

summer session

bulletin
of the

1954

university of

minnesota

announcement

UNIVERSITY OF MINNESOTA

Minneapolis Minnesota

1954

SUMMER SESSION

First Term

June 14-July 17

Second Term

July 19-August 21

FOREWORD

The Summer Session at the University of Minnesota is unique. It provides training on the graduate and on the undergraduate levels for students in education; in science, literature, and the arts, including painting, sculpture, and music; in technology, including many branches of engineering and chemistry; in medicine, including public health; in nursing; in many branches of agriculture; in home economics; and, in fact, in most of the fields that offer instruction in the academic program of any great university.

With more than 1,000 subjects of study this bulletin is issued to furnish you a preview of the offerings.

It is an invitation to you to join the classes that are open to all qualified high school graduates, all regularly admitted students of the University, all those students who have had regular college work here or elsewhere, and any mature person who desires to further his education.

This is an opportunity for a profitable summer in study and recreation at the University of Minnesota.

Special Programs

European Music Festivals Tour
Journalism and Communications
Total Eclipse of the Sun
Efficient Reading
**Workshop in Teacher Education
in Nursing**
Improving Nursing Care
Film Festival
**Institute on Minnesota Govern-
ment and Politics**
Modern Language Institute
Intensive Intermediate Russian
Beginning Italian
American Studies Program
Scandinavian Area Studies
**Industrial Education Workshop
and Special Courses**
Current Economic Problems
Higher Education Workshops
Workshop in Teaching Display
**Workshops for School
Administrators**
Language Arts
Driver Education
Foreign Language Auxilium

**EUROPEAN
MUSIC FESTIVALS
TOUR**

A tour of the European music festival centers will be conducted by a member of the Music Department of the University of Minnesota leaving New York the latter part of June and returning the middle of September.

The tour will attend the International Musical Eisteddfod at Llangollen, Wales; the Dolmetsch Festival of early English music in Surrey; the Glyndebourne Opera Festival, Sussex; the Shakespeare Memorial Theatre, Stratford-upon-Avon; the contemporary English music festival at Cheltenham, England; the Bach festival under the direction of Pablo Casals, Pyrennes-Orientale; open-air concerts and opera in Rome and Florence and the Lyrics Festival in Verona, Italy; International Music Festival, Aix-en-Provence, France; the Lucerne Music Festival, Switzerland; Mozart Festival in Salzburg, Austria; Wagnerian Opera Festival at Bayreuth, Germany. (See Mu. 134)

Also included are special sight-seeing trips in the countries visited—England, Wales, France, Italy, Switzerland, Austria, Germany, and Holland.

The class will be limited to twenty students who may receive from 3 to 12 credits depending on the scope of the term paper.

For information write to Dean of Summer Session, 950 Johnston Hall, University of Minnesota, Minneapolis 14.

**JOURNALISM
AND
COMMUNICA-
TIONS**

The School of Journalism program contains courses for both undergraduate and graduate students interested in professional training, and it provides courses for advisers of student publications in high schools, junior colleges, and universities.

The School also offers three courses in the area of mass communications, with emphasis on communications in the democratic world and on communications research problems. Recent findings in the scientific study of the communicator, medium, the audience, and the effects of communicated ideas and information will be explored in *Communication Media Analysis* and in the graduate seminar in *Public Opinion and Propaganda*.

**TOTAL ECLIPSE
OF THE SUN**

On June 30, 1954, a total eclipse of the sun will occur in the Twin Cities area. This is Nature's greatest spectacle and to anyone fortunate enough to witness it, it will provide the sight of a lifetime. While this eclipse is not a long one—totality lasting only a minute and a half—and it happens early in the morning at 5:07 a.m.—it is the first total eclipse of the sun to come to the Twin Cities for several centuries, and also the last one for another century and a half.

Special emphasis will be given to this eclipse in the astronomy courses during the Summer Session and special lectures for the general public will also be given.

**EFFICIENT
READING**

Adult reading needs are a matter of real concern. The course *Efficient Reading* (see index), designed for the average and above-average adult reader, provides a unique combination of activities for improving reading speed, comprehension, and vocabulary.

**WORKSHOP IN
TEACHER
EDUCATION
IN NURSING**

Problems of preparing teachers of nursing will be considered by both college and clinical instructors responsible for student teachers. Consultants from nursing and other fields of higher education will be available throughout the two-week period, August 9-20. (See Nu.Ed. 181, School of Nursing)

**IMPROVING
NURSING
CARE**

A course of special interest, *Improving Nursing Care Through Cooperative Planning*, will be given the first term. Dorothy Perkins Newcomb of Boston University, visiting instructor in this course for two weeks, June 14-25, has had extensive nursing service experience, particularly in the Massachusetts General Hospital, and has done special writing on team concepts in nursing care. Opportunities for observation of group assignment and planning of nursing care will be provided. (See Nu.Ad. 171, School of Nursing)

FILM FESTIVAL

A six-day program of lectures, discussions, workshops, and film screenings on every phase of the film as a creative medium will be offered to educators, teachers, artists, designers, museum staff, film makers, and interested laymen during the second week of the first term, June 21-26, inclusive.

The Festival will be concerned with progressive production techniques and standards of excellence in esthetic and critical terms. National leaders in the field are invited to participate in this program. A detailed schedule is available from the Director of the Center for Continuation Study, University of Minnesota, Minneapolis 14.

The courses in photography given in the Department of Art in the first term are coordinated with this film festival.

**INSTITUTE ON
MINNESOTA
GOVERNMENT
AND POLITICS**

During the first two weeks of the second term, a 3-credit Institute on Minnesota Government and Politics will be offered for public school teachers, school administrators, civic leaders, and others. Panels of state government officials will discuss topics under the chairmanship of University of Minnesota professors. In addition, the Institute will feature group discussions, a field trip, and a dinner meeting. A related course on State Government, Pol.Sci. 115, may be taken during the last three weeks of the second term for 3 additional credits.

**MODERN
LANGUAGE
INSTITUTE**

During the first term of the Summer Session, the Modern Language Institute will sponsor residence houses, located near the campus, for graduate and undergraduate students of French, Spanish, and German. All activities will be carried on in the language elected by the student. The directors will be Professor Herman Ramras of the University of Minnesota for the Deutsches Haus; Mr. William H. Rogers, formerly director of the Bi-National Centers: Instituto Nicaraguense-Estados Unidos, Managua, Nicaragua 1950-51, and Instituto Guatemalteco-Americano, Guatemala City, Guatemala, 1951-53, now of the University of Minnesota, for the Casa Hispánica; and Jean

Carduner, Diplôme d'Etudes Supérieures, Sorbonne, also of the University of Minnesota, for the Maison Française. In each house there will be native assistants.

PROGRAMS

The program will consist of regular departmental courses conducted in the morning; practical conversation sections at the residence houses in the afternoon; and lectures, round-table discussions, plays, films, music, and dances in the evening. Thus, each house will constitute a milieu for training in the language and culture of the country and will provide a unique opportunity for improvement in the spoken language.

The Institute training has proved valuable to students and others who desire training in speaking a foreign language . . . those planning to apply for Fulbright or SPAN scholarships, or to join other foreign study groups . . . teachers or potential teachers of French, Spanish, or German, whether or not they are working for graduate degrees . . . men and women training for positions with the government, international organizations, or private business.

FEES AND SCHOLARSHIPS

Each language program carries 10 quarter credits for the elementary group and 9 for advanced and graduate students. A special fee of \$40, in addition to regular Summer Session fees, is charged for the program offered in a language residence house. Room and board are additional. Several scholarships are available for the French house and the German house.

INTENSIVE INTERMEDIATE RUSSIAN

Students who have completed one year's study of Russian are eligible for this special course in Intensive Intermediate Russian. In this unique course, the student devotes twenty hours weekly to the mastery of this important language. Since major emphasis will be placed on spoken Russian, students will participate in debates, give speeches—prepared and spontaneous—and con-

verse with native speakers. A special fee of \$20, in addition to regular Summer Session fees, is charged for this program.

The new Phonetics Center in Folwell Hall with its extensive sound-recording equipment and short-wave set for Russian language broadcasts will be at the disposal of registered students.

**BEGINNING
ITALIAN**

This course is designed for students with no previous knowledge of Italian. While the emphasis will be on conversation, it is expected that the fundamentals of Italian grammar will be thoroughly covered. For those students who wish to improve their pronunciation by means of the latest audio-visual techniques, the facilities of the Phonetics Center will be at their disposal under the direct guidance of a native instructor.

**AMERICAN
STUDIES
PROGRAM**

The American Studies summer program is designed for students and professors from abroad as well as for students from the United States. The usual American courses conducted by the academic departments concerned with American Studies (history, literature, philosophy, art and music, and the social sciences) will be offered.

Candidates for all degrees enroll in American courses conducted by the participating departments and in American Studies seminars designed to integrate these courses. Knowledge of a foreign civilization is also required of all candidates.

**SCANDINAVIAN
AREA STUDIES**

The Scandinavian Area Studies summer program, held alternate summers at the Universities of Minnesota and Wisconsin, is scheduled for the second term of the summer of 1954 at the University of Minnesota. The courses to be offered—in Scandinavian literature, in social legislation and social institutions in Scandinavia, and in modern Scandinavian history—will be open both to students specializing in Scandinavian studies and to those who may be interested only in some particular aspect of Scandinavian life and culture.

**INDUSTRIAL
EDUCATION
WORKSHOP AND
SPECIAL
COURSES**

Industrial Education offers three special projects, two for industrial arts teachers and one for nonmajors. In the first term, Robert A. Tinkham of the University of Illinois will conduct a workshop on the design and development of projects for industrial arts courses. Workshop members will pool their efforts, producing a kit of project ideas for each participant. In the second term, industrial arts teachers may enroll for 3, 6, or 9 credits in the Instructional Materials Laboratory, stressing metalwork, graphic arts, and crafts. For nonmajors . . . elementary teachers, recreation leaders, and others whose work includes the teaching of craft and industrial arts activities . . . a laboratory in the first term will provide opportunity for developing skills, preparing instructional materials, and examining effective ways of presenting such activities.

The Industrial Education Department will send on request a detailed description of these offerings.

**CURRENT
ECONOMIC
PROBLEMS**

A special overview of current national and international economic problems is embodied in this course intended for the nonmajor, including the teacher of social science who seeks some understanding of the economic side of everyday life. The course will be of particular value to teachers who have attended or are using the materials from recent Economic Education Workshops.

**HIGHER
EDUCATION
WORKSHOPS**

One of the most useful offerings of previous summers, the higher education workshops, will be available again. The first term workshop has been planned for representatives from the liberal arts colleges of the North Central area, and the second term group will emphasize the problems of the teacher-education institutions.

**WORKSHOP IN
TEACHING
DISPLAY**

For teachers and coordinators in distributive education, a two-week Workshop in Teaching Display will provide assistance in handling their many problems in this area. A more detailed announcement will be available through the College of Education.

**WORKSHOPS FOR
SCHOOL
ADMINISTRATORS**

As a part of the advanced graduate program (one year beyond the Master's degree) leading to the certificate of Specialist in Education—School Administration, two workshop courses are scheduled for the first term. Each course will require full-time work from the participants for two and one-half weeks. See Ed.C.I. 240, Improvement of Instruction in the Elementary School, June 14 to June 30, and Ed.Ad.234, Problems in State School Administration, July 1 to July 16. Both groups will be limited in size, and prerequisite to both is the completion of a Master's degree program for school superintendents.

LANGUAGE ARTS

A special program in the Language Arts . . . reading, speaking, writing, listening, children's theater, children's literature . . . will be offered in the first term through the cooperation of several departments. Supplementing the courses will be an Institute at the Center for Continuation Study, June 28 through July 1, emphasizing sound practices for elementary and secondary school instruction in the language arts.

**DRIVER
EDUCATION**

The special background required for high school instructors in driver training will be offered under Ed.C.I. 101, Driver Education, with sections available on the Minneapolis Campus in both terms and at Duluth in the first term. Because registration is limited, interested summer students should apply in advance.

**FOREIGN
LANGUAGE
AUXILIUM**

Scholarships for eighty participants in workshops for foreign language teachers will be available in the first term. Teachers of Latin, French, German, Spanish, Scandinavian, and Russian at the freshman-sophomore college level, in high schools, and in elementary schools, as well as teachers of English as a foreign language, will be eligible. The Auxilium is jointly sponsored by the language departments of the College of Science, Literature, and the Arts and by the College of Education. For the program of the Auxilium and application forms write to the Dean of Summer Session, 950 Johnston Hall, University of Minnesota, Minneapolis 14. (See College of Education, Curriculum and Instruction, Secondary Education, course 188)

General Information

University Facilities

Dates of Summer Session

Faculty

Housing and Food Service

Admission and Registration

GENERAL INFORMATION

A more complete Summer Session bulletin is issued annually in March. Copies of that bulletin or additional copies of this preliminary bulletin may be obtained by addressing your request to Dean of Summer Session, 950 Johnston Hall, University of Minnesota, Minneapolis 14.

Because the University of Minnesota is on the quarter system, summer is not a "fill-in" period but a time when you can have all the advantages offered during the other three quarters.

There are two terms—the first from June 14 to July 17 and the second from July 19 to August 21. Students may register for subjects of their choice in either or both terms at their discretion.

UNIVERSITY FACILITIES

The Summer Session student has the facilities of a great educational institution: its faculty . . . libraries . . . laboratories . . . observatories . . . and museums. These are supported by an expanding physical plant consisting of 1,122 buildings with a book value of \$61,056,111.58 and equipment valued at \$23,884,561.44.

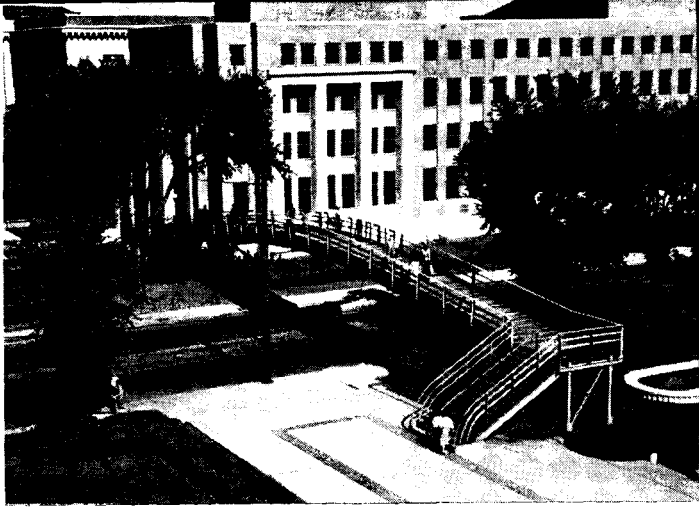
SEVERAL CAMPUSES

The Minneapolis Campus is located on the banks of the Mississippi River, overlooking the heart of the Minneapolis business district. It is readily accessible to St. Paul, offering the recreational and cultural advantages of two large metropolitan centers.



The Summer Session offices are in Johnston Hall.

Student overpass connects
class buildings with the
Union's recreation facilities.



The St. Paul Campus houses the Institute of Agriculture, including the College of Agriculture, Forestry, and Home Economics and the School of Veterinary Medicine, with its own laboratories and recreational facilities. The Minneapolis and St. Paul campuses are joined by an intercampus bus line which gives regular service free to students enrolled for classes on both campuses.

The Lake Itasca Forestry and Biological Station, located on historically famous Lake Itasca in Itasca State Park is scheduled for the **first term** this year. It offers courses in various fields of biology. (See index)

The Duluth Campus is discussed in a separate section. Courses are also listed. (See index)

SPEECH AND HEARING CLINIC

Students with speech and hearing problems may use the facilities of the University Speech and Hearing Clinic during the summer. These offices are located at 205 Shevlin Hall.

LIBRARIES

Full library privileges are available during the summer. One of the finest university libraries in existence, the University of Minnesota Library contains more than one and one-half million volumes and a wide variety of periodicals and pamphlets.

Large, comfortable reading rooms provide an excellent atmosphere for study. Seminars and discussion groups of graduate students and faculty have the use of a separate floor of seminar rooms.

Departmental libraries on both campuses contain special collections of value to students.

Other available library facilities in the Twin Cities area include the Minneapolis Public Library, the St. Paul Public Library, the Minnesota Historical Society, and the James Jerome Hill Reference Library of St. Paul.

**STUDENTS'
HEALTH
SERVICE**

The Students' Health Service, in quarters across from the Church Street entrance of the University Hospitals, maintains a dispensary and hospital exclusively for students. The students' hospital provides hospitalization for students whenever necessary. Home calls are made in case of emergency.

The same staff of physicians, dentists, and nurses is on duty throughout the year.

**DATES OF
SUMMER
SESSION**

The Summer Session consists of two terms of five weeks each: June 14 to July 17 and July 19 to August 21. Registration and payment of fees for the first term close at 4:00 on Tuesday, June 15. First term classes on the Minneapolis Campus will begin Tuesday, June 15, at 8:00 a.m. while classes on the St. Paul Campus will begin at 7:30 a.m.

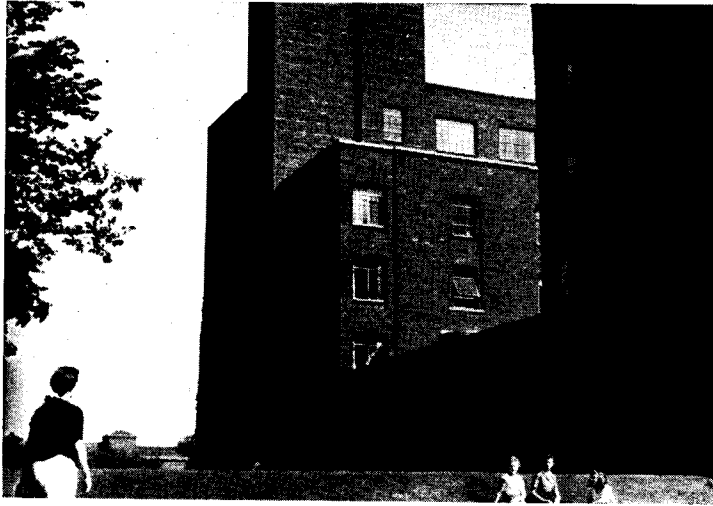
Registration and payment of fees for the second term close at 4:00 p.m. on Monday, July 19; classes for this term will open Tuesday, July 20.

Most individual courses are planned for completion in a single term.

FACULTY

There will be a faculty numbering more than 800. The University of Minnesota realizes Summer Session students expect to become acquainted with, and study under, the regular faculty. Therefore, many of the University's outstanding scholars, eminent in their fields, will be present to teach and to direct research.

*Spacious lawns surround
the women's dormitory,
Comstock Hall.*



HOUSING AND FOOD SERVICE COMSTOCK HALL

Ada Comstock Hall, a modern residence hall for women, overlooks the Mississippi River and is next to the Coffman Memorial Union. It has excellent living accommodations for 378 students. Well-planned, healthful meals are served under the direction of a trained dietitian. Applications for reservations, which should be sent directly to Comstock Hall as early as possible, will be filled in the order of the date received.

Write for applications and additional information to Director of Women's Residences, Comstock Hall, University of Minnesota, Minneapolis 14.

SANFORD HALL

Sanford Hall, another University dormitory for women, is located on University Avenue near the entrance to the campus. It will be open to graduates and undergraduates for room only, at very reasonable rates. This provides comfortable living in double and single rooms.

Sanford Hall will not be open during the second term.

For applications and additional information, write as early as possible to Director of Sanford Hall, University of Minnesota, Minneapolis 14.

WINCHELL COTTAGES

The Winchell Cottages for Women offer attractive, low-cost housing on a cooperative basis, for both terms. They are located on University Avenue near Sanford Hall. No meals are served in the summer.

Residents must furnish their bedding, towels, rugs, and curtains as desired. Students cut expenses by sharing the work in each house.

For applications and additional information, write directly to Director of Winchell Cottages, 212 12th Avenue S.E., University of Minnesota, Minneapolis 14.

**MEREDITH HALL,
ST. PAUL CAMPUS**

If there is a sufficient number of requests, Meredith Hall on the St. Paul Campus will be open to women during the first term. Inquiries should be made to the Director of Dormitories, School of Agriculture, University of Minnesota, St. Paul 1.

MEN'S RESIDENCE HALL

Centennial Hall, an ultra-modern men's dormitory with a large number of single rooms, will be available. A room and board contract (board—Monday through Friday) will be offered provided there is a sufficient number of residents. Otherwise, contracts will be for room only. Early application is suggested. For application forms and additional information, write to Director of Centennial Hall, University of Minnesota, Minneapolis 14.

**DINING HALL,
ST. PAUL CAMPUS**

Contingent upon the applications, Dining Hall on the St. Paul Campus will be open to men during the first term. Inquiries should be made to the Director of Dormitories, School of Agriculture, University of Minnesota, St. Paul 1.

PRIVATE RESIDENCES

There is available a considerable number of rooms in private homes and rooming houses. These facilities are University-inspected and approved and are listed with the Student Housing Bureau, 204 Eddy Hall.

All regularly enrolled students are required to live in University-approved residences and those taking rooms elsewhere must apply to the director of the Student Housing Bureau for approval. The Housing Bureau also helps married students obtain housekeeping facilities.

FOOD SERVICE

In addition to dining halls in the dormitories and residence halls, Coffman Memorial Union offers a variety of accommodations.

Well-prepared food at moderate prices and quick, efficient service are featured in the Cafeteria and Fountain Grille.

Party and banquet dining facilities will be available for both lunch and dinner to all campus organizations and groups during the second term.

**ADMISSION AND
REGISTRATION
ADMISSION**

The courses of the Summer Session are open to all qualified high school graduates, regularly admitted students of the University including those attending regular session, and those with previous college work. Recent high school graduates must be regularly admitted before enrolling in the Summer Session. Students beginning their University attendance during the Summer Session who wish to attend during the academic year must submit credentials in the usual way.

**SPECIAL
STUDENTS**

Students with previous college work who wish only to attend the Summer Session may do so without filing credentials, provided they are in good standing and are not candidates for a degree. Such students will be classified as "special" for the Summer Session only.

Mature persons (those about 24 years of age or older) who are not candidates for a degree but wish to complete certain specific college subjects may be considered for admission as adult special students.

Attendance during the Summer Session in no way guarantees special students admission to the regular academic year. Special students who wish to be considered for admission to a subsequent term must file regular admission applications early in the summer.

**GRADUATE
STUDENTS**

The procedure for admission of graduate students is discussed on pages 30 and 31.

