

R 8400. INTERNATIONAL FINANCIAL MANAGEMENT. (591094) (4 cr; limited to 37 students, prereq 8150 or #, grad mgmt/IR student or Grad Sch Mgmt approval; 1730-2000 TTh; BlegH 330) Eun

Implications of modern finance theory for the multinational corporation. Discussion, for background, of alternative exchange rate regimes, risks each regime imposes on the multinational, and how different international risks influence basic corporate financial decisions.

Industrial Relations (IR)

Refer to registration instructions at the beginning of the School of Management section before attempting to register for 3xxx courses.

FIRST TERM

R 3002. PERSONNEL AND INDUSTRIAL RELATIONS. (688963) (4 cr, §8002; prereq Econ 1001, 1002, Psy 1001; 0800-0955 MTWTh; BlegH 255)

An introduction to the human resource management function in organizations. The labor market, recruitment, selection, training, compensation, and 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.

R 3010. THE INDIVIDUAL IN THE ORGANIZATION. (488964) (4 cr; 1220-1415 MTWTh; BlegH 255)

An introduction to the human side of organizations, focusing on workers and how they enter and succeed in the work setting. Theories and techniques of employment interviewing; training needs analysis; career planning; management development; turnover, outplacement, and retirement; understanding leadership roles and styles; work motivation, organization culture and job design; and planning for change. Lecture presentations, discussion, case studies, and simulation exercises.

R 8002. INTRODUCTION TO INDUSTRIAL RELATIONS. (288965) (4 cr, §3002; prereq Econ 1001, 1002, Psy 1001 and IR grad student or department approval; 0800-0955 MTWTh; BlegH 255)
Meets with 3002.

R 8003. STAFFING, TRAINING, AND DEVELOPMENT. (586168) (4 cr; prereq 8002 or # and IR grad student or department approval; 1010-1205 MTWTh; Law 1)

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

SECOND TERM

R 3002. PERSONNEL AND INDUSTRIAL RELATIONS. (789974) (4 cr, §8002; prereq Econ 1001, 1002, Psy 1001; 0800-0955 MTWTh; BlegH 225)
See First Term. Meets with 8002.

R 3007. COLLECTIVE BARGAINING AND LABOR RELATIONS. (786170) (4 cr; 1220-1415 MTWTh; BlegH 225)
Analysis of the roles of unions and collective bargaining in contemporary American society. Negotiations and related policies and practices of employers, employees, unions, legislative bodies, and the public in dealing with questions of worker representation in the private and public sectors. Impact and transference of collective bargaining principles from the union sector to the non-union sector. Lecture presentations, discussion, case studies, and bargaining simulations.

R 8002. INTRODUCTION TO INDUSTRIAL RELATIONS. (087521) (4 cr, §3002; prereq Econ 1001, 1002, Psy 1001; 0800-0955 MTWTh; BlegH 225)
Meets with 3002.

R 8007. COLLECTIVE BARGAINING IN THE PUBLIC AND PRIVATE SECTORS. (090998) (4 cr; prereq 8002 or # and IR grad student or department approval; 1010-1205 MTWTh; BlegH 350)
Introduction to collective bargaining and administration. Legal frameworks imposed on public and private sector negotiators.

Management (Mgmt)

Refer to registration instructions at the beginning of the School of Management section before attempting to register for 3xxx courses.

FIRST TERM

3001. FUNDAMENTALS OF MANAGEMENT. (4 cr, §8001; each section limited to 40 students; A-N 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, (988967) 0800-1000 MTWTh, BlegH 335, Jacobson

Sec 2, (187615) 0905-1100 MTWTh, BlegH 415, Govekar

3002. PSYCHOLOGY IN MANAGEMENT. (788968) (4 cr, §8006; limited to 30 students; 0905-1100 MTWThF; BlegH 205; A-N only) Mihnovets

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

3004. BUSINESS POLICY: STRATEGY FORMULATION AND IMPLEMENTATION. (588969) (5 cr; limited to 35 students; prereq sr and completion of business core or final core course; 1010-1205 MTWThF; BlegH 335; A-N only) Erickson

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

8990. READINGS IN MANAGEMENT THEORY AND ADMINISTRATION. (988970) (Cr ar; prereq consent of adviser 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. GRADUATE RESEARCH IN MANAGEMENT THEORY AND ADMINISTRATION. (788971) (Cr ar; prereq consent of adviser, Grad Sch Mgmt approval, #, 2nd-yr grad student and requisite introductory courses) Staff
Special research projects on a specific problem completed in cooperation in a business firm.

SECOND TERM

3001. FUNDAMENTALS OF MANAGEMENT. (389976) (4 cr, §8001; limited to 45 students; 0905-1100 MTWTh; Law 15; A-N only) Fleming
See First Term.

8990. READINGS IN MANAGEMENT THEORY AND ADMINISTRATION. (189977) (Cr ar; prereq consent of adviser, Grad Sch Mgmt approval, and #, 2nd-yr grad student and requisite introductory courses) Staff
See First Term.

8995. GRADUATE RESEARCH IN MANAGEMENT THEORY AND ADMINISTRATION. (089978) (Cr ar; prereq consent of adviser and #, Grad Sch Mgmt approval, 2nd-yr grad student and requisite introductory courses) Staff
See First Term.

Management Information Systems (MIS)

Refer to registration instructions at the beginning of the School of Management section before attempting to register for 3xxx and 5xxx courses.

FIRST TERM

3300. INTRODUCTION TO COMPUTERS AND MANAGEMENT INFORMATION SYSTEMS. (488737) (4 cr, §3100, §5100, §5300; limited to 50 students; 0800-0955 MTWTh; AndH 270)

A computer appreciation course providing technical background for understanding the use of computers in organizations. Structure and operation of computer systems. Hardware technology and software development. Structure and components of MIS. Using a computer in organizations to support operations and management—in planning and control and in decision making. Managing the development and use of computer systems. Acquiring computer resources. The computer industry and impact of computers on society.

8990. READINGS IN MANAGEMENT INFORMATION SYSTEMS. (188974) (Cr ar; prereq consent of adviser, 2nd-yr grad student, requisite introductory courses; A-N only)

8995. GRADUATE RESEARCH IN MANAGEMENT INFORMATION SYSTEMS. (088975) (Cr ar; prereq consent of adviser, #, 2nd-yr grad student, requisite introductory courses; A-N only)

Course Descriptions

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

3098. ELEMENTARY COBOL. (588972) (2 cr; prereq 3040 or f3040 or 3100 or f3100 or 3300 or f3300; 0800-0850 W; AndH 370; S-N only)

An introduction to programming in the COBOL language. Using a programmed text in this self-paced course, the student will complete a set of simple COBOL programs. Consultants assist and administer quizzes in a laboratory environment.

3099. ELEMENTARY FORTRAN. (388973) (2 cr; prereq 3040 or f3040 or 3100 or f3100 or 3300 or f3300; 0905-0955 W; AndH 370; S-N only)

An introduction to programming in the FORTRAN language. Using a programmed text in this self-paced course, the student will complete a set of simple FORTRAN programs. Consultants assist and administer quizzes in a laboratory environment.

5098. INTERMEDIATE COBOL. (287525) (2 cr; prereq 3098; 1010-1100 W; AndH 370; S-N only)

Self-paced course requiring the programming of a structured set of problems using intermediate and advanced features of the COBOL language. Consultants provide student assistance and administer quizzes in a laboratory environment.

SECOND TERM

R 3300. INTRODUCTION TO COMPUTERS AND MANAGEMENT INFORMATION SYSTEMS. (186187) (4 cr, \$3100, \$5100, \$5300; limited to 50 students; 1010-1205 MTWTh; BlegH 225; A-N only)

See First Term.

8990. READINGS IN MANAGEMENT INFORMATION SYSTEMS. (889979) (Cr ar; prereq consent of adviser, 2nd-yr grad student, requisite introductory courses and Grad Sch Mgmt approval; A-N only)

8995. GRADUATE RESEARCH IN MANAGEMENT INFORMATION SYSTEMS. (189980) (Cr ar; prereq consent of adviser, #, 2nd-yr grad student, requisite introductory courses and Grad Sch Mgmt approval; A-N only)

Marketing (Mktg)

FIRST TERM

Refer to registration instructions at the beginning of the School of Management section before attempting to register for 3xxx courses.

R 3000. PRINCIPLES OF MARKETING. (4 cr, \$800; each section limited to 50 students; prereq Econ 1002 or equiv; A-N only)

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

Sec 1, (888976) 0800-0955 MWF, BlegH 155

Sec 2, (688977) 1115-1310 MWF, Law 45

R 3010. BUYER BEHAVIOR AND MARKETING ANALYSIS. (488978) (4 cr; limited to 40 students; prereq 3000 and QA 1050 or equiv; 0905-1100 MWF; BlegH 120)

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.

R 3065. RETAIL MANAGEMENT. (086188) (4 cr, \$8065; limited to 35 students; prereq 3010; 1115-1310 MWF; BlegH 415)

Retailing principles, problems, and trends related to various types of retailing institutions. Assignment of trade journal and supplementary readings for in-store study (buying and pricing) with a local retailer.

R 8090. MARKETING TOPICS: Introduction to Consumer Behavior. (886189) (4 cr [may be repeated for credit]; limited to 35 students; prereq either MBA core courses, or MBA 8045 and Δ , Grad Mgmt/IR student or Grad School Mgmt approval; 1115-1310 MWF; BlegH 350) Ross

Selected topics and problems of current interest and varied nature considered in depth. Class discussion and course projects. Content varies from quarter to quarter.

8990. READINGS IN MARKETING. (288979) (Cr ar; prereq MBA core courses, or MBA 8045 and Δ ...and consent of adviser, #, 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. (688980) (Cr ar; prereq MBA core courses, or MBA 8045 and Δ ...and consent of adviser, #, and Grad Sch Mgmt approval)

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

SECOND TERM

R 3000. PRINCIPLES OF MARKETING. (4 cr, §8000; each section limited to 50 students; prereq Econ 1002 or equiv; A-N only)

See First Term.

Sec 1, (089981) 0800-0955 MWF, BlegH 415

Sec 2, (788257) 1115-1310 MWF, BlegH 415

R 3020. MARKETING OPERATIONS MANAGEMENT. (889982) (4 cr; limited to 35 students; prereq 3010; 0905-1100 MWF; BlegH 340)

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. (689983) (Cr ar; prereq MBA core courses, or MBA 8045 and Δ ...and consent of adviser, #, and Grad Sch Mgmt approval)

See First Term.

8995. GRADUATE RESEARCH IN MARKETING. (489984) (Cr ar; prereq MBA core courses, or MBA 8045 and Δ ...and consent of adviser, #, and Grad Sch Mgmt approval)

See First Term.

Master of Business Administration (MBA)

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

R 8005. COMPUTER ACCESS AND PROGRAMMING FOR BUSINESS ANALYSIS. (1 cr; MBA students only; each section limited to 40 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, (488981) 0800-1000 T, BlegH 425

Sec 2, (188286) 1030-1230 T, BlegH 425

R 8015. HUMAN RESOURCES MANAGEMENT. (288982) (4 cr; MBA students only; limited to 40 students; 1230-1430 TTh; BlegH 435)

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.

R 8025. DECISION SCIENCES AND INFORMATION SYSTEMS. (188983) (4 cr; MBA students only; limited to 40 students; 0900-1200 Th; BlegH 425)

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.

R 8035. MANAGERIAL ECONOMICS AND ACCOUNTING. (988984) (4 cr; MBA students only; limited to 40 students; 1430-1600 MWTh; BlegH 425) Daly

The interplay of microeconomic theory of the firm, managerial accounting, and management of organizations. Topics include cost curves and cost estimation; demand curves, market structure, and demand estimation; short-run decision making of the firm and the related accounting information; and accounting choice problems under uncertainty.

R 8040. FINANCIAL MANAGEMENT. (4 cr; MBA students only; each section limited to 40 students) Reik

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.

Sec 1, (788985) 1230-1415 MWF, BlegH 435

Sec 2, (588986) 1445-1630 MWF, BlegH 435

R 8045. MARKETING MANAGEMENT. (4 cr; MBA students only; each section limited to 40 students)

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

Sec 1, (388987) 0830-1000 MW, BlegH 425

Sec 2, (186190) 1100-1230 MW, BlegH 425

R 8050. OPERATIONS MANAGEMENT. (4 cr; MBA students only; each section limited to 40 students)

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

Sec 1, (188988) 0900-1200 Th, BlegH 340

Sec 2, (088989) 0900-1200 F, BlegH 425

Course Descriptions

8070. PROBLEM FORMULATION AND DECISION MAKING. (091598) (5 cr; MBA students only; limited to 30 students; 1730-2050 W; BlegH 335)

Formulation and analysis of managerial problems in unstructured situations.

Operations Management (OM)

Refer to registration instructions at the beginning of the School of Management section before attempting to register for 3xxx courses.

FIRST TERM

3000. INTRODUCTION TO OPERATIONS MANAGEMENT. (387547) (4 cr; limited to 50 students; A-N only; 1010-1205 MTWTh; BlegH 145)

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

8990. READINGS IN OPERATIONS MANAGEMENT. (187548) (Cr ar; prereq consent of adviser and #, 2nd year grad student, requisite introductory courses; A-N only)

8995. GRADUATE RESEARCH IN OPERATIONS MANAGEMENT. (087549) (Cr ar; prereq consent of adviser and #, 2nd year grad student, requisite introductory courses; A-N only)

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

SECOND TERM

3000. INTRODUCTION TO OPERATIONS MANAGEMENT. (289985) (4 cr; limited to 50 students; A-N only; 1010-1205 MTWTh; BlegH 145)

See First Term.

8990. READINGS IN OPERATIONS MANAGEMENT. (189986) (Cr ar; prereq consent of adviser and #, 2nd-yr grad student, requisite introductory courses and Grad Sch Mgmt approval; A-N only)

8995. GRADUATE RESEARCH IN OPERATIONS MANAGEMENT. (989987) (Cr ar; prereq consent of adviser and #, 2nd-yr grad student, requisite introductory courses and Grad Sch Mgmt approval; A-N only)

See First Term.

Risk Management and Insurance (Ins)

Refer to registration instructions at the beginning of the School of Management section before attempting to register for 3xxx courses.

FIRST TERM

3100. RISK MANAGEMENT AND INSURANCE. (388990) (4 cr, \$8100; 0930-1045 MTWTh; BlegH 10; A-N only) Whitman

How to recognize and evaluate the property, liability, and personnel risks facing a business, a nonprofit organization, a government unit, or an individual or family. The tools of risk management—mainly retention, loss control, and insurance—and the conditions under which they should be used. How to select and deal with an insurer. Public policy issues such as availability of insurance, insurance pricing, and social insurance.

3200. LIFE AND HEALTH INSURANCE. (188991) (4 cr, \$8200; prereq 3100 or equiv; 1100-1215 MTWTh; BlegH 10) Whitman

Types, uses, and major provisions of individual life and health insurance contracts. Insurance and pension components of employee benefit plans, characteristics and regulation. Programming and estate planning. Business uses of individual life and health insurance. Selection of a life and health insurer. Meets with 8200.

8100. RISK MANAGEMENT AND INSURANCE I. (088992) (4 cr, \$3100; prereq grad Mgmt/IR student or Grad Sch Mgmt approval; 0930-1045 MTWTh; BlegH 10) Whitman
Meets with 3100.

8200. LIFE AND HEALTH INSURANCE. (888993) (4 cr, \$3200; prereq 3100 or 8100 or equiv, grad Mgmt/IR student or Grad Sch Mgmt approval; 1100-1215 MTWTh; BlegH 10) Whitman
Meets with 3200.

8990. READINGS IN RISK MANAGEMENT AND INSURANCE. (386172) (Cr ar; prereq consent of adviser, #, and Grad Sch Mgmt approval)

SECOND TERM

8990. READINGS IN RISK MANAGEMENT AND INSURANCE. (388844) (Cr ar; prereq consent of adviser, and Grad Sch Mgmt approval)

Transportation (Tran)

Refer to registration instructions at the beginning of the School of Management section before attempting to register for 3xxx courses.

FIRST TERM

R 3054. FUNDAMENTALS OF TRANSPORTATION. (688249) (4 cr, §8154; limited to 50 students; prereq Econ 1002 or equiv; 0905-0955 MTWThF; BlegH 225; A-N only)

Organizational and economic aspects of the transportation system of the United States including rail, highway, air, pipeline, and water transportation. Administration of transportation by users, providers (carriers), and government.

8990. READINGS IN TRANSPORTATION AND BUSINESS LOGISTICS. (688994) (Cr ar; prereq consent of adviser, # in field covered, and Grad Sch Mgmt approval; A-N only)

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

8995. GRADUATE RESEARCH IN TRANSPORTATION AND BUSINESS LOGISTICS. (488995) (Cr ar; prereq consent of adviser, # in field covered, and Grad Sch Mgmt approval; A-N only)

SECOND TERM

R 3054. FUNDAMENTALS OF TRANSPORTATION. (789988) (4 cr, §8154; limited to 50 students; prereq Econ 1002 or equiv; 0905-0955 MTWThF; BlegH 145; A-N only)

See First Term.

8990. READINGS IN TRANSPORTATION AND BUSINESS LOGISTICS. (589989) (Cr ar; prereq consent of adviser, # in field covered; A-N only)

See First Term.

8995. GRADUATE RESEARCH IN TRANSPORTATION AND BUSINESS LOGISTICS. (989990) (Cr ar; prereq consent of adviser, # in field covered; A-N only)

Military Science

The Army Reserve Officers' Training Corps (ROTC) summer program offers University students three ways to qualify for ROTC through an accelerated program: entry into the basic course (compress 4 years into 3); entry into the advanced course (compress 4 years into 2); an alternative to the 2-year basic camp that permits students to remain in the Twin Cities during the summer (compress 4 years into 2). No military obligation is incurred through participation in any of the summer programs. Eligible students who enroll in the advanced course receive \$100 per month beginning the next academic year. For information, call 373-2212.