**CANDIDATE
FOR DEGREE**

Those who expect to become *candidates for a degree* at the University during the Summer Session must have filed an application for admission and have been regularly admitted to a college of the University.

All students should consult the *General Information Bulletin* for detailed requirements governing admission and the granting of degrees. The *General Information Bulletin* and specific college bulletins may be obtained by writing to Office of Admissions and Records, University of Minnesota, Minneapolis 14.

**REGISTRATION
DATES**

In order that short Summer Session terms may prove of maximum value and that work of courses may not be interfered with by late entrants, students are urged to complete their registration on days set aside for registration. Regular registration days are:

- First term* Monday, June 14, 8:00 a.m. to 4:00 p.m.
- Second term* Monday, July 19, 8:00 a.m. to 4:00 p.m.

**LATE
REGISTRATION**

Late fees are charged for the first term as follows for payment of fees on:

Wednesday, June 16	\$2.00
Thursday, June 17	3.00
Friday, June 18	4.00
Monday, June 21	5.00

No registrations are allowed for the first term after Monday, June 21, without special permission of the dean of the school or college concerned, and payment of the late fee of \$5.

Late fees for the second term are as follows for payment of fees on:

Tuesday, July 20	\$2.00
Wednesday, July 21	3.00
Thursday, July 22	4.00
Friday, July 23	5.00

No registrations will be accepted for the second term later than Friday, July 23, without special permission of the dean of the school or college concerned, and the payment of the late fee of \$5.

No provision is made for allowing exemption from late registration fees to those who are unable to reach the University during regular registration days.

**PLACE OF
REGISTRATION**

At the beginning of the first term, registration in all colleges except the College of Agriculture, Forestry, and Home Economics and the School of Veterinary Medicine will be in the Main Ballroom, Coffman Memorial Union. Registration in the College of Agriculture, Forestry, and Home Economics and the School of Veterinary Medicine will be at 203d Coffey Hall, St. Paul Campus.

The University of Minnesota reserves the right to cancel any and all courses in which registration is insufficient to warrant continuation of the course.

**CHANGES IN
REGISTRATION**

After a student's registration has been accepted by the recorder, any change must be approved by the Committee on Student Scholastic Standing or dean of the college in which the student is registered. *Only in exceptional cases will any change be made after classes have begun.*

FEEES

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

Tuition fee (per term)	\$45.00
Incidental fee (per term)	<u>10.50</u>
Total fee (per term)	\$55.50

**PART-TIME
FEES**

The following fees are payable each term at time of registration by each student taking 4 credits or less (whether resident or nonresident) and must be paid before registration is complete:

Part-time tuition fee (4 credits or less) (per term)	\$35.00
Incidental fee (per term)	10.50
Total fee (per term)	\$45.50

**INCIDENTAL
FEE**

The incidental fee of \$10.50 per term mentioned above entitles each student to the privileges of Coffman Memorial Union, Health Service, Library, Counseling Bureau, Speech and Hearing Clinic, recreation program, *Minnesota Daily*, and university post-office service.

**SPECIAL
FEES**

Regular tuition fees as provided during the academic year will be charged all students in the School of Nursing. In the Schools of Medicine, Dentistry, Law, and Veterinary Medicine, residents pay regular Summer Session tuition fees; nonresidents pay tuition as provided during the academic year. Special tuition fees are collected in the Biological Station. All students pay the Summer Session incidental fee.

In addition, certain courses carry a fee as indicated in the section on course fees in the regular *Summer Session Bulletin*.

Graduate students who have completed all of their graduate work with the exception of their thesis may register for *thesis* work only upon payment of \$22.50 tuition per term and the incidental fee.

Summer Session staff members are entitled to the same fee privileges in the summer as during the academic year. Eligible staff members pay at the resident rate in the Graduate School as follows: more than 3 credits, \$19.00 per term; 3 credits or less or thesis only, \$9.50 per term; plus incidental fee.

AUDITORS

Fees for auditors are the same as for students registered for credit.

CREDIT

Credit is administered on the following basis: 1 quarter credit usually requires not less than 10 lectures or recitation periods (2 per week for a summer term requiring two hours of preparation each) or not less than 20 periods of laboratory work requiring one-half hour of preparation each; or not less than 30 hours of laboratory work with no preparation. Courses carrying 2 or more units of credit require corresponding multiples of these amounts.

**AMOUNT
OF WORK**

A maximum of 9 quarter credits or two 5-credit courses is considered a full program for either term. Registration for a greater number requires special permission from the Committee on Student Scholastic Standing or the dean of the school or college in which the student is registered.

EXAMINATIONS

Examinations are held at the last scheduled class hour for each course.

for use of the golf course. Without tickets a slightly larger charge per session of play is made for use of the tennis courts.

SPORTS FACILITIES

Facilities for healthful exercise are offered by the University's physical education plants. These include recreation fields . . . an 18-hole golf course . . . gymnasiums and swimming pools in Cooke Hall for men and Norris Gymnasium for women . . . Northrop Field containing facilities for baseball, track, and diamond ball . . . 25 tennis courts . . . space for other sports such as badminton, horseshoes, handball, squash, table tennis, and archery.

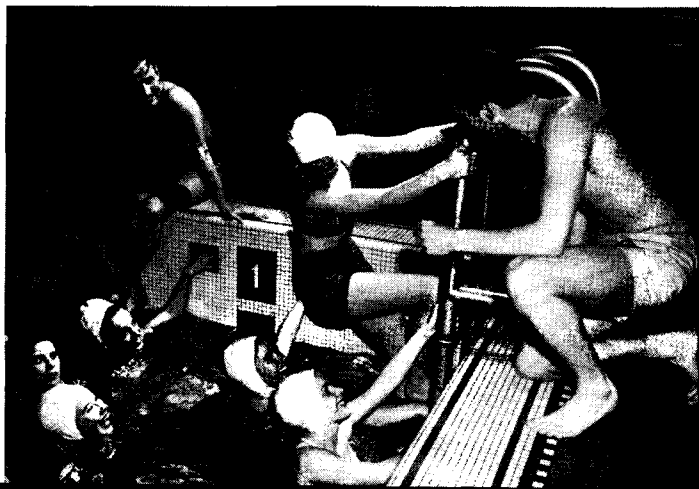
EXCURSIONS

Conducted excursions may be taken to points of historical, industrial, educational, and recreational interest. The transportation fee is the only cost of these tours.

FILMS

A feature film, either foreign or domestic, will be shown one day a week. Another weekly feature is the Newsreel Theater which shows motion pictures of current events, travel pictures, and various educational films. A program of educational films of a type which can be used in the classroom is of special interest to teachers. These film programs are shown with the cooperation of the Department of Audio-Visual Education.

An evening splash party.



**COFFMAN
MEMORIAL
UNION**

Summer Session students will find an informal, friendly spirit in the Coffman Memorial Union which offers a pleasant respite from the rigors of classroom activities. Quiet and comfortable lounges, efficient dining rooms and varied recreation rooms give the Union a pleasant setting for informal, social, and recreational activities.

FACILITIES

Facilities include billiards, table tennis, and a coeducational game room for recreation . . . the large cafeteria and fountain grille for dining . . . men's, women's, and coeducational lounges for resting and studying . . . the outdoor terrace overlooking the Mississippi for lounging or dining . . . the Terrace Reading Room for recreational reading . . . a modern ballroom for informal dancing parties and dance instruction sessions . . . the University Post Office and Union Bookstore . . . and barber and beauty shops.

**UNION
PROGRAM**

The Union provides a diversified program during the summer which includes instruction in folk and modern dancing, instruction classes in bridge, personal grooming, and social hours, parties, musical programs, and art exhibits. These are all available to students without charge. Some of the dancing and social hour programs are conducted on the outdoor terrace.

Summer Recreation

Sports

Excursions

Films

Coffman Memorial Union

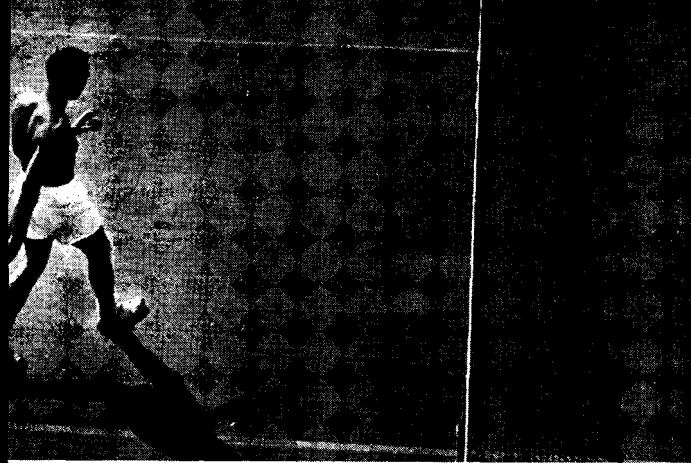
St. Paul Campus Union

Concerts and Lectures

University Theatre

Museum of Natural History

University Gallery



The University has 25 tennis courts for student use.

SUMMER RECREATION

The University of Minnesota Summer Session has a planned program of activities available on campus at very little or no cost to the student.

In addition to this program, the location of the University makes possible the use of the cultural and recreational facilities of a large metropolitan area. Lakes and lagoons on which to canoe, swimming beaches, picnic grounds in parks and along the roadsides, evening concerts on lake shores and in parks, art centers, museums, libraries, beautiful stores for shopping and browsing, a wide choice of places for dining, as well as the many professional entertainments provided by a large city, are within easy access from the campus by public or private transportation.

SPORTS PROGRAM

A program of tennis and golf tournaments as well as other competitive sports is arranged each summer. A daily sports hour for women including such activities as aerial darts, badminton, and table tennis is planned at the Norris Gymnasium. At scheduled hours, swimming pools with attendants and instructors in charge are available for men in Cooke Hall and for women in Norris Gymnasium. Most of these activities have no extra charge except for towel service.

Tennis and golf tickets will be issued to regularly enrolled Summer Session students upon presentation of their fee statements and payment of a small fee. A greens fee is also charged

**ST. PAUL
CAMPUS
UNION**

The Union on the St. Paul Campus will be open throughout the Summer Session.

Facilities include lounges, newspaper and magazine service, billiards, table tennis, television, photography darkroom, conference rooms, and a kitchenette for use by social groups.

Ice cream, cold drinks, and light lunches are available at the fountain grille. Club service and take-out picnic supplies may be obtained by University groups.

**CONCERTS AND
LECTURES**

Through the Department of Concerts and Lectures, the Summer Session provides a program covering a wide field of musical features . . . symphonies . . . chamber music . . . piano and vocal soloists. Convocations and numerous lectures are also featured in this program. Addresses are by outstanding scientists, literary figures, artists, and observers of national and international affairs.

**UNIVERSITY
THEATRE**

Performances of legitimate drama have become an outstanding feature of the Summer Session. The University Theatre, recognized as one of the leading off-Broadway playhouses, will present a season of exceptional plays.

Plautus' The Twin Menaechmi,
one of University Theatre's summer season productions.



**MUSEUM OF
NATURAL
HISTORY**

The Minnesota Museum of Natural History, located on the campus at Seventeenth and University avenues, contains a series of lifelike exhibits of animal and plant life selected from various parts of the state.

In addition to public exhibits, extensive scientific series of birds, mammals, and other natural history materials are housed here for those interested in more careful study in these fields.

The exhibition corridors are open to the public from 9:00 to 5:00 o'clock daily and from 2:00 to 5:00 o'clock on Saturdays, Sundays, and most holidays during both summer terms.

The Museum's modern auditorium is widely used by many campus departments.

**UNIVERSITY
GALLERY**

Exhibitions of national and international scope are arranged specially for the summer student. The University Gallery is open 8:00 a.m. to 4:30 p.m. Monday through Friday except on official holidays.

Exhibition space and the offices of the Gallery are in Northrop Memorial Auditorium on the third and fourth floors. In addition to the general exhibitions of paintings, prints, sculpture, and other creative arts, special study exhibitions are arranged to supplement textbooks and lectures in the art classes.

**RENTAL
SERVICE**

Students registered for the Summer Session may borrow framed reproductions from the University Gallery located on the third floor, West Corridor. This rental service will be open from 10:00 a.m. to 1:00 p.m. Wednesday through Friday the first week of each term. The rental fee is 15 cents for one term, or 25 cents for two terms. The pictures are due on Monday of the last week of the term for which they are rented.

ART LIBRARY

A library for art students is in Room 307 of Northrop Memorial Auditorium where reference books are available and pictorial material for class assignments may be studied.

Schools and Colleges

Graduate School

**College of Science, Literature,
and the Arts**

Institute of Agriculture

**College of Agriculture, For-
estry, and Home Economics**

**School of Veterinary
Medicine**

Institute of Technology

College of Engineering

School of Chemistry

**School of Mines and
Metallurgy**

School of Business

Administration

Institute of Child Welfare

College of Education

Physical Education for Men

Physical Education for Women

Biological Station

General College

School of Dentistry

Medical School

School of Nursing

School of Public Health

**GRADUATE
SCHOOL**

The Graduate School of the University of Minnesota brings together in a single organization all programs and offerings of the University which lead to the higher degrees of master of arts, master of science, and doctor of philosophy.



The Graduate School facilities include excellent laboratories for research.

The University's libraries, laboratories, and clinics, supplemented by libraries, hospitals, and other institutions in the Twin Cities, offer excellent facilities and possibilities for graduate students. These privileges are, in general, open to those who have received Bachelor's degrees from accredited colleges and universities and who are adequately prepared for graduate work in their chosen fields of study.

APPLICATIONS

Students must make application for admission at least four weeks before the opening of the term they expect to attend in order

to avoid delay, last-minute disappointment, and possible penalty for late registration. Applications for admission, except for University of Minnesota graduates, must be accompanied by an official transcript in duplicate of all undergraduate work, including degrees earned and a single official transcript of all graduate work completed. University of Minnesota graduates must submit certified copies of their scholastic records. Application forms may be secured by writing to the Dean of the Graduate School, 316 Johnston Hall, University of Minnesota, Minneapolis 14.

Students, *before their arrival at the University*, should have assurance from the Graduate School that they are adequately prepared and will be accepted as majors in their chosen field. Admission to the Graduate School does not imply admission to candidacy for an advanced degree. After a student has studied in this Graduate School for one or more terms and on application for degree candidacy, the staff will determine whether or not he should be encouraged to work for a degree.

The *Bulletin of the Graduate School* contains detailed information on requirements and work in the Graduate School. A copy may be obtained by writing to the Dean of Admissions and Records, University of Minnesota, Minneapolis 14.

**COLLEGE OF
SCIENCE,
LITERATURE,
AND THE ARTS**

The College of Science, Literature, and the Arts, the major undergraduate college of the University of Minnesota, affords the student a broad program of general education, advanced courses in the liberal arts, and preprofessional training which qualifies him to enter a professional or vocational curriculum. In a few instances such as Journalism, Library School, and Social Work a full program of professional courses is offered.

Summer courses are selected from the regular curriculum with special emphasis upon the needs and interests of those who wish to further qualify themselves for successful citizenship or vocational improvement. Most curricula in the College lead to the degree bachelor of arts.



*A corner of the art studio
in Jones Hall.*

ART

Professional training in the Department of Art includes professional studio work and industrial art as well as graduate work. The departmental library and galleries will be open for historical and creative research.

This year the courses in photography are coordinated with a Film Festival. (See index)

ENGLISH

A variety of courses useful either for the student interested in literature and literary history and criticism or the student seeking special competence for graduate, professional work, or teaching is provided by the Department of English.

GENERAL STUDIES

Courses in the Department of General Studies cut across departmental lines and are designed particularly for the student specializing in other subjects who wants a liberal understanding of the humanities and the social sciences, or work in family life and personal orientation.

HISTORY

The summer offerings in the Department of History are carefully selected from the regular curriculum. The student will find a wide choice in American and European, ancient and medieval history.

LIBRARY SCHOOL

The Library School offers courses leading to a Master's degree and a minor in library science for teacher-librarians in two five-week terms. Courses are offered on a rotation plan alternate summers for students not able to enroll during the regular academic year. There are special courses in the summer curriculum for the library science minor to meet the state requirement for teacher-librarians, basic courses required for admission to the Master's degree program, and some of the graduate courses.

The bachelor of science in library science degree is no longer offered. Students already enrolled for this program are urged and expected to complete their studies as soon as possible. In 1954 two summer terms will make it possible for students to earn 18 credits.

College graduates without previous training in library science should begin their basic work during the summer or fall if they hope to earn the Master's degree in one calendar year. Application for admission to the Graduate School and the Library School should be made before May 15.

According to the standards of the American Library Association, preparation for professional librarianship embraces five years of study beyond secondary school, including one year of professional content. The Master's degree program in Library School meets this requirement. Inquiries concerning admission to this program should be addressed to Dean of Summer Session, 950 Johnston Hall, Minneapolis 14.

The library science minor (23 selective credits) trains qualified students in the College of Education for positions as teacher-librarians (part-time teaching, part-time library work) in schools.

MUSIC

Students interested in obtaining a cultural background, as well as those preparing to become teachers of music and professional performers, may take courses in applied music, music literature,

music history, and music theory under nationally known musicians.

A European Music Festival Tour will be conducted starting the latter part of June and returning the middle of September. This is explained in the section on *Special Programs*. (See index)

Besides the regular courses in music education, the following will be of interest to music teachers:

First term: *Mu.Ed. 64. Band Organization*, with emphasis on marching band formations

Mu.Ed. 106. Organization and Supervision of Vocal-Instrumental Music in Secondary Schools

Second term: *Mu.Ed. 105. Advanced Topics in Music Education*

A marching band institute which will be held July 12 and 13, will include problems of low bleachers, drill maneuvers, night performances, and other problems pertaining to the high school marching band. Summer Session students, bandmasters, and nonstudents may register at the Center for Continuation Study for these sessions.

PHILOSOPHY

Courses in the Philosophy Department are planned for the student whose objective is an understanding and appreciation of philosophy as a part of a liberal education or preparation for professional work. Also, there are advanced courses for students possessing previous competence in this field.

PSYCHOLOGY

Specialized courses in the fields of experimental psychology, human and animal behavior, differential psychology, and social and political psychology are available in the Psychology Department.

ment. Included are courses for the nonpsychology major as well as professional courses for those for whom psychology will be essentially a "tool subject" such as the psychology of individual differences, clinical psychology, abnormal psychology, psychology of advertising, and psychology in personnel work.

SOCIOLOGY

Sequences in general sociology, social problems and social policy, and social research are among the offerings in the Sociology Department. In cooperation with the School of Social Work, a special sequence is designed as preparation for graduate study in the School of Social Work.

INSTITUTE OF AGRICULTURE

COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS AND THE SCHOOL OF VETERINARY MEDICINE

There are many courses, primarily for graduate students, in the College of Agriculture, Forestry, and Home Economics and in the School of Veterinary Medicine. Most departments correlate thesis and problem work with work in the Agricultural Experiment Station.

High school teachers of agriculture may take advanced courses in those agricultural fields which are applicable to the requirements of the Department of Agricultural Education (see College of Education).

Information concerning admission to the Graduate School should be obtained from the Dean of the Graduate School, 316

Discussing fabrics in home furnishing laboratory.



Johnston Hall. Students wishing information regarding courses at the graduate level should confer with the graduate staff of the department or school in which he will be working.

The undergraduate student also will find courses for his needs.

INSTITUTE OF TECHNOLOGY

The Institute of Technology includes the College of Engineering, the School of Architecture, the School of Chemistry, and the School of Mines and Metallurgy.

A limited number of courses in civil, electrical, and mechanical engineering; drawing and descriptive geometry; mathematics, and mechanics and materials are listed for students in the College of Engineering.

In the School of Chemistry, inorganic, analytical, organic, and physical chemistry will be given. Students are able to acquire a Master's degree in chemistry by attendance at summer sessions only.

SCHOOL OF BUSINESS ADMINISTRATION (INCLUDING ECONOMICS)

The School of Business Administration offers a broad foundation in economics and in the several aspects of management of a business organization in addition to specialized courses, available at both undergraduate and graduate levels. The University's location in a metropolitan area presents opportunities for close observation of business in action.

Admission to this School ordinarily follows completion of a two-year prebusiness program in a liberal arts or technical school. The admission requirements take account of the varying needs and interests of students. Under certain circumstances, mature students who have special objectives in business but do not technically meet the formal admission requirements may be admitted to take selected courses consistent with individual objectives.

The undergraduate curriculum is planned both for regular students and for visitors at Minnesota who wish to make progress toward their degrees during the summer.

Graduate work in both economics and business administration is planned to meet the needs of (1) high school and college faculty members and others whose graduate work is limited largely to summer sessions, and (2) graduate students at Minnesota and elsewhere who wish to accelerate their progress toward advanced degrees. Graduate work should be arranged through the Graduate School.

**INSTITUTE
OF CHILD
WELFARE**

Courses in the Institute of Child Welfare are planned not only for graduate and undergraduate students but also to meet the needs of experienced teachers and professional workers who wish to increase their knowledge and skill in working with children.

There are beginning and advanced courses in child training, child psychology, child development, childhood education, and parent education. The nursery school, kindergarten, and elementary grades will provide facilities for observation and participation.

Special attention is called to courses listed under *Curriculum and Instruction* and *Methods and Student Teaching* in the College of Education.

Graduate courses meet some of the requirements for a Master's degree under either Plan A or Plan B.

**COLLEGE OF
EDUCATION**

The College of Education summer offerings emphasize the needs of teachers, school administrators, counselors, and other educational workers. In addition to courses in curriculum and instruction, philosophy of education, educational psychology, and administration for both elementary and secondary school

staff members, there are offerings in the vocational fields of business and distributive education, agricultural education, industrial education, and home economics education. Advanced work is available for music and art educators, for teachers of health and physical education, and for recreation workers, as well as for teachers of all high school subjects and of elementary grades.

Counselors will find in both terms the courses they need for state certificates. In elementary education, with the demand for well-qualified principals rising sharply, basic courses in administration and supervision will be available both terms. Elementary teachers completing work for undergraduate degrees, as well as those carrying on graduate study, will find a wide selection of courses in their special area, including an exceptionally fine offering in the language arts.

All teachers are urged to examine the broad offerings of the College of Science, Literature, and the Arts, where the various departments have many valuable courses for teachers in the summer terms. Teachers will wish to strengthen their liberal and general education through the summer offerings in the humanities and the social sciences, literature, speech, music, art, and all of the other liberal arts departments. The School of Business Administration, also, offers special work for teachers, including courses providing much-needed materials in economic education. Both secondary and elementary school teachers may plan a program combining courses in professional education with the liberal and general education courses of the other divisions of the University, emphasizing either their own teaching subjects or related and broadening activities.

PHYSICAL EDUCATION FOR MEN

Teachers will find a full program of professional courses. Students may work toward the degree of bachelor of science with either a major or minor in physical education or in recreation, master of education with a major in physical education or in recreation, master of arts with a major in physical education, or doctor of philosophy in education with major emphasis in physical education.

**PHYSICAL
EDUCATION
FOR WOMEN**

Regular professional courses lead to the degree of bachelor of science with major in physical education, master of education with major in physical education offered in the College of Education, master of arts with major in physical education offered in the Graduate School, or doctor of philosophy with major in education and emphasizing physical education and school health education.

In the summer of 1954, a new course in teacher education, *Trends and Curriculum in the Professional Preparation of Teachers of Physical Education* will be offered by the Department. Visiting speakers who are leaders in the profession will assist with the course during the first term.

Students wishing to qualify as part-time teachers of physical education in Minnesota may take courses toward an undergraduate minor in physical education and an undergraduate minor in school health education.

The Department presents a regular program of teaching demonstrations in physical education during the first term at the Tuttle Demonstration Elementary School.

**CREDIT FOR
REQUIRED
PHYSICAL
EDUCATION**

Since the various colleges of the University either require physical education or give elective credit in this field, certain courses are open to students who wish to satisfy this need or interest.

*Badminton—instruction
and recreation.*



**RECREATIONAL
OPPORTUNITIES**

All women students may use the facilities of Norris Gymnasium for Women for leisure recreation . . . recreational swimming . . . tournaments and individual practice in golf, archery, tennis . . . sports demonstrations . . . movies . . . and clinics.

**BIOLOGICAL
STATION**

This year the Lake Itasca Forestry and Biological Station will be open during the **first term**. The extensive undergraduate and graduate curriculum in the several fields of biology will include courses in botany, entomology and economic zoology, plant pathology and botany, and zoology including ornithology. (See index for course listings)

The Station is ideally situated for field work, has the necessary laboratories for instruction, and has adequate living accommodations. Unusual opportunities exist for independent graduate work and independent research. Students desiring graduate credit must consult the Graduate School concerning admission. (See section on Graduate School)

For more detailed information write to Dean of Summer Session, 950 Johnston Hall, University of Minnesota. Minneapolis 14.



The center of many activities at the Station is this combined assembly and dining hall.

**GENERAL
COLLEGE**

The General College two-year program in higher education leads to the degree of associate in arts. The aim of this program is to give the student a general education which will prepare him for everyday living in our present complex society.

Courses are planned to be as complete as possible in themselves to give an understanding of basic principles. They are not merely introductions to more specialized courses in the same field.

However, students who do not qualify for admission to other colleges of the University because of inadequate preparation or poor high school records may remedy these deficiencies through a careful selection of General College courses.

Courses successfully completed in the Summer Session may be applied toward fulfilling the requirements leading to the degree. For general information about the college program, requirements for the associate in arts degree, and requirements for transfer to other colleges, students should consult one of the administrative or counseling officials, or the *Bulletin of the General College*.

**SCHOOL OF
DENTISTRY**

Clinical instruction in operative dentistry, prosthesis, crown and bridge, oral surgery, pedodontia, periodontia, and oral diagnosis is open to eligible dental students.

Dentistry fees during the Summer Session are: full-time tuition, resident \$90, nonresident \$145; half-time tuition, resident \$45, nonresident \$72.50; incidental fee \$21.

**MEDICAL
SCHOOL**

The University of Minnesota Medical School is known as one of the leading centers for medical instruction and training in the United States. Its newly expanded University Hospitals' facilities, as well as affiliation with the Minneapolis Veterans Hospital and other Twin Cities hospitals, provide the Summer Session student of medicine with unusual opportunities for study.

All medical students except members of the present fourth-year class will attend required courses during the first term. These courses are continued from the spring quarter and are not open to registrants from other medical schools.

However, certain other required courses as well as elective courses in both preclinical and clinical departments will be given during both summer terms for medical students at the University of Minnesota, accredited students from other medical schools, and graduate physicians. These courses lead to training programs for physicians, nurses, physical therapists, occupational therapists, medical and X-ray technologists, medical officers of health, public health nurses, public health engineers, and health educators.

EXTERNSHIPS

The clinical departments of Medicine, Neurology and Psychiatry, Obstetrics, Pediatrics, Radiology, and Surgery will offer elective externships at the University Hospitals and in the Minneapolis Veterans Hospital. These externships are open to sophomore and junior medical students at the University of Minnesota who have completed the required first Summer Session term, and to physicians and qualified medical students from other institutions during both terms. For information outlining clinical opportunities write to the department head of the service in which you are interested, University of Minnesota Hospitals, Minneapolis 14.

REGISTRATION AND GRADUATE CREDIT

Registration of students from other medical schools will be on June 14. Students who wish to earn graduate credit must register through the Graduate School office. (See section on Graduate School.) Final approval of registration in any course in the Medical School must be obtained from the Medical School office. For more detailed information regarding courses, fees, etc., consult the regular *Bulletin of the Summer Session*.

**SCHOOL OF
NURSING**

The basic professional program in the School of Nursing leads to the degree of bachelor of science with a major in professional nursing. For the graduate nurse, the School conducts a program leading to the bachelor of science degree in nursing education. A four-quarter certificate program in practical nursing begins in the fall quarter. Programs leading to the degree of master of education in nursing education and master of nursing administration in nursing service administration are available for qualified professional nurses.

For qualified graduate nurses, there are courses in ward administration, methods of teaching, tests and measurements, personnel work, the survey in nursing education, nursing service administration, and improving nursing care through cooperative planning.

A two-week workshop (August 9-20) on problems related to teacher education in nursing will be open for credit to qualified nurse educators. Faculty from the College of Education will participate. Loretta E. Heidgerken, professor of nursing education, The Catholic University of America, will serve on the faculty of the workshop for the entire period. Advanced registration is requested. Housing for a limited number of students will be available at the Center for Continuation Study.

Dorothy Perkins Newcomb of Boston University will be on the campus during the first term (June 14-25) as lecturer and consultant in nursing service administration.

**NURSING
SCHOOL FEES**

Students in the School of Nursing working toward the bachelor of science degree in professional nursing and students registered in the practical nursing curriculum will pay the same fees as charged during the academic year; graduate nurses will register in the College of Education or the School of Nursing and pay the Summer Session fees.

SPECIAL INSTITUTES Teachers and school administrators will be interested in a conference on rural nursing experience in basic professional and practical nursing curricula to be held at the Center for Continuation Study (July 26-30). Advanced registration is requested. Housing will be available at the Center. Application should be made directly to the Center for Continuation Study, University of Minnesota, Minneapolis 14.

An institute for teachers of practical nursing will be held at the Center for Continuation Study (August 2-6). Advanced registration is requested. Housing will be available at the Center. Applications should be made directly to the Center for Continuation Study, University of Minnesota, Minneapolis 14.

**SCHOOL OF
PUBLIC HEALTH**

The School of Public Health program of courses is of special interest to public health nurses. Besides the usual basic courses for those beginning their formal training in this field, special short courses are designed for the advanced nurse who can devote only a short time to summer study.

A workshop on Rehabilitation Nursing during the second and third weeks of the first term (June 21 to July 3) will consider a broad range of problems of increasing concern to public health nurses. This will be followed during the last two weeks (July 5-July 17) by a workshop on the problems of parent classes in the field of maternal and child health—a subject vital to public health nurses who are so often responsible for these classes.

The course in Supervision in Public Health Nursing will be concentrated during the first two weeks of the second term (July 19-31) and will be given by Margaret Shetland of the State University of New York, Syracuse, New York.

The arrangement whereby the two workshops and the course in supervision follow in successive weeks provides a flexible program for the nurse who may wish one, two, or all three of these separate courses, depending upon her interests and her available time.

Duluth Branch

General Information

Master of Arts Degree

Studies in Rural Education

Bachelor of Science Program

Workshops in Painting

Recreation

Facilities of Special Interest



Recreation opportunities abound on and near cooling Lake Superior.

DULUTH BRANCH A variety of offerings at both graduate and undergraduate levels is available at the University of Minnesota Duluth Branch. (For course listings, see index)

GENERAL INFORMATION

In a spectacular setting and invigorating climate that assures visual beauty and physical comfort for summer study, the Duluth Branch overlooks majestic Lake Superior, the largest fresh-water body in the world. Lake Superior contributes both an ever-changing panorama of interlake vessel traffic and natural beauty and lake-cooled air to the pleasure and comfort of the Duluth Branch summer student. Duluth's average July temperature is 64.9 degrees. Hayfever sufferers migrate in large numbers to Duluth in summer for quick relief because of a low pollen count. Many trout streams tumble through Duluth proper to meet Lake Superior. Spectacular falls, inland lakes, scenic golf courses, deep-sea fishing grounds, bridle paths, and other nearby attractions offer invigorating diversion.

MASTER OF ARTS DEGREE

Under a plan integrated with the Graduate School of the University, it is now possible to complete the master of arts degree on the Duluth Campus with majors in education and in curriculum and instruction. The master of arts offering is designed especially to serve elementary school teachers and principals, secondary school teachers, and rural teachers. Until recent authorization, such students could complete only part of their work toward the master of arts degree on the Duluth Campus. The master of arts program will be implemented especially for summer students with a wide selection of courses.

The master of arts program at Duluth is on the B plan, and involves course work without thesis or language requirement. Oral and written tests and approval of the student's program are administered by committees appointed by the Graduate School. Complete details of Plan B requirements may be found in the current *Bulletin of the Graduate School*.

Students who wish graduate credit must apply for admission to the Graduate School, 316 Johnston Hall, University of Minnesota, Minneapolis 14, at least four weeks in advance of the term they wish to enter. (See section on Graduate School)

**STUDIES IN
RURAL
EDUCATION**

Advanced work in rural education under two men eminent in the field will again be available at Duluth. Conducting the work will be Howard A. Dawson, Washington, D.C., executive secretary of the Department of Rural Education, National Education Association; and John E. King, former UMD provost and now president of Kansas State Teachers College at Emporia. Students have an opportunity to explore specific problems arising in their own localities and to seek answers with sympathetic fellow students and colleagues. The graduate group, which last year attracted forty students from a score of institutions and states, looks for general improvement of education and rural life. Resource personnel also are called in to help on specific problems. For details: Division of Education and Psychology, University of Minnesota Duluth Branch, Duluth 5.

A speech and hearing clinic is a special summer service at UMD.



**BACHELOR OF
SCIENCE
PROGRAM**

Teachers wishing to complete requirements for the bachelor of science degree will find a wide selection of undergraduate courses both in professional education and in fields related to their specific teaching interests. The summer offerings are especially helpful to in-service teachers who cannot pursue bachelor of science studies during the regular year. Holders of the bachelor of arts degree interested in teaching also will find it convenient to take summer courses toward the bachelor of science degree.

**WORKSHOPS IN
PAINTING**

A strong cultural tradition in the Duluth Summer Session is the workshop opportunity in painting. Five eminent American artists have conducted workshops in advanced painting in previous summers. The 1954 artist-in-residence will be another distinguished artist, Fletcher Martin, who is widely recognized as one of America's finest contemporary painters. The workshop is held at the Lakeshore Studio, a UMD facility overlooking Lake Superior.

RECREATION

Duluth Campus and community offer a rich variety of cultural and recreational activity. The University Theater has produced *Macbeth*, *Hamlet*, and *Othello* in successive summers before audiences numbering more than 15,000 persons. A delightful special events calendar offers stimulating convocations and films, picnics, faculty-student sports events, Lake Superior excursions, teas, industrial tours, and other activities. Boating, fishing, golfing, tennis, picnicking—all are within a few minutes' drive of the campus.

**FACILITIES
OF SPECIAL
INTEREST**

UMD's Darling Observatory, located at 910 West Third Street, is one of the Duluth Campus' most popular summer facilities.

UMD's two new facilities—the \$1,000,000 science group with 400-seat lecture auditorium and the \$1,600,000 health and physical education building with official intercollegiate pool—are conspicuous in Summer Session activities.

List of Courses

LIST OF COURSES

THE FOLLOWING LIST of courses may be somewhat revised and amplified in the complete bulletin to meet the changing trend in enrollment. The University of Minnesota reserves the right to cancel courses when competent teaching staff is unavailable.

The number of credits given for each course follows the title of the course in parentheses. Courses 1 to 49 carry credit in the Junior College; courses 50 to 99 carry credit in the Senior College; courses 100 to 199 carry Senior College credit and graduate credit for those registered in the Graduate School; courses 200 and above are open only to those registered in the Graduate School.

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

AMERICAN STUDIES

First Term	200	Introduction to American Studies (3).....	McDowell
	251	Readings in American Civilization (ar.).....	Ar.
Second Term	252	Readings in American Civilization (ar.).....	Ar.

ANTHROPOLOGY

First Term	2	Introduction to World Ethnology (3).....	Spencer
	122	Problems in Anthropology (ar.).....	Spencer
	140	Field Trip in Archeology (1-6).....	Wilford
	165	Psychological Phases of Culture (3).....	Spencer
Second Term	1	Introduction to Anthropology (3).....	Colson
	80	American Indians (3).....	Colson
	123	Problems in Anthropology (ar.).....	Colson
	140	Field Trip in Archeology (1-6).....	Wilford

ART

First Term

HISTORY AND CRITICISM

3	Principles of Medieval Art (3).....	Tselos
68	Modern Art: Contemporary Art in Europe and America (3).....	Tselos
158A	European and American Painting (3).....	Tselos

DESIGN

23-24	Drawing and Design I (3).....	Downs
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PAINTING

60-61-62	Drawing and Painting II (3).....	Arnest, Quirt
70-71-72	Drawing and Painting III (3).....	Arnest, Quirt
150-151-152	Problems in Painting (ar.).....	Arnest, Quirt
200-201-202	Advanced Problems in Studio Work (ar.).....	Arnest, Quirt

PHOTOGRAPHY

86	The Art of the Film I: Background and History (3).....	Amberg
87	The Art of the Film II: Film as Art (3).....	Amberg
123-124-125	Film Workshop (3).....	Downs

196	The Art of the Film I (for grad. credit) (3)	Amberg
197	The Art of the Film II (for grad. credit) (3)	Amberg

During the second week of the first term a Film Festival will be available for these students in photography (see index).

SCULPTURE

40-41-42	Sculpture I (3)	Rood
80-81-82	Sculpture II (3)	Rood
180-181-182	Problems in Sculpture (ar.)	Rood

Second Term

DESIGN

23-24	Drawing and Design I (3)	Collins
73-74-75	Presentation Techniques (3)	Collins

PAINTING

60-61-62	Drawing and Painting II (3)	Ar.
70-71-72	Drawing and Painting III (3)	Ar.
150-151-152	Problems in Painting (ar.)	Ar.
200-201-202	Advanced Problems in Studio Work (ar.)	Ar.

SCULPTURE

40-41-42	Sculpture I (3)	Morton
140-141-142	Metal Sculpture and Jewelry (3)	Morton

ASTRONOMY

First Term

11	Descriptive Astronomy (5)	Luyten
13	Stellar and Practical Astronomy (3)	Luyten

BOTANY

First Term*

4	General Botany (5)	Hall
194	Problems (1-5)	Staff

Second Term

5	General Botany (5)	Ar.
195	Problems (1-5)	Staff

CLASSICS

First Term

LATIN†		
151	Caesar's Commentaries on the Gallie War (3)	DeWitt

CLASSICS

24	Technical Terms (3)	McDonald
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COMMUNICATION

See index.

ECONOMICS

See index.

* For botany courses given at Lake Itasca Biological Station, see index.

† See Foreign Language Auxilium.

ENGLISH

First Term

COURSES IN LITERATURE

22	Introduction to Literature (6)	Buckley
55	Shakespeare (3)	Christie
56	Shakespeare (3)	del Plaine
74	American Literature (3)	Hornberger
75	Chaucer (3)	Allen
100	Old English (Anglo-Saxon) (6)	Clark
105	Hawthorne and Melville (3)	Marx
106	Whitman and Mark Twain (3)	Marx
139	The Nineteenth Century in English Literature (3)	Stange
143	Twentieth-Century Literature (American) (3)	Stange
162	Milton (3)	Krieger
165	Introduction to Modern English (3)	Allen
187	Eighteenth-Century Literature (3)	Krieger

COURSES IN COMPOSITION

4	Freshman Composition (3)	Christie
5	Freshman Composition (3)	Ar.
6	Freshman Composition (3)	Guthrie
27	Advanced Writing (3)	del Plaine

Second Term

COURSES IN LITERATURE

23	Introduction to Literature (6)	Montgomery
55	Shakespeare (3)	Unger
56	Shakespeare (3)	Erdman
73	American Literature (3)	Ar.
109	Romantic Poets of the Early Nineteenth Century (3)	Jackson
113	American Short Story (3)	Ar.
121	The Interpretation of Poetry (3)	Unger
129	Modern Drama (3)	Hillhouse
151	Recent Poetry (3)	Jackson
155	American Novel (3)	Bowron

COURSES IN COMPOSITION

6	Freshman Composition (3)	Erdman
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Composition 4, 5, 6 open to students in the Institute of Technology.

FAMILY LIFE

See index.

FOREIGN STUDY SEMINAR

See index.

GENERAL STUDIES

First Term

FAMILY LIFE

1	Preparation for Marriage (3)	Luckey, Neubeck
15	The Home and Its Furnishings (3)	Ludwig

FOREIGN STUDY

161 Seminar for Foreign Study I (6) Ar.

HUMANITIES

1 Humanities in the Modern World I (3) Ar.
 4 Humanities in the Modern World IV (3) Rosenfeld
 21 American Life I (3) Cleaver
 51 Humanities in the Modern World (3) Blum
 61 The Greek Heritage (3) Ross

PERSONAL ORIENTATION

1 How to Study (2) Ar.

SOCIAL SCIENCE

1 Introduction to Social Science (3) Mouratides
 3 Introduction to Social Science (3) Potter
 11 International Relations (3) Levi

Second Term

FAMILY LIFE

1 Preparation for Marriage (3) Neubeck

FOREIGN STUDY

162 Seminar for Foreign Study II (6) Ar.

HUMANITIES

2 Humanities in the Modern World II (3) Ar.
 4 Humanities in the Modern World IV (3) Ames
 22 American Life II (3) Rock
 52 Humanities in the Modern World (3) Bryan

PERSONAL ORIENTATION

1 How to Study (2) Farquhar

SOCIAL SCIENCE

2 Introduction to Social Science (3) Rozental

GEOGRAPHY

First Term

1 Geography of Physical Resources (5) Salisbury
 122 East Asia (3) Ginsburg
 153 Urban Geography Ginsburg

Second Term

67 Geography of Minnesota (3) Borchert
 110 South America (3) Borchert

GEOLOGY AND MINERALOGY

First Term

1 General Geology (5) Thiel
 100 Field Work in Northern Minnesota (3) Gruner
 150 Black Hills Field Course (6) Swain
 170 Geologic Problems (3) Thiel

Second Term

2 Historical Geology (5) Sloan
 170 Geologic Problems (3) Sloan

GERMAN

First Term*	1	Beginning German (5).....	Downs
	3-4	Beginning or Intermediate German (5).....	Staff
	110a	Walther von der Vogelweide and the Medieval Minnesang (3).....	Downs
	153	Thomas Mann (3).....	Ramras
	A Deutsches Haus is being planned. (See index)		
Second Term	2	Beginning German (5).....	Prottegeier

HISTORY

First Term	1	Civilization of the Modern World, Part I (3).....	Bowman
	20	American History, Part I (3).....	Noble
	21	American History, Part II (3).....	Noble
	86	American Colonies, Part I (3).....	Tyler
	101	History of the Ancient Near East, Part II (3).....	Jones
	108	Continental Europe, Part III (3).....	Bowman
	117	European Overseas Expansion, Part III (3).....	Willson
	130a	Modern England, Part III (3).....	Willson
	137a	American History, Part I (3).....	Loehr
	145	American Folklore, Part III (3).....	Jordan
	147	American Economic and Social History, Part II (3).....	Loehr
	149	American Social and Intellectual History, Part I (3).....	Tyler
	187d	Readings in Nineteenth-Century American History, Part III (3).....	Jordan
	200	Historical Bibliography and Criticism (3).....	Jones
	Second Term	2	Civilization of the Modern World, Part II (3).....
3		Civilization of the Modern World, Part III (3).....	Wolf
22		American History, Part III (3).....	Chambers
80		The United States in the Twentieth Century, Part II (3).....	Chambers
87		American Colonies, Part II (3).....	Osgood
89		Economic History of Modern War (3).....	Bowditch
93		American Diplomatic History, Part I (3).....	Beatty
110		Europe in the Twentieth Century, Part II (3).....	Wolf
124		Scandinavian History Since 1809 (3).....	Sandler
158		Latin-American History, Part II (3).....	Beatty
186a	Readings in the West in American History, Part II (3).....	Osgood	

HOW TO STUDY

See General Studies, Personal Orientation.

HUMANITIES

See General Studies.

JOURNALISM

First Term	55	Advertising, Newspaper Typography (3).....	Wilson
	73	Magazine Writing (3).....	Charnley
	82	Supervision of School Publications (3).....	Wilson

* See Foreign Language Auxilium.

	103	Literary Aspects of Journalism (3).....	Ford
	115	Communication Media Analysis (3).....	Jones
	230	Seminar: Public Opinion and Propaganda (3).....	Jones
Second Term	110	History of Journalism (3).....	Price
	125	Communication Systems of the Free World (3).....	Nixon

LATIN

See Classics and Foreign Language Auxilium.