Military Science (Mil)

FIRST TERM

1024. BASIC COURSE SUMMER COMPRESSION PROGRAM. (491055) (5 cr; limited to 50 students; 0800-0955 MTWThF; Armory 116A)

Introduction to the U.S. Army, leadership in military units, and other topics of importance to military officers.

3970. DIRECTED STUDIES. (488804) (Cr and hrs ar)

SECOND TERM

1024. BASIC COURSE SUMMER COMPRESSION PROGRAM. (890615) (5 cr; limited to 50 students; 0800-0955 MTWThF; Armory 116A)

See First Term.

3970. DIRECTED STUDIES. (685867) (Cr and hrs ar)

Humphrey Institute of Public Affairs

Public Affairs (PA)

FIRST TERM

8981. INDIVIDUAL READINGS, RESEARCH IN PUBLIC POLICY ANALYSIS, ADMINISTRATION. (Cr ar; prereq #)

Sec 1, (389590)

Sec 2, (787979)

SECOND TERM

8991. INDIVIDUAL READINGS, RESEARCH IN PUBLIC POLICY ANALYSIS, ADMINISTRATION. (Cr ar; prereq #)

Sec 1, (890517)

Sec 2, (388830)

SPECIAL TERM: AUGUST 19-SEPTEMBER 20

Econ 3101/5151. ELEMENTS OF ECONOMIC ANALYSIS: FIRM AND HOUSEHOLD. (4 cr for 3101, 3 cr for 5151; prereq Econ 1001, 1002, 1 qtr calculus, grad student or #) Kudrie
Microeconomics with a public policy emphasis. Primarily for incoming graduate students in public affairs, but open to all.
Course is a prerequisite to the school's core sequence in policy analysis.

Sec 2, 3101 (190370), 5151 (990377) 0905-0955 MTWThF, BlegH 155

Institute of Technology

SCHOOL OF ARCHITECTURE AND LANDSCAPE ARCHITECTURE

Architecture (Arch)

FIRST TERM

3970. DIRECTED STUDY. (288819) (Cr ar; prereq #)

R 5950. TOPICS IN ARCHITECTURE. (3 cr; prereq 3093 or #; hrs ar)

Sec 1, House in your Head. (691135) 0810-1005 T, AkerH 215, Mullfingr

Sec 2, Post-Occupancy Evaluation: Tools and Methods. (891621) 1010-1205 WF, ElectE 115, Robinson

R 5961. COMPUTER AIDED ARCHITECTURAL DESIGN. (288027) (4 cr; prereq Arch major, 3083, or #; 1010-1205 TTh; Arch 25) Anderson

Introduction to computing and Pascal programming. Methods in computer-aided architectural design; methods, hardware, software, problems and potential of CAAD; weekly lab projects using Terak microcomputers as a design tool.

5970. DIRECTED STUDY. (688655) (Cr ar; prereq #)

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

R 3082-3083. ARCHITECTURAL DESIGN I. (989732) (789733) (6 cr each; prereq 3081; 1325-1730 MWF; Arch 210) Fraker, Weeks, Robinson, Rockcastle, Anderson, Morrill, Myers

Basic exercises in composition of line, form, proportion, color, and texture. Elements of architectural design. Architectural drawing. Model making.

R 3092-3093. ARCHITECTURAL DESIGN II. (589734) (389735) (6 cr each; prereq 3091; 1325-1730 MWF; Arch 210) Fraker, Weeks, Robinson, Rockcastle, Anderson, Morrill, Myers

Architectural problems with emphasis on development of structure as an integral part of design; site planning.

R 5111. ARCHITECTURAL DESIGN III. (189736) (6 cr; prereq 3093, 3064-3065 or ¶, CE 3600-3601-3602 or ¶; 1325-1730 MWF; Arch 210) Fraker, Weeks, Robinson, Rockcastle, Anderson, Morrill, Myers

Advanced architectural problems of complex requirements, involving thorough study and detailed solution; electrical and mechanical equipment and structure as an integral part of design; research techniques. Individual effort and group collaboration.

R 5112. ARCHITECTURAL DESIGN III. (089737) (6 cr; prereq 5111; 1325-1730 MWF; Arch 210) Fraker, Weeks, Robinson, Rockcastle, Anderson, Morrill, Myers

See 5111.

R 5113. ARCHITECTURAL DESIGN III. (889738) (6 cr; prereq 5112; 1325-1730 MWF; Arch 210) Fraker, Weeks, Robinson, Rockcastle, Anderson, Morrill, Myers

See 5111.

R 5121. ARCHITECTURAL DESIGN IV. (689739) (6 cr; prereq 5113, CE 3062; 1325-1730 MWF; Arch 210) Fraker, Weeks, Robinson, Rockcastle, Anderson, Morrill, Myers

Building design and development in the urban context. Individual and collaborative effort; urban problems; reporting on and preparation of large-scale proposals.

R 5122. ARCHITECTURAL DESIGN IV. (089740) (6 cr; prereq 5121; 1325-1730 MWF; Arch 210) Fraker, Weeks, Robinson, Rockcastle, Anderson, Morrill, Myers

See 5121.

SECOND TERM

3970. DIRECTED STUDY. (688820) (Cr ar; prereq #)

R 5056. MODERN ARCHITECTURE. (491136) (4 cr; prereq 1021; 1010-1205 MWF; Arch 25) Ohlhausen

History of development of architecture and urban design in America and Europe from the early 19th century until World War II.

R 5950. **TOPICS IN ARCHITECTURE.** (291137) (3 cr; prereq 3093 or #: hrs ar)

Sec 1, **The Semiotics of Ediface.** (291137) 1600-1800 Th, Arch 20, Rockcastle

Sec 2, **The Vernacular Architecture of the Upper Midwest.** (691622) 1010-1305 W, Arch 20, Parker

5970. **DIRECTED STUDY.** (488656) (Cr ar; prereq #)

Landscape Architecture (LA)

FIRST TERM

3098. **INDEPENDENT STUDY IN DESIGN.** (588177) (Cr and hrs ar) Martin

5119. **PLANTING DESIGN: ECOLOGICAL PRINCIPLES/LAND USE CONCEPTS AND IMPLEMENTATION OF PLANTING DESIGN.** (091049) (4 cr; prereq 5117 or #: 0800-1200 MWF; NorH 305) Harper

Lectures, presentations, field trips, readings, and projects related to the principles and practices of using plants in an ecologically sound and environmentally sensitive manner. Principles derived from prairie, northwoods, riverine, and wetland environments. Integration of naturalized materials within a range of environments.

5132. **SELECTED PROBLEMS IN LANDSCAPE ARCHITECTURE.** (788775) (Cr ar; prereq #) Martin

5140. **INTERDISCIPLINARY STUDIES IN LANDSCAPE ARCHITECTURE.** (191051) (2-6 cr [max 18 cr]; prereq #: A-N only) Sand

SECOND TERM

3098. **INDEPENDENT STUDY IN DESIGN.** (486874) (Cr and hrs ar; prereq #)

5140. **INTERDISCIPLINARY STUDIES IN LANDSCAPE ARCHITECTURE.** (991044) (2-6 cr [max 18 cr]; prereq #: A-N only) Sand

SCHOOL OF CHEMISTRY

Chemistry (Chem)

A \$20 deposit card, available at the Bursar's Office, Williamson Hall, is necessary for all laboratory courses.

FIRST TERM

R 1001. **CHEMICAL PRINCIPLES AND COVALENT SYSTEMS.** (689742) If interested in taking BioChem, see BioChem 1301. (5 cr, 1001-1002†, §1004, §1005, §1014, §1031, §1032; primarily for forestry and nursing students; a terminal course; prereq 2 yrs high school mathematics...high school chemistry recommended; lect 0800-0910 MTWThF, SciCB 375; rec 1220-1310 MWF; lab 1325-1625 MWF, SmithH 210) Staff

Principles of chemical change, structural concepts of nuclei, atoms, molecules; laws governing dynamic behavior of matter; equilibrium concepts, especially those relevant to living systems; applications of principles with emphasis on organic and biological species.

R 1004. **GENERAL PRINCIPLES OF CHEMISTRY.** (289744) (5 cr, 1004-1005†, §1001, §1002, §1014, §1031, §1032; primarily for non-chemistry majors; prereq high school chemistry, placement index of Y or predicted mathematics GPA 1.90 on ACT or Math 0009 or college course in algebra...4 yrs high school mathematics...high school physics recommended; lect 0800-0910 MTWThF, SciCB 325; rec 1220-1310 MWF; lab 1325-1625 MWF, SmithH ar)

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

R 1006. **PRINCIPLES OF SOLUTION CHEMISTRY.** (989746) (4 cr; prereq 1005 or 1032; lect 0905-0955 MTWThF, SciCB 175; lab 1220-1625 MWF, SmithH ar)

Lecture and laboratory work is related to chemistry of selected cations and anions. Detection methods include spectrophotometric and potentiometric as well as chromatographic procedures. Included in the program of metal ion studies are systematics; acid-base principles; influence on the environment; importance in biological systems; formation and stereochemistry of complexes.

1014. **CONCEPTS OF CHEMISTRY.** (091665) (4 cr; 1010-1120 MTWTh, SciCB 175; for IT students only; call IT for prerequisites and description)

R 3100. **QUANTITATIVE ANALYSIS.** (789747) (3 cr, 3100-3101†; for non-chemistry majors; prereq 1005 or 1032; 1220-1415 MWF; Phys 131)
(Lecture) Modern quantitative methods of analysis.

R 3101. **QUANTITATIVE ANALYSIS.** (589748) (2 cr, 3100-3101†; for non-chemistry majors; prereq 3100 or §3100; 0800-1100 MTWThF; SmithH 310)
(Laboratory) Modern quantitative methods of analysis including elementary physicochemical procedures.

Course Descriptions

R 3301. ELEMENTARY ORGANIC CHEMISTRY I. (389749) (4 cr, §3331; for non-chemistry majors; prereq 1005 or 1032 or equiv; 0800-0955 MTWTh; Phys 210)

Important classes of organic compounds, both aliphatic and aromatic, and heterocyclic compounds.

R 3305. ELEMENTARY ORGANIC CHEMISTRY LABORATORY I. (589751) (2 cr; prereq 3301 or §3301; lect 1010-1100 T, Phys 210; lab 1010-1415 WTh, ApH 125, KoltH 365)
See 3301.

3499. SENIOR THESIS. (389752) (Cr ar; prereq #, 4th yr)

Written final senior thesis report.

3970. DIRECTED STUDY. (689756) (Cr ar; prereq #)

On- or off-campus learning experiences, individually arranged between a student and faculty member, in areas not covered by regular courses.

R 5001. CHEMISTRY CONCEPTS FOR JUNIOR HIGH SCHOOL TEACHERS. (186481) (4 cr; limited to 20 students; restricted to secondary school teachers or students in the College of Education; prereq college level general chemistry, experience in secondary school teaching, or #; 0800-1100 MWF; SmithH ar) Conroy
Chemistry fundamentals to augment and expand the resources of junior high school science teachers for the teaching of chemistry concepts. Emphasis on demonstration of chemical ideas by experiment and selection of chemistry topics appropriate for students at junior high school level.

R 5520. ELEMENTARY PHYSICAL CHEMISTRY. (889755) (3 cr; prereq 1 yr college chemistry, Phys 1291 and 1295 or §Phys 1291 and §1295 or 1106 with #, Math 3211; 0800-0955 MWF; ApH 150)

Brief general survey. Chemical thermodynamics.

8990. RESEARCH IN CHEMISTRY. (189753) (Cr and hrs ar; prereq Δ)

8991. SPECIAL TOPICS. (089754) (Cr and hrs ar; prereq Δ)

SECOND TERM

R 1002. CHEMICAL PRINCIPLES AND COVALENT SYSTEMS. (090631) (5 cr, 1001-1002†, §1004, §1005, §1014, §1031, §1032; primarily for forestry and nursing students; a terminal course; prereq 1001; lect 0800-0910 MTWThF, SciCB 375; rec 1220-1310 MWF; lab 1325-1625 MWF, SmithH 210)
See 1001 First Term.

R 1003. PHYSICAL WORLD, CHEMISTRY. (990637) (5 cr, § any other college chemistry courses; a terminal course... cannot be used as prereq for any other advanced chemistry course; a similar course but without lab is offered as 1008; prereq 1 yr high school algebra...high school chem recommended; lect 0900-1000 MTWThF, SciCB 175; rec 1325-1415 MWF; lab 1430-1625 MWF, SmithH ar)

Fundamental concepts of chemical bonding, structure of matter, and forces in the physical world. Scientific methods and principles contribute to understanding of the environment and problems faced in improving it. Labs to illustrate. Lectures 1003 and 1008 meet concurrently.

R 1005. GENERAL PRINCIPLES OF CHEMISTRY. (190644) (5 cr, 1004-1005†, §1014, §1032; primarily for non-chemistry majors; prereq 1004, high school chemistry, placement index of Y or predicted mathematics GPA 1.90 on ACT or Math 0009 or college course in algebra...4 yrs high school mathematics...high school physics recommended; lect 0800-0910 MTWThF, SciCB 325; rec 1220-1310 MWF; lab 1325-1625 MWF)
See 1004 First Term.

R 1008. PHYSICAL WORLD, CHEMISTRY. (688493) (4 cr, § any other college chemistry courses; a terminal course... cannot be used as prereq for any other advanced chemistry course; prereq 1 yr high school algebra...high school chemistry recommended; lect 0900-1000 MTWThF; SciCB 175)
See 1003 Second Term. No lab. Lectures 1003 and 1008 meet concurrently.

R 3302. ELEMENTARY ORGANIC CHEMISTRY II. (290649) (4 cr; prereq 3301, 3305 or §3305; if 3305 taken concurrently, a passing grade required for 3305 to receive cr for 3302; 0800-0955 MTWTh; Arch 35)
See 3301 First Term.

R 3306. ELEMENTARY ORGANIC CHEMISTRY LABORATORY II. (790655) (2 cr; prereq 3302 or §3302; lect 1010-1100 T, Arch 35; lab 1010-1415 WTh; ApH 125)
See 3301 First Term.

3499. SENIOR THESIS. (190658) (Cr ar; prereq #, 4th yr)

See First Term.

3970. DIRECTED STUDY. (390660) (Cr ar; prereq #)

See First Term.

R 5126. MODERN ANALYTICAL CHEMISTRY. (490665) (4 cr; primarily for chemical engineering majors; prereq 3332 and 3335; lect 1220-1415 TW, KoltH S137; lab 0800-1205 MTWThF, KoltH 297, 299)

Strategies and techniques for solving modern analytical problems. The use of modern instruments in analysis.

R 5521. ELEMENTARY PHYSICAL CHEMISTRY. (190667) (3 cr; prereq 1 yr college chemistry, Phys 1291 and 1295 or §Phys 1291 and §1295 or 1106 with #, Math 3211; 0800-0955 MWF; ApH 150)
See 5520 First Term.

8990. RESEARCH IN CHEMISTRY. (990668) (Cr and hrs ar; prereq Δ)

8992. SPECIAL TOPICS. (190670) (Cr and hrs ar; prereq Δ)

COMPUTER SCIENCE (CSci)

FIRST TERM

R 3101. A FORTRAN INTRODUCTION TO COMPUTER PROGRAMMING. (4 cr; prereq Math 1111 or 1201 or equiv or #; for non-CSci majors)

FORTRAN computer language with extension; applications; programming techniques. Brings students to advanced level competence in FORTRAN programming. Integral nonscheduled laboratory.

Sec 1, (489757) 1115-1310 MT, 1115-1205 W, Arch 5

Sec 2, (338018) 1115-1310 MT, 1115-1205 W, Arch 35

R 3104. INTRODUCTION TO PROGRAMMING AND PROBLEM SOLVING. (5 cr; prereq Math 1211 or equiv or #; intended for CSci majors)

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.

Sec 1, (289758) 0905-0955 MTWThF, Arch 5, Du

Sec 2, (188019) 0905-0955 MTWThF, Arch 35

R 3105. FUNDAMENTALS OF ALGORITHMS AND LANGUAGES I. (588258) (4 cr; prereq 3101 or 3102 or 3104 or #; informal lab; 1010-1205 TTh, 1115-1205 W; Phys 166)

Informal and formal approaches to algorithms, their properties and specification through an algorithmic language; problem solving and software engineering aspects of solution implementations; analysis of algorithms and techniques for algorithm developments; errors—their causes and effects as studied in several numerical applications.

R 3400. DISCRETE STRUCTURES OF COMPUTER SCIENCE. (189759) (4 cr; prereq Math 1231 or 1331 or #; 1600-1730 MW, 1600-1645 Th; Arch 5) Leininger

Sets and multisets. Proof techniques. Propositional calculus. Combinatorics. Algorithms. Computability and unsolvability. Graphs. Trees.

R 5121. INTRODUCTION TO DATA STRUCTURES. (489760) (4 cr; prereq 3106 and 3400 or #; informal lab; 0810-1005 MW, 0910-1005 T; Arch 50)

Basic concepts of data and their representation. Sequential and linked representation. Arrays, stacks and queues. Chains, circular lists and doubly linked lists. Dynamic storage management. Garbage collection and storage compaction. Generalized lists. Strings. Binary trees and trees. Tree traversal. Graphs. Activity networks.

R 5301. NUMERICAL ANALYSIS. (388259) (4 cr; prereq Math 3142 or #...a knowledge of Pascal or FORTRAN is assumed; informal lab; 1010-1205 MT, 1115-1205 W; Arch 50)

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.

SECOND TERM

R 3101. A FORTRAN INTRODUCTION TO COMPUTER PROGRAMMING. (087471) (4 cr; prereq Math 1111 or 1201 or equiv or #; for non-CSci majors; 1015-1205 MT, 1115-1210 W; Arch 50)

See First Term.

R 3104. INTRODUCTION TO PROGRAMMING AND PROBLEM SOLVING. (588020) (5 cr; prereq Math 1211 or equiv or Math 1331 or Math 1621 or #; intended for CSci majors; 0905-0955 MTWThF; Arch 50)

See Term I.

R 3106. FUNDAMENTALS OF ALGORITHMS AND LANGUAGES II. (788260) (4 cr; prereq 3104 and 3105 or #; informal lab; 1010-1205 MT, 1115-1205 W; Arch 10) Esterline

Non-numeric application areas of computer science; system processors and processes; basic information structures and their relation to algorithm complexities; non-numeric programming languages—SNOBOL; text processing; recursion as an algorithm development technique and its implementation in a programming language; introduction to artificial intelligence.

SCHOOL OF EARTH SCIENCES

Geology and Geophysics (Geo)

FIRST TERM

R 1001. PHYSICAL GEOLOGY. (5 cr; each section limited to 26 students; lect 0905-0955 MTWThF; PillsH 110) Sloan
A non-mathematical 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.

Lab 1, (189762) 1010-1205 MWF, FordH 185

Lab 2, (989763) 1325-1520 MWF, FordH 185

Course Descriptions

3990. PROBLEMS IN GEOLOGY AND GEOPHYSICS. (786492) (1-6 cr; prereq # and Δ)
Individual research or problem selected on the basis of individual interests and background.

R 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 0905-0955 MTWThF; seminar 1220-1310 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.

Lab 1, (888475) 1010-1205 MWF, FordH 185

Lab 2, (688476) 1325-1520 MWF, FordH 185

R 5111. FIELD GEOLOGY. (5-9 cr; limited to students majoring in geology, geophysics, or geoengineering; prereq 5201 and #) 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, (586493), June 17-July 26 (9 cr)

Sec 2, (091195) (5 cr; prereq grad student; ar)

COLLEGE OF ENGINEERING

Aerospace Engineering and Mechanics (AEM)

FIRST TERM

R 1015. STATICS. (4 cr; prereq Phys 1271, Math 1231; lect 0800-0955 MWF; MechE 212)

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, (088250) 0905-0955 TTh, MechE 212

Rec 2, (888251) 0905-0955 TTh, MechE 221

R 3036. DYNAMICS. (4 cr; prereq 1015, fMath 3221; lect 1010-1205 MWF; Arch 40)

Review of particle dynamics. Mechanical systems and the rigid-body model. Equilibrium. Kinematics and dynamics of plane systems. Technical applications.

Rec 1, (688252) 1010-1100 TTh, Arch 40

Rec 2, (288254) 1010-1100 TTh, Arch 30

R 5001. AEROSPACE ENGINEERING WORKSHOP FOR ELEMENTARY AND SECONDARY TEACHERS—July 8-19. (389766) (4 cr; limited to 30 students; 1300-1730 MTWThF; MechE 221) Kaldahl, Aerospace Engineering and Mechanics faculty

Lectures, film reviews, construction and demonstration of classroom aids, involvement with the NASA spacemobile, flight experience, and field trips cover such topics as satellites and probes, model rocketry including a launch, astronaut in space, principles of flight, conventional aircraft, space age education tools. Visits to local aerospace facility and to major aerospace installation in the country. (Subject to availability of airlift.) See Special Programs section.

8800. SELECTED TOPICS IN MECHANICS AND MATERIALS. (189767) (1-4 cr per qtr; prereq #)
Topics of current interest.

8880. PLAN B PROJECT. (586557) (1-4 cr per qtr; prereq grad aerospace engineering and mechanics maj. Δ)

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

5800. PROBLEMS IN MECHANICS AND MATERIALS. (288657) (1-4 cr per qtr; prereq #)
Topics of current interest. Individual projects.

5810. PROBLEMS IN FLUID MECHANICS. (188658) (1-4 cr per qtr; prereq #).

5840. INDUSTRIAL ASSIGNMENT. (089768) (2 cr; prereq regis in engineering intern program)

Engineering intern industrial laboratory. A formal technical report, covering the work during the industrial assignment, is required.

5841. INDUSTRIAL ASSIGNMENT. (889769) (2 cr; prereq regis in engineering intern program)

5842. INDUSTRIAL ASSIGNMENT. (189770) (2 cr; prereq regis in engineering intern program)

5843. INDUSTRIAL ASSIGNMENT. (291557) (2 cr; prereq regis in engineering intern program)

SECOND TERM

3016. DEFORMABLE BODY MECHANICS. (4 cr; prereq 1011 or 1015, *Math 3221; lect 1010-1205 MWF; Arch 40)
Principles of statics; equilibrium conditions. Uniaxial loading and deformation. Stress and strain at a point. Material behavior: linear elasticity. Torsion. Bending of beams of symmetrical section.

Rec 1, (488253) 1010-1100 TTh, Arch 40

Rec 2, (188255) 1010-1100 TTh, Arch 30

8810. SELECTED TOPICS IN FLUID MECHANICS. (890422) (1-4 cr per qtr; prereq #)

Topics of current interest.

8880. PLAN B PROJECT. (786556) (1-4 cr per qtr; prereq grad aerospace engineering and mechanics maj. Δ)

Chemical Engineering and Materials Science

Chemical Engineering (ChEn)

FIRST TERM

5902, 5903, 5904, 5905. SPECIAL PROBLEMS. (089771) (889772) (689773) (489774) (Cr ar)

8901-8902-8903. RESEARCH. (289775) (189776) (989777) (Cr ar)

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

3091. INDUSTRIAL EMPLOYMENT. (288769)

SECOND TERM

5902, 5903, 5904, 5905. SPECIAL PROBLEMS. (690423) (490424) (290425) (190426) (Cr ar)

8901-8902-8903. RESEARCH. (990427) (790428) (590429) (Cr ar)

Materials Science (MatS)

FIRST TERM

3400. MECHANICAL PROPERTIES OF MATERIALS. (789778) (4 cr; prereq 2nd-year IT student; 0800-0955 MWF; ArundH 240) Sivertsen

Structure and properties of metals, alloys, and polymers; heat treatment; alloy selection and metal processing.

5481, 5482, 5483. SPECIAL PROBLEMS. (589779) (989780) (798781) (Cr ar; prereq sr)

8480, 8481, 8482. SELECTED TOPICS: MATERIALS SCIENCE, ENGINEERING. (589782) (389783) (189784) (Cr ar)

SECOND TERM

5481, 5482, 5483. SPECIAL PROBLEMS. (990430) (790431) (590432) (Cr ar; prereq sr)

8480, 8481, 8482. SELECTED TOPICS: MATERIALS SCIENCE, ENGINEERING. (390433) (190434) (090435) (Cr ar)

Electrical Engineering (EE)

FIRST TERM

1400. CIRCUITS LABORATORY. (1 cr; each section limited to 14 students; prereq IT student, 3009 or *3009)
Laboratory to accompany EE 3009 and 3010.

Lab 1, (887472) 1220-1415 MW, ElectE 121

Lab 2, (687473) 1220-1415 TTh, ElectE 121

3009. LINEAR CIRCUITS I. (787478) (4 cr; prereq IT major; at least C grades in Math 3212 or *Math 3212, or Math 3221 or *Math 3221, Phys 1281 or *Phys 1281; 0800-0955 MTWThF; Arch 40)

Physical principles underlying the modeling of circuit elements. Two- and three-terminal resistive elements. Kirchhoff's laws. Simple resistive circuits. Linearity in circuits. Storage elements. First- and second-order circuits.

5470. DIRECTED STUDY. (588261) (Cr and hrs ar; prereq Δ)

8450. SPECIAL INVESTIGATIONS. (388262) (Cr and hrs ar; prereq #)

8460. PLAN B PROJECT. (188263) (4 cr; prereq #)

Course Descriptions

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

R 3003. CIRCUITS AND ELECTRONICS. (487474) (4 cr; not for EE majors; prereq IT student, Phys 1291, Math 3221 or Φ Math 3221; 0800-0850 MTWF; Arch 55)

Analysis of linear passive circuits: semiconductor principles, devices, and circuits. Applications to digital circuits, logic elements, microprocessors, and operational amplifiers.

R 3004. CIRCUITS AND ELECTRONICS LABORATORY. (1 cr; each section limited to 14 students; no EE majors; prereq IT student, 3003 or Φ 3003)

Lab 1, (287475) 1010-1205 M, ElectE 118

Lab 2, (187476) 0800-0955 Th, ElectE 118

R 3012. SYSTEM DESIGN. (089785) (4 cr; prereq 3011, at least C grade in Math 3213 or 3221, upper division EE major; 1115-1205 MTWF; Aker/H 209)

Continuous, discrete-time systems. Feedback: stability, applications.

R 3062. DIGITAL ELECTRONICS. (686212) (4 cr; prereq upper division EE, CSci, or ME major, 3061, 3351; 0905-0955 MTWF; Arch 55)

Implementation of digital circuits with bipolar and field effect transistors; application to inverters, gates, flip-flops, logic arrays, and storage elements.

R 3111. ELECTROMAGNETIC WAVES. (486213) (4 cr; prereq 3110, upper division EE major; 1010-1100 MTWF; Arch 5)

Time-varying electromagnetic fields. Propagation of electromagnetic waves. Metallic and optical waveguides.

R 3351. INTRODUCTION TO LOGIC DESIGN. (4 cr, \S 5051; each section limited to 16 students; prereq soph standing in IT; lect 1115-1205 MWThF; MechE 212)

Boolean algebra and logic gates. Combination logic: *simplification and design examples*. Sequential logic and design of synchronous, sequential logic systems. Integral laboratory.

Lab 1, (987480) 1430-1625 M, ElectE 216

Lab 2, (787481) 1010-1205 T, ElectE 216

Lab 3, (587482) 1220-1415 T, ElectE 216

Lab 4, (387483) 1220-1415 Th, ElectE 216

Lab 5, (588180) 1220-1415 F, ElectE 216

R 3402. JUNIOR ELECTRICAL ENGINEERING LABORATORY. (2 cr; each section limited to 14 students; prereq IT student, 3401, 3062 or Φ)

Lab 1, (189793) 1220-1625 T, ElectE 21

Lab 2, (989794) 1220-1625 W, ElectE 21

Lab 3, (789795) 0800-1205 Th, ElectE 21

Lab 4, (688736) 1220-1625 Th, ElectE 21

3476. INDUSTRIAL ASSIGNMENT I. (889786) (2 cr; prereq regis in intern program)

Industrial work assignment in engineering intern 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. (689787) (2 cr; prereq 3477)

See 3476.

R 5002. DIGITAL SIGNAL PROCESSING. (186215) (4 cr; prereq IT student or grad IT major, 3012; 0800-0850 MTWF; Arch 5)

General concepts of signal processing; discrete-time systems and digital filters.

5478. INDUSTRIAL ASSIGNMENT III. (489788) (2 cr; prereq 3477, regis in intern program)

Industrial work assignment in engineering intern program. Grade based on formal written report covering the quarter's work assignment.

5479. INDUSTRIAL ASSIGNMENT IV. (289789) (2 cr; prereq 5478)

See 5478.

SECOND TERM

R 1400. CIRCUITS LABORATORY. (586218) (1 cr; limited to 14 students; prereq IT student, 3009 or Φ 3009; 1220-1415 MW; ElectE 121)

R 3010. LINEAR CIRCUITS II. (687487) (4 cr; prereq IT student; at least C grades in 3009, Math 3212 or Math 3221, Phys 1291 or Φ Phys 1291; 0800-0955 MTWThF; Arch 10)

Modeling of lumped-parameter networks. Sinusoidal steady-state analysis. Two-port networks.

5470. DIRECTED STUDY. (088734) (Cr and hrs ar; prereq Δ)

8450. SPECIAL INVESTIGATIONS. (188756) (Cr and hrs ar; prereq #)

8460. PLAN B PROJECT. (386219) (4 cr; prereq #)

Mechanical Engineering

Industrial Engineering/Operations Research (IEOR)

FIRST TERM

R 5030. QUALITY CONTROL AND RELIABILITY. (689790) (4 cr; limited to 30 students; prereq Math 1231, ME 3900 ... IEOR 5000 recommended; 1010-1205 TWThF; MechE 202) White

History of quality control, quality policies and objectives, economics of quality, design for system effectiveness, reliability and maintainability, statistical aids to reliability, quality specifications, inspection, acceptance sampling, vendor relations, process control, motivation for quality, quality assurance, and quality control engineering.

5050. ENGINEERING ECONOMIC ANALYSIS. (290957) (4 cr; prereq IT student or grad. 5000 or #: 0800-0955 MWF, 1220-1415 T; MechE 202) Barnett

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.

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

R 5040. INTRODUCTION TO OPERATIONS RESEARCH. (289792) (4 cr; limited to 30 students; prereq Math 1231 ... IEOR 5000 recommended; 0800-0955 TTh; MechE 202) White, Arora

Linear programming, algebra and geometry of linear models, simplex method, sensitivity testing, and duality; network models, network algorithms, and dynamic models.

5180. APPLIED INDUSTRIAL ENGINEERING. (489791) (3-5 cr [1-2 cr term paper option]; prereq background in all basic industrial engineering areas [5000, 5010, 5020, 5030 and 5040])

Industrial engineering surveys and programs. Case problems, studies in local plants.

SECOND TERM

R 5000. INTRODUCTION TO INDUSTRIAL ENGINEERING ANALYSIS. (490679) (4 cr; limited to 30 students; prereq Math 1231 ... ME 3900 recommended; 1220-1415 TWThF; MechE 221) Arora

Scientific management, mathematical models, methods engineering, work measurement, worker satisfaction and participation, wage payment plans, break-even analysis, incremental costs, the time value of money and the present value concept; cost quality and inventory control; production scheduling, plant locations, and layout; linear programming, PERT, and the systems approach to management problems.

Mechanical Engineering (ME)

FIRST TERM

R 3201. MECHANICAL ENGINEERING SYSTEMS ANALYSIS. (589796) (4 cr, §AEM 3401; limited to 45 students; prereq AEM 3036; 1220-1415 TWThF; MechE 302) Frohrib

Modeling and analytic description of mechanical systems. Properties of linear models with emphasis on automatic computation solution. Necessary background includes differential equations.

R 3205. ENGINEERING SYSTEMS DESIGN. (189798) (4 cr; limited to 45 students; prereq AEM 3016; 1220-1415 TWThF; MechE 212) Kleinhenz

Application of fundamental concepts to the design of typical mechanical components. Engineering approach to the analysis and synthesis of machines and systems. Specification of materials in engineering design. Optimum design criteria.

R 3301. THERMODYNAMICS. (089799) (4 cr; limited to 50 students; prereq Chem 1014 or Phys 1281, Math 3221 or equiv; 1010-1205 TWThF; MechE 221) Scott

Properties, equations of state, processes, and cycles for various thermodynamic systems. Development of first and second laws of thermodynamics, correlating heat, work, and mass transfer. Equilibrium irreversibility and mixtures.

R 3702. BASIC MEASUREMENTS LABORATORY II. (2 crs; each section limited to 16 students; prereq 3701; lect 0905-1000 MW; MechE 221) Wilson

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, (787531) 1010-1205 MW, MechE 370

Lab 2, (587532) 1430-1625 TTh, MechE 370

Course Descriptions

ME 5460. INTERNAL COMBUSTION ENGINES. (589801) (4 cr; limited to 30 students; prereq 3301 or equiv; 1010-1205 TWThF; MechE 321) Murphy

Principles of power production, fuel consumption, and emissions of gasoline and diesel engines; fuel-air cycle analysis, combustion flames, knock phenomena, air flow and volumetric efficiency, mixture requirements, ignition requirements, and performance.

ME 8770. MECHANICAL ENGINEERING RESEARCH. (988757) (Cr and hrs ar)

ME 8771. MECHANICAL ENGINEERING RESEARCH. (786461) (Cr and hrs ar)

ME 8772. MECHANICAL ENGINEERING RESEARCH. (788758) (Cr and hrs ar)

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

ME 3741. INDUSTRIAL ASSIGNMENT. (389797) (2 cr per qtr; prereq regis in intern program for 3741) Marple
Industrial work assignment in engineering intern program. Evaluation based on formal written report accomplished by student covering the quarter's work assignment.

ME 3742. INDUSTRIAL ASSIGNMENT. (387533) (2 cr; prereq 3741) Marple
See 3741.

ME 3743. INDUSTRIAL ASSIGNMENT. (988709) (2 cr; prereq 3742) Marple
See 3741.

ME 5190. ADVANCED ENGINEERING PROBLEMS. (789800) (2-4 cr; 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.

ME 5741. INDUSTRIAL ASSIGNMENT AND DESIGN PROJECT. (888282) (4 cr; 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.

ME 5742. INDUSTRIAL ASSIGNMENT AND DESIGN PROJECT. (187534) (4 cr; prereq 5741) Marple
See 5741.

SECOND TERM

ME 3303. APPLIED THERMODYNAMICS. (290683) (4 cr, §3305; limited to 30 students; prereq 3301 or equiv; 1010-1205 TWThF; MechE 321) Murphy

Application of laws of thermodynamics to chemically reacting systems and engineering systems. Vapor cycles, gas engine cycles, propulsion systems, refrigeration, and air-water vapor mixtures.

ME 5260. ENGINEERING MATERIALS AND PROCESSING. (4 cr; each section limited to 12 students; prereq Phys 1291, Chem 1004, and 1st-yr calculus; lect 0800-0935 MWF; MechE 212)

Introduction to materials and processing including physical and metallurgical properties, consolidation, etc. Material processing including machining, welding, and deformation processes.

Lab 1, (190689) 0800-0955 TTh, MechE 70

Lab 2, (590690) 1010-1205 TTh, MechE 70

Lab 3, (188840) 1430-1625 TTh, MechE 70

ME 5342. HEAT TRANSFER. (090693) (4 cr; limited to 50 students; prereq 3301 and CE 3400 or AEM 3200; 1220-1415 TWThF; MechE 212) Scott

Steady and unsteady conduction of heat. Convection heat transfer in boundary layer and duct flows; forced and free convection; condensation and boiling; heat exchangers. Heat transfer by thermal radiation; radiative properties of black bodies and real surfaces.