LIBRARY SCHOOL

First Term	53	School Library Management (3-4).....	Fitch
	55	Administration (3).....	Berninghausen
	62	Reference I (3).....	Fulmer
	81	Bibliographical Description of Library Materials (3).....	Ar.
	82	Subject Organization of Library Materials (3).....	Ar.
	131	Extension and Adult Work (3).....	Fulmer
	172	Principles and Problems in Reading Guidance for Adolescents (3).....	Fitch
	260	Seminar in Advanced Bibliography (3).....	Shove
	262	Seminar in Advanced Bibliography (3).....	Shove
Second Term	50	Libraries and Society (3).....	Shove
	70	Reading Guidance (3).....	Fulmer
	151	Invention and Spread of Printing (2).....	Shove
	163	Reference II (3).....	Shove
	173	Principles and Problems in Reading Guidance for Adults (3).....	Fulmer
	255	Seminar in Library Administration (3).....	Berninghausen
	271	Seminar in Library Work with Children and Young People (3).....	Fitch
	272	Seminar in Library Work with Children and Young People (3).....	Fitch

MATHEMATICS*

First Term	1	Higher Algebra (5).....	Yeh
	6	Trigonometry (5).....	Kimme
	15	Elementary Mathematical Analysis I (5).....	Baxter
	50	Differential Calculus (5).....	Gibbens
	109	Theory of Numbers (3).....	Kalisch
	126	Calculus of Finite Differences (3).....	Loud
	130	Elementary Theory of Summability (3).....	Kalisch
	135	Integral Equations (3).....	Loud
Second Term	6	Trigonometry (5).....	O'Neill
	7	College Algebra (5).....	Lewis
	16	Elementary Mathematical Analysis II (5).....	Olmsted
	112	Mathematical Reasoning and Theory of Sets (3).....	Slye
	137	Advanced Theory of Equations (3).....	Slye
	141	Mathematics of Transient Analysis (3).....	Gelbaum
	176	Intermediate Differential Equations (3).....	Gelbaum

* See also Mathematics, Institute of Technology.

MUSIC

First Term

1	Fundamentals (2)	Sperry
7B	Ear Training (3)	George
8A	Harmony (3)	George
10	Introduction to Music (4)	Riedel
A	Piano (0)	Rymer, Weiser
D	Voice (0)	Norton, Stern
11	Piano (2-4)	Rymer, Weiser
12	Voice (2-4)	Norton, Stern
13	Violin (2-4)	Cullen
13B	Violin (2-4)	Ar.
14	Viola (2-4)	Ar.
15	Violoncello (2-4)	Jamieson
16	Double Bass (2-4)	Fitch
17	Flute (2-4)	Arnegard, Opava
18	Oboe (2-4)	Angelucci
19	Clarinet or Saxophone (2-4)	Fitch, Handlon
20	Bassoon (2-4)	Santucci
21	Trumpet (2-4)	MacKay
22	French Horn (2-4)	Linder
23	Trombone (2-4)	MacKay
24	Tuba (2-4)	MacKay
25	Percussion (2-4)	Ar.
26	Harp (2-4)	Miller
27	Organ (2-4)	Berryman
33A	Music Literature (3)	Downes
46	Concert Band (1)	Sperry
60B-61B-62B	Instrumental Ensemble (2)	Ar.
104A	American Music (3)	Riedel
126	History of Opera (3)	Downes
127-128-129	Composition (2)	Ar.
134	International Music Festivals (3-12)	Ar.
204	Graduate Applied Music (3)	Ar.
212	Special Problems in Music (3-9)	Riedel
227-228-229	Seminar in Composition and Orchestration (3)	George

Second Term

1	Fundamentals (2)	Kendall
7A	Ear Training (3)	Fetler
8B	Harmony (3)	Fetler
A	Piano (0)	Kendall
D	Voice (0)	Schuessler
11	Piano (2-4)	Kendall
12	Voice (2-4)	Schuessler
13 thru 27	(See first term)	
31A	Music Literature (3)	George
60B-61B-62B	Instrumental Ensemble (2)	Ar.
76	Form and Analysis (3)	George
106A	American Music (3)	Oberg
127-128-129	Composition (2)	Fetler
134	See first term	Ar.
204	Graduate Applied Music (3)	Ar.
209-210-211	Advanced Topics (3)	Oberg
212	Special Problems (3-9)	Oberg
227-228-229	Seminar in Composition and Orchestration (3)	George

PERSONAL ORIENTATION

See General Studies.

PHILOSOPHY

First Term	1	Problems of Philosophy (3)	Brodbeck
	2	Logic (3)	Terrell
	105	Introduction to American Philosophy (3)	Brodbeck
	107	Philosophy in Modern Literature (3)	Terrell
	160	Philosophy of Science (3)	Feigl
Second Term	2	Logic (3)	Shaw
	3	Ethics (3)	Raab
	50	History of Philosophy (Ancient) (3)	Shaw
	137	Kierkegaard and Scandinavian Philosophy (3)	Holmer
	140	Contemporary Philosophy (3)	Raab
	182	Philosophy of Religion (3)	Holmer

PHYSICS

First Term	1	Introduction to Physical Sciences (Mechanics) (3)	Valasek
	1a	Introduction to Physical Sciences (Mechanics— with lab.) (4)	Valasek
	13	General Physics for Engineers—Third Quarter, Part I (Sound and Light) (2½)	Valasek
Second Term	2	Introduction to Physical Sciences (Heat and Electricity) (3)	Ar.
	2a	Introduction to Physical Sciences (Heat and Electricity—with lab.) (4)	Ar.
	13	General Physics for Engineers—Third Quarter, Part II (Sound and Light) (2½)	Ar.

POLITICAL SCIENCE

First Term	A	The State in the Modern World (3)	Sibley
	1	American Government and Politics (3)	Christensen
	25	World Politics (3)	Mills
	120	Municipal Functions (3)	Ludwig
	137	American Political Parties (3)	Christensen
	163	Ideal States (the Political Theory of Utopia) (3)	Sibley
	187	Problems of European Organization (3)	Levi
	197	The Mediterranean Area in World Affairs (3)	Mills
Second Term	B	The State in the Modern World (3)	Ar.
	2	American Government and Politics (3)	McLaughlin
	100	The Constitution and Social Change (3)	Warp
	115	State Government (3)	Short
	116	Local Government (3)	Naftalin
	129	Social Legislation and Social Institutions in the Scandinavian Countries (3)	Sandler
	138	American Political Campaigns and Elections (3)	Naftalin
183	Recent Problems in International Law (3)	McLaughlin	

PSYCHOLOGY

First Term	1-2	General Psychology (6)	MacCorquodale, Russell
	4-5	Introduction to Laboratory Psychology (4)	Peterson
	90	Readings in Psychology (ar.)	Russell
	125-126	Psychology of Individual Differences (6)	Jenkins
	144-145	Abnormal Psychology (6)	Bird

	171-172	Clinical Psychology (6).....	Schofield
	210	Research in Psychology (ar.).....	Russell
	250	Topics in Psychology (ar.).....	Russell
Second Term	1-2	General Psychology (6).....	Bastian
	4-5	Introduction to Laboratory Psychology (4).....	MacKinney
	156	Psychology of Advertising (3).....	Longstaff
	160	Psychology in Personnel Work (3).....	Longstaff

ROMANCE LANGUAGES

First Term	FRENCH*		
	1	Beginning French (5).....	Ar.
	3-4	Intermediate French (5).....	Ar.
	75	French Civilization and Culture (2).....	Blinoff
	159	Contemporary French Literature: Mauriac, Bernanos, Sartre (2).....	Blinoff
	259	Directed Readings (ar.).....	Blinoff
	A Maison Française is being planned. (See index)		

SPANISH*

	1	Beginning Spanish (5).....	Ar.
	3-4	Intermediate Spanish (5).....	Pattison
	73A	Latin-American Civilization and Culture: Mexican and Central America (2).....	Rodgers
	110	Nineteenth-Century Spanish Literature: Drama (2).....	Pattison
	259	Directed Readings (ar.).....	Pattison
	A Casa Hispánica is being planned. (See index)		

ITALIAN

	1	Beginning Italian (4).....	Pacifici
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Second Term	FRENCH		
	2	Beginning French (5).....	Clefton
	112	Nineteenth-Century French Literature: Poetry (2).....	Clefton
	259	Directed Readings (ar.).....	Clefton

ITALIAN

	2	Beginning Italian (4).....	Pacifici
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RUSSIAN

See Slavic and Oriental Languages and Foreign Language Auxilium.

SCANDINAVIAN AREA STUDIES*

Second Term	Hist.124	Scandinavian History Since 1809 (3).....	Sandler
	Pol.Sci.129	Social Legislation and Social Institutions in the Scandinavian Countries (3).....	Sandler
	Scand.162	The Contemporary Scandinavian Novel (3).....	Gustafson
	Scand.172	Strindberg and the Drama in Revolt and Transition (3).....	Gustafson

* See Foreign Language Auxilium.

SLAVIC AND ORIENTAL LANGUAGES

First Term	RUSSIAN	
	51-52-53	Intensive Intermediate Russian (9).....Magnor and assistants
		See Intensive Intermediate Russian and Foreign Language Auxilium in section on Special Programs.

SOCIAL SCIENCE

See General Studies.

SCHOOL OF SOCIAL WORK

First Term	Soc.91	Case Method Applied to the Study of Human Problems (3).....Luck
	C.W.140	Behavior Problems in Younger Children (3).....Templin
	205	Principles of Social Casework in Counseling (3).....Whitmore
	293	Special Studies in Social Work (1-9).....Whitmore
Second Term	C.W.141	Behavior Problems in Older Children (3).....Blodgett
	275	Principles of Administration Applied to Social Work (3).....Kidneigh
	293	Special Studies in Social Work (1-9).....Kidneigh

SOCIOLOGY

First Term	1	Introduction to Sociology (3).....Sirjamaki
	91	Case Method Applied to the Study of Human Problems (3).....Luck
	123	Intergroup Relations (3).....Ramsey
	152	Contemporary American Culture (3).....Sirjamaki
	162	Rural Social Institutions (3).....Ramsey
Second Term	1	Introduction to Sociology (3).....Johnson
	49	Social Problems (3).....Johnson
	111	Population Trends (3).....Francis
	120	Social Psychology (3).....Francis
	140	Social Organization (3).....Taves

SPEECH AND THEATER ARTS

First Term	1	Fundamentals of Speech (3).....Staff
	2	Fundamentals of Speech (3).....Staff
	3	Fundamentals of Speech (3).....Staff
	31	Introduction to the Theater (3).....Whiting
	32	Beginning Acting (3).....Moulton
	61	Personal Development Through Speech (3).....Bryngelson
	91	Stage Design (3).....Josal
	93	Stage Costuming (3).....Moulton
	101	Argumentation and Persuasion (3).....Howell
	111	Stage Direction (3).....Whiting
	152	Hearing Disorders (3).....Lassman
	163	Speech Pathology (3).....Bryngelson
	181	Readings in Speech (1-3).....Staff
	191	Technical Stage Problems (3).....Josal
	203	Debate Coaching (2).....Howell
	291	Research in Special Problems.....Staff

Second Term	1	Fundamentals of Speech (3)	Staff
	2	Fundamentals of Speech (3)	Staff
	3	Fundamentals of Speech (3)	Staff
	81	Interpretative Reading (3)	Thompson
	106	Discussion (3)	Smith
	109	Classical Rhetoric (3)	Smith
	115	Playwriting and Production (3)	Thompson
	116	Playwriting and Production (3)	Thompson
	119	Introduction to Speech Correction (3)	Fletcher
	122	Introduction to Research (3)	Gilkinson
	126	History and Criticism of Public Address (3)	Gilkinson
	131	Creative Dramatics (3)	Graham
	132	Children's Theater (3)	Graham
	142	The Physical Bases of Speech (3)	Fletcher
	Scand.172	Strindberg and the Drama in Revolt and Transition (3)	Gustafson
281-182	Readings in Speech (1-3)	Staff	
291-292	Research in Special Problems (1-3)	Staff	

For Teaching of Speech see Ed.C.I. 140, listed under the College of Education.

ZOOLOGY

First Term*	1	General Zoology (5)	Stephens
	83	Introduction to Genetics and Eugenics (3)	Anderson
	100	Zoological Techniques (ar.)	Ar.
	197	Problems (ar.)	Staff
Second Term	2	General Zoology (5)	Olson
	198	Problems (ar.)	Ar.

INSTITUTE OF TECHNOLOGY

COLLEGE OF ENGINEERING

CIVIL ENGINEERING

First Term	23	Summer Camp (9)	Kersten, Cornell, Fant, Whittington
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DRAWING AND DESCRIPTIVE GEOMETRY

First Term	4	Engineering Drawing (3)	Bullen
	6	Engineering Drawing (3)	Quaid
	28	Drafting (aeronautical engineers) (2)	Quaid
	34	Lettering (1)	Bullen
Second Term	5	Engineering Drawing (3)	Schuck
	10	Solid Geometry (3)	Schuck

ELECTRICAL ENGINEERING

First Term	36	Electrical Engineering Survey (3)	Caverley
Second Term	37	Electrical Engineering Survey (3)	Cartwright

* For zoology courses given at Lake Itasca Biological Station, see index.

ENGLISH (ENGINEERING)

First Term	85	Advanced Technical Communication (3).....	Cuthrie
Second Term	86	Advanced Technical Communication (3).....	Haga

Composition 4, 5, 6 in the Department of English in the College of Science, Literature, and the Arts are open to students in the Institute of Technology.

GENERAL ENGINEERING

First Term	70	Slide Rule (1).....	Bullen
Second Term	70	Slide Rule (1).....	Schuck

INDUSTRIAL ENGINEERING

First Term	90*	Industrial Assignment (1½).....	Algren
	92*	Industrial Assignment (1½).....	Algren
	94*	Industrial Assignment (1½).....	Algren
	150	Elements of Industrial Engineering and Management (3).....	Block
Second Term	90*	Industrial Assignment (1½).....	Algren
	92*	Industrial Assignment (1½).....	Algren
	94*	Industrial Assignment (1½).....	Algren

MATHEMATICS†

First Term	12	College Algebra and Trigonometry II (5).....	Culmer
	13	Analytic Geometry (5).....	Loye
	80	Differential Equations (3).....	Indritz
	150	Intermediate Calculus (3).....	Wilcox
	154	Vector Analysis (3).....	Wilcox
Second Term	13	Analytic Geometry (5).....	Braden
	25	Integral Calculus (5).....	Turrittin
	80	Differential Equations (3).....	Koehler
	152	Advanced Calculus IV (3).....	Koehler

MECHANICAL ENGINEERING

First Term	24	Elements of Machine Design (3).....	LaJoy
	33	Mechanical Engineering Laboratory I (2).....	Rosencrants
	90*	Industrial Assignment (1½).....	Algren
	92*	Industrial Assignment (1½).....	Algren
	94*	Industrial Assignment (1½).....	Algren
	131	Thermodynamics (3).....	Lee
160	Heating and Ventilation (3).....	Threlkeld	
Second Term	12	Casting Processes (2).....	Holtby
	13	Metals Processing (2).....	Hughes
	34	Mechanical Engineering Laboratory II (2).....	LaJoy
	35	Mechanical Engineering Laboratory III (2).....	LaJoy

* These courses carry 3 credits and will be given on quarter basis. Credit not given for first term unless course is completed second term.

† See Department of Mathematics under College of Science, Literature, and the Arts.

90*	Industrial Assignment (1½)	Algren
92*	Industrial Assignment (1½)	Algren
94*	Industrial Assignment (1½)	Algren
121	Machine Design (2)	Palmer
141	Heat Power Engineering (3)	Lee

MECHANICS AND MATERIALS

First Term	26	Engineering Statics (5)	Kirmsier
	127	Engineering Dynamics (5)	James
	128	Mechanics of Materials (5)	Miller
	141	Materials Testing Laboratory (1)	Miller
Second Term	127	Engineering Dynamics (5)	Doeringsfeld
	128	Mechanics of Materials (5)	Chapin

SCHOOL OF CHEMISTRY

INORGANIC CHEMISTRY

First Term	1	General Inorganic Chemistry (4)	Pray
	4	General Inorganic Chemistry (4)	Maynard
	6	General Inorganic Chemistry (5)	Pray
	9	General Inorganic Chemistry (5)	Maynard
	11	Semimicro Qualitative Analysis (4)	Hugus
	12	Semimicro Qualitative Analysis (5)	Hugus
	105	Coordination Compounds (3)	Maynard
	107	Properties of the Elements Based on Oxidation- Reduction Relations (3)	Hugus
	108	Nonaqueous Systems (3)	Pray
	301	Research in Inorganic Chemistry (ar.)	Hugus, Maynard, Pray
Second Term	2	General Inorganic Chemistry (4)	Pervier
	5	General Inorganic Chemistry (4)	O'Brien
	7	General Inorganic Chemistry (5)	Pervier
	10	General Inorganic Chemistry (5)	O'Brien
	11	Semimicro Qualitative Analysis (4)	Pervier
	12	Semimicro Qualitative Analysis (5)	Pervier
	103	Atomic Structure and the Properties Based Thereon (3)	O'Brien
	301	Research in Inorganic Chemistry (ar.)	O'Brien, Pervier

ANALYTICAL CHEMISTRY

First Term	1	Quantitative Analysis (Gravimetric) (5)	Herr
	7	Quantitative Analysis (Premedic) (4)	Herr
	123	Advanced Analytical Chemistry (3)	Herr
	301	Research in Quantitative Analysis (ar.)	Herr

ORGANIC CHEMISTRY

First Term	61	Elementary Organic Chemistry (4)	Noland
Second Term	62	Elementary Organic Chemistry (4)	Noland

* These courses carry 3 credits and will be given on quarter basis. Credit not given for first term unless course is completed second term.

PHYSICAL CHEMISTRY

First Term	104	Physical Chemistry Laboratory (2).....	Lipscomb
	105	Physical Chemistry Laboratory (2).....	Lipscomb
	107*	Elementary Physical Chemistry (Premedic) (3).....	Lipscomb
	301	Physical Chemistry Research (ar.).....	Staff
Second Term	105	Physical Chemistry Laboratory (2).....	Lipscomb
	106	Physical Chemistry Laboratory (2).....	Lipscomb
	108*	Elementary Physical Chemistry (Premedic) (3).....	Lipscomb
	301	Physical Chemistry Research (ar.).....	Staff

SCHOOL OF MINES AND METALLURGY

MINING

First Term	15	Field Work in Surveying of the Iron Ranges of Minnesota (4 weeks starting June 14) (6).....	Lacabanne, Hartman
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INSTITUTE OF AGRICULTURE

COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

AGRICULTURAL BIOCHEMISTRY

First Term	203	Research Problems (2-5).....	Staff
Second Term	203	Research Problems (2-5).....	Staff

AGRICULTURAL ECONOMICS

First Term	105	Advanced Farm Management (3).....	Engene
	200	General Seminar in Agricultural Economics (3).....	Staff
Second Term	201	General Seminar in Agricultural Economics (3).....	Staff

AGRICULTURAL EDUCATION

See courses listed under the College of Education.

AGRONOMY AND PLANT GENETICS

First Term	201	Research in Farm Crops (3-9).....	Dunham, Schmid
	241	Research in Plant Genetics (3-9).....	Myers, Burnham, Rinke, Thomas, Lambert
	244	Laboratory Methods in Plant Breeding (1½).....	Staff
Second Term	201	Research in Farm Crops (3-9).....	Dunham, Schmid
	241	Research in Plant Genetics (3-9).....	Myers, Burnham, Rinke, Thomas, Lambert
	244	Laboratory Methods in Plant Breeding (1½).....	Staff

* The entire course (107-108) must be completed before credit will be assigned (6 credits).

ANIMAL HUSBANDRY

First Term	213	Research in Animal Husbandry (3-5).....	Ferrin, Hanson, Harvey, Winters
Second Term	213	Research in Animal Husbandry (3-5).....	Ferrin, Hanson, Harvey, Winters

DAIRY HUSBANDRY

First and Second Terms	208	Research in Dairy Production (ar.).....	Fitch, Gullickson, Petersen, Bayley
	209	Research in Dairy Manufacturing (ar.).....	Combs, Coulter, Thomas
	215	Research in Dairy Bacteriology (ar.).....	Olson, Jezeski

ENTOMOLOGY AND ECONOMIC ZOOLOGY

First Term*	197	Introduction to Research (2 or more).....	Staff
	204	Research in Entomology (3 or more).....	Staff
Second Term†	197	Introduction to Research (2 or more).....	Staff
	204	Research in Entomology (3 or more).....	Staff

FORESTRY

Second Term (Offered at Lake Itasca)

Open to students registered in forestry in the University or who have had one year in a junior college or other college and plan to register in forestry.

2	Important Forest Plants (2).....	Rees
5	Field Forest Ecology (2).....	Hansen
6	Field Measurements (2).....	Brown
Ent.13	Field Zoology (2).....	Krogstad

(Offered on St. Paul Campus)

203-204	Research Problems in Forest Management (ar.).....	Kaufert, Schneider, Hansen, Duncan, Hall, Brown, Beazley, Schantz-Hansen
213-214	Research Problems in Forest Utilization (ar.).....	Kaufert, Hossfeld, Rees

HOME ECONOMICS

First Term	F.L.15	The Home and Its Furnishings (3).....	Ludwig
	27	Related Art Problems (3).....	Ludwig
	28	Construction and Refinishing of Home Furnishings.....	Myren
	34	Nutrition Problems (3).....	Gormican
	46	Cafeteria Experience (3).....	Claypoole, Scholl
	50	Textiles (3).....	Knight
	86	Home Management Laboratory, Sec. I (4).....	Sherrill

* For entomology and economic zoology courses given at Lake Itasca Biological Station, see index.

† See Forestry for other course offerings.

86	Home Management Laboratory, Sec. II (4)	Strattner
120	Art History (3)	Myren
141	Current Literature in Foods (3)	Trammell
153	Recent Developments in Clothing Construction (3)	Knight
184	Home Management Principles (3)	Sherrill

HOME ECONOMICS EDUCATION

See courses listed under College of Education.

HORTICULTURE

First Term	51	Garden Flowers (3)	Phillips
	190-191-192	Special Problems in Horticulture (2-4)	Staff
	247	Report on Special Horticulture Topics (9 or less)	Staff
	249	Research in Horticultural Crop Breeding (9 or less)	Currence, Krantz, Hutchins, Wilcox
Second Term	190-191-192	Special Problems in Horticulture (2-4)	Staff
	247	Report on Special Horticultural Topics (9 or less)	Staff
	249	Research in Horticultural Crop Breeding (9 or less)	Currence, Krantz, Hutchins, Wilcox

PLANT PATHOLOGY AND BOTANY*

First and Second Terms	206	Research in Plant Pathology (ar.)	J. J. Christensen, Eide, Hart, C. M. Christensen, Dossdall, Kernkamp, King
	210	Special Problems in Mycology (ar.)	J. J. Christensen, C. M. Christensen, Dossdall
	257	Research Problems in Applied Plant Physiology (ar.)	Landon
	263	Research Problems in Agricultural Botany (ar.)	J. J. Christensen, Larson

POULTRY HUSBANDRY

First and Second Terms	214	Research in Poultry Husbandry (ar.)	Johnson and staff
	215	Research in Poultry Nutrition (ar.)	Johnson
	216	Research in Poultry Breeding (ar.)	Shoffner
	218	Research in Poultry Products (ar.)	Swanson

RHETORIC

First Term	47	Efficient Reading (2 sec.) (3)	Wright
	51	Exposition (3)	Thurston
Second Term	47	Efficient Reading (2 sec.) (3)	Brown

SOILS

First and Second Terms	202†	Research Problems in Soils (2-5)	McMiller, Burson, Caldwell, MacGregor, Arneman
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* For plant pathology and botany courses given at Lake Itasca Biological Station, see index.