ME 8770. MECHANICAL ENGINEERING RESEARCH. (588812) (Cr and hrs ar)

ME 8771. MECHANICAL ENGINEERING RESEARCH. (388813) (Cr and hrs ar)

ME 8772. MECHANICAL ENGINEERING RESEARCH. (188814) (Cr and hrs ar)

SCHOOL OF MATHEMATICS

Mathematics (Math)

FIRST TERM

MA 0009. INTERMEDIATE ALGEBRA. (No cr; prereq 1 yr high school algebra or grade of C or better in 0006)
Covers high school higher algebra.

Sec 1, (389802) 0800-0955 MTWThF, VinH 314

Sec 2, (189803) 1010-1205 MTWThF, VinH 314

R 1005. INTRODUCTION TO ELEMENTARY MATHEMATICS. (089804) (4 cr; for pre-elementary education students only [no cr for other CLA students]; prereq [plane geometry, 2 yrs high school algebra] or [plane geometry, grade of C or better in 0009]; 1115-1205 MTTh, 1010-1205 WF; KoltH S137) Harper

Logical and axiomatic basis of the rules for arithmetical operations with integers, rational numbers, and real irrational numbers; real number line and inequalities as background for teaching arithmetic in elementary school. Topics from geometry and congruences; history of mathematics and its role in our culture and civilization.

R 1008. TRIGONOMETRY. (4 cr. §1111, §1201; prereq plane geometry, 2 yrs high school algebra ... or plane geometry, grade of C or better in 0009)

Analytic trigonometry, identities, equations, and properties of trigonometry functions; right and oblique triangles.

Sec 1, (889805) 0905-0955 MWF, 0905-1100 TTh, KoltH S137

Sec 2, (087535) 1115-1205 MTTh, 1010-1205 WF, KoltH S138

R 1111. COLLEGE ALGEBRA AND ANALYTICAL GEOMETRY. (5 cr. §1201; prereq [plane geometry, 2 yrs high school algebra] or [plane geometry, grade of C or better in 0009])

Functions and graphs, quadratic equations, progressions, inequalities, complex numbers, theory of equations, permutations and combinations, probability, systems of equations, determinants, graphing of linear and quadratic equations, conics in standard position, logarithms.

Sec 1, (689806) 0800-0955 MTWThF, VinH 20

Sec 2, (489807) 1010-1205 MTWThF, VinH 20

R 1131. FINITE MATHEMATICS. (5 cr; prereq 3½ yrs high school math or grade of C or better in 1111)

For students in pre-business administration and the social and behavioral sciences. Elementary computer programming, financial math, probability, linear algebra, linear programming, Markov chains.

Sec 1, (289808) 0800-0955 MTWThF, VinH 6

Sec 2, (291610) 1010-1205 MTWThF, VinH 6

R 1142. SHORT CALCULUS. (5 cr, §1211, §1511H, §1611; prereq 3½ yrs of high school math or grade of C or better in 1111 or 1131 or 1201)

For students requiring a minimal amount of calculus. Derivatives, integrals, differential equations, maxima and minima, partial differentiation, applications.

Sec 1, (189809) 0800-0955 MTWThF, VinH 209

Sec 2, (489810) 1010-1205 MTWThF, VinH 209

R 1201. PRE-CALCULUS. (5 cr, §1008, §1111; prereq 4 yrs high school math including trigonometry)

For students who need a quick review of high school higher algebra and trigonometry before taking a calculus sequence. Inequalities, analytical geometry, complex numbers, binomial theorem, mathematical induction, functions and graphs, and trigonometric, exponential, and logarithmic functions.

Sec 1, (289811) 0800-0955 MTWThF, VinH 113

Sec 2, (189812) 1010-1205 MTWThF, VinH 113

R 1211. CALCULUS I. (5 cr, §1142, §1511, §1611; prereq 4 yrs high school math including trigonometry ... or grade of C or better in 1201 ... or grade of C or better in 1008 and 1111 ... or equiv)

Analytic geometry and calculus of one variable, applications. Infinite series and sequences.

Sec 1, (989813) 0800-0955 MTWThF, WuliH 230

Sec 2, (789814) 1010-1205 MTWThF, AkerH 211

R 1221. CALCULUS II. (5 cr, §1321, §1521H, §1621; prereq grade of C or better in 1211 or equiv)

See 1211.

Sec 1, (589815) 0800-0955 MTWThF, VinH 16

Sec 2, (389816) 1010-1205 MTWThF, VinH 16

R 1231. CALCULUS III. (5 cr, §1331, §1531H, §1621; prereq grade of C or better in 1221 or equiv)

See 1211.

Sec 1, (189817) 0800-0955 MTWThF, Arch 10

Sec 2, (089818) 1010-1205 MTWThF, Arch 10

R 3142. INTRODUCTION TO LINEAR ALGEBRA. (889819) (4 cr, §3213, §3221, §3511; prereq grade of C or better in 1231 or equiv; 0905-0955 MWF, 0905-1100 TTh; ExpE 193)

Vectors, systems of linear equations, matrices, determinants, eigenvalues, applications. Techniques and some proofs of theorems.

R 3211. MULTIVARIABLE CALCULUS. (5 cr, §3521; prereq grade of C or better in 1231 or equiv)

Partial differentiation, chain rule, implicit functions, applications. Multiple integrals in two and three dimensions.

Sec 1, (189820) 0800-0955 MTWThF, CivMinE 212

Sec 2, (089821) 1010-1205 MTWThF, CivMinE 212

R 3221. INTRODUCTION TO LINEAR ALGEBRA AND LINEAR DIFFERENTIAL EQUATIONS. (5 cr, §3066, §3142, §3511; prereq grade of C or better in 1231 or equiv)

Vectors, systems of linear equations, matrices, determinants, bases, eigenvalues. Linear differential equations and systems with constant coefficients, initial value problem and general solution, variation of parameters for inhomogeneous equations.

Sec 1, (889822) 0800-0955 MTWThF, Arch 60

Sec 2, (887536) 1010-1205 MTWThF, Arch 60

Course Descriptions

R 3231. VECTOR ANALYSIS. (689823) (4 cr, §3212, §3531; prereq grade of C or better in 3211 or equiv; 0905-1100 MWF, 0905-0955 TTh; AkerH 209)

Scalar and vector products, derivatives, geometry of space curves, del operator, line and surface integrals, divergence and Stokes' theorem, transformation of coordinates, dyadics, applications.

R 5081. FUNDAMENTAL TOPICS IN ANALYSIS. (291090) (4 cr; prereq 3211 or equiv; 0905-0955 MWF, 0905-1100 TTh; KoltH S138)

Limits; uses of a deep property of the real numbers; correct uses of the term "infinity"; possible other topics. Includes proofs by mathematical induction and by contradiction.

R 5209. THEORY OF NUMBERS. (489824) (4 cr; prereq 3211 or equiv or #; 1115-1205 MTTh, 1010-1205 WF; VinH 207)

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.

R 5242. LINEAR ALGEBRA WITH APPLICATIONS. (289825) (4 cr, §5232-5233, §5262 or §5282 if content was linear algebra, §5264, §5284; prereq 3221 or 3142 or equiv or #; 0905-0955 MWF, 0905-1100 TTh; AkerH 225)

Systems of linear equations, finite dimensional linear spaces, bases, linear transformations, matrices, determinants, eigenvalues, reduction to canonical forms, quadratic and bilinear forms, applications.

R 5457. METHODS OF APPLIED MATHEMATICS. (189826) (4 cr; prereq [3211, 3066]...or [3211, 3221] or equiv or #; 0905-0955 MWF, 0905-1100 TTh; VinH 207)

Analytic tools used in applications of mathematics; emphasis on technique. Real and complex variables, matrices, ordinary and partial differential equations, calculus of variations, asymptotic expansions.

R 5512. DIFFERENTIAL EQUATIONS WITH APPLICATIONS I. (088331) (4 cr; prereq [3211 and 3066] or [3211 and 3221] or equiv or #; 0905-0955 MWF, 0905-1100 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.

R 5567. FOURIER SERIES AND BOUNDARY VALUE PROBLEMS. (687537) (4 cr, §5571; prereq [3211, 3066] or [3211, 3221] or equiv or #; 1115-1205 MTTh, 1010-1205 WF; KoltH S132)

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.

R 5568. ELEMENTARY THEORY OF COMPLEX VARIABLES. (191091) (4 cr, §5572, §5578, prereq 3231 or 5602, or equiv; 0905-0955 MWF, 0905-1100 TTh; VinH 206)

Derivative and integral of a function of a complex variable. Cauchy's integral theorem and formula, residues. Application to evaluation of integrals, conformal mapping.

R 5601. ADVANCED CALCULUS. (989827) (4 cr; prereq 3211 or equiv or #; 1115-1205 MTTh, 1010-1205 WF; VinH 211)

Differentiation of functions of several variables; vector algebra; curves in three dimensions; directional derivative and gradient; inverse transformation and implicit function theorems; change of variables in multiple integrals.

SECOND TERM

R 0009. INTERMEDIATE ALGEBRA. (390436) (No cr; prereq 1 yr high school algebra or grade of C or better in 0006; 1010-1205 MTWThF; KoltH S138)

See First Term.

R 1006. INTRODUCTION TO ELEMENTARY MATHEMATICS. (690437) (4 cr; for pre-elementary education students only [no cr for other CLA students]; prereq 1005; 1115-1205 MTTh, 1010-1205 WF; Meche 202)

Includes topics from the following: definitions of rational and irrational numbers, definitions of addition, subtraction, multiplication, and division of fractions; methods for operations on rational and real numbers; the real number line and inequalities; topics from geometry and congruences.

R 1008. TRIGONOMETRY. (4 cr, §1111, §1201; prereq [plane geometry, 2 yrs high school algebra] or [plane geometry, grade of C or better in 0009])

See First Term.

Sec 1, (490438) 0905-0955 MWF, 0905-1100 TTh, VinH 209

Sec 2, (290439) 1115-1205 MTTh, 1115-1310 WF, VinH 209

R 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 0009])

See First Term.

Sec 1, (690440) 0800-0955 MTWThF, VinH 1

Sec 2, (490441) 1010-1205 MTWThF, VinH 113

R 1142. SHORT CALCULUS. (5 cr, §1211, §1511H, §1611; prereq 3½ yrs high school math or grade of C or better in 1111 or 1131 or 1201)

See First Term.

Sec 1, (290442) 0800-0955 MTWThF, KoltH S137

Sec 2, (190443) 1010-1205 MTWThF, KoltH S137

R 1201. PRE-CALCULUS. (5 cr, §1008, §1111; prereq 4 yrs high school math including trigonometry)
See First Term.

Sec 1, (990444) 0800-0955 MTWThF, VinH 301
Sec 2, (790445) 1010-1205 MTWThF, VinH 301

R 1211. CALCULUS I. (5 cr, §1142, §1511H, §1611; prereq 4 yrs high school math including trigonometry...or grade of C or better in 1201...or grade of C or better in 1008 and 1111...or equiv)
See First Term.

Sec 1, (590446) 0800-0955 MTWThF, VinH 20
Sec 2, (390447) 1010-1205 MTWThF, VinH 20

R 1221. CALCULUS II. (5 cr, §1321, §1521H, §1621; prereq grade of C or better in 1211 or equiv)
See 1211 First Term.

Sec 1, (190448) 0800-0955 MTWThF, Phys 210
Sec 2, (090449) 1010-1205 MTWThF, Phys 210

R 1231. CALCULUS III. (5 cr, §1331, §1531H, §1621; prereq grade of C or better in 1221 or equiv)
See 1211 First Term.

Sec 1, (390450) 0800-0955 MTWThF, VinH 16
Sec 2, (190451) 1010-1205 MTWThF, VinH 16

R 3211. MULTIVARIABLE CALCULUS. (5 cr, §3521; prereq grade of C or better in 1231 or equiv)
See First Term.

Sec 1, (090452) 0800-0955 MTWThF, CivMinE 212
Sec 2, (890453) 1010-1205 MTWThF, CivMinE 212

R 3221. INTRODUCTION TO LINEAR ALGEBRA AND LINEAR DIFFERENTIAL EQUATIONS. (5 cr, §3066, §3142, §3511; prereq grade of C or better in 1231 or equiv)
See First Term.

Sec 1, (690454) 0800-0955 MTWThF, Arch 40
Sec 2, (490455) 1010-1205 MTWThF, MechE 302

R 3231. VECTOR ANALYSIS. (290456) (4 cr, §3212, §3531; prereq grade of C or better in 3211 or equiv; 1010-1205 MWF, 1010-1100 TTh; VinH 6)
See First Term.

R 5243. LINEAR ALGEBRA WITH APPLICATIONS. (190457) (4 cr, §5232-5233, §5283-5284; prereq 5242; 0905-0955 MWF, 0905-1100 TTh; VinH 207)
See 5242 First Term.

R 5458. METHODS OF APPLIED MATHEMATICS. (990458) (4 cr; prereq 5457, or equiv; 0905-0955 MWF, 0905-1100 TTh; VinH 211)
See 5457 First Term.

R 5602. ADVANCED CALCULUS. (790459) (4 cr; prereq 5601; 1115-1205 MTTh, 1010-1205 WF; VinH 207)
Line and surface integrals; Stokes' theorem; convergence of infinite series; orthogonal functions; uniform convergence; integration and differentiation of series.

R 5679. PROBABILITY. (688333) (4 cr, §5681; prereq 3211 or equiv or #; 1115-1205 MTTh, 1010-1205 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.

8990. READING AND RESEARCH. (186965) (Cr ar)

SCHOOL OF PHYSICS AND ASTRONOMY

Astronomy (Ast)

FIRST TERM

R 1011. DESCRIPTIVE ASTRONOMY. (789828) (4 cr, §1021; 0905-1100 MWF; Phys 166)
Survey of the sun, moon, planets, and stars; description of the galaxy and universe to which the sun belongs. Nonmathematical.

R 1015. DESCRIPTIVE ASTRONOMY LAB. (1 cr, §1025H; each section limited to 25 students; 4 lab hrs per wk; minimum one night observation required)

Sec 1, (589829) 1330-1530 MW, Phys 143
Sec 2, (989830) 0905-1100 TTh, Phys 143

Course Descriptions

SECOND TERM

R 1011. DESCRIPTIVE ASTRONOMY. (190460) (4 cr, §1021; 0905-1100 MWF; Phys 166)
See First Term.

R 1015. DESCRIPTIVE ASTRONOMY LAB. (1 cr, §1025; each section limited to 25 students; 4 lab hrs per wk; minimum one night observation required)

Sec 1, (990461) 1330-1530 MW, Phys 143

Sec 2, (790462) 0905-1100 TTh, Phys 143

Physics (Phys)

FIRST TERM

R 1041. INTRODUCTORY PHYSICS. (087616) (4 cr [no cr for IT students except arch, pre-arch, environmental design], §other introductory physics courses; prereq high school algebra and plane geometry; 8 class hrs per wk; 0800-0955 MWF, 0800-0850 TTh; Phys 170)

Lectures and problem sessions. Primarily for students interested in topics useful in technical areas. Mechanics, fluids and gases, heat, waves.

R 1045. INTRODUCTORY PHYSICS LABORATORY. (887617) (1 cr [no cr for IT students except arch, pre-arch, environmental design]; limited to 114 students; prereq 1041 or §1041; S-N only)

Laboratory experiments offered in conjunction with 1041. Lab time assigned first two days of class.

3970. DIRECTED STUDIES. (788145) (1-5 cr; prereq #, Δ)

Independent directed study in areas arranged by the student and a faculty member.

5970. DIRECTED STUDIES. (188739) (1-5 cr; prereq #, Δ)

Independent, directed study in physics in areas arranged by the student and a faculty member.

5990. DIRECTED RESEARCH. (186277) (Cr ar; prereq 3rd yr, Δ)

Problems, experimental or theoretical, of special interest to student. Written reports.

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

R 1271. GENERAL PHYSICS. (589832) (4 cr; prereq Math 1221 or §Math 1221 or Math 1521 or §Math 1521 or Math 1621 or §Math 1621; may be taken with or without lab 1275; 0800-0850 MTWThF; Phys 166)
Calculus-level general physics course. Mechanics.

R 1275. GENERAL PHYSICS LABORATORY. (488334) (1 cr; limited to 76 students; prereq 1271 or 1311 or §1271; 2 lab hrs per wk ar; S-N only)

Laboratory exercises in mechanics. Lab time assigned first two days of class.

R 1281. GENERAL PHYSICS. (389833) (4 cr; prereq 1271, Math 1231 or §Math 1231 or Math 1531 or §Math 1531 or Math 1621 or §Math 1621; may be taken with or without lab 1285; 1010-1100 MTWThF; Phys 170)
Calculus-level general physics course. Heat and electricity.

R 1285. GENERAL PHYSICS LABORATORY. (288335) (1 cr; limited to 76 students; prereq 1275, 1281 or 1331 or §1281; 2 lab hrs per wk ar; S-N only)

Laboratory exercises in heat and electricity. Lab time assigned first two days of class.

R 1291. GENERAL PHYSICS. (189834) (4 cr; prereq 1281; may be taken with or without lab 1295; 1010-1100 MTWThF; Phys 150)

Calculus-level general physics course. Magnetism and optics.

R 1295. GENERAL PHYSICS LABORATORY. (188336) (1 cr; limited to 76 students; prereq 1285, 1291 or 1341 or §1291; 2 lab hrs per wk ar; S-N only)

Laboratory exercises in magnetism and optics. Lab time assigned first two days of class.

SECOND TERM

R 1042. INTRODUCTORY PHYSICS. (687618) (4 cr [no cr for IT students except arch, pre-arch, environmental design], §other introductory physics courses; prereq 1041, high school algebra and plane geometry; 0800-0955 MWF, 0800-0850 TTh; Phys 170)

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.

R 1046. INTRODUCTORY PHYSICS LABORATORY. (487619) (1 cr; [no cr for IT students except arch, pre-arch, environmental design]; limited to 114 students; prereq 1042 or §1042; S-N only)

Laboratory experiments offered in conjunction with 1042. Lab time assigned first two days of class.

3970. DIRECTED STUDIES. (588146) (1-5 cr; prereq #, Δ)

See First Term.

5970. DIRECTED STUDIES. (488740) (1-5 cr; prereq #, Δ)
See First Term.

5990. DIRECTED RESEARCH. (286276) (Cr ar; prereq 3rd yr. Δ)
See First Term.

University College

University College sponsors programs that provide flexibility in degree planning to students whose needs are not met by other programs of the University.

The Inter-College Program (213 Temporary North of Appleby, 376-1253) is a student-designed, credit-based alternative to traditionally structured degree majors. Since 1930 it has allowed students to design an intercollegiate or interdisciplinary program suited to their individual objectives. There is no fixed curriculum, and the student may draw upon the entire University for courses to prepare a degree contract leading to a B.A. or B.S. degree. To be considered for admission, an applicant must have completed at least 80 credits of college work, 15 of them at the University of Minnesota. The application process includes preparing a carefully conceived statement of objectives and a proposed course list. Students generally spend from three weeks to several months planning their degree programs, a process which also requires meetings with ICP program advisers and with University faculty advisers.

University Without Walls (UWW—210 Wesbrook Hall, 373-3919) serves students who wish to design and carry out an individualized B.A. or B.S. degree program with clear educational goals in mind. Students tend to select UWW because they value the freedom to make significant choices about what and how they learn, because they have experiences they can use as foundations for further learning, or because they are interested in tapping the expertise of other people to help them achieve their learning goals.

Students are admitted to UWW after showing that they can conceive and plan an overall program of study and identify specific learning activities. A program may incorporate a variety of learning resources including University classes, independent study courses, self-designed projects, and community or work-related projects. Experiences gained prior to admission may be applied if they can be evaluated as college-level learning. It is possible to earn a degree from UWW without coming to campus.

UWW students meet a set of standards, called graduation criteria, rather than accumulating a specific number of credits to earn a bachelor's degree. The criteria combine learning in a major area of study with learning in the liberal arts. Students pursue programs in a wide variety of fields, e.g., health care, human services, visual and performing arts, organization and management studies, humanities, and social sciences.

University College Independent Study (UC 3075), ranging from 3 to 15 credits, is available to students who wish to pursue projects that go beyond the scope of any single department or college of the University. Projects are interdisciplinary in nature or are done in departments that do not have an undergraduate independent study course for nonmajors. The student will be asked to find an appropriate faculty monitor and to complete the UC 3075 independent study contract prior to registering. Further information may be obtained from the Inter-College Program Office.

University College (UC)

FIRST TERM

3075. INDEPENDENT STUDY. (089835) (Cr ar; prereq Δ)

3201. DIRECTED STUDIES. (689837) (8 cr; prereq UWW student, Δ; S-N only)

3211. DEGREE PLANNING. (588664) (7 cr; prereq UWW student, Δ; S-N only)

3212. DEGREE PLANNING. (388665) (7 cr; prereq UWW student, Δ; S-N only)

3213. DEGREE PLANNING. (188666) (7 cr; prereq UWW student, Δ; S-N only)

- 3291. GRADUATION DOSSIER PREPARATION.** (888668) (7 cr [max 21 cr]; prereq UWW student, Δ; S-N only)
3292. GRADUATION DOSSIER PREPARATION. (688669) (7 cr [max 21 cr]; prereq UWW student, Δ; S-N only)
3293. GRADUATION DOSSIER PREPARATION. (088670) (7 cr [max 21 cr]; prereq UWW student, Δ; S-N only)
3299. GRADUATION DOSSIER EXAMINATION. (088667) (7 cr; prereq UWW student, prior submission of dossier for examination, Δ; S-N only)

SECOND TERM

- 3075. INDEPENDENT STUDY.** (385443) (Cr ar; prereq Δ)
3201. DIRECTED STUDIES. (485448) (8 cr; prereq UWW student, Δ; S-N only)
3211. DEGREE PLANNING. (888671) (7 cr; prereq UWW student, Δ; S-N only)
3212. DEGREE PLANNING. (688672) (7 cr; prereq UWW student, Δ; S-N only)
3213. DEGREE PLANNING. (488673) (7 cr; prereq UWW student, Δ; S-N only)
3291. GRADUATION DOSSIER PREPARATION. (288674) (7 cr [max 21 cr]; prereq UWW student, Δ; S-N only)
3292. GRADUATION DOSSIER PREPARATION. (188675) (7 cr [max 21 cr]; prereq UWW student, Δ; S-N only)
3293. GRADUATION DOSSIER PREPARATION. (988676) (7 cr [max 21 cr]; prereq UWW student, Δ; S-N only)
3299. GRADUATION DOSSIER EXAMINATION. (788677) (7 cr; prereq UWW student, prior submission of dossier for examination, Δ; S-N only)

College of Veterinary Medicine

(All classes scheduled by arrangement)

College of Veterinary Medicine (CVM)

FIRST AND SECOND TERM: TWELVE-WEEK COURSE

1809. INTERNSHIP IN ANIMAL HOSPITAL PRACTICE. (591001) (4 cr; prereq #: 0800-1630 MTWThF; VetTchHos) Staff

Laboratories devoted to the principles and techniques of medical and surgical nursing care, examination, diagnostic and therapeutic procedures, and applied procedures in anesthesiology and radiology. Rotations in Small Animal Medicine and Surgery, Large Animal Medicine and Surgery, Anesthesiology, Radiology, and Intensive Care.

FIRST AND SECOND TERM: FOURTEEN-WEEK COURSE

5760. CLINICS. (288142) (16 cr; prereq #: 0800-1200 M, 0800-1630 TWThFS; VetTchHos) Staff

Laboratories for the application of principles and techniques of medicine, surgery, obstetrics, radiology, pathology, clinical pathology, parasitology, pharmacology, physiology, and public health to the diagnosis, prognosis, treatment, prevention, and eradication of disease in domestic animals.

Large Animal Clinical Sciences (LACS)

FIRST TERM

5180. INTRODUCTION TO HERD HEALTH AND DAIRY HERD HEALTH MANAGEMENT—June 17-Sept 9. (689840) (2.5 cr; prereq regis vet med, 3rd or 4th year or grad student or #: 1300-1450 M; AnScVM 135) Farnsworth, Williamson, others

Herd health management, general epidemiology, disease surveillance and economics of farming. Dairy cattle genetics and breeding, reproduction, applied nutrition, housing, preventive medicine programs, and management practices.

5364. EQUINE LAMENESS—July 8-September 16. (088006) (2 cr; prereq regis vet med, 3rd or 4th year, SACS 5352 or #: 1500-1650 M; AnScVM 125) Peterson, D Stevens, Hilbert, Little

All major musculoskeletal diseases affecting the horse that contribute to lameness.

5572. REPRODUCTIVE PATTERNS AND INFERTILITY IN THE DOG AND CAT—July 22-Aug 19. (888007) (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. (489841) (Cr ar; prereq 5650 or equiv or #) Anderson, Diesch, Pullen, Robinson, others
Individual study arranged with faculty member.

5951. DIRECTED STUDIES. (988337) (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. (788338) (Cr ar; prereq grad 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. (588339) (Cr ar; prereq grad student or #) Ames

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. (988340) (Cr ar) Anderson, Diesch, Morris, 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. (588342) (1-3 cr; prereq #) Morris, Olson, Sorensen, Stein, staff

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.** (388343) (Cr ar; prereq 5162, 5165, 5172, #) 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.** (188344) (Cr ar; prereq 5162, SACS 5172, #) Larson, Leman, Osborne, McKeever, Ogburn, Olson, others
Detailed examination, discussions, and treatment of cases of animal diseases.
- 8292. SEMINAR: VETERINARY MEDICINE.** (888346) (Cr ar; prereq #) Larson, Osborne, others
- 8293. MEDICAL CONFERENCE.** (688347) (Cr ar; prereq 5162, SACS 5172, #) Larson, Osborne, others
Medical, surgical, or obstetrical cases supported by anatomic, bacteriologic, pathologic, physiologic, pharmacologic, and radiologic evaluations whenever applicable.
- 8294. ADVANCED COMPARATIVE IMMUNOCHEMISTRY AND IMMUNOBIOLOGY.** (387886) (3 cr; prereq MicB 5216 or equiv, grad student...others by #) Maheswaran
- 8299. RESEARCH IN VETERINARY MEDICINE.** (488348) (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.** (288349) (Cr ar; prereq, 5365, SACS 5360 or equiv, #) Wallace
- 8392. ADVANCED LARGE ANIMAL SURGERY.** (688350) (Cr ar; prereq 5365 or equiv, #) Hilbert
Surgery of various systems in large animals with preoperative and postoperative evaluation and treatment.
- 8393. PROBLEMS IN LARGE ANIMAL ORTHOPEDICS.** (488351) (3 cr; prereq 5365 or equiv, #) Hilbert
- 8395. SURGICAL DISEASES OF THE MAMMARY GLAND OF DOMESTIC ANIMALS.** (288352) (3 cr; prereq 5365, #) Hilbert
- 8397. LARGE ANIMAL ANESTHESIA.** (188353) (Cr ar; prereq SACS 5380 or equiv, #) Raffe
Special problems associated with anesthesia of large animals.
- 8590. ADVANCED DIAGNOSTIC METHODS IN REPRODUCTIVE DISEASES.** (988354) (Cr ar; prereq 5570 or #) Staff
Discussion and laboratory practices of methods for determination of fertility status of female and male animals.
- 8591. ADVANCED ENDOCRINOLOGY OF REPRODUCTION.** (788355) (1 cr; prereq VB 5310, MdBc 5100, MdBc 5101) Zemjanis, staff
Physiological and pathological aspects of reproductive endocrinology.
- 8592. ADVANCED ENDOCRINOLOGY OF REPRODUCTION.** (588356) (1 cr; prereq VB 5310, MdBc 5100, MdBc 5101) Zemjanis, staff
Physiological and pathological aspects of reproductive endocrinology.
- 8593. ADVANCED ENDOCRINOLOGY OF REPRODUCTION.** (388357) (1 cr; prereq VB 5310, MdBc 5100, MdBc 5101) Zemjanis, staff
Physiological and pathological aspects of reproductive endocrinology.
- 8594. SPECIAL PROBLEMS IN ANIMAL REPRODUCTION.** (188358) (Cr ar; prereq 5570 or #) Zemjanis, staff
Detailed discussion and laboratory study of specific reproductive disorders.
- 8595. SEMINAR: VETERINARY OBSTETRICS.** (088359) (1 cr) Momont
- 8596. HEREDITY IN ANIMAL DISEASE.** (388360) (3 cr; prereq GCB 3022 or #) Spurrell
Application of genetic principles of animal disease problems with emphasis upon specific inheritable and familial conditions in domesticated species.
- 8690. ZONOSSES AND COMPARATIVE MEDICINE.** (187887) (Cr ar) R Anderson, Diesch, Robinson, others
- 8790. PROBLEMS IN VETERINARY CLINICAL PHARMACOLOGY AND THERAPEUTICS.** (188361) (3 cr; prereq grad student or #) Stowe, Dunlop
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.** (088362) (2 cr; prereq grad student or #) Stowe
Examination of current literature and case material.
- 8792. SEMINAR IN VETERINARY TOXICOLOGY.** (888363) (2 cr; prereq grad student or #) Stowe
Livestock and small animal intoxication with insecticides, heavy metals, rodenticides, poisonous plants, mycotoxins, herbicides, and drugs and drug combinations.

SECOND TERM

- 5680. PROBLEMS IN VETERINARY EPIDEMIOLOGY AND PUBLIC HEALTH.** (285001) (Cr ar; prereq 5650 or equiv or #) Anderson, Diesch, Pullen, Robinson, others
See First Term.

Course Descriptions

- 5951. DIRECTED STUDIES.** (688364) (1-5 cr; prereq #, Δ)
See First Term.
- 8193.* ADVANCES IN CLINICAL IMMUNOBIOLOGY.** (488365) (Cr ar; prereq grad student or #) Molitor
See First Term.
- 8194.* PROBLEMS IN DIAGNOSTIC VIROLOGY, SEROLOGY, AND IMMUNOLOGY.** (288366) (Cr ar; prereq grad student or #) Ames
See First Term.
- 8195.* PREVENTIVE VETERINARY MEDICINE.** (188367) (Cr ar) Anderson, Diesch, Morris, others
See First Term.
- 8199. PROBLEMS IN ECONOMICS OF ANIMAL HEALTH.** (788369) (1-3 cr; prereq #) Morris, Olson, Sorensen, Stein, staff, others
See First Term.
- 8290. ADVANCED VETERINARY MEDICINE.** (188370) (Cr ar; prereq 5162, 5172, #) Larson, Hardy, others
See First Term.
- 8291. ADVANCED DIAGNOSIS AND THERAPEUTICS OF ANIMAL DISEASES.** (988371) (Cr ar; prereq 5162, SACS 5172, #) Larson, Leman, Osborne, McKeever, Ogburn, Olson, others
See First Term.
- 8292. SEMINAR: VETERINARY MEDICINE.** (788372) (Cr ar; prereq #) Larson, Osborne, others
- 8293. MEDICAL CONFERENCE.** (538373) (Cr ar; prereq 5162, SACS 5172, #) Larson, Osborne, others
See First Term.
- 8294. ADVANCED COMPARATIVE IMMUNOCHEMISTRY AND IMMUNOBIOLOGY.** (087888) (3 cr; prereq MicB 5216 or equiv, grad student. . . others; by #) Maheswaran
- 8299. RESEARCH IN VETERINARY MEDICINE.** (388374) (Cr ar) V Larson, others
See First Term.
- 8390. SEMINAR: VETERINARY SURGERY.** (188375) (Cr ar; prereq 5365, SACS 5360 or equiv, #) Wallace
- 8392. ADVANCED LARGE ANIMAL SURGERY.** (088376) (Cr ar; prereq 5365 or equiv, #) Hilbert
See First Term.
- 8393. PROBLEMS IN LARGE ANIMAL ORTHOPEDICS.** (888377) (3 cr; prereq 5365 or equiv, #) Hilbert
- 8395. SURGICAL DISEASES OF THE MAMMARY GLAND OF DOMESTIC ANIMALS.** (688378) (3 cr; prereq 5365, #) Hilbert
- 8397. LARGE ANIMAL ANESTHESIA.** (488379) (Cr ar; prereq SACS 5380 or equiv, #)
See First Term.
- 8590. ADVANCED DIAGNOSTIC METHODS IN REPRODUCTIVE DISEASES.** (888380) (Cr ar; prereq 5570 or #) Staff
See First Term.
- 8591. ADVANCED ENDOCRINOLOGY OF REPRODUCTION.** (688381) (1 cr; prereq VB 5310, MdBc 5100, MdBc 5101) Zemjanis, staff
See First Term.
- 8592. ADVANCED ENDOCRINOLOGY OF REPRODUCTION.** (488382) (1 cr; prereq VB 5310, MdBc 5100, MdBc 5101) Zemjanis, staff
See First Term.
- 8593. ADVANCED ENDOCRINOLOGY OF REPRODUCTION.** (288383) (1 cr; prereq VB 5310, MdBc 5100, MdBc 5101) Zemjanis, staff
See First Term.
- 8594. SPECIAL PROBLEMS IN ANIMAL REPRODUCTION.** (188384) (Cr ar; prereq 5570 or #) Zemjanis, staff
See First Term.
- 8595. SEMINAR: VETERINARY OBSTETRICS.** (988385) (1 cr) Momont
- 8596. HEREDITY IN ANIMAL DISEASE.** (788386) (3 cr; prereq GCB 3022 or #) Spurrell
See First Term.
- 8690. ZOONOSES AND COMPARATIVE MEDICINE.** (887889) (Cr ar) R Anderson, others
- 8790. PROBLEMS IN VETERINARY CLINICAL PHARMACOLOGY AND THERAPEUTICS.** (588387) (3 cr; prereq grad student or #) Stowe, Dunlop
See First Term.
- 8791. SEMINAR IN CLINICAL PHARMACOLOGY AND THERAPEUTICS.** (388388) (2 cr; prereq grad student or #) Stowe
See First Term.
- 8792. SEMINAR IN VETERINARY TOXICOLOGY.** (188389) (2 cr; prereq grad student or #) Stowe
See First Term.

Small Animal Clinical Sciences (SACS)

FIRST TERM

5352. SMALL ANIMAL GENERAL SURGERY—June 17-July 15. (987379) (1 cr; prereq CVM 5350, SACS 5351 or #: 1300-1450 M; AnScVM 125) Lipowitz, Caywood
Lectures on the pathophysiology, diagnosis, and surgical-medical management of selected diseases of abdominal and thoracic viscera.

8197.* ADVANCED DERMATOLOGIC CLINICS. (289842) (4 cr; prereq grad student or #) McKeever
In-depth clinical study of dermatologic disease states, diagnosis and therapy in animals.

8198.* PROBLEMS IN VETERINARY COMPARATIVE DERMATOLOGY. (189843) (Cr ar; prereq grad student or #) McKeever
Individual study involving a research study of a selected dermatologic problem.

8390. SEMINAR: VETERINARY SURGERY. (991366) (Cr ar; prereq 5360, 5365, or equiv, and #) Wallace

8391. ADVANCED SMALL ANIMAL SURGERY. (989844) (Cr ar; prereq CVM 5350 or equiv, #) Wallace, Lipowitz, Caywood
Surgery of the various systems in small animals with preoperative and postoperative evaluation and treatment.

8394. SURGERY OF THE GASTROINTESTINAL SYSTEM. (786282) (Cr ar; prereq 5201 or equiv, #) Caywood, Lipowitz, Wallace

8410. SURGICAL PHYSIOLOGY. (586283) (2 cr; prereq 8391 or equiv, #) Caywood, Lipowitz, Wallace
Macro and micro physiological changes that occur in the animal body as the result of surgical disease and intervention.