† Before registering, students must have approval of instructor in charge.

SCHOOL OF VETERINARY MEDICINE

First and	104	Special Studies in Veterinary Anatomy (ar.).....	Kitchell, Weber
Second Terms	137	Problems in Animal Physiology (ar.).....	Sellers
	157	Veterinary Post-mortem Pathology (ar.).....	Sautter, Kernkamp
	158	Veterinary Surgical Pathology (ar.).....	Sautter, Kernkamp
	201	Advanced Animal and Poultry Pathology (ar.).....	Fenstermacher
	205	Advanced Animal Bacteriology (ar.).....	Pomeroy, Fenstermacher
	209	Advanced Clinical Techniques (ar.).....	Staff
	213	Veterinary Obstetrics and Gynecology (ar.).....	Staff
	230	Research (ar.).....	Staff

BIOLOGICAL STATION

First Term

BOTANY

112	Aquatic Flowering Plants (4).....	Morley
116	Summer Flora of Minnesota (4).....	Morley
135	Vegetation Analysis (4).....	Hulbert
155	Fresh-water Algae (4).....	Drouet
196	Problems (1-5).....	Morley, Hulbert, Drouet
208	Research Problems in Taxonomy (1-5).....	Morley
224	Research Problems in Ecology (1-5).....	Hulbert
236	Research Problems in Cryptogams (1-5).....	Drouet

ENTOMOLOGY AND ECONOMIC ZOOLOGY

59	Field Entomology (4).....	Peterson
124	Biology of Immature Insects (4).....	Peterson
162	Ecology of Terrestrial Vertebrates (4).....	Marshall
196	Special Problems in Entomology and Economic Zooology (ar.).....	Marshall, Peterson

PLANT PATHOLOGY AND BOTANY

56	Introduction to the Study of Fungi (4).....	C. M. Christensen
156	Advanced Study of Fungi (4).....	C. M. Christensen
210	Special Problems in Mycology (Ar.).....	C. M. Christensen

ZOOLOGY

55	Natural History of Vertebrates and Fishes (4).....	Eddy
115	Advanced Natural History of Vertebrates and Fishes (4).....	Eddy
119	Linnology (4).....	Eddy
135	Advanced Ornithology (4).....	Hickey
197	Problems (ar.).....	Eddy, Hickey

MEDICAL SCHOOL

ANATOMY

First Term	100-101	Gross Human Anatomy (8).....	Ar.
	104	Human Histology (4).....	Williams
	111	Human Neurology (6).....	Larsell, Hartmann

	156	Advanced Anatomy (ar.)	Staff
	204	Research in Anatomy (ar.)	Staff
Second Term	58	Anatomy of the Extremities (5)	Ar.
	100-101	Gross Human Anatomy (8)	Ar.
	156	Advanced Anatomy (ar.)	Sundberg and ar.
	165	Hematology (4)	Sundberg
	204	Research in Anatomy (ar.)	Sundberg and ar.

BACTERIOLOGY AND IMMUNOLOGY

First Term	53	General Bacteriology (5)	Johansson
	114	Medical Mycology (3)	Roth
	153	Special Problems (ar.)	Watson
Second Term	116	Immunology (4)	Watson
	121	Physiology of Bacteria (3)	Lichstein
	153	Special Problems (ar.)	Lichstein

MEDICINE

First Term	102	Clinical Laboratory Medicine (5)	Benson and staff
	104	Introduction to Internal Medicine (6)	Spink and ar.
	111	Junior Medicine Clerkship (6)	Spink and ar.
	140	Externship in Medicine (3)	Spink
	201	Clinical Medicine (ar.)	Spink and ar.
	203	Research in Medicine (ar.)	Spink, Schwartz, and ar.
	225	Clinical Dermatology and Syphilology (ar.)	Laymon and staff
	235	Advanced Clinical Laboratory Medicine (ar.)	Benson and staff
Second Term	104	Introduction to Internal Medicine (6)	Watson, Hoffbauer
	111	Junior Medicine Clerkship (6)	Watson, Hoffbauer
	140	Externship in Medicine (3)	Watson, Hoffbauer
	167	Externship in Dermatology (1)	Laymon and staff
	201	Clinical Medicine (ar.)	Watson, Hoffbauer
	203	Research in Medicine (ar.)	Watson, Hoffbauer
	225	Clinical Dermatology and Syphilology (ar.)	Laymon and staff
	226	Research in Dermatology and Syphilology (ar.)	Laymon and staff

OBSTETRICS AND GYNECOLOGY

First Term	201	Advanced Obstetrics and Gynecology, Part I (ar.)	McKelvey, Kaiser, Seibel, and staff
	205	Advanced Obstetrics and Gynecology, Part II (ar.)	McKelvey, Kaiser, Seibel, and staff
	209	Advanced Obstetrics and Gynecology, Part III (ar.)	McKelvey, Kaiser, Seibel, and staff
	216	Research (ar.)	McKelvey, Kaiser, Seibel, and staff
	301	Externship (6)	McKelvey, Kaiser, Seibel, and staff
Second Term	204	Advanced Obstetrics and Gynecology, Part I (ar.)	Holly, Kaiser, Seibel, and staff
	208	Advanced Obstetrics and Gynecology, Part II (ar.)	Holly, Kaiser, Seibel, and staff
	212	Advanced Obstetrics and Gynecology, Part III (ar.)	Holly, Kaiser, Seibel, and staff
	219	Research (ar.)	Holly, Kaiser, Seibel, and staff
	302	Externship (6)	Holly, Kaiser, Seibel, and staff

PATHOLOGY

First Term	104	Autopsies (ar.).....	Dawson, McCartney
	106	Diseases of the Heart (2½).....	McCartney
	111	Conference on Autopsies (1).....	Dawson
	112	Diagnosis of Tumors (2½).....	McCartney
	113	Surgical Pathology (2½).....	McCartney
201	Research (ar.).....	Dawson, McCartney	
Second Term	104	Autopsies (ar.).....	Dawson, Hebbel
	111	Conference on Autopsies (1).....	Dawson
	112	Diagnosis of Tumors (2½).....	Hebbel
	113	Surgical Pathology (2½).....	Hebbel
	120	Diseases of the Lungs (1).....	Dawson
	121	Diseases of the Alimentary Tract (1).....	Hebbel
	201	Research (ar.).....	Dawson, Hebbel

PEDIATRICS

First Term	124	Junior Clinical Clerkship (6).....	McQuarrie and staff
	135	Senior Clinical Clerkship (3).....	McQuarrie and staff
	152	Fundamental Principles of Nutrition and Metabolism (1).....	McQuarrie, Ziegler
	154	Endocrinology as Applied to Pediatrics (1).....	McQuarrie
	162	Common Behavior Disturbances in Childhood (1).....	Jensen, Quast, Wallinga
	170	Rheumatic Infection and Heart Diseases in Childhood (1).....	Thomas, Dwan, Anderson, Good
	174A	Dispensary Externship in Pediatrics (4).....	McQuarrie and staff
	174B	In-Patient Externship in Pediatrics (4).....	McQuarrie and staff
	200	Graduate Seminar in Pediatrics (1½).....	McQuarrie and senior staff
	202	Pediatric Clinic, Out-Patient Department (5).....	McQuarrie and staff
	204	Three-Month Residency in Pediatrics (7).....	McQuarrie and staff
	Second Term	135	Senior Clinical Clerkship (3).....
152		Fundamental Principles of Nutrition and Metabolism (1).....	McQuarrie, Ziegler
154		Endocrinology as Applied to Pediatrics (1).....	McQuarrie
162		Common Behavior Disturbances in Childhood (1).....	Jensen, Quast, Wallinga
170		Rheumatic Infection and Heart Diseases in Childhood (1).....	Thomas, Dwan, Anderson, Good
174A		Dispensary Externship in Pediatrics (4).....	McQuarrie and staff
174B		In-Patient Externship in Pediatrics (4).....	McQuarrie and staff
200		Graduate Seminar in Pediatrics (1½).....	McQuarrie and senior staff
202		Pediatric Clinic, Out-Patient Department (5).....	McQuarrie and staff
204		Three-Month Residency in Pediatrics (7).....	McQuarrie and staff

PHARMACOLOGY

First Term	9	Pharmacology for Nurses (1).....	Cranston and assistants
	102	Pharmacology for Medical Students (3).....	Bieter, Wright, and staff
	109	Pharmacological Problems (ar.).....	Bieter, Wright, Cranston
	110	Toxicology (ar.).....	Wright
	203	Research in Pharmacology (ar.).....	Bieter, Wright, Cranston
Second Term	9	Pharmacology for Nurses (1).....	Pacholl
	203	Research in Pharmacology (ar.).....	Bieter

PHYSICAL MEDICINE

First Term	103	Physical Therapy Clinic (1).....	Kottke, Kubicek
	200	Physical Medicine Service (3).....	Kottke and staff
	203	Poliomyelitis Clinic (1).....	Kottke and staff
	204	Peripheral Vascular Disease Clinic (1).....	Kottke and staff
	210	Research in Physical Medicine (3).....	Kottke, Kubicek
Second Term	103	Physical Therapy Clinic (1).....	Kubicek
	200	Physical Medicine Service (3).....	Kubicek and staff
	203	Poliomyelitis Clinic (1).....	Kubicek and staff
	204	Peripheral Vascular Disease Clinic (1).....	Kubicek
	210	Research in Physical Medicine (3).....	Kottke, Kubicek

PHYSIOLOGICAL CHEMISTRY

First Term	100	Physiological Chemistry (7).....	Armstrong, Glick, Carr
	153	Problems in Physiological Chemistry (ar.).....	Armstrong, Glick, Carr
	205	Research in Physiological Chemistry (ar.).....	Armstrong, Glick, Carr
Second Term	101	Physiological Chemistry (6).....	Barnum, Carr, Malmstrom
	153	Problems in Physiological Chemistry (ar.).....	Barnum, Carr
	205	Research in Physiological Chemistry (ar.).....	Barnum, Carr

PHYSIOLOGY

First Term	4	Human Physiology (4).....	Grim
	107	Human Physiology (5).....	Visscher, Lifson, Brown
	203	Research in Physiology (ar.).....	Visscher, Lifson, Brown, Grim
Second Term	60	Human Physiology (6).....	Ar.
	203	Research in Physiology (ar.).....	Ar.

PSYCHIATRY AND NEUROLOGY

First Term	103	Junior Clinical Clerkship in Psychiatry and Neurology (6).....	Baker, Hastings, Hathaway
	120	Psychosomatics (1).....	Hastings
	145	Reading in Psychiatry (ar.).....	Hastings
	145x	Reading in Neurology (ar.).....	Baker
	155	Therapeutics in Neurology (2).....	Baker
	208	Clinical Neurology (4).....	Baker
	208x	Clinical Psychiatry (ar.).....	Hastings, Hathaway
	208y	Clinical Child Psychiatry (ar.).....	Jensen
	209	Research in Psychiatry and Neurology (ar.).....	Baker, Hastings, Hathaway
	212	Survey of Neuropathology (1).....	Baker, Tichy
	221	Psychometric Clerkship (2).....	Hathaway
	226	X-ray Conference (1).....	Baker
	228	Research in Neuropathology (ar.).....	Baker, Tichy
	231	Applied Electroencephalography (1).....	Baker, Zarling
	233	Applied Neuropathology (1).....	Baker, Tichy
	243	Prolonged Psychotherapy (1).....	Hastings, Hathaway
	245	Case Conference for Psychologists (1).....	Hathaway
Second Term	145	Reading in Psychiatry (ar.).....	Schiele
	145x	Reading in Neurology (ar.).....	Baker and staff
	152	Externship in Psychiatry (6).....	Schiele

153	Externship in Neurology (6)	Baker and staff
208	Clinical Neurology (4)	Baker and staff
208x	Clinical Psychiatry (ar.)	Schiele, Schofield
208y	Clinical Child Psychiatry (ar.)	Jensen and staff
209	Research in Psychiatry and Neurology (ar.)	Schiele and staff
212	Survey of Neuropathology (1)	Tichy
221	Psychometric Clerkship (2)	Schofield
226	X-ray Conference (1)	Baker and staff
228	Research in Neuropathology (ar.)	Tichy
231	Applied Electroencephalography (1)	Baker, Zarling
233	Applied Neuropathology (1)	Tichy
243	Prolonged Psychotherapy (1)	Schiele, Schofield
245	Case Conference for Psychologists (1)	Schofield

RADIOLOGY

First Term

111	Medical Roentgenologic Conference (1)	Rigler
121	Roentgen Diagnosis and Radium Therapy Lectures for Junior Medical Students (cont.)	Rigler, Stenstrom
124	Pediatric Roentgenologic Conference (1)	Rigler
135c	Surgical Roentgenologic Conference (1)	Rigler and staff
163a	Neurosurgical Roentgenologic Conference (1)	Peterson
200	Research in Roentgenology (ar.)	Rigler
204	Research in Radiation Therapy (ar.)	Stenstrom
206	Roentgenoscopy (3)	Rigler
207	Roentgen and Radium Therapy (3)	Stenstrom
209	Roentgen Diagnosis (3)	Rigler
210	Roentgen Technique (2)	Rigler
238	Surgical-Pathology Radiology Conference (1)	Rigler
240	Conference in Radiation Therapy (1)	Stenstrom

Second Term

109	Externship in Roentgen Diagnosis and Radiation Therapy (3)	Rigler, Stenstrom, and staff
111	Medical Roentgenologic Conference (1)	Rigler
124	Pediatric Roentgenologic Conference (1)	Rigler
135c	Surgical Roentgenologic Conference (1)	Rigler and staff
163a	Neurosurgery Roentgenologic Conference (1)	Peterson
200	Research in Roentgenology (ar.)	Rigler
204	Research in Radiation Therapy (ar.)	Stenstrom
206	Roentgenoscopy (3)	Rigler
207	Roentgen and Radiation Therapy (3)	Stenstrom
209	Roentgen Diagnosis (3)	Rigler
210	Roentgen Technique (2)	Rigler
238	Surgical-Pathology Radiology Conference (1)	Rigler
240	Conference in Radiation Therapy (1)	Stenstrom

SURGERY

First Term

121	Principles of Surgery (3)	Creevy, Bernstein, Peyton, Varco
135	Junior Clinical Clerkship (6)	Wangensteen, Varco, Leven, Rice, Bernstein
135g	Applied Surgical Anatomy (3)	Rice, Lillehei
152	Problems in Clinical Investigation (ar.)	Varco, Kelly, Zimmermann
167	Problems in Experimental Surgery (ar.)	Creevy, Varco, Kelly
216	Surgical Research (ar.)	Ar.

	250	Urological Surgery (ar.)	Creevy
	252	Urological Conference (ar.)	Creevy
	253	Research in Urology (ar.)	Creevy
Second Term	152	Problems in Clinical Investigation (ar.)	Wangensteen, Varco
	167	Problems in Experimental Surgery (ar.)	Wangensteen, Varco, Lillehei
	200	Out-Patient Clinic in Surgery (ar.)	Wangensteen, Varco, Lillehei, Levin
	211	Operative Surgery (ar.)	Wangensteen, Varco, Lillehei, and staff
	214	Surgical Ward Conference (ar.)	Wangensteen, Varco, Lillehei
	215	Roentgenological-Surgery Conference (ar.)	Wangensteen, Varco, Lillehei, and staff
	216	Surgical Research (ar.)	Wangensteen, Varco, Lillehei
	218	Medical-Surgical Pathology Conference (ar.)	Wangensteen, Varco, Lillehei, and staff

SCHOOL OF PUBLIC HEALTH

First Term	50	Personal and Community Health (3)	Bates
	62	Principles of Public Health Nursing I (5)	Murphy
	65	Field Work in Public Health Nursing (ar.)	Murphy
	75	Introduction to Environmental Sanitation (3)	Bond
	100	Elements of Preventive Medicine and Public Health (for medical students only) (6)	Thomson
	133	Mental Hygiene (3)	Cline
	148	Workshop on Rehabilitation Nursing (3)	Ar.
	149	Workshop—Preparation for Parent Classes in Maternal and Child Health (3)	Ar.

BIOSTATISTICS

	110	Biometric Principles (3)	Bearman
	111	Biostatistics Laboratory (2)	Bearman
Second Term	58	Maternal and Child Hygiene (3)	Sandve
	59	Health of the School Child (3)	Ar.
	60	Tuberculosis and Its Control (2)	Myers
	63	Principles of Public Health Nursing II (3)	Murphy
	65	Field Work in Public Health Nursing (ar.)	Sandve
	100	Elements of Preventive Medicine and Public Health (Nurses) (5)	Anderson
	170	Supervision in Public Health Nursing (3)	Shetland

SCHOOL OF NURSING*

First Term	Nurs.Ad.160	Ward Administration (5)	Grainger
	Nurs.Ad.170	The Administrative Process in Nursing Service Administration (3)	Harris
	Nurs.Ad.171	Improving Nursing Care Through Cooperative Planning (3)	Newcomb and staff

* See also Ed.T. 51A, The Teaching of Nursing, College of Education, Methods and Student Teaching.

	Nurs.Ad.193	Principles of Administration Applied to Nursing Service Administration (3)	Harris
	Nurs.Ed.68	Construction and Use of Examinations and Other Measurement in Basic Nursing Courses (3)	Johnston
	Nurs.Ed.105	Helping Students with Teaching of Patients (3)	Boyle
	Nurs.Ed.162	Personnel Work in Nursing (3)	Johnston
	Nurs.Ed.190	The Survey in Nursing Education (3)	Harrington
Second Term	Nurs.Ad.193	Principles of Administration Applied to Nursing Service Administration (3)	Harris
	Nurs.Ed.181	Workshop: Teacher Education in Nursing, August 9-20 (3)	Boyle, Harrington, Heidgerken, Norris, and consultants

SCHOOL OF DENTISTRY

See index.

COLLEGE OF EDUCATION

AGRICULTURAL EDUCATION

First Term	82	Teaching Agriculture in the Secondary School (4)	Kitts
	121	Enterprise Analysis (3)	Swanson
	122	Teaching Units in Animal Nutrition (3 or 6)	Swanson
	156	Rural Education Through Extension Method (3)	Swanson
	165	Techniques of Instruction in Mechanized Farming (3)	Kitts
	169	Techniques of Instruction in Farm Buildings (3)	Kitts
	221	Field Problems (3)	Peterson, Kitts
	232	Research in Agricultural Education (3-9)	Peterson, Kitts
Second Term	91	Supervised Student Teaching (6)	Kitts, Swanson
	221	Field Problems (3)	Kitts, Swanson
	232	Research in Agricultural Education (3-9)	Kitts, Swanson

ART EDUCATION

First Term	17	Pictorial Expression for Elementary Education (3)	Hastie
	152	Curriculum Building in Art Education (3)	Gayne
	184	Advanced Course in the Teaching and Supervision of Art in the Elementary School (3)	Gayne
	185	Advanced Course in the Teaching of Art in the Secondary School (3)	Hastie
	295	Problems in Art Education (ar.)	Gayne, Hastie
	296	Seminar in Art Education (0)	Gayne, Hastie
		A Film Festival will be available for interested students. (see index)	
Second Term	84	Teaching Art in the Elementary School (3)	Gayne
	295	Problems in Art Education (ar.)	Gayne

EDUCATIONAL ADMINISTRATION

First Term	GENERAL COURSES		
	124	Public School Administration (3)	Davidson
	210	Financial Aspects of Public School Business Administration (3)	Ar.
	225	Pupil Personnel Administration (3)	Cramer

226	School Plant Planning and Management (3)	Williams
227	Teacher and Employee Administration (3)	Ar.
228	Special Problems in Educational Administration (1-3)	Neale
230	Public Relations for Schools (3)	Davidson
234	Problems in State School Administration (July 1-July 16) (4)	Staff Members, Minnesota State Department of Education
235	Seminar in Educational Administration (0)	Neale
236	Field Study in Educational Administration (0)	Neale

ELEMENTARY EDUCATION

115	Organization of the Elementary School (3)	Cramer
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SECONDARY EDUCATION

133	Basic Procedures in Student Personnel Work (3)	
	Section 1 (for administrators)	Gerritz
	Section 2 (for counselors-teachers)	Laliberte
218	Recent Literature in Secondary Education (ar.)	R. J. Keller
264	Administration of Instructional Activities in the Secondary School (3)	Fisher
265	Administration of Noninstructional Activities in the Secondary School (3)	J. P. Anderson
270	Special Problems in Secondary Education (ar.)	R. J. Keller

HIGHER EDUCATION

274	The Junior College (3)	R. J. Keller
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Second Term

GENERAL COURSES

124	Public School Administration (3)	Davidson
210	Financial Aspects of Public School Business Administration (3)	Davidson
225	Pupil Personnel Administration (3)	Cramer
226	School Plant Planning and Management (3)	Williams
227	Teacher and Employee Administration (3)	Kearney
228	Special Problems in Educational Administration (1-3)	Neale
235	Seminar in Educational Administration (0)	Neale
236	Field Study in Educational Administration (0)	Neale

ELEMENTARY EDUCATION

115	Organization of the Elementary School (3)	Cramer
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SECONDARY EDUCATION

133	Basic Procedures in Student Personnel Work (3)	K. Hoyt
218	Recent Literature in Secondary Education (ar.)	R. J. Keller
263	Organization of the Secondary School (3)	J. P. Anderson
264	Administration of Instructional Activities in the Secondary School (3)	Mitchell
270	Special Problems in Secondary Education (ar.)	R. J. Keller

CURRICULUM AND INSTRUCTION

First Term

GENERAL COURSES

101	Driver Education (June 21-July 2) (2)	Neal and ar.
105	Audio-Visual Materials in Education (3)	Pearson
106	Coordinating an Audio-Visual Education Program (3)	Pearson
107	Radio and Television in Education (3)	Tyler
117	Rural Education for Administrators and Teachers (3)	Archer

129	Principles and Problems of Teaching Social Hygiene (3)	Ferguson
145	Reading Difficulties (3)	Tinker
171	Curriculum Laboratory Practice (2)	Archer
174-175-176	Clinical Methods and Practice in Speech Pathology (3 each)	Bryngelson
205	Problems in Audio-Visual Education (ar.)	Pearson
207	Problems in Radio and Television Education (1-3)	Tyler
227	Problems in Rural Education (ar.)	Archer
271	Problems in Curriculum Construction (ar.)	Archer, Bossing, Boeck, Goossen, D. Johnson
273	Problems in Reading (ar.)	Bond, Tinker

ELEMENTARY EDUCATION

102	Teaching the Social Studies in the Elementary School (3)	Jarolimek
103	Teaching of Science in the Elementary School (3)	Boeck
119	Elementary School Curriculum (2 sec.) (3)	Jarolimek, Goossen
121	Selecting Literature for the Elementary School	D. V. Smith
123	Speech in the Elementary School (3)	Henrikson
143	Teaching and Supervision of Reading in the Elementary School (3)	Bond
150	Supervision and Improvement of Instruction (3)	Goossen
153	Supervision and Teaching of English in the Elementary School (3)	Archer
162	Laboratory in Nursery School and Kindergarten Instructional Practices (3)	Fuller
163	Plastic Materials, Story Telling, and Social Studies for Young Children (3)	Headley
186	Laboratory in Elementary Instructional Practices (2)	Staudenmeier
240	Improvement of Instruction in the Elementary School (June 14-30) (4)	Fay, Wardeberg
261	Special Problems in the Improvement of Instruction (ar.)	Goossen

SECONDARY EDUCATION

113	High School Curriculum (3)	Bossing
125	Occupational Information Laboratory (3)	Borow
131	Advanced Course in Teaching the Technical Business Subjects (3)	Ar.
132	Teaching the Basic Business Subjects (3)	Price
134	Materials and Methods in Consumer Education (3)	Price
135	Group Procedures in Guidance (3)	K. Hoyt
137A	Materials and Methods in Cooperative Part-Time Classes (3)	Meyer
139	Coordination Techniques (3)	Meyer
140	Teaching of Speech (3)	D. K. Smith
144	Teaching of Reading in Secondary Schools (3)	Tinker
147	Workshop in Teaching Display (June 21-July 2) (2)	E. Nelson
155	Materials Laboratory for Social Studies Teachers (3)	McCune
173B	Organizing Units of Instruction in the Secondary School (3)	Bossing
188*	Foreign Language Auxilium (6)	Birkmaier, Falk, Forbes, Mendel and consultants
192	Mathematics Laboratory (3)	D. A. Johnson
199E	Internship (ar.)	Fitzgerald
201	Problems in Teaching the Social Studies (ar.)	McCune

* See section on Special Programs.

225	Special Problems in Supervision of Instruction in Secondary Schools (ar.)	R. J. Keller
238	Problems in Distributive Education (ar.)	Meyer
239	Problems in Business Education (ar.)	Price
266	Supervision of High School Instruction (3)	Fisher
287	Advanced Course in the Teaching of Science (3)	Boeck
294	Advanced Course in Methods of Teaching English (3)	D. V. Smith
296	Special Problems in Teaching English (ar.)	D. V. Smith

HIGHER EDUCATION

228	Workshop: Problems of Higher Education and Teacher Education (June 14-July 9) (6)	Cooper, Eckert, Mork, Stecklein, Stevens, Furrow, and consultants
250	Higher Education in the United States (3)	Eckert
252	Effective College Teaching (3)	McCune

Second Term

GENERAL COURSES

101	Driver Education (August 2-13) (2)	Neal and ar.
105	Audio-Visual Materials in Education (3)	Pearson
109	Audio-Visual Materials and Equipment Laboratory (3)	Pearson
133	Consumer Education in the Schools (3)	Price
145	Reading Difficulties (3)	Reynolds
151	Diagnosis and Treatment of Learning Difficulties (3)	Clymer
171	Curriculum Laboratory Practice (2)	Archer
205	Problems in Audio-Visual Education (ar.)	Pearson
227	Problems in Rural Education (ar.)	Archer
271	Problems in Curriculum Construction (ar.)	Bossing, Goossen
273	Problems in Reading (ar.)	Reynolds, Clymer

ELEMENTARY EDUCATION

102	Teaching the Social Studies in the Elementary School (3)	Jarolimek
103	Teaching of Science in the Elementary School (3)	Goossen
119	Elementary School Curriculum (3)	Jarolimek
143	Teaching and Supervision of Reading in the Elementary School (3)	Clymer
146	Current Developments in Language Expression in the Elementary School (3)	Archer
149	Teaching and Supervision of Arithmetic in the Elementary School (3)	Curtis
150	Supervision and Improvement of Instruction (3)	Goossen
181	Foundations of Elementary School Methods (3)	Archer
261	Special Problems in the Improvement of Instruction (ar.)	Goossen

SECONDARY EDUCATION

113	High School Curriculum (3)	Bossing
135	Group Procedures in Guidance (3)	K. Hoyt
144	Teaching of Reading in Secondary Schools (3)	Alm
156	Trends in Business Education (3)	Price
170B	Curriculum and Course of Study Construction (3)	Bossing
225	Special Problems in Supervision of Instruction in Secondary Schools (ar.)	R. J. Keller
239	Problems in Business Education (ar.)	Price
266	Supervision of High School Instruction (3)	R. J. Keller

HIGHER EDUCATION

228	Workshop: Problems of Higher Education and Teacher Education (July 26-August 20) (6)	Grim, Jacobs, and consultants
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EDUCATIONAL PSYCHOLOGY

First Term

GENERAL COURSES

100	Individual Appraisal for Counseling (3)	K. Hoyt
120	Basic Principles of Measurement (3)	D. A. Johnson
125	Group Dynamics in Education (3)	Flanders
140	Instruments and Techniques of Measurement (3)	Edson
150	Clinical Practice in Remedial Teaching (3)	Bond, Reynolds
151	Clinical Practice in Educational Diagnosis (3)	Reynolds
159	Personality Development and Mental Hygiene (3)	Jones
182	Education of Exceptional Children (3)	Reynolds
208	Methods in Educational Research (3)	P. O. Johnson
216	Statistical Methods in Education (3)	P. O. Johnson, Moonan
216a	Statistical Methods in Education Laboratory (2)	Moonan
225	Diagnosis as a Phase of Counseling (3)	Borow
233	Problems in Guidance and Personnel Work (ar.)	Dugan, Edson
253	Research Problems (ar.)	Dugan, P. O. Johnson, Edson, Flanders, Mork, Reynolds
290	Individual Differences (3)	Flanders
293	Psychology of Learning (3)	Mork

SECONDARY EDUCATION

133	Basic Procedures in Student Personnel Work (3)	
	Section 1 (for administrators)	Gerritz
	Section 2 (for counselors-teachers)	Liberte
134	School Counseling Procedures (3)	Dugan
282	Practice in High School Personnel Work (3)	Dugan

Second Term

GENERAL COURSES

116	Introduction to Statistical Methods in Education (3)	C. Hoyt
116a	Introduction to Statistical Methods in Education Laboratory (2)	Moonan
120	Basic Principles of Measurement (3)	C. Hoyt
150	Clinical Practice in Remedial Teaching (3)	Reynolds, Clymer
151	Clinical Practice in Educational Diagnosis (3)	Reynolds
159	Personality Development and Mental Hygiene (3)	Jones
217	Statistical Methods in Education (3)	Moonan
217a	Statistical Methods in Education Laboratory (2)	Moonan
226	Interviewing Procedures in Counseling (3)	Wrenn
233	Problems in Guidance and Personnel Work (ar.)	Dugan, Wrenn
253	Research Problems (ar.)	Dugan, Wrenn, C. Hoyt, Reynolds
293	Psychology of Learning (3)	Ar.

SECONDARY EDUCATION

133	Basic Procedures in Student Personnel Work (3)	K. Hoyt
134	School Counseling Procedures (3)	Dugan

HISTORY AND PHILOSOPHY OF EDUCATION

First Term

141	Critical Issues in Contemporary Education (3)	Beck
156	History of Ideas in American Education (3)	Ellis
180	The School and Society (2 sec.) (3)	Beck, Ellis
241	Problems in the History and Philosophy of Education (ar.)	Beck, Ellis

Second Term	131	Comparative Education (3).....	Beck
	180	The School and Society (3).....	Beck
	241	Problems in the History and Philosophy of Education (ar.).....	Beck

HOME ECONOMICS EDUCATION

First Term	191	Advanced Course in the Teaching of Home Economics (3).....	Ford
	195	Space, Equipment, Furnishings, and Materials for Home Economics Departments (3).....	Ford
	243	Trends in Home Economics (3).....	Rose
	293	Problems in Home Economics Education (ar.).....	Rose

INDUSTRIAL EDUCATION

First Term	101	Tests in Industrial Subjects (3).....	Micheels, H. Nelson
	106	Workshop in Industrial Education—Project Design and Development (3-6).....	Tinkham
		109	Conference Leading for Industry (3).....
	111	Instructional Materials for Laboratory for Nonmajors (3).....	H. Nelson
		115	Supervision of Industrial Education (3).....
	200	Research Problems (3-6-9).....	Micheels, H. Nelson
Second Term	136	Instructional Materials Laboratory (3-6-9).....	Micheels, H. Nelson
	200	Research Problems (3-6-9).....	Micheels, H. Nelson

METHODS AND STUDENT TEACHING

First Term	NURSING EDUCATION		
	Ed.T.51A	The Teaching of Nursing (2).....	Boyle, Norris
	ELEMENTARY EDUCATION		
	Ed.T.77	Student Teaching in the Nursery School (3).....	Fuller
	Ed.T.78	Student Teaching in the Kindergarten (3).....	Headley
	SECONDARY EDUCATION		
	Ed.T.52	Student Teaching (ar.).....	Grim
	Ed.T.84A-B-C	Practice and Field Work in Recreation Leadership (1 or 2).....	Fitzgerald
		Ed.T.85A-B-C	Practice and Field Work in Recreation Leadership (1 or 2).....
	Second Term	NURSING EDUCATION	
Ed.T.51A		The Teaching of Nursing (2).....	Boyle, Norris

MUSIC EDUCATION

First Term	51	Teaching of Music (3).....	Caswell
	60-61-62	Supervision and Teaching of Music (3).....	Ivory
	64	Band Organization (3).....	Sperry
	104	Advanced Topics in Vocal Music Education (3).....	Caswell
	160	Organization and Supervision of Vocal-Instrumental Music in Secondary Schools (3).....	Ivory, Caswell
		224	Research Problems (3-9).....
	225E	Advanced Applied Music (2-4).....	Ar.

Second Term	52	Teaching of Music (3).....	Ivory
	105	Advanced Topics in Instrumental Music Education (3).....	Ivory
	224	Research Problems (3-9).....	Ivory
	225E	Advanced Applied Music (2-4).....	Ar.

PHYSICAL EDUCATION FOR MEN

First Term	1C	Beginning Golf (1).....	Bolstad
	2C	Advanced Golf (1).....	Bolstad
	5A	Touch Football, Calisthenics, Tactics (1).....	Shawbold
	5B	Gymnastics (1).....	Shawbold
	6C	Aquatics (Swimming and Diving) (1).....	Piper
	9B	Folk, Square, and Ballroom Dancing (1).....	Piper
	65	Adapted Physical Education (3).....	Osell
	73-74-75	Directed Teaching (2).....	Piper
	101	Principles of Physical Education (3).....	Keller
	110	Recreation Surveys (3).....	Fitzgerald
	135	Tests and Measurements in Physical Education (3).....	Keller
	224	Research Problems in Health Education, Physical Education, and Recreation (ar.).....	Keller, Nordly, Piper, Fitzgerald
	244	Problems in the Construction and Administration of the Physical Education Curriculum (6).....	Nordly
Second Term	2A	Beginning and Intermediate Swimming (1).....	Piper
	8	Tennis and Golf (1).....	Bolstad, Piper
	9A	Fundamental Rhythms (1).....	Piper
	67	Football Coaching (2).....	Ar.
	111	Recreation Areas and Facilities (3).....	Fitzgerald
	155	Instructional Aids in Health, Physical Education, and Recreation (3).....	Piper
	224	Research Problems in Health Education, Physical Education, and Recreation (ar.).....	Nordly, Piper, Fitzgerald
	236	Recent Literature and Research in Physical Education and Recreation (3).....	Nordly
	241	Administration of Public Recreation (3).....	Fitzgerald
	261A	Seminar: Contemporary Problems in Physical Education (3).....	Nordly

PHYSICAL EDUCATION FOR WOMEN

First Term	7	Tennis for Beginners (1).....	Ar.
	8	Golf for Beginners (1).....	Ar.
	13	Tumbling, Stunts, Pyramids, and Methods (2).....	Wilson
	18	Folk Dancing, Games, and Methods (2).....	Ar.
	32	Elementary Swimming (1).....	Ar.
	33	Intermediate Swimming and Methods (2).....	Eibner
	37	Individual and Dual Games and Methods (2).....	Jaeger
	118	Problems in Teacher Education in Health, Physical Education, and Recreation (ar.).....	Graduate staff
	124	Supervision of Physical Education (3).....	Baker
	125	Trends and Curriculum in the Professional Preparation of Teachers of Physical Education (3).....	Jaeger
	130	Contributions of the Basic Sciences to Physical Education (3).....	Wilson
	224	Research Problems in Health Education, Physical Education, and Recreation (ar.).....	Graduate staff

Second Term	117	Advanced Course in School Health Instruction (3)	Slocum
	118	Problems in Teacher Education in Health, Physical Education, and Recreation (ar.)	Graduate staff
	224	Research Problems in Health Education, Physical Education, and Recreation (ar.)	Graduate staff

**SCHOOL OF BUSINESS ADMINISTRATION
(INCLUDING ECONOMICS)**

First Term	Econ.3	Elements of Money and Banking (3)	McCartney	
	Econ.6	Principles of Economics (3)	Borak	
	Econ.24	Principles of Accounting (3)	Meiers	
	Econ.50	Insurance Principles (3)	Williams	
	Econ.64	The Economics of Money and Banking (3)	Smith	
	B.A.66	Managerial Costs (3)	Meiers	
	Econ.73	Manpower Economics and Labor Problems (3)	Turnbull	
	B.A.77	Survey in Marketing (3)	Vaile	
	Econ.80	Intermediate Economic Analysis: Income and Employment (3)	Buttrick	
	Econ.85	Government Regulation of Business (3)	Boddy	
	B.A.89	Production Management (3)	Ar.	
	Econ.103	Advanced Economic Theory (3)	Boddy	
	Econ.125	Current Economic Problems and Their Analysis (3)	Smith	
	B.A.130	Managerial Cost Accounting (3)	Meiers	
	Econ.142	Monetary and Banking Policy (3)	Smith	
	Econ.143	Economic Analysis: Income and Employment (3)	Buttrick	
	B.A.150	Intermediate Accounting I (3)	Heilman	
	B.A.152	Cost Accounting (3)	Heilman	
	Econ.161	General Manpower Economics and Labor Problems (3)	Turnbull	
	Econ.165	Current Trends in Industrial Relations (1)	Turnbull and others	
	Econ.169	Labor Legislation: Economic Security (3)	Turnbull	
	Econ.175	Government Regulation of Market Behavior (3)	Boddy	
	Econ.176	An Introduction to International Economics (3)	Coen	
	Econ.178	Economics of Consumption (3)	Vaile	
	B.A.184	Scientific Management in Industry (3)	Ar.	
	Econ.185	Economics of Marketing (3)	Vaile	
	B.A.187	Administration of Production (3)	Ar.	
	Second Term	Econ.5	Elements of Statistics (3)	Sauerlender
		Econ.7	Principles of Economics (3)	Heller, McKenna
		Econ.25	Principles of Accounting (3)	Reighard
		B.A.58	Elements of Public Finance (3)	Heller
		B.A.65	Analysis of Financial Statements (3)	Reighard
Econ.73		Manpower Economics and Labor Problems (3)	Cheit	
B.A.74		Business Statistics (3)	McKenna	
Econ.75		Corporation Finance (3)	Stehman	
Econ.81		Intermediate Economic Analysis: Firms and Households (3)	Papandreou	
Econ.104		Advanced Economic Theory (3)	Papandreou	
B.A.112		Time Series Analysis and Quality Control (3)	McKenna	
B.A.113		Sales Management (3)	Lewis	
B.A.139		Corporate Statements (3)	Reighard	
B.A.146		Investments (3)	Stehman	
Econ.149		Business Cycles (3)	Sutton	
B.A.151		Intermediate Accounting II (3)	Nelson	

B.A.153	Cost Accounting (3)	Nelson
Econ.155	The Modern Corporation (3)	Stehman
Econ.161	General Manpower Economics and Labor Problems (3)	Cheit
B.A.167	Introduction to Industrial Relations (3)	Ar.
Econ.189	Principles of Public Finance (3)	Heller

INSTITUTE OF CHILD WELFARE

First Term	80	Child Psychology (3)	Ar.
	131	Personality, Emotional, and Social Development of the Child (3)	Templin
	140	Behavior Problems in Younger Children (3)	Templin
	150	Childhood Education (3)	Fuller
	170	Parent Education (3)	Ar.
	270	Readings and Research in Child Development (ar.)	Staff

See also Ed.C.I. 162 and 163, listed under Curriculum and Instruction and Ed.T. 77 and 78, under Methods and Student Teaching, College of Education.

Second Term	130	Motor, Linguistic, and Intellectual Development of the Child (3)	Deno
	132	Later Childhood and Adolescence (3)	Deno
	141	Behavior Problems in Older Children (3)	Blodgett
	142	Psychology of Atypical Children (3)	Blodgett
	270	Readings and Research in Child Development (ar.)	Staff

GENERAL COLLEGE

First Term	3	Home Life Orientation (3)	Anderson
	10A	Human Biology: Fundamental Similarities in the Living World (3)	Cieslak
	23A	Art Laboratory (3)	Safer
	30C	Literature Today: Themes in Current Literature (3)	Draxten
	31A	Writing Laboratory: Descriptive Writing (3)	Sheldon
	43A	Background of Modern World (3)	Bengtson
Second Term	10B	Human Biology: How the Living Machinery in Man Works (3)	Dearden
	31D	Writing Laboratory: Business Writing (3)	Kivits
	32A	Oral Communication: Basic Principles of Oral Communication (3)	Hansen
	40B	Straight, Crooked Thinking (3)	McCoy

DULUTH BRANCH

DIVISION OF EDUCATION AND PSYCHOLOGY

EDUCATION

First Term	Ed.48	Orientation to Teaching (1)	Plumb
	Ed.Art 52	Teaching Art in the Elementary Grades (3)	A. Smith
	Ed.C.I.101	Driver Education (2)	Rickert
	Ed.C.I.122	Literature for Adolescents (3)	Frogner
	Ed.C.I.145	Reading Difficulties (3)	Davis
	Ed.C.I.149	The Teaching and Supervision of Arithmetic in the Elementary School (3)	Johnson

Ed.C.I.153	Supervision and Teaching of English in the Elementary Schools (3)	Frogner
Ed.C.I.169	Extracurricular Activities (3)	Wood
Ed.C.I.271	Problems in Curriculum Construction (3)	Johnson, Plumb
Ed.Psy.116	Statistical Methods in Education (3)	Apostolakos
Ed.Psy.120	Basic Principles of Measurement (3)	Johnson
Ed.Psy.133	Basic Procedures in Student Personnel Work (3)	Plumb
Ed.Psy.159	Personality Adjustments and Mental Hygiene (3)	Apostolakos
H.Ed.156	History of Ideas in American Education (3)	Ehlers
H.Ed.179	Critical Thinking for Teachers (3)	Ehlers
Second Term		
Ed.61A-81A	School and Society (5)	McCune
Ed.61B-81B	Educational Psychology (5)	Wheat
Ed.Ad.115	Elementary School Organization and Administration (3)	Wheat
Ed.Ad.123	The Organization of Community School Programs (3)	Dawson, King
Ed.Ad.167	The Junior High School (3)	Plumb
Ed.C.I.63	Children's Literature (3)	Culkin
Ed.C.I.102	Teaching the Social Studies in the Elementary School (3)	McCune
Ed.C.I.103	The Teaching of Science in the Elementary School (3)	Boeck
Ed.C.I.113	The Curriculum of the Secondary School (3)	Boeck
Ed.C.I.117	Rural Education for Administrators and Teachers (3)	Dawson
Ed.C.I.119	The Elementary School Curriculum (3)	Johnson
Ed.C.I.135	Group Procedures in Guidance (3)	Wood
Ed.C.I.150	Supervision and Improvement of Instruction (3)	Johnson
Ed.C.I.227	Problems in Rural Education (ar.)	Dawson
Ed.C.I.271	Problems in Curriculum Construction (3)	Johnson
Ed.Psy.293	Psychology of Learning (3)	Apostolakos

HEALTH EDUCATION

First Term	3	Personal Health (2)	Peterson
Second Term	3	Personal Health (2)	Rickett

HOME ECONOMICS

First Term	32	Introduction to Nutrition (3)	Palmer
	Ed.194A	Adult Education in Home Economics (3)	Palmer

INDUSTRIAL EDUCATION

First Term	11	Industrial Arts for the Elementary Grades (3)	Kovach
	12	Household Mechanics (3)	Kovach
	102	General Shop (2)	Kovach

PHYSICAL EDUCATION FOR MEN

First Term	MW1,2	Archery (1)	Peterson
	MW1,2	Badminton (1)	Rickett
	MW1,2	Golf (1)	Rickett
	MW1,2	Recreational Games (1)	Rickett
	MW1,2	Tennis (1)	Rickett
	M1,2	Swimming (1)	Rickett

	M4A-B-C	Football Fundamentals, Basketball Fundamentals, and Baseball Fundamentals (3)	Peterson
	M6C	Swimming (1)	Rickert
	55	The Teaching of Physical Education Activities (2)	Peterson
	M66A-B	Officiating Football and Basketball (2)	Rickert
	M67	Coaching Football (2)	Peterson
	M68	Coaching Basketball (2)	Peterson
Second Term	MW1,2	Golf (1)	Rickert
	MW1,2	Swimming (1)	Rickert
	MW1,2	Tennis (1)	Rickert

PHYSICAL EDUCATION FOR WOMEN

First Term	W1,2	Swimming (1)	van Steinburg
	40	Elementary and Lead-up Games (1)	Kennedy
	41	Gymnastics, Stunts and Tumbling (1)	Kennedy
	42	Folk Dance and Singing Games (1)	Kennedy
	43	The Teaching of Physical Education in the Elementary School (2)	Kennedy
	54	Methods and Materials in Physical Education (3)	Graybeal
	114	School Health Education (3)	Graybeal

PSYCHOLOGY

First Term	1	General Psychology (3)	Mohr
	2	General Psychology (3)	Mohr
	80	Child Psychology (3)	Mohr
Second Term	2	General Psychology (3)	Mohr
	74	Psychology in Personnel Work (3)	Mohr
	84	Elementary Social Psychology (3)	Mohr
	91	Abnormal Psychology (3)	Apostolacos

DIVISION OF HUMANITIES

ART

First Term	5	Introduction to Art (3)	Smith
	Ed.151	Curriculum Building in Art Education (3)	A. Smith
Second Term	177	Workshop in Advanced Painting (6)	Martin

ENGLISH

First Term	23	Introduction to Literature (5)	Rosenthal
	27	Advanced Writing (3)	Glick
	58	Shakespeare (3)	Rosenthal
	74	American Literature (3)	Glick
	77	Emerson and Thoreau (3)	Glick
	162	Milton (3)	Rosenthal
Second Term	54	World Literature (3)	Tezla
	57	The Interpretation of Poetry (3)	Tezla
	109	Romantic Prose and Poetry (3)	Tezla

FINE ARTS

First Term	4	Appreciation of the Arts (3).....	Miller
Second Term	5	Appreciation of the Arts (3).....	Miller

LIBRARY SCIENCE

First Term	54	Functions of the School Library I (4).....	Ar.
	58	Secondary School Library Materials I (4).....	Ar.