8420. NEUROSURGERY. (386284) (3 cr; prereq 8391 or equiv, #) Wallace
Treatment of surgical diseases of animal nervous system, including pathophysiology of these animals.

8430. THORACIC AND CARDIOVASCULAR SURGERY. (388164) (prereq 8391, #: lect 0800-1300 MTWThF; lab 1400-1700 MTWThF, VetTchHos 350)

8490. ADVANCED VETERINARY RADIOLOGY. (789845) (Cr ar; prereq 5450, 5451, 5452 or equiv, #) Hanlon, Feeney, others
Advanced radiological procedures and modalities and their interpretation or application to veterinary medicine.

SECOND TERM

8197.* ADVANCED DERMATOLOGIC CLINICS. (185002) (4 cr; prereq grad student or #) McKeever
See First Term.

8198.* PROBLEMS IN VETERINARY COMPARATIVE DERMATOLOGY. (985003) (Cr ar; prereq grad student or #) McKeever
See First Term.

8390. SEMINAR: VETERINARY SURGERY. (091360) (Cr ar; prereq 5360, 5365, or equiv, and #) Wallace

8391. ADVANCED SMALL ANIMAL SURGERY. (785004) (Cr ar; prereq CVM 5350 or equiv, #) Wallace, Lipowitz, Caywood
See First Term.

8394. SURGERY OF THE GASTROINTESTINAL SYSTEM. (786279) (Cr ar; prereq 5201 or equiv, #) Caywood, Lipowitz, Wallace

8410. SURGICAL PHYSIOLOGY. (186280) (2 cr; prereq 8391 or equiv, #) Caywood, Lipowitz, Wallace
See First Term.

8420. NEUROSURGERY. (986281) (3 cr; prereq 8391 or equiv, #) Wallace
See First Term.

8430. THORACIC AND CARDIOVASCULAR SURGERY. (691362) (prereq 8391, #: lect 0800-1300 MTWThF; lab 1400-1700 MTWThF, VetTchHos 350)

8490. ADVANCED VETERINARY RADIOLOGY. (585005) (Cr ar; prereq 5450, 5451, 5452 or equiv, #) Hanlon, Feeney, others
See First Term.

Veterinary Biology (VB)

FIRST TERM

5149.* TOPICS OF ORGANOLGY. (589846) (1-5 cr [may be repeated for cr]; prereq 5104 or equiv, #) Staff
Lecture and laboratory presentation of selected organ systems of domestic and laboratory animals.

Course Descriptions

8111. HISTOLOGIC AND ULTRAHISTOLOGIC TECHNIQUES. (786802) (3 cr; prereq 5105, #) Weber
Principles and methods in preparing animal tissues for histological and ultrahistological observation.

8112-8113-8114. RESEARCH PROPOSITIONS IN MORPHOLOGY. (389847) (189848) (089849) (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. (389850) (189851) (4 cr per qtr; prereq 5100, #) Beitz, Fletcher

Correlated studies of the central nervous system of domestic animals. Emphasis on relating neuroanatomy to neurophysiology.

8136. EXPERIMENTAL COMPARATIVE VETERINARY NEUROLOGY. (089852) (3 cr; prereq 8135, #) Beitz, Fletcher
Principles, methods, and laboratory exercises in investigating the central nervous system of domestic animals.

8150. RESEARCH PROBLEMS IN VETERINARY ANATOMY. (889853) (1-5 cr; prereq #) Staff

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.

8330. SEMINAR: VETERINARY BIOLOGY. (586803) (Cr ar; prereq #)

8349. RESEARCH IN PHYSIOLOGY. (689854) (Cr ar, §AnSc 8830; prereq #) Staff

Individual research under faculty direction. Topics to be determined by consultation; may be a specialized aspect of a thesis problem or an independent problem of mutual interest to graduate student and adviser.

8448. PROBLEMS IN VETERINARY PHARMACOLOGY. (489855) (Cr ar; prereq 5401 or equiv, #) Larson, Brown

SECOND TERM

5149.* TOPICS OF ORGANOLOGY. (385006) (1-5 cr [may be repeated for cr]; prereq 5104 or equiv, #) Staff
See First Term.

8111. HISTOLOGIC AND ULTRAHISTOLOGIC TECHNIQUES. (191043) (3 cr; prereq 5105, #) Weber
See First Term.

8112-8113-8114. RESEARCH PROPOSITIONS IN MORPHOLOGY. (185007) (085008) (885009) (2 cr per qtr; prereq #) Staff
See First Term.

8134-8135. COMPARATIVE VETERINARY NEUROLOGY. (185010) (085011) (4 cr per qtr; prereq 5100, #) Beitz, Fletcher
See First Term.

8136. EXPERIMENTAL COMPARATIVE VETERINARY NEUROLOGY. (885012) (3 cr; prereq 8135, #) Beitz, Fletcher
See First Term.

8150. RESEARCH PROBLEMS IN VETERINARY ANATOMY. (685013) (1-5 cr; prereq #) Staff
See First Term.

8330. SEMINAR: VETERINARY BIOLOGY. (386804) (Cr ar; prereq #)

8349. RESEARCH IN PHYSIOLOGY. (485014) (Cr ar, §AnSc 8830; prereq #) Staff
See First Term.

8448. PROBLEMS IN VETERINARY PHARMACOLOGY. (285015) (Cr ar; prereq 5401 or equiv, #) Larson, Brown

Veterinary Diagnostic Investigation (VDI)

FIRST TERM

5521. SURGICAL PATHOLOGY. (586204) (3 cr; prereq #) Barnes, staff
Preparation and interpretation of surgical and necropsy specimens.

5522. DIAGNOSTIC PATHOLOGY. (386205) (5 cr; prereq #) Barnes, staff
History, necropsy lesions, laboratory results, and histopathology in the diagnosis of animal diseases.

5622. PROBLEMS IN DIAGNOSTIC VIROLOGY. (590995) (1-4 cr; prereq #)
Laboratory techniques in diagnostic virology and viral research.

SECOND TERM

5521. SURGICAL PATHOLOGY. (986202) (3 cr; prereq #) Barnes, staff
See First Term.

5522. DIAGNOSTIC PATHOLOGY. (786203) (5 cr; prereq #) Barnes, staff
See First Term.

5622. PROBLEMS IN DIAGNOSTIC VIROLOGY. (390996) (1-4 cr; prereq #)
See First Term.

Veterinary Pathobiology (VPB)

FIRST TERM

5523. PATHOLOGY OF SPONTANEOUS DISEASES OF LABORATORY ANIMALS. (888492) (2-3 cr; prereq #)
Leininger, Tomlinson, staff
Gross and microscopic pathology of laboratory animals.

5524. PATHOLOGY OF SPONTANEOUS DISEASES OF POULTRY. (289856) (3 cr; prereq #) Walsler
Gross and microscopic pathology of spontaneous diseases of chickens, turkeys, and game birds.

5709. PREVENTIVE AVIAN MEDICINE—June 17-July 15. (487376) (1 cr; prereq regis vet med, 4th year or grad student or #; 1500-1650 M; VetS 145) Newman, Halvorson
Preventive avian disease programs and management practices. Visits to poultry and aviary establishments.

5748. PROBLEMS IN VETERINARY MICROBIOLOGY AND PUBLIC HEALTH. (988192) (Cr ar)

8530. ONCOLOGY. (187890) (4 cr; prereq #; offered 1985 and alternate years) Hayden, Leininger. Staff
Spontaneous and induced mammalian neoplasm with emphasis on diagnosis.

8531. HOSPITAL PATHOLOGY. (189857) (1-2 cr; prereq 5501, 5502, 5503, #) O'Leary, Leininger, staff
Necropsy and surgical pathology techniques, examination of tissues for diagnosis, preparation of reports and records.

8533. PROBLEMS: PATHOLOGY. (989858) (Cr ar; prereq #) Johnson, staff

8534. PROBLEMS: CLINICAL PATHOLOGY. (789859) (Cr ar; prereq #) Perman, Weiss

8648. PROBLEMS IN VETERINARY PARASITOLOGY. (189860) (Cr ar; prereq 5602 or equiv, #) Bemrick, Schlott-hauer, Stromberg

8720. ADVANCED VETERINARY MICROBIOLOGY. (989861) (Cr ar; prereq #) Staff
Special topics, techniques, collateral reading, and conferences.

8721. ADVANCED POULTRY DISEASES. (789862) (Cr ar; prereq 5704, #) Halvorson, Newman
Investigation of infectious disease problems of poultry.

8724. ADVANCED VETERINARY DIAGNOSTIC MICROBIOLOGY. (589863) (2 or 4 cr; prereq #) Ward
Lectures and laboratory in techniques of diagnostic mycology, bacteriology, virology, and serology.

SECOND TERM

5523. PATHOLOGY OF SPONTANEOUS DISEASES OF LABORATORY ANIMALS. (088832) (2 cr; prereq #)
Leininger, Tomlinson, staff
See First Term.

5524. PATHOLOGY OF SPONTANEOUS DISEASES OF POULTRY. (185016) (3 cr; prereq #) Walsler
See First Term.

8531. HOSPITAL PATHOLOGY. (985017) (1-2 cr; prereq 5501, 5502, 5503, #) O'Leary, Leininger, staff
See First Term.

8533. PROBLEMS: PATHOLOGY. (785018) (Cr ar; prereq #) Johnson, staff

8534. PROBLEMS: CLINICAL PATHOLOGY. (585019) (Cr ar; prereq #) Perman, Weiss

8648. PROBLEMS IN VETERINARY PARASITOLOGY. (985020) (Cr ar; prereq 5602 or equiv, #) Bemrick, Schlott-hauer, Stromberg

8720. ADVANCED VETERINARY MICROBIOLOGY. (785021) (Cr ar; prereq #) Staff
See First Term.

8721. ADVANCED POULTRY DISEASES. (585022) (Cr ar; prereq 5704, #) Newman, Halvorson
See First Term.

8724. ADVANCED VETERINARY DIAGNOSTIC MICROBIOLOGY. (385023) (2 or 4 cr; prereq #) Ward
See First Term.

8725. CELL CULTURE TECHNIQUES. (091052) (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.

University of Minnesota, Duluth

The Duluth campus is an exciting location for summer study. Situated on a 247-acre site overlooking Lake Superior, the campus enjoys pleasant summer temperatures, allowing the student to study and relax in comfort.

UMD, located near the center of Duluth, is a short drive from parks, golf courses, swimming beaches, the famous Skyline Drive, Duluth's Arena-Auditorium, the Lake Superior Marine Museum, the St. Louis County Heritage and Arts Center, Glensheen, Duluth International Harbor, and the Spirit Mountain recreation area.

The many lakes in the deeply forested Arrowhead region and the North Shore and Circle Route drives are popular for overnight or weekend camping and fishing trips.

The UMD summer session social calendar is planned to fit the recreational needs of both the individual student and entire family. Golf lessons, family swimming, concerts, lectures, theatrical productions, group discussions, dances, harbor and historical tours, films, sailing on Lake Superior, and a wilderness canoe trip are a few of the sponsored activities.

More than 300 courses are scheduled for the summer terms at the undergraduate and graduate levels. Students may earn credits for 65 majors to apply toward the degrees of associate in arts, associate of applied science, associate in science in dental hygiene, bachelor of arts, bachelor of science, bachelor of applied arts, bachelor of applied science, bachelor of computer science, bachelor of accounting, bachelor of business administration, bachelor of music, bachelor of fine arts, and bachelor of social work degrees, and for 5 areas of concentration for the master of arts, master of science, master of business administration, master of industrial safety, master of social work, and master of education degrees.

A separate summer session bulletin, including all courses offered on the Duluth campus, is available. For a copy of this bulletin and for more detailed information, write: UMD Summer Session, 403 Darland Administration Building, University of Minnesota, Duluth, MN 55812.

GRADUATE PROGRAM

The Graduate School on the Duluth campus offers a master of arts degree with majors in art (emphasis art education, studio art), education (elementary-secondary), education (emphasis music), educational psychology (emphasis counseling, special education), English, and communicative disorders, and a master of business administration program.

Master of science degree programs are offered in biology, chemistry (analytical, inorganic, organic, physical, or biochemistry), geology, and physics.

The graduate programs are under the jurisdiction of the dean of the Graduate School and are similar to parallel programs on the Twin Cities campus. A complete description of graduate requirements and courses is available in the current *University of Minnesota, Duluth, General Bulletin*, which may be obtained by writing to the UMD News Service, 305 Darland Administration Building, University of Minnesota, Duluth, MN 55812.

Students who have not already applied for admission to the Graduate School and who contemplate a program of graduate studies at Duluth may request information and application forms from the Graduate School Office, 431 Darland Administration Building, University of Minnesota, Duluth, MN 55812. *Applicants should specify their proposed major field when requesting application forms.*

Applications for summer 1985 admission must be submitted *complete in every detail*—two official transcripts of all college work and the application fee, test results, references, and other required information—by May 1 for first term and June 1 for second term. Students who wish to become candidates for the master's degree or who wish to receive graduate credit for their course work must apply for admission to the Graduate

School. An application fee of \$25 will be required of all applicants. Residents of the United States must submit the fee by personal check or money order; foreign applicants must submit the fee by certified bank check. All checks should be made payable to the University of Minnesota. The fee will not be refunded.

Candidates for advanced degrees must have registered and paid fees for a minimum of 3 academic quarters or the equivalent in summer terms (normally six 5-week summer terms). The transfer of up to 40 percent of the degree course work from Continuing Education and Extension, adult special, and summer special status at the University of Minnesota, or from other recognized graduate schools, in any desired combination, is permitted. The number of credits and the courses accepted for transfer are determined by each department of the Graduate School. Students are advised to consult the graduate director in the department to which they wish to transfer such credits.

Students admitted to graduate programs on another campus of the University may take courses at UMD and transfer these courses to their programs; however, they should consult with their advisers beforehand concerning the specific courses to be transferred.

Students who hold bachelor's degrees who are not interested in earning graduate credit may register with the Registrar's Office as summer-only students or may apply for admission to their undergraduate college as special students. These students, if they subsequently decide to apply for admission to the Graduate School, may petition to transfer their work as special students to their graduate records. Only courses of graduate character taught by members of the graduate faculty may be transferred.

Only courses numbered 5000 or above carry graduate credit. Graduate credit is available only to those students who are officially registered in the Graduate School.

Readmission, Change of Major, or Change of Degree Objective—Persons who have withdrawn from (not attended) the Graduate School for 2 consecutive years or more and who wish to request readmission, and those currently enrolled who intend to change their major field or degree objective from that originally approved by the Graduate School, should request a copy of the Change of Status form (GS No. 72) from the Graduate School Office, 431 Darland Administration Building, University of Minnesota, Duluth, MN 55812. Individuals who have completed graduate degree programs at the University of Minnesota must also apply for readmission if they plan to pursue further graduate work. The application deadlines identified below apply in both of these cases.

Transient Graduate Student—Students currently engaged in graduate programs at another recognized graduate school who wish to enroll for 1 or 2 terms of summer session work in the Graduate School of the University of Minnesota, and who intend thereafter to return to the graduate school in which they are carrying forward their studies for a degree, may be admitted as transient graduate students. Such students will not be required to submit a full transcript of credits but must ask the dean of their graduate school to complete two copies of UMD Form 218 and return them to the Graduate School Office, 431 Darland Administration Building, University of Minnesota, Duluth, MN 55812, prior to registration. Under no circumstances will students be permitted to register for more than 1 summer session (2 terms) under transient status. Persons originally registering as transient graduate students who wish to apply for regular admission must follow the directions outlined above.

Graduate students cannot register by mail, but must pick up registration materials in 431 Darland Administration.

Master's Degree in Art: Studio Art Emphasis/Art Education Emphasis

A graduate major emphasizing studio work is offered leading to the master of arts degree in art. The program is designed to accommodate individuals interested in either teaching or practicing art. Both art history and art education are available as related fields. Inquiries concerning the specific program should be directed to: Department of Art, 317 Humanities Building, University of Minnesota, Duluth, MN 55812.

Master's Degree in Biology

The Department of Biology offers graduate work in biology under either a Plan A or Plan B program. Under Plan A, students take advanced course work in a specific area of biology and complete an independent research project culminating in a thesis. Plan B is designed for students interested in a broader range of biological subjects and therefore entails considerably more course work than that required for Plan A. Although a thesis is not required for the Plan B program, one or more projects or papers must be completed. Certain graduate courses and the opportunity to pursue graduate research are offered during the summer. Further details may be obtained from: Director of Graduate Study, Department of Biology, 225 Life Science Building, University of Minnesota, Duluth, MN 55812.

Master of Business Administration Degree Program

The master of business administration (M.B.A.) degree program is offered by the Graduate School through the School of Business and Economics on the Duluth campus. It is primarily an evening program.

The program requires 45 credits of course work exclusive of prerequisite courses in underlying disciplines and tool areas necessary for graduate study in the field of management. Recent graduates of recognized business schools generally meet the prerequisites and move directly into the 45-credit program of graduate work. Individuals who do not have an undergraduate background in business administration or those who completed programs some years ago usually will be required to complete prerequisite course work in selected areas. Prerequisite course work may be taken prior to admission to the M.B.A. program or may be completed after formal admission to the program.

The 45 credits of course work include 27 credits of M.B.A. core courses, 9 credits of electives, and 9 credits of research project related courses (Research Methodology and Management Research).

To be considered for admission to the M.B.A. program, an applicant must have a bachelor's degree from a recognized college or university, must submit results of the Graduate Management Admission Test (GMAT), and must file an application with the Graduate School, 431 Administration Building, University of Minnesota, Duluth, MN 55812.

For further information about the M.B.A. program, contact: Director of M.B.A. Program, 104 School of Business and Economics, University of Minnesota, Duluth, MN 55812 (218/726-7281).

Master's Degree in Chemistry

Programs in chemistry are offered under both Plan A and Plan B. For Plan A, thesis research is available in analytical, inorganic, organic, or physical chemistry and biochemistry. For Plan B, 44 credits in approved courses and Plan B projects completed in three courses are required.

The programs are suited for students who wish to go on for further study; for those who plan to teach chemistry in liberal arts colleges, junior colleges, and state colleges; and for those who desire advanced training for a career in industry. Summer work on the Duluth campus during both terms will involve the research phase of the M.S. degree.

Master's Degree in Communicative Disorders

A graduate major under Plan B is offered leading to the master of arts degree in communicative disorders. Summer session offerings are designed to integrate academic, research, and clinical endeavors. Correspondence may be addressed to the Department of Allied Clinical Health, 5 Montague Hall, University of Minnesota, Duluth, MN 55812.

Master's Degree in Education

This program, available to elementary and secondary classroom and special education teachers, offers majors in the following areas: education; education (emphasis music).

Course work in related fields may include areas such as early child care and development, educational administration, psychological foundations, psychological applications, physical education, health education, industrial education, special education, and home economics education, as well as subjects that are normally taught in the schools.

Inquiries should be addressed to: W. C. Gemeinhardt, Director of Graduate Study in Education, University of Minnesota, Duluth, MN 55812.

Master's Degree in Educational Psychology: Counseling Emphasis/Special Education Emphasis

Master's degree programs in guidance and counseling and special education are available on the Duluth campus. Courses in psychological foundations and psychological applications as well as special education will be offered during both summer terms.

Certain courses in these programs have limited enrollments or require special arrangements. Therefore, interested individuals should consult with their advisers prior to registration. In addition, course descriptions and prerequisites should be studied carefully. Inquiries should be addressed to: Director of Counselor Training, Department of Psychology, 326 Bohannon Hall, University of Minnesota, Duluth, MN 55812.

Master's Degree in English

Two programs lead to a master of arts degree in English. One offers a broad study of literature, and the second emphasizes preparation for teaching in the junior or senior high school or the 2-year college. The master's program is also suitable for students preparing for doctoral studies. Courses carrying graduate credit are offered in all academic quarters and in both summer terms. Inquiries concerning details of the program should be directed to: Director of Graduate Study, Department of English, 420 Humanities Building, University of Minnesota, Duluth, MN 55812.

Master's Degree in Geology

The M.S. degree in geology is offered under Plan A and Plan B. These programs are designed for those wishing to prepare for professional employment, for further graduate study leading to the Ph.D. degree, or for teaching geology at the junior college or college level. Although no graduate-level courses for the master's degree program, other than field camp and research, will be offered in geology during the summer session, students interested in beginning their course work in the fall are reminded that the application deadline is August 1. Details concerning prerequisites for the M.S. degree in geology may be obtained from: Director of Graduate Study, Department of Geology, 229 Mathematics-Geology Building, University of Minnesota, Duluth, MN 55812.

Master's Degree in Physics

Plan A and Plan B master's degrees are offered. Current departmental research interests include atmospheric physics, atomic and molecular physics, numerical modeling, hydrodynamics, optics, remote sensing, solid-state physics, theoretical particle physics, and resonance Raman spectroscopy. Summer work on the Duluth campus involves the research phase of the degree work.

MASTER OF EDUCATION DEGREE

This professional graduate degree program is intended for educators and persons serving educative functions in such fields as business, medicine, industry, and public agencies. Programs of study are tailored to meet the professional development needs of individual students. Credits may be earned for the degree in various subjects, methods, curricula, educational technologies, and learning experiences. Credit packages may focus on classroom experimentation, instructional materials development, in-service leadership, field research projects, and intensive learning experiences. Participants are expected to demonstrate competency in those areas that are representative of master teaching.

Admission decisions take into account a candidate's record of scholastic achievement; measures of academic aptitude such as the Miller Analogies Test; potential for professional growth as evaluated by supervisors, colleagues, and UMD faculty; and competency as a teacher and a leader as identified by supervisors and colleagues.

This program is designed to help satisfy the in-service needs of school systems and other agencies conducting educational programs as well as the continuing education needs of instructors and instructional planners.

Inquiries should be addressed to: Vern Simula, Director, the Master of Education Program, College of Education, 125 Bohannon Hall, University of Minnesota, Duluth, MN 55812.

MASTER OF INDUSTRIAL SAFETY DEGREE PROGRAM

This degree program is designed to prepare qualified personnel for safety supervisory and management positions in business, government, and industry. Candidates must complete a program of 45 quarter credits at the graduate level and must maintain an overall graduate grade point average of 3.00 or better. The minimum residence requirement for the degree is the equivalent of 3 academic quarters. In addition, an industrial internship or field research project is required. For more information write to: Department of Industrial and Technical Studies, University of Minnesota, Duluth, MN 55812.

SUMMER THEATRE

The Minnesota Repertory Theatre provides a concentrated experience in all aspects of theatre. Rehearsal, production and performance activities occupy participants six days each week beginning in June and running through the middle of August. Five shows are prepared for the 40 performances which will rotate in repertory, and will play to over 15,000 people during the summer. This year's season includes two musicals and three dramatic shows. All performances are in the Marshall Performing Arts Center. Sixteen to 20 credit hours in theatre are offered through program participation. Entry into the program is by competitive audition in March. Scholarships are available to selected experienced actors and technicians.

CONTINUING EDUCATION AND EXTENSION PROGRAMS

A number of noncredit, short-term programs will be offered on the UMD campus through the Duluth Continuing Education and Extension Center during the summer session. For information and a brochure describing the offerings contact: Director of Continuing Education and Extension, 403 Darland Administration Building, University of Minnesota, Duluth, MN 55812.

Accommodations should be secured by participants through the Housing Office at UMD.

University of Minnesota, Morris

The University of Minnesota, Morris, is located in west central Minnesota, near some of the state's finest resort and fishing areas. Morris, a community of 5,600, offers many recreational facilities including tennis courts, a swimming beach, a nine-hole golf course, and a lighted baseball park located in a 25-acre municipal recreation area.

The UMM campus occupies 45 acres on the eastern side of Morris. The cultural activities and recreational facilities of the community are available to students, and the University also has a variety of recreational facilities and cultural activities geared toward summer students.

During the summer session UMM offers a variety of liberal arts courses in the humanities, the social sciences, business/economics, mathematics, and science that can be taken for personal enrichment, to meet general education requirements, to meet requirements for certain majors, and to prepare for or improve skills for professional careers in business, the human services, or teaching.

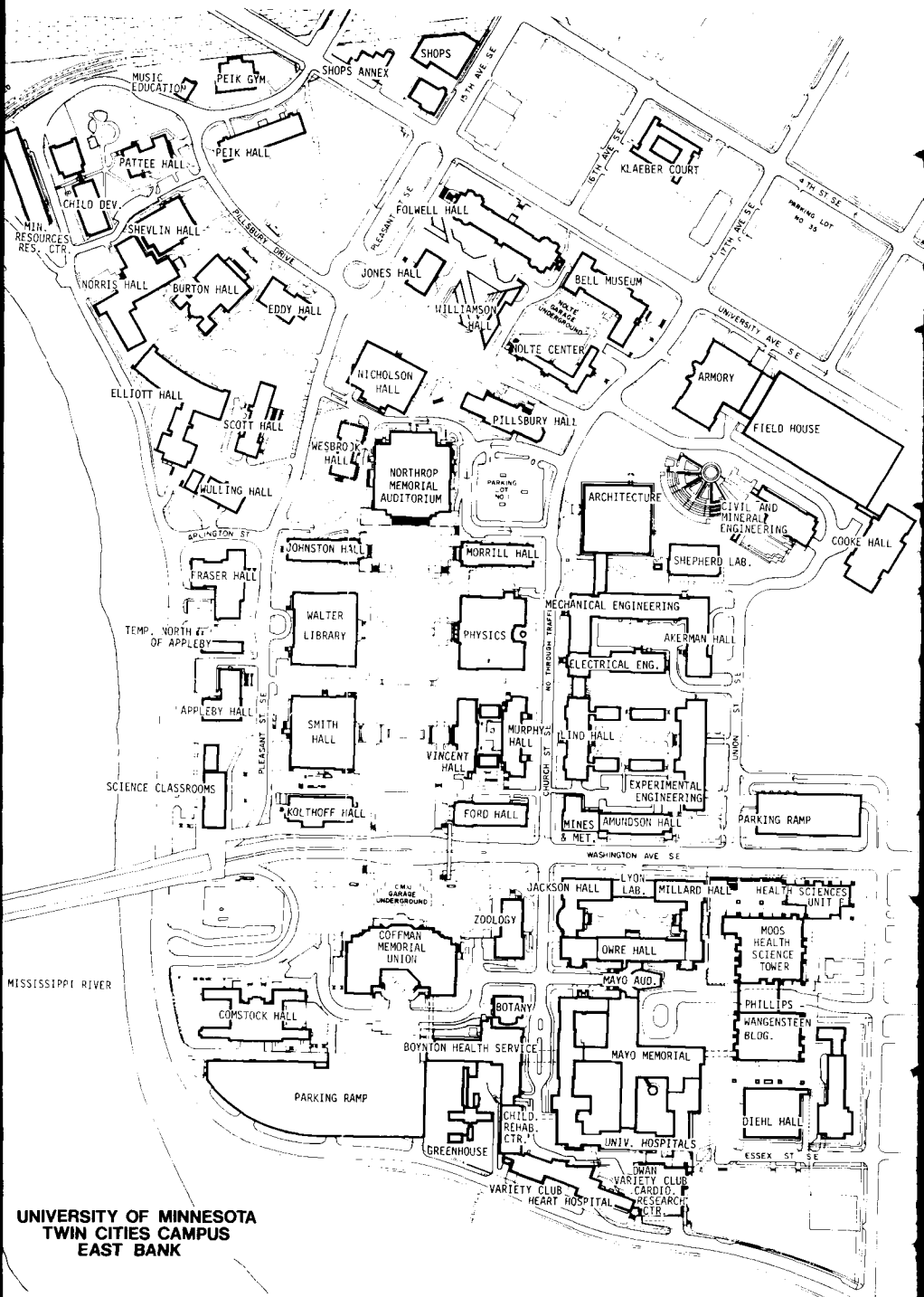
UMM also features a Summer Theatre Program initiated in 1981. This program permits undergraduate students to learn acting and technical theatre in an atmosphere similar to a professional company. Two plays are scheduled to be performed throughout the special 1985 Summer Theatre term.

A separate summer session bulletin describing UMM summer procedures and course offerings is available from: UMM Summer Session, 226 Community Services Building, University of Minnesota, Morris, MN 56267 (612/589-2211).

LIBERAL ARTS CURRICULUM

As a 4-year liberal arts college of the University of Minnesota, UMM shares in the instruction, research, and service objectives of the entire University system. Students may complete one of three degree programs at Morris:

1. A 4-year curriculum in liberal education leading to the bachelor of arts degree.
2. A 4-year curriculum that combines liberal education with teacher preparation and leads to the bachelor of arts degree and licensure as an elementary or secondary school teacher.
3. A 1-, 2-, 3-, or 4-year curriculum in liberal education that meets the preprofessional liberal arts requirements of the professional schools of the University of Minnesota or of other institutions.



UNIVERSITY OF MINNESOTA
TWIN CITIES CAMPUS
EAST BANK

BUILDING ABBREVIATIONS AND BUILDING ACCESSIBILITY INFORMATION

MINNEAPOLIS

East Bank

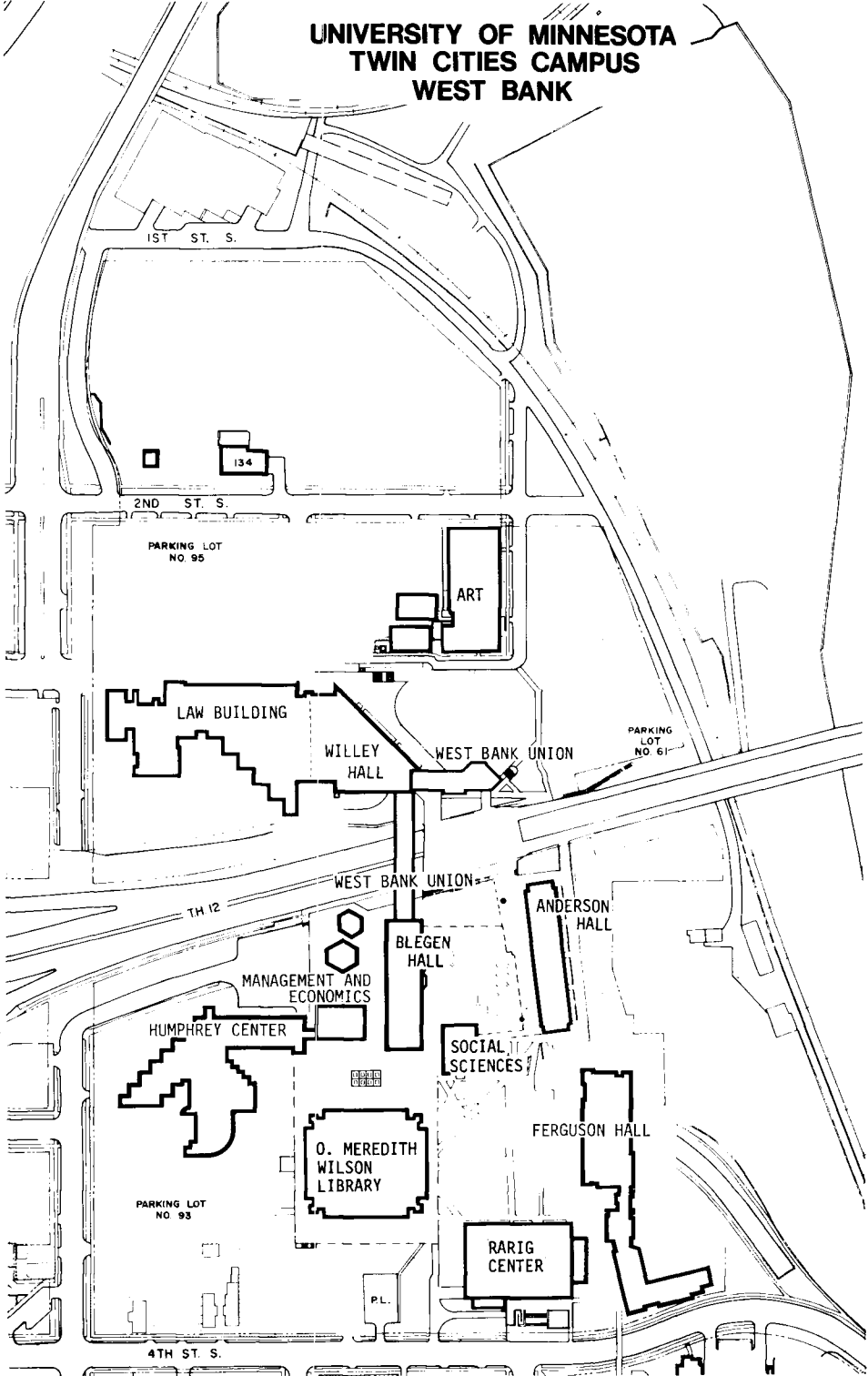
- AkerH, Akerman Hall ☐
 AmundH, Amundson Hall ☉ * L
 ApH, Appleby Hall ■ *
 Arch, Architecture ☉ * L
 Armory ☐
 BellMus, Museum of Natural History ☉ * L
 BFAB, Bierman Field Athletic Building ☐ * L
 Botany ☐
 BoynHS, Boynton Health Service ☉ * L
 BuH, Burton Hall ☉ * L
 CenH, Centennial Hall
 ChDev, Child Development ☉ *
 ChRC, Children's Rehabilitation Center ☉ * L
 CivMinE, Civil and Mineral Engineering ☉ * L
 CMU, Coffman Memorial Union ☉ * L
 CookeH, Cooke Hall ■
 DiehlH, Diehl Hall ☉ *
 DVCCRC, Dwan Variety Club Cardiovascular
 Research Center ☉ * L
 EddyH, Eddy Hall ■
 EdHAn, Eddy Hall Annex
 ElectE, Electrical Engineering ☐
 EltH, Elliott Hall ☉ * L
 ExpE, Experimental Engineering ■
 FieldHse, University Field House
 FolH, Folwell Hall ☉ * L
 FordH, Ford Hall ☉ * L
 FraserH, Fraser Hall ☐
 FronH, Frontier Hall ☉ *
 HL, St. Anthony Falls Hydraulic Laboratory (Hen-
 nepin 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
 MinMet, Mines and Metallurgy ☉ *
 MlrdH, 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 ■
 TNA, Temporary, North of Appleby ■
 TNCE, Temporary, North Court of Engineering ■
 VFWCRC, VFW Cancer Research Center
 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, *Guide for the Handicapped*, and further information, contact Physical Planning at 373-5765 or Rehabilitation Services at 376-3143.