MUSIC

First Term	21	Introduction to Music (3).....	Miller	
	22	Music Since 1750 (3).....	Miller	
	50	Advanced Voice (1-2).....	Downs	
	51	Advanced Piano (1-2).....	Alspach	
	52	Advanced Strings (1-2).....	J. Smith	
	53	Advanced Woodwinds (1-2).....	Beverley	
	54	Advanced Brass (2).....	Magnell	
	72	Advanced Conducting (2).....	Alspach	
	121	Advanced Harmony (2).....	Alspach	
	204	Graduate Applied Music (2).....	Alspach, Magnell	
	Ed.105	Advanced Topics in Instrumental Music Education (3).....	Magnell	
	Ed.151	Supervision and Administration of Secondary Music Education (3).....	Magnell	
	Second Term	21	Introduction to Music (3).....	Miller
		23	The Musical Experience (3).....	Miller

PHILOSOPHY

First Term	1A	Problems of Philosophy (3).....	Ehlers
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SPEECH

First Term	1	Fundamentals of Speech (3).....	Hicks
	2	Fundamentals of Speech (3).....	Hicks
	65	Introduction to Radio (3).....	Hicks
	85	Introduction to Speech Disorders (3).....	Pierce
	86	Correction of Speech Disorders (3).....	Pierce
91	Clinical Practice in Speech Correction (Ar.).....	Pierce	
Second Term	73	The Dramatics Program in Elementary and Secondary Schools (3).....	Hayes

DIVISION OF SCIENCE AND MATHEMATICS**ASTRONOMY**

Second Term	1	Elementary Astronomy (3).....	Lindquist
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CHEMISTRY

First Term	6	General Inorganic Chemistry (5).....	Fayle
Second Term	7	General Inorganic Chemistry (5).....	Moore

MATHEMATICS

First Term	A	Basic Mathematics (3).....	McEwen
	30	Analytic Geometry (5).....	McEwen
Second Term	A	Basic Mathematics (3).....	Elwell

NATURAL SCIENCE

First Term	4	The Physical World (3).....	Weinberg
	5	The Physical World (3).....	Weinberg
	7	General Biology (3).....	Fenwick
	8	General Biology (3).....	Odlaug
Second Term	6	The Physical World (4).....	Lindquist
	9	General Biology (4).....	Hofslund
	10	Conservation of Natural Resources (3).....	Darland

ZOOLOGY

First Term	4M	Human Physiology (4).....	Odlaug
Second Term	57	Ornithology (3).....	Hofslund

DIVISION OF SOCIAL STUDIES

BUSINESS AND ECONOMICS

First Term	1D	Principles of Economics (5).....	Davidson
	2D	Principles of Economics (5).....	Meyers
	31D	Principles of Accounting (3).....	Dettmann
	32D	Principles of Accounting (3).....	Dettmann
	33D	Principles of Accounting (3).....	Dettmann
	55D	Marketing (3).....	Sielaff
	66D	Insurance Principles (3).....	Meyers
	81D	Labor Movements and Problems (3).....	Davidson
	99D	Honors and Practice Course in Business and Economics (6).....	Sielaff
	185	Economics of Marketing (3).....	Sielaff
Second Term	3D	Principles of Economics (5).....	Davidson
	41D,42D,43D	Elements of Statistics (6).....	Meyers
	56D	Advertising (3).....	Sielaff
	82D	Social and Collective Bargaining Legislation (3).....	Sielaff
	86D	Public Finance (3).....	Meyers
	99D	Honors and Practice Course in Business and Economics (6).....	Sielaff
	Econ.189	Principles of Public Finance (3).....	Meyers

GEOGRAPHY

First Term	20	Weather and Climate (3).....	Chamberlin
	73	Western and Central Europe (3).....	Chamberlin
	107	Geography of the Soviet Union (3).....	Chamberlin
Second Term	12	Principles of Geography (5).....	Chamberlin
	110	Geography of South America (3).....	Chamberlin

HISTORY

First Term	22	American History (3).....	Lindquist
	69D	American History in the Twentieth Century (3).....	Lindquist
	99D	Minnesota and the Northwest (3).....	Lindquist
	187D	Minnesota and the Northwest (3).....	Lindquist
Second Term	21	American History (3).....	Livingston
	64D	Twentieth-Century Europe (3).....	Livingston
	92D	The Far West (6).....	M. Lindquist
	93	American Diplomatic History (3).....	Livingston

POLITICAL SCIENCE

First Term	1	American Government and Politics: National and State (3).....	von Glahn
	2	American Government and Politics: National and State (3).....	von Glahn
	30	American Democracy (3).....	von Glahn
	51	Government and Conservation (3).....	Wolff
	67	Political Parties and Public Opinion (3).....	Wolff
	164	Development of Political Thought (3).....	von Glahn
Second Term	1	American Government and Politics: National and State (3).....	Davidson
	2	American Government and Politics: National and State (3).....	von Glahn
	3	American Municipal Government (3).....	Davidson
	85	Problems of World Politics (3).....	von Glahn
	162	Recent Political Thought (3).....	von Glahn

SOCIOLOGY

First Term	1	Introduction to Sociology (5).....	Pearson
	81	Marriage and the Family (3).....	Pearson
Second Term	40	Introduction to Anthropology (5).....	Kroeger
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Bulletin of the

UNIVERSITY OF MINNESOTA



Summer Session 1954

First term - June 14 to July 17

Second term - July 19 to August 21

UNIVERSITY OF MINNESOTA

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March 15, 1954

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CALENDAR

First Term

June	14	Monday	Orientation and registration
June	15	Tuesday	First term classes begin; fees due for students in all colleges
July	5	Monday	(Sunday, July 4, Independence Day); holiday
July	15	Thursday	Commencement, 8:00 p.m.
July	17	Saturday	First term closes

Second Term

July	19	Monday	Registration and payment of fees
July	20	Tuesday	Second term classes begin
August	19	Thursday	Commencement, 8:00 p.m.
August	21	Saturday	Second term closes

CLASS HOUR SCHEDULE

	Minneapolis Campus	St. Paul Campus
I Hour	8:00- 8:50	7:30- 8:20
II Hour	9:00- 9:50	8:30- 9:20
III Hour	10:00-10:50	9:30-10:20
IV Hour	11:00-11:50	10:30-11:20
V Hour	12:00-12:50	11:30-12:20
VI Hour	1:00- 1:50	12:30- 1:20
VII Hour	2:00- 2:50	1:30- 2:20
VIII Hour	3:00- 3:50	2:30- 3:20
IX Hour	4:00- 4:50	3:30- 4:20
X Hour	5:00- 5:50	4:30- 5:20

Convocation, 8:30 p.m., Thursday

(See Official Daily Bulletin for announcement)

No application form need be filed by students with previous college work who plan to attend during the 1954 Summer Session only. See Admission and Registration for further details.

BUILDING ABBREVIATIONS

A, Armory
 AE, Aeronautical Engineering
 Ag(StP), Agronomy
 AgLib(StP), Agricultural Library
 AgrBot(StP), Agricultural Botany
 AH, Appleby Hall
 Bo, Botany
 Bu, Burton Hall
 C, Chemistry
 CH, Cooke Hall
 ChE, Chemical Engineering
 CofH(StP), Coffey Hall
 DCB(StP), Dairy Cattle Barn
 E, Main Engineering
 EdH, Eddy Hall
 EE, Electrical Engineering
 En(StP), Agricultural Engineering
 Ex, Experimental Engineering
 F, Folwell Hall
 ForH, Ford Hall
 FraH, Fraser Hall
 GH(StP), Green Hall
 Gy(StP), Gymnasium
 HE(StP), Home Economics
 HH(StP), Haecker Hall
 Hosp, University Hospitals
 Hr(StP), Horticulture
 IA, Institute of Anatomy
 J, Jones Hall
 JohH, Johnston Hall
 Lib, Library
 LsPav(StP), Livestock Pavilion
 LyonL, Lyon Laboratories
 ME, Mechanical Engineering
 MeH(StP), Meredith Hall
 MEx, Mines Experiment Station
 MH, Millard Hall
 MNH, Museum of Natural History
 MSh(StP), Meat Shop
 MurH, Murphy Hall
 NGW, Norris Gymnasium for Women
 NH, Nicholson Hall
 NMA, Northrop Memorial Auditorium
 OSL, Oak Street Laboratories
 OUHS, Old University High School
 Owre, Owre Hall
 P, Pillsbury Hall
 PeikH, Peik Hall
 PeikG, Peik Hall Gymnasium
 PetH(StP), Peters Hall
 Ph, Physics
 PoH, Powell Hall
 PP(StP), Plant Pathology
 Psy, Psychology
 Pt, Pattee Hall
 SBH, State Board of Health
 ScH, Scott Hall
 ShH, Shevlin Hall
 SnH(StP), Snyder Hall
 So(StP), Soils
 TCH, Temporary, Court of Hospitals
 TEH(StP), Temporary, East of Haecker Hall
 TNCE, Temporary, North Court of Engineering
 TNHS, Temporary, North of Health Service
 TNM, Temporary, North of Mines (Appleby Hall)
 TNUH, Temporary, North of Old University High School
 TSA(StP), Temporary, South of Administration (Coffey Hall)
 TSCE, Temporary, South Court of Engineering
 TSF, Temporary, South of Folwell
 TSH(StP), Temporary, South of Haecker Hall
 TSMa, First Temporary, South of Mines (Appleby Hall)
 TSMb, Second Temporary, South of Mines (Appleby Hall)
 TSMc, Third Temporary, South of Mines (Appleby Hall)
 TSP, Temporary, South of Powell Hall
 TWH, Temporary, West of Hospitals
 VCHH, Variety Club Heart Hospital
 VetA(StP), Veterinary Anatomy
 VetC(StP), Veterinary Clinic
 VetS(StP), Veterinary Science
 VH, Vincent Hall
 WeH, Wesbrook Hall
 WuH, Wulling Hall
 Z, Zoology

1954 SUMMER SESSION

The University of Minnesota is organized on the quarter system. Work equivalent to that taken in one quarter of the academic year may be taken in the Summer Session but for convenience the Summer Session is divided into two terms of five weeks each.

The staff of the Summer Session is drawn largely from the scholars who teach in the academic year.

Duluth Branch

The Duluth Branch offers the associate in arts, the bachelor of arts, and the bachelor of science degrees at the undergraduate level and the master of arts degree, with majors in education or curriculum and instruction, at the graduate level.

The curricula include preprofessional, teacher-education, and four-year liberal arts programs. Dates of the session and tuition are the same as for the University of Minnesota in the Twin Cities.

The Duluth Campus overlooks Lake Superior in Duluth, Minnesota, and has the advantages of the cool North Shore climate.

The sixth annual summer workshop in painting, featuring another eminent American artist, is planned. During the second term there are some unique opportunities for persons interested in rural education. Special attention is paid to the problems of teachers who wish to complete work for the bachelor of science degree.

For bulletin and detailed information concerning this branch, write to the Office of Student Personnel Services, University of Minnesota, Duluth Branch, Duluth 5.

SPECIAL FEATURES

The special programs that follow are noteworthy excerpts from our regular curriculum, or they are institutes or festivals sponsored by university departments in cooperation with the Summer Session.

European Music Festivals Tour

A tour of the European music festival centers will be conducted by a member of the Music Department of the University of Minnesota, leaving New York the latter part of June and returning the middle of September. (See Mu. 134)

The tour will attend the International Musical Eisteddfod at Llangollen, Wales; the Dolmetsch Festival of early English music in Surrey; the Glyndebourne Opera Festival, Sussex; the Shakespeare Memorial Theatre, Stratford-upon-Avon; the contemporary English music festival at Cheltenham, England; the Bach festival under the direction of Pablo Casals, Pyrennes-Orientale; open-air concerts and opera in Rome and Florence and the Lyrics Festival in Verona, Italy; International Music Festival, Aix-en-Provence, France; the Lucerne Music Festival, Switzerland; Mozart Festival in Salzburg, Austria; Wagnerian Opera Festival at Bayreuth, Germany.

Also included are special sight-seeing trips in the countries visited—England, Wales, France, Italy, Switzerland, Austria, Germany, and Holland.

The class will be limited to twenty students who may receive from 3 to 12 credits depending on the scope of the term paper.

For information write to Dean of Summer Session, 968 Johnston Hall, University of Minnesota, Minneapolis 14.

Institute on Minnesota Government and Politics

An Institute on Minnesota Government and Politics will be offered during the first two weeks (July 19-30) of the second term. The Institute is intended primarily

for public school teachers, school administrators, and civic leaders, though others who are interested in Minnesota Government and Politics are invited to enroll. Both undergraduate and graduate credit of three hours may be earned by those who meet the requirements. Persons not desiring credit may register for the Institute through the Center for Continuation Study and pay a reduced fee. For a brief description see Pol.Sci. 114 or write to the dean of the Summer Session for a leaflet describing the Institute in greater detail.

Journalism and Communications

The School of Journalism program contains courses for both undergraduate and graduate students interested in professional training, and it provides courses for advisers of student publications in high schools, junior colleges, and universities.

The School also offers three courses in the area of mass communications, with emphasis on communications in the democratic world and on communications research problems. Recent findings in the scientific study of the communicator, medium, the audience, and the effects of communicated ideas and information will be explored in *Communication Media Analysis* and in the graduate seminar in *Public Opinion and Propaganda*.

American Studies Program

The American Studies summer program is designed for students and professors from abroad as well as for students from the United States. The usual American courses conducted by the academic departments concerned with American Studies (history, literature, philosophy, art and music, and the social sciences) will be offered.

Candidates for all degrees enroll in American courses conducted by the participating departments and in American Studies seminars designed to integrate these courses. Knowledge of a foreign civilization is also required of all candidates.

Intensive Intermediate Russian

Students who have completed one year's study of Russian are eligible for this special course in Intensive Intermediate Russian (see Oriental and Slavic Languages). In this unique course, the student devotes twenty hours weekly to the mastery of this important language. Since major emphasis will be placed on spoken Russian, students will participate in debates, give speeches—prepared and spontaneous—and converse with native speakers. A special fee of \$20, in addition to regular Summer Session fees, is charged for this program.

The new Phonetics Center in Folwell Hall with its extensive sound-recording equipment and short-wave set for Russian language broadcasts will be at the disposal of registered students.

Beginning Italian

This course is designed for students with no previous knowledge of Italian. While the emphasis will be on conversation, it is expected that the fundamentals of Italian grammar will be thoroughly covered. For those students who wish to improve their pronunciation by means of the latest audio-visual techniques, the facilities of the Phonetics Center will be at their disposal under the direct guidance of a native instructor.

Scandinavian Area Studies

The Scandinavian Area Studies summer program, held alternate summers at the Universities of Minnesota and Wisconsin, is scheduled for the second term of the summer of 1954 at the University of Minnesota. The courses to be offered—in Scandinavian literature, in social legislation and social institutions in Scandinavia,

and in modern Scandinavian history—will be open both to students specializing in Scandinavian studies and to those who may be interested only in some particular aspect of Scandinavian life and culture.

Modern Language Institute

The Summer Session student of French, German, or Spanish may have the interesting experience during the first term of living in one of the Modern Language Institute houses—the Casa Hispánica, the Maison Française, or the Deutsches Haus—where only the language of his choice is spoken. These houses will be located on campus with native-speaking assistants in residence.

It is expected that all conversation at all times will be in the language of the house selected. In the dining hall, groups at the tables will be presided over by instructors in that language.

Regular department courses will be conducted in the morning; practical conversational courses will be in the afternoon at the residences; and the evenings will be devoted to lectures, plays, films, music, and dancing. Thus each house will constitute a milieu for training in the language and culture of the country, providing a unique opportunity for improvement in the spoken language.

The directors of the residences will be Herman Ramras for the Deutsches Haus, William H. Rodgers for the Casa Hispánica, and Jean Carduner for the Maison Française.

The Institute training has proved valuable to students and others who desire training in speaking a foreign language . . . those planning to apply for Fulbright or SPAN scholarships or to join other foreign study groups . . . teachers or potential teachers of French, German, or Spanish whether or not they are working for graduate degrees . . . men and women training for positions with the government, international organizations, or private business.

Each language program carries 10 quarter credits for the elementary group and 9 for advanced and graduate students. A special fee of \$40, in addition to regular Summer Session fees, is charged for the program offered in a language residence house. Room and board are additional. Several scholarships are available for the Maison Française and the Deutsches Haus. For further information write to Dean of the Summer Session, 968 Johnston Hall, University of Minnesota, Minneapolis 14. (For course listings, see German, Romance Languages—French—Spanish)

Foreign Language Auxilium

Scholarships for eighty participants in workshops for foreign language teachers will be available in the first term under a grant from the Fund for the Advancement of Education. Teachers of Latin, French, German, Spanish, Scandinavian, and Russian at the freshman-sophomore college level, in high schools, and in elementary schools, as well as teachers of English as a foreign language, will be eligible. The Auxilium is jointly sponsored by the language departments of the College of Science, Literature, and the Arts and by the College of Education.

The Foreign Language Auxilium will consist essentially of the exploration, through discussion and laboratory techniques, of problems and topics such as modern trends in language and culture analysis and its application in teaching a foreign language, the relation of content to objectives with emphasis on the active use of the language, the role of evaluation in relation to objectives, the critical evaluation of demonstration classes, current trends in the methodology of foreign language teaching, the development and practical application in a normal teaching environment of audio-visual aids and techniques, the evaluation of texts and materials, realia and audio-visual aids, language teaching in the elementary schools, the psychology of second language learning and the problem of motivation, the problem of continuity from the introductory to the more advanced levels of instruction, the value and nature of foreign language instruction in the twentieth century, promo-

tional techniques to make a community language conscious, the civic role of the foreign language teacher, and other problems brought up for discussion by the participants of the workshops.

The Foreign Language Auxilium will require active participation and intensive preparation. Six credits will be offered for participation in the Auxilium. In addition participants may elect Summer Session courses up to 4 credits. These credits, it should be pointed out, may be earned in one of the foreign language houses of the Modern Language Institute.

For information regarding the program of the Auxilium and for application forms write to Dean of the Summer Session, 968 Johnston Hall, University of Minnesota, Minneapolis 14. Application forms should be returned by April 15. (See College of Education, Curriculum and Instruction, course 188)

Efficient Reading

Adult reading needs are a matter of real concern. The course *Efficient Reading* (see index), designed for the average and above-average adult reader, provides a unique combination of activities for improving reading speed, comprehension, and vocabulary.

Current Economic Problems

A special overview of current national and international economic problems is embodied in this course intended for the nonmajor, including the teacher of social science who seeks some understanding of the economic side of everyday life. The course will be of particular value to teachers who have attended or are using the materials from recent Economic Education Workshops. (See School of Business Administration, Econ. 125)

Language Arts

A special program in the Language Arts . . . reading, speaking, writing, listening, children's theater, children's literature . . . will be offered in the first term through the cooperation of several departments. Supplementing the courses will be an Institute at the Center for Continuation Study, June 28 through July 1, emphasizing sound practices for elementary and secondary school instruction in the language arts.

Driver Education

A two-week course in Driver Education will be offered at the Duluth Branch in the first term and on the Minneapolis Campus in both terms. This course, scheduled for afternoons, will include materials and methods for driver education in the high schools, and it will meet the requirements for approval of this instruction by the State Department of Education. Because registration in all three sections of this course is limited, advance application is necessary. (See College of Education, Curriculum and Instruction, course 101)

Industrial Education Workshop and Special Courses

The Department of Industrial Education offers three special projects, two for industrial arts teachers and one for nonmajors. In the first term, Robert A. Tinkham of the University of Illinois will conduct a workshop on the design and development of projects for industrial arts courses. Workshop members will pool their efforts, producing a kit of project ideas for each participant. In the second term, industrial arts teachers may enroll for 3, 6, or 9 credits in the Instructional Materials Laboratory, stressing metalwork, graphic arts, and crafts. For nonmajor . . . elementary teachers, recreation leaders, and others whose work includes the teaching of craft and industrial arts activities . . . a laboratory in the first term will provide

opportunity for developing skills, preparing instructional materials, and examining effective ways of presenting such activities.

The Industrial Education Department will send a detailed description of these offerings on request.

Total Eclipse of the Sun

On June 30, 1954, a total eclipse of the sun will occur in the Twin Cities area. This is Nature's greatest spectacle and to anyone fortunate enough to witness it, it will provide the sight of a lifetime. While this eclipse is not a long one—totality lasting only a minute and a half—and it happens early in the morning at 5:07 a.m.—it is the first total eclipse of the sun to come to the Twin Cities for several centuries, and also the last one for another century and a half.

Special emphasis will be given to this eclipse in the astronomy courses during the Summer Session and special lectures for the general public will also be given.