UNIVERSITY OF MINNESOTA TWIN CITIES CAMPUS WEST BANK



BUILDING ABBREVIATIONS AND BUILDING ACCESSIBILITY INFORMATION

MINNEAPOLIS

West Bank

AndH, Anderson Hall ☉ *

ArtB, Art Building (2020 Washington Ave S) ☐

BlegH, Blegen Hall ☉ * L

Law, Law Building ☉ * L

MdbH, Middlebrook Hall ☉ * L

Mgmt/Econ. Management/Economics Building ☉ *

OMWL, O. Meredith Wilson Library ☉ * L

RarigC, Rarig Center ☉ * L

SocSci, Social Sciences Building ☉ *

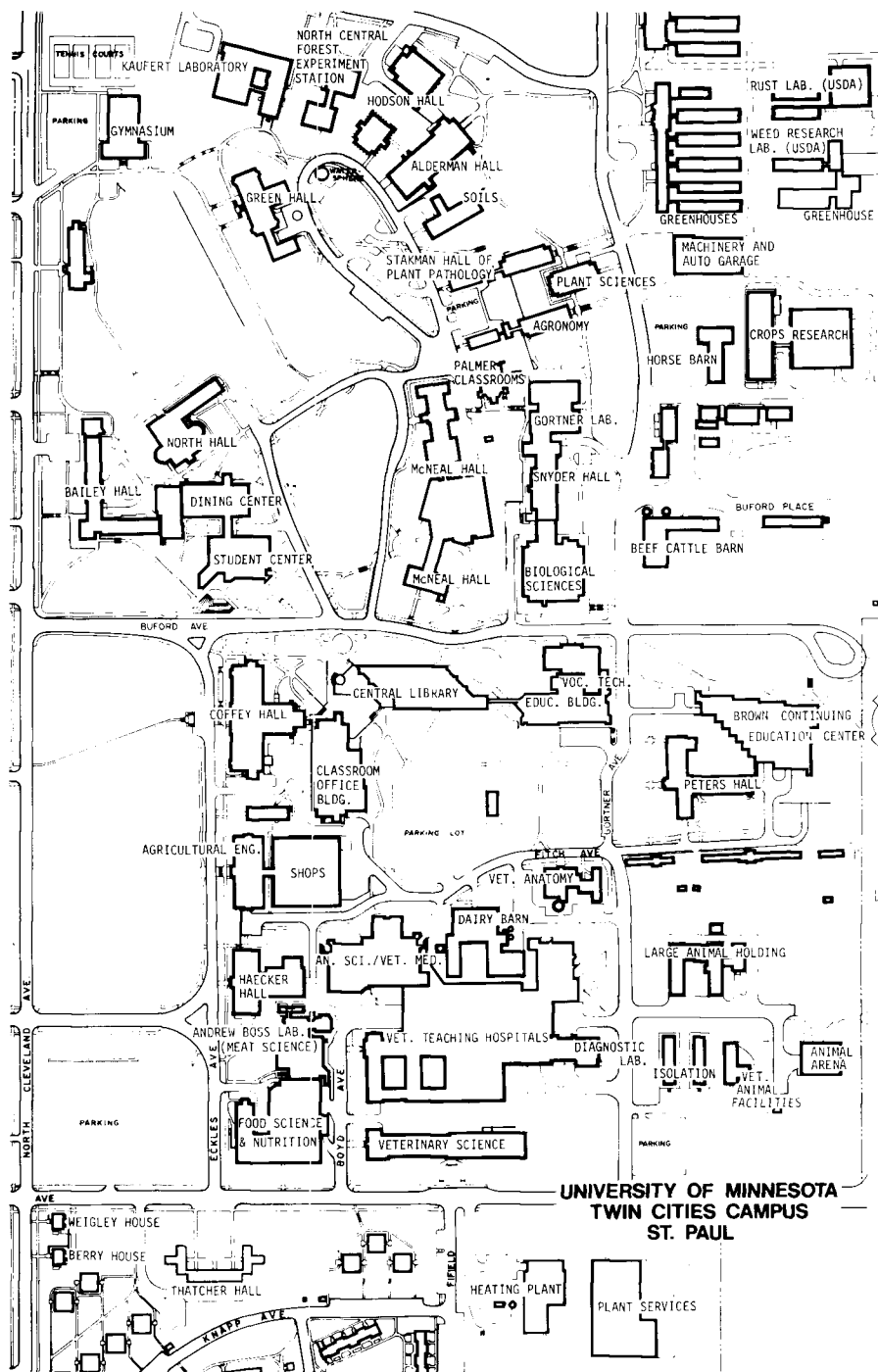
WBU, West Bank Union ☉ L

WilleyH, Willey Hall ☉ * L

CODES:

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**UNIVERSITY OF MINNESOTA
 TWIN CITIES CAMPUS
 ST. PAUL**

BUILDING ABBREVIATIONS AND BUILDING ACCESSIBILITY INFORMATION

ST. PAUL

ABLMS, Andrew Boss Laboratory-Meat Science ☺ *	GmH, Green Hall ☺ * L
AgEng, Agricultural Engineering ☐ *	Gym, Gymnasium ■
Agr, Agronomy ■	HckrH, Haecker Hall ☐
AgrPGGh, Agronomy/Plant Genetics Greenhouse	HodsonH, Hodson Hall ☺ *
AlderH, Alderman Hall ☺ *	KaufL, Kaufert Laboratory ☺ *
AnAren, Animal Arena	McNH, McNeal Hall ☺ * L
AnScVM, Animal Science, Veterinary Medicine ☐ *	NorH, North Hall ■
Berry, Berry House (1304 Cleveland Ave N) ☐	PalmC, Palmer Classroom Building ☐
BioSci, Biological Sciences Center ☐ *	PetH, Peters Hall ☐
CentLib, St. Paul Campus Central Library ☺ *	PISci, Plant Sciences ■
ClOff, Classroom Office Bldg ☺ *	SnH, Snyder Hall
CofH, Coffey Hall ☺ *	Soils ☺ *
DinC, Dining Center ☺ *	StakH, Stakman Hall of Plant Pathology ■
EBCEC, Earle Brown Continuing Education Center ☺ * L	StCen, Student Center ☺ * L
FSeN, Food Science and Nutrition ☺ *	VetA, Veterinary Anatomy ☐
GorL, Gortner Laboratory of Biochemistry ☺ *	VetDL, Veterinary Diagnostic Laboratories ■
	VetHos, Veterinary Hospitals ■
	VetS, Veterinary Science ■
	VetTchHos, Veterinary Teaching Hospitals ☐
	VoTech, Vocational-Technical Education ☺ * L
	Weigley, Weigley House (1316 Cleveland Ave N)

CODES:

- ☺ = accessible building
- ☐ = partially accessible
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COURSE REQUEST

University of Minnesota

ID CARD IMPRINT (if no ID card, print name, ID or Social Security Number)

College of Enrollment				Street Address				Telephone Number	
Major				City		State		Zip Code	
Term and Year: — Fall — Winter — Spring — Summer Session I — Summer Session II 19__									
<input type="checkbox"/> Original Registration. Number of credits ____				<input type="checkbox"/> Cancel Add. Number of Credits Remaining ____				<input type="checkbox"/> Complete Cancel	
NOTE: Fill in VARIABLE CREDITS only if credits are listed as "ar cr" in the Class Schedule. Fill in GRADE OPTION only if mandatory grading is not listed in the Class Schedule.									
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 per quarter (or \$1 per summer term) for those who pay the student services fee. If you choose NOT to pay the MPIRG fee, initial here: <input type="checkbox"/> Payment is refundable through MPIRG.				ADVISER APPROVAL (if needed)				ADDITIONAL APPROVAL (if needed)	

USE FOR IN-PERSON REGISTRATION ONLY
SUMMER-ONLY REGISTRATION
University of Minnesota

Please print clearly.
See instructions on page 16.

Social Security Number		U of M ID Number (if any)		Summer Term/Year <input type="checkbox"/> I <input type="checkbox"/> II 19__	
Student Name (last, first, middle, former)				Are you a U.S. citizen? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Street Address				Sex (check one): <input type="checkbox"/> Male <input type="checkbox"/> Female	
City	State	Zip Code	County	Birthdate (month/day/year)	
Mailing Address for Grades (if different from above)				Telephone Number ()	
In which U of M college are you registering?				Address/Phone Suppress <input type="checkbox"/> Check to prevent release	
Have you registered before at any U of M campus? <input type="checkbox"/> Yes <input type="checkbox"/> No					
If yes: <input type="checkbox"/> Day (including past summers) <input type="checkbox"/> Extension					
If day: Date of last enrollment _____ College _____					
Name (if different) _____					
Have you applied or been admitted to the U of M in the past 2 years? <input type="checkbox"/> Yes <input type="checkbox"/> No					
If yes: College _____ Term/Year _____					
Expected graduation date _____					
Have you received an admission letter? <input type="checkbox"/> Yes <input type="checkbox"/> No					
Previous School (most recent)			Type (coll., high sch., voc. inst.)		
Major Field of Study			Approximate GPA on 4.00 scale		
Did you graduate? <input type="checkbox"/> Yes <input type="checkbox"/> No					
If yes: Degree earned _____ Date _____					
Are you in good standing at your previous college/school? <input type="checkbox"/> Yes <input type="checkbox"/> No				Number of Credits Earned (indicate quarter or semester)	
for college use only					
<input type="checkbox"/> approved for summer-only registration			college code _____		
<input type="checkbox"/> approved for special program					
_____ college approval or stamp			_____ date		


COURSE REQUEST
 University of Minnesota

ID CARD IMPRINT (if no ID card, print name, ID or Social Security Number)

College of Enrollment				Street Address				Telephone Number	
Major				City		State	Zip Code		
Term and Year ___ Fall ___ Winter ___ Spring ___ Summer Session I ___ Summer Session II 19___									
<input type="checkbox"/> Original Registration: Number of credits ___			<input type="checkbox"/> Cancel Add: Number of Credits Remaining ___				<input type="checkbox"/> Complete Cancel		
NOTE: Fill in VARIABLE CREDITS only if credits are listed as "ar or" in the Class Schedule. Fill in GRADE OPTION only if mandatory grading is not listed in the Class Schedule.									
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)				ADVISER APPROVAL (if needed)				ADDITIONAL APPROVAL (if needed)	
Minnesota Public Interest Research Group is described in the Class Schedule. The MPIRG fee is \$2 per quarter (or \$1 per summer term) for those who pay the student services fee. If you choose NOT to pay the MPIRG fee, initial here _____ Payment is refundable through MPIRG.									

USE FOR IN-PERSON REGISTRATION ONLY
SUMMER-ONLY REGISTRATION
University of Minnesota

Please print clearly.
See instructions on page 16.

Social Security Number		U of M ID Number (if any)		Summer Term/Year <input type="checkbox"/> I <input type="checkbox"/> II 19__	
Student Name (last, first, middle, former)				Are you a U.S. citizen? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Street Address				Sex (check one): <input type="checkbox"/> Male <input type="checkbox"/> Female	
City	State	Zip Code	County	Birthdate (month/day/year)	
Mailing Address for Grades (if different from above)				Telephone Number ()	
In which U of M college are you registering?				Address/Phone Suppress <input type="checkbox"/> Check to prevent release	
Have you registered before at any U of M campus? <input type="checkbox"/> Yes <input type="checkbox"/> No					
If yes: <input type="checkbox"/> Day (including past summers) <input type="checkbox"/> Extension					
If day: Date of last enrollment _____ College _____					
Name (if different) _____					
Have you applied or been admitted to the U of M in the past 2 years? <input type="checkbox"/> Yes <input type="checkbox"/> No					
If yes: College _____ Term/Year _____					
Expected graduation date _____					
Have you received an admission letter? <input type="checkbox"/> Yes <input type="checkbox"/> No					
Previous School (most recent)			Type (coll., high sch., voc. inst.)		
Major Field of Study			Approximate GPA on 4.00 scale		
Did you graduate? <input type="checkbox"/> Yes <input type="checkbox"/> No					
If yes: Degree earned _____ Date _____					
Are you in good standing at your previous college/school? <input type="checkbox"/> Yes <input type="checkbox"/> No				Number of Credits Earned (indicate quarter or semester)	
for college use only					
<input type="checkbox"/> approved for summer-only registration			college code _____		
<input type="checkbox"/> approved for special program					
_____			_____		
college approval or stamp			date		

SUMMER HONORS COLLEGE HONORS INSTITUTE IN THEATRE

High ability high school students who will be seniors may want to investigate participation in one of the special programs available to them this summer. Short descriptions of these programs can be found on page 9 of this bulletin. For further information about the Summer Honors College or the Honors Institute in Theatre, please complete the postage-paid return card below and mail it to the Summer Session Office **before May 10.**

PLEASE SEND ME FURTHER INFORMATION ON

Summer Honors College Honors Institute in Theatre

Name _____

Address _____

City _____ State _____ Zip _____



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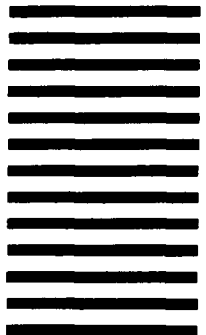
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Summer Session
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Minneapolis, MN 55455**

COLLEGE OF EDUCATION STUDENTS ONLY

FIRST TERM STUDENTS MAY REGISTER BY MAIL. SEE PAGE 37 FOR LIMITATIONS. TO REQUEST REGISTRATION MATERIALS, PLEASE COMPLETE AND RETURN THE CARD BELOW. IF YOU INTEND TO REGISTER BY MAIL, PLEASE ACT PROMPTLY; ALL REGISTRATION MATERIALS MUST BE RECEIVED BY THE COLLEGE OF EDUCATION BY MAY 31 IN ORDER TO BE PROCESSED IN TIME FOR THE BEGINNING OF THE SUMMER SESSION.

HOW TO REGISTER

5 EASY STEPS...

1. Request registration materials.
2. Complete the forms you receive.
3. Mail completed forms to the College of Education, Education Student Affairs Office, 1425 University Avenue S.E., Minneapolis, MN 55414. Registration forms must be received between May 1 and May 31.
4. Pay fees after you receive your fee statement in the mail. Payment after the due date on your fee statement will incur a late fee.
5. Go to the first meeting of your classes without further contact with any administrative office.

If you decide not to attend a class for which you are registered, you must contact the Education Student Affairs Office, 1425 University Avenue S.E., Minneapolis, MN 55414 (612/373-2268).

REQUEST FOR 1985 SUMMER SESSION REGISTRATION MATERIALS COLLEGE OF EDUCATION

Name _____

Address _____

City _____ State _____ Zip _____

Check appropriate items:

College of Education student _____ ID# _____

Inservice Teacher _____

Not a teacher but registering for Education Courses _____



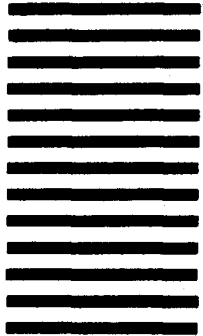
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COLLEGE OF LIBERAL ARTS SUMMER-ONLY STUDENTS

CLA SUMMER-ONLY STUDENTS WHO QUALIFY (SEE PAGE 151 OF THIS BULLETIN) MAY REGISTER BY MAIL. TO REQUEST REGISTRATION MATERIALS, PLEASE COMPLETE AND RETURN THE CARD BELOW. PLEASE ACT PROMPTLY; ALL REGISTRATION MATERIALS MUST BE RECEIVED BY MAY 22 IN ORDER TO BE PROCESSED IN TIME.

HOW TO REGISTER

5 EASY STEPS...

1. Request registration materials.
2. Complete the forms you receive.
3. Mail completed forms to the College of Liberal Arts, 214 Johnston Hall, 101 Pleasant St. S.E., Minneapolis, MN 55455. Registration forms must be received between May 1 and May 22.
4. Pay fees after you receive your fee statement in the mail. Payment after the due date on your fee statement will incur a late fee.
5. Attend the first meeting of your class(es); no further contact with any administrative office is needed.

If you decide not to attend a class for which you are registered, you must contact the CLA Student Information Office, 214 Johnston Hall, 101 Pleasant St. S.E., Minneapolis, MN 55455 (612/373-2877). You are responsible for tuition payment unless an official cancellation is processed.

REQUEST FOR 1985 SUMMER SESSION REGISTRATION MATERIALS COLLEGE OF LIBERAL ARTS

Name _____

Address _____

City _____ State _____ Zip _____



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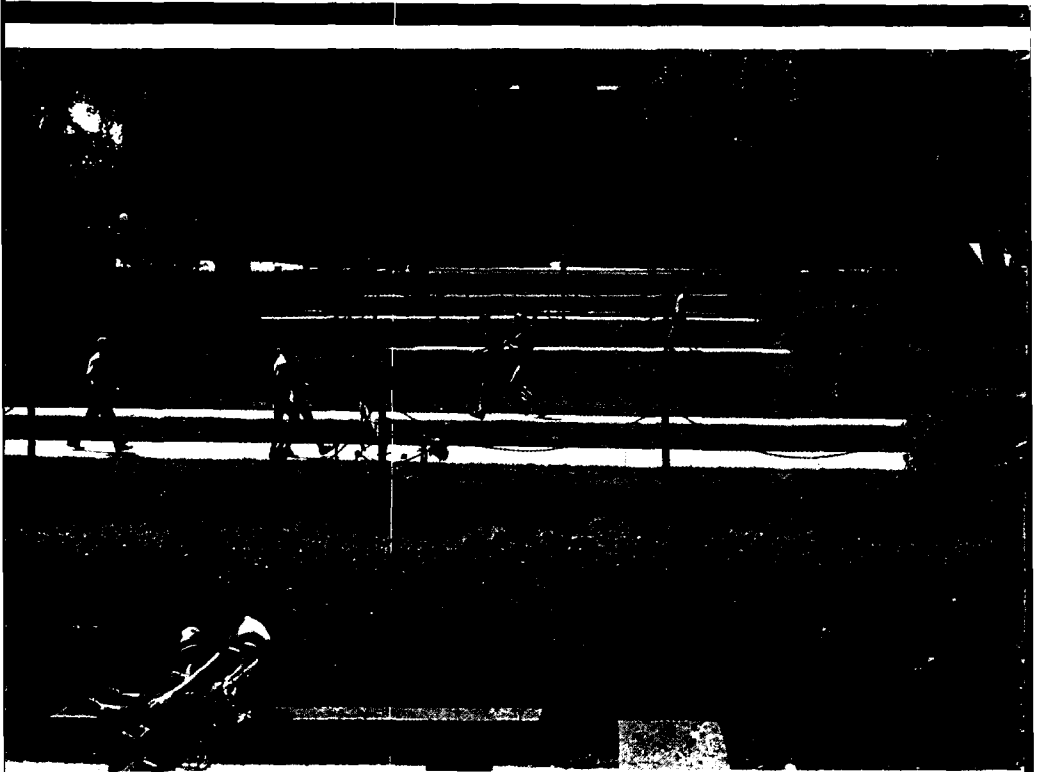
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