Improving Nursing Care

A special course, *Improving Nursing Care Through Cooperative Planning* (Nu.Ad. 171), will be offered during the first term. Dorothy Perkins Newcomb of Boston University will be visiting instructor in this course for two weeks, June 14-25. Mrs. Newcomb has had extensive nursing service experience, particularly in the Massachusetts General Hospital, and has done special writing on team concepts in nursing care.

Teacher Education in Nursing Workshop

The School of Nursing will conduct a 3-credit workshop (Nu.Ed. 181) (August 9-20) for qualified nurse educators. Problems related to teacher education in nursing will be considered by both college and clinical instructors responsible for student teachers. Faculty from the College of Education will participate. Loretta Heidgerken, professor of nursing education at the Catholic University of America, will serve on the faculty of the Workshop for the entire period. Advance registration is requested. Housing for a limited number of students will be available at the Center for Continuation Study.

A Summer Travel Course in European Art

A summer travel course in European art will be conducted by Professor Lorenz E. A. Eitner of the Department of Art under the auspices of the Summer Session. The course, Art 59, will carry 5 credits and will be limited to thirty participants. Inquiry should be made at an early date to the Dean of the Summer Session, 968 Johnston Hall, University of Minnesota, Minneapolis 14. Reservations must be made and fees paid by April 15.

Departure will be from New York on June 15, returning to New York from Zurich on July 27. The cost will be \$55.50 for Summer Session fees and approximately \$900 for air transportation to and from Europe, hotel accommodations, breakfasts and dinners, and all travel in Europe. Domestic travel expenses will be extra.

The course is designed to cover the main epochs of Western art-history, from antiquity to the present. Its approach will be that of a basic survey, not presupposing previous art-historical training, but individual requirements and assignments will be kept flexible to satisfy the needs of more advanced students. The academic program will include (a) a survey of selected master works of *Ancient art* in the museums of Paris, Florence, Rome, Naples, and at the site of the excavations in Pompeii; (b) a survey of *Early Christian and Medieval art*, including the catacombs and basilicas of Rome, the Romanesque and Gothic cathedrals of Northern and Southern France and of the Rhineland; (c) studies in *Renaissance and Baroque art* in the

galleries of Paris, Florence, Venice, and Munich, and during visits to other important centers in Italy, France, Germany, and Austria; (d) a survey of the contemporary scene, with visits to the principal collections of modern art in Italy and France.

Film Festival

A six-day program of lectures, discussions, workshops, and film screenings on every phase of the film as a creative medium will be offered to educators, teachers, artists, designers, museum staff, film makers, and interested laymen during the second week of the first term, June 21-26. The Festival will be concerned with progressive production techniques and standards of excellence in aesthetic and critical terms. National leaders in the field will be invited to participate in this program. A detailed schedule will be available from the Director of the Center for Continuation Study, University of Minnesota, Minneapolis 14. Students registered for photography courses may attend these sessions free of charge.

Faculty members for the film seminar and festival from the university staff will include George Amberg, Bernard P. Arnest, Allen Downs, and Jerome Lieblich. As visiting lecturers, the festival will bring Paul V. Falkenberg, film maker and editor; Arthur Knight, film critic for the *Saturday Review*, in charge of the film section of the Ford Foundation *Omnibus* television show and former assistant curator of the Museum of Modern Art film library; and a prominent guest speaker.

GENERAL INFORMATION

On its Minneapolis Campus the University of Minnesota places at the disposal of the Summer Session student the facilities of eleven schools and colleges comprising this great educational institution—their faculties, libraries, laboratories, observatory, and museums—and in addition a program of recreational activities including concerts and lectures, swimming, golf, tennis, billiards, and folk and ballroom dancing.

The location of the University also makes possible the use of the cultural and recreational facilities of a large metropolitan area. Lakes and lagoons on which to canoe, swimming beaches, picnic grounds in parks and along roadsides, evening concerts on lake shores and in parks, art centers, museums, libraries, beautiful stores for shopping and browsing, a wide choice of places for dining, as well as the many professional entertainments provided by a large city, are within easy access from the campus by public or private transportation.

The Institute of Agriculture which includes the College of Agriculture, Forestry, and Home Economics and the School of Veterinary Medicine is on the St. Paul Campus and has its own library, laboratories, and recreational facilities.

The campuses are connected by an intercampus trolley line which gives regular service free to students enrolled for classes on both campuses. The Como-Harriet interurban carline also connects the campuses with the two cities, thus making available the added cultural advantages of two large metropolitan centers—an attraction for the Summer Session student that is unique with the University of Minnesota.

Students who are teachers and are obliged to return to their schools before the close of the second term may arrange, with the consent of instructors, to complete the work *in absentia*. The granting of such permission is not obligatory for any instructor, and students desiring this privilege should ascertain from the instructor at the time of registration the courses in which the permission will be granted. They may then make a program accordingly. The procedure is that of removing a grade of incomplete by examination. Arrangements must be made with the recorder for the proper examination.

Inter-campus Car

For students who are registered for classes on both the Minneapolis Campus and the St. Paul Campus, free transportation on the inter-campus car is provided. Tickets will be issued to students registered in the College of Agriculture, Forestry, and Home Economics and the School of Veterinary Medicine at the Office of Admissions and Records, St. Paul Campus; to those registered in other colleges, at the university post office in the basement of Coffman Memorial Union, Minneapolis Campus.

Parking Facilities

For the summer, facilities for parking are available in three university underground garages—the Union, the Auditorium, and the Center for Continuation Study. Reservations may be made in advance for space in one of these garages for either or both terms by writing to the Department of Protection and Investigation, 430 Johnston Hall, University of Minnesota, Minneapolis 14.

These and other parking facilities are available by the day. There is also ample parking room on the University's outdoor parking lots which are located on and adjacent to the campus.

General Offices

The office of the dean of the Summer Session is in 135 Johnston Hall. The Office of Admissions and Records and the office of the Bursar are on the first floor of the Administration Building. For the convenience of students registered in agriculture and home economics, branch offices are established on the second floor of Coffey Hall, St. Paul Campus. The offices of the several schools and colleges together with the office of student affairs function in the control of students during the summer just as during any other quarter of the year.

University Library

Full library privileges are available during the summer. One of the finest university libraries in existence, the University of Minnesota Library contains more than one and one-half million volumes and a wide variety of periodicals and pamphlets.

Large, comfortable reading rooms provide an excellent atmosphere for study. Seminars and discussion groups of graduate students and faculty have the use of a separate floor of seminar rooms.

Departmental libraries on both campuses contain special collections of value to students.

Other available library facilities in the Twin Cities area include the Minneapolis Public Library, the St. Paul Public Library, the Minnesota Historical Society, and the James Jerome Hill Reference Library of St. Paul.

University Post Office

The university post offices distribute students' mail addressed to the University. These post offices are located in the basement of the Coffman Memorial Union on the Minneapolis Campus and in Coffey Hall on the St. Paul Campus. At the time of registration each student is assigned a post-office box in which he will receive all mail, announcements, and university communications.

The mail box should be visited at least once a day. *When leaving at the close of a term, students should give the postmaster a forwarding address.*

Official Daily Bulletin

Throughout the summer an official bulletin is published in the *Minnesota Daily*, the student newspaper of the University of Minnesota. In addition to announcements

for students and faculty, it contains programs of the various recreational activities and matters of general interest. The *Minnesota Daily* is delivered to boxes strategically placed on the campuses each morning on which it is published. *Each student is held responsible for a knowledge of such information appearing in the official notices as may affect him.*

Students' Health Service

The Students' Health Service conducts a dispensary and infirmary during the Summer Session on the same basis as any other quarter of the year, the same staff of physicians, dentists, and nurses being on duty. Through the Students' Health Service, the University makes available to students medical care, physical examinations, health consultations, and hospitalization. General service is provided free of charge, but for services which are specialized and individual in character, such as dentistry, X ray, board and laundry in the student hospital, out-patient calls, minor surgery, etc., special fees are charged.

Housing and Food Service

Living expenses—The living expenses for students at the University are never very high, and this is true especially of the Summer Session. In addition to the university-maintained cafeterias on campus, several good restaurants are to be found in the immediate vicinity of the University. Further information concerning room and board may be obtained by addressing the Director of Student Housing, 204 Eddy Hall, University of Minnesota, Minneapolis 14. It is generally more satisfactory to engage accommodations after arrival than to make reservations in advance, except in the case of reservations at Comstock Hall or Sanford Hall, dormitories for women, the Winchell Cottages for women (cooperative residences), and Centennial Hall, dormitory for men, on the Minneapolis Campus; and Meredith Hall, dormitory for women, and Dining Hall, dormitory for men, on the St. Paul Campus.

ADMISSION AND REGISTRATION

Admission

The courses of the Summer Session are open to all qualified high school graduates, regularly admitted students of the University including those attending regular sessions, and those with previous college work. Recent high school graduates must be regularly admitted before enrolling in the Summer Session. Students beginning their university attendance during the Summer Session who wish to attend during the academic year must submit credentials in the usual way.

Special students—Students with previous college work who wish only to attend the Summer Session may do so without filing credentials, provided they are in good standing and are not candidates for a degree. Such students will be classified as "special" for the Summer Session only.

Mature persons (those about 24 years of age or older) who are not candidates for a degree but wish to complete certain specific college subjects may be considered for admission as adult special students.

Attendance during the Summer Session in no way guarantees special students admission to the regular academic year. Special students who wish to be considered for admission to a subsequent term must file regular admission applications early in the summer.

Graduate students—The procedure for admission of graduate students is discussed under *Graduate School*.

Degree candidates—Those who expect to become *candidates for a degree* at the University during the Summer Session must have filed an application for admission and have been regularly admitted to a college of the University.

All students should consult the *General Information Bulletin* for detailed requirements governing admission and the granting of degrees. The *General Information Bulletin* and specific college bulletins may be obtained by writing to Office of Admissions and Records, University of Minnesota, Minneapolis 14.

Registration

In order that the short terms may prove of maximum value, and that the work of the courses may not be interrupted by late entrants, students are urged to complete their registration, including payment of fees, on the days set aside for registration. The regular registration days are:

For the first term..... Monday, June 14, 8:00 a.m. to 4:00 p.m.

For the second term..... Monday, July 19, 8:00 a.m. to 4:00 p.m.

Late fees are charged for the first term as follows for payment of fees on:

Wednesday, June 16	\$2.00
Thursday, June 17	3.00
Friday, June 18	4.00
Monday, June 21	5.00

No registrations are allowed for the first term after Monday, June 21, without the special permission of the dean of the school or college concerned, and the payment of the late fee of \$5.

The late fees for the second term are as follows for payment of fees on:

Tuesday, July 20	\$2.00
Wednesday, July 21	3.00
Thursday, July 22	4.00
Friday, July 23	5.00

No registrations will be accepted for the second term later than Friday, July 23, without the special permission of the dean of the school or college concerned, and the payment of the late fee of \$5.

No provision is made for allowing exemption from the late fees to those who are unable to reach the University during the regular registration days.

Registration Tally Procedure

June 14

Students registering in the College of Agriculture, Forestry, and Home Economics or the School of Veterinary Medicine will report to 220 Coffey Hall, St. Paul Campus, for registration materials.

Other students will report to the Main Ballroom, Coffman Memorial Union, for materials. Students without previous college work who do not have an admission certificate should go to the admission table.

Students registering before or after the regular registration day, June 14, and during the second term of the Summer Session will go to the Office of Admissions and Records to obtain registration materials.

As part of the registration procedure, all students, including graduate students, must tally for courses listed below. The student does this by obtaining an I.B.M.

class reservation card at the appropriate college tally office indicated. These class reservation cards must be attached to the student's registration blank when it is presented at the college window in the Office of Admissions and Records.

Agricultural Economics

105—CofH 220

Agricultural Education

169—CofH 220

Analytical Chemistry

7—JohH 210*

All other courses under 200—E 136

ArtAll courses, **except** 59—JohH 210***Art Education**

17—Bu 206*

Bacteriology and Immunology

53—CofH 220 for IA, and JohH 210* for other students

Botany

4, 5—JohH 210*

All other courses, **except** 194, 195—CofH 220**Business Administration**

All courses—VH 107*

Civil Engineering

23—E 136

Composition

All courses—JohH 210*

Curriculum and Instruction

101, 109, 119, 125, 129, 135, 147, 188, 240—Bu 206*

Drawing and Descriptive Geometry

All courses—E 136

Economics

3, 5, 6, 7, 24, 25—JohH 210*

All other courses—VH 107* for BA, and JohH 210* for other students

Education Administration

133, 234—Bu 206*

Educational Psychology

116A, 125, 133, 134, 216A, 217A—Bu 206*

Electrical Engineering

36, 37—E 136

English (IT)

All courses—E 136

Entomology and Economic Zoology

All courses under 200—CofH 220

Family Life

All courses—JohH 210*

Forestry

All courses under 200—CofH 220

General College

All courses—NH 106*

General Engineering

70—E 136

History and Philosophy of Education

180—Bu 206*

Home Economics

120—CofH 220 for IA, and JohH 210 for other students

All other courses—CofH 220

Home Economics Education

All courses under 200—CofH 220

Horticulture

All courses under 200—CofH 220

Humanities

All courses—JohH 210*

Industrial Engineering

All courses—E 136

Inorganic Chemistry

1, 2, 4, 5, 6, 7—CofH 220 for IA, E 136 for IT, and JohH 210* for other students

9, 10, 11, 12—E 136 for IT, and JohH 210* for other students

All other courses under 200—E 136

Journalism

55, 73—JohH 210*

Mathematics (IT)

All courses—E 136

Mathematics (SLA)

All courses—JohH 210*

Mechanical Engineering

All courses—E 136

Mechanics and Materials

All courses—E 136

* These courses will be tallied in the Main Ballroom, Coffman Memorial Union, on the regular registration day, June 14.

Metallography

All courses—E 136

Metallurgy

124—E 136

Methods and Student Teaching

52—Bu 206*

Mining Engineering

All courses—E 136

Organic Chemistry

All courses—E 136 for IT, and
JohH 210* for other students

Personal Orientation

1—JohH 210*

Petroleum Engineering

All courses—E 136

Physical Chemistry

107, 108—JohH 210*

All other courses under 200—E 136

Plant Pathology and Botany

All courses under 200—CofH 220
210—CofH 220 for Itasca; not tal-
lied for other students

Rhetoric

47—CofH 220 for IA, and JohH
210* for other students
51—CofH 220

Social Science

All courses—JohH 210*

Speech and Theater Arts

1, 2, 3, 31, 32, 101, 106, 111, 131, 132
—JohH 210*

Veterinary Medicine

All courses under 200—CofH 220

Zoology

55, 115, 119, 135—CofH 220
198—CofH 220 for Itasca; not tal-
lied for other students

Changes in Registration

After a student's registration has been accepted by the recorder, any change must be approved by the Committee on Student Scholastic Standing or the dean of the college in which the student is registered. *Only in exceptional cases will any change be made after classes have begun.*

The University of Minnesota reserves the right to cancel any and all courses in which the registration is insufficient to warrant continuation of the course.

Tuition and Incidental Fees

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

Tuition fee (per term)	\$45.00
Incidental fee‡ (per term)	10.50
Total fee (per term)	\$55.50

The following fees are payable each term at the time of registration by each student taking 4 credits or less (whether resident or nonresident) and must be paid before registration is complete:

Part-time tuition fee (4 credits or less) (per term)	\$35.00
Incidental fee‡ (per term)	10.50
Total fee (per term)	\$45.50

NOTE—Regular tuition fees as provided during the academic year will be charged all students in Nursing. In Law, Veterinary Medicine, Medicine, and Dentistry, residents pay the regular Summer Session tuition fee, nonresidents pay tuition as provided during the academic year. Special tuition fees are collected at the Biological Station. All students pay the Summer Session incidental fee.

* These courses will be tallied in the Main Ballroom, Coffman Memorial Union, on the regular registration day, June 14.

‡ The incidental fee of \$10.50 per term is charged each student for which the student receives the privileges of the Coffman Memorial Union, the Health Service, Library, Counseling Bureau, Speech and Hearing Clinic, recreation program, *Minnesota Daily*, and the university post-office service.

Graduate students who have completed all of their graduate work with the exception of their thesis will be allowed to register for *thesis work only* upon the payment of \$22.50 tuition per term and the incidental fee.

Eligible Summer Session staff members pay at the following rates: more than 3 credits, \$19 per term; 3 credits or less or thesis only, \$9.50 per term; plus incidental fee.

For fees in the following schools and colleges refer to the index:

Fees—Medical School
 School of Dentistry
 Itasca Forestry and Biological Station
 School of Nursing
 School of Veterinary Medicine

Course Fees

All fees are per term unless otherwise indicated.

Aeronautical Engineering

\$3.00—lab. fee for all soph., jr., sr. students in aero. engr.
 4.50 per solo hr.—20 (pay at U. Airport)
 7.50 per dual hr.—20 (pay at U. Airport)
 42.00—46 (no fee for aero. engrs.)

Agricultural Education

\$1.50 per cr.—82, 91, 199E

Agricultural Engineering

\$1.00—5, 7, 13, 14, 19, 20, 21, 23, 24, 25,
 33, 35, 40, 72
 3.00—42
 6.00—41, 43

Agromony

\$2.00—136

Architecture

\$3.00—AD I, AD II, AD III, AD IV
 10.00—AD V

Art

\$1.00—1, 2, 3, 4, 5, 11, 12
 2.00—20, 20A, 21, 21A, 22A, 33, 34, 43,
 44, 89, 99, 103, 104, 105, 153, 154,
 155, 193, 194, 195
 3.00—23A, 24A, 25A, 30, 31, 50, 51, 52,
 60, 60A, 61, 61A, 62, 62A, 70, 71, 72,
 110, 111, 112, 150, 151, 152, 200, 201,
 202
 5.00—10, 23, 24, 25, 32, 40, 41, 42, 45,
 53, 54, 55, 63, 64, 65, 73, 74, 75, 80,
 81, 82, 86, 90, 91, 92, 94, 95, 101, 102,
 180, 181, 182, 190, 191, 192
 7.50—140, 141, 142, 143, 144, 145
 10.00—83, 83A, 84, 84A, 85, 85A, 123,
 124, 125
 15.00—133, 134, 135

Art Education

\$1.50—17, 18, 19
 2.00 per cr.—84, 86, 86A, 87, 87A, 88,
 88A, 185
 2.00—81A, 81B
 3.00—56, 57, 58

Astronomy

\$1.00—20

Bacteriology

\$3.00—53, 102, 103, 104, 112, 113, 114,
 115, 116, 122, 124

Biological Station, Itasca

\$10.00—lab. fee

Botany

\$1.50—1, 2, 3, 50, 51, 52, 53, 54, 112, 113,
 114, 115, 118, 119, 121, 127, 130, 132,
 134, 137, 165, 194, 195, 196, 197, 198,
 199
 2.25—4, 5
 3.00—120, 123, 154, 173, 174, 175, 179,
 180, 181

Business Administration

\$1.00—170, 171
 2.00—65, 66, 74, 130, 139, 150, 152

Civil Engineering

\$2.00—51, 52, 53, 137, 146
 35.00—23 (summer camp)

Communication

\$1.00—1

Curriculum and Instruction

\$2.00 per cr.—all courses

Economics

\$2.50 for one or more courses—32, 33,
 34, 35, 37, 38, 39, 40, 41, 42, 43

Education

\$2.00 per cr.—51A, 51B, 51C, 55A, 55B,
55N, 71A, 71B, 71C

Educational Psychology

\$1.00—217, 218
1.50 per cr.—142, 143, 144, 150
1.50—216A, 217A, 218A, 219A

Electrical Engineering

\$1.00—12, 14, 112, 114, 116, 118, 120,
127, 128, 129
2.00—16, 122, 124, 126, 164, 165, 166

Engineering English

\$1.00—4

Entomology

\$1.50—5, 21, 51, 52, 56, 63, 64, 114, 117,
118, 119, 120, 121, 125, 126, 127, 141,
142, 144, 145, 146, 150, 164, 165, 166,
170, 175, 176, 179
5.00—55, 128, 129, 140, 168, 169, 177

Family Life

\$3.00—14

General College

\$1.00—10A
1.50—22A, 22B, 22C, 22D, 24A, 24B,
24C, 25A, 25B, 25C, 25D, 28, 32A,
32B, 32C, 32D, 32E, 33A, 33B
2.00—23A, 23B, 23C, 23D
2.50—47A
5.00—26A, 26B

Geology

\$1.00—A, B, 23, 24
5.00—175
10.00—100, 115, 150

Home Economics

\$2.00—25

Home Economics Education

\$2.00 per cr.—91, 93, 94, 197, 199E

Humanities

\$1.00—1, 11, 21, 51, 61, 71

Hydromechanics

\$2.00—104

Industrial Education

\$1.50 per cr.—1, 2, 3, 5, 6, 7, 10, 11, 12,
15, 16, 20, 21, 25, 26
2.00 per cr.—50A, 50B, 50C, 70, 75

Journalism

\$1.00 general fee for one or more
courses, excluding Jour. 5
2.00 plus general fee—51, 58, 59, 67,
68
3.00 plus general fee—41, 52, 55
5.00 plus general fee—10, 66

Mechanical Engineering

\$2.00—1, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15,
16, 17, 18, 33, 34, 35, 61, 110, 111,
112, 113, 114, 118, 149, 159, 169, 189,
198

Mechanics and Materials

\$1.00—87, 141

Methods and Student Teaching

\$2.00 per cr.—all courses

Modern Language Institute (Summer Session)

\$20.00 per term—Russian (1a, 2a, or 51,
52, 53)
40.00 per term—French (22, 58, 109);
or German (22, 66, 107); or Span-
ish (22, 58, 109)

Mortuary Science

\$1.00—1, 2
1.50—4, 5, 6
3.00—7, 20, 21, 22

Music

\$1.50—10, 31, 32, 33, 34, 35, 36, 50, 51,
52, 53, 54, 55, 56, 57, 58
15.00—Class lessons in 11C, 12C
25.00—60B, 61B, 62B
30.00 for one (no cr.) individual lesson
per week—A, B, C, D, E, F
30.00 for one (2 cr.); \$60.00 for two
(4 cr.) individual lessons per week—
11, 12, 13, 14, 15, 16, 17, 18, 19, 20,
21, 22, 23, 24, 25, 26, 27
50.00—13B
60.00—204
Students paying \$30.00 or more in music
fees may take other courses by pay-
ing regular Summer Session fees.

Music Education

\$1.50 per cr.—4, 5, 6, 59, 63, 64, 65
2.00 per cr.—50A, 50B, 53, 60, 61, 62
30.00 for one (2 cr.); \$60.00 for two (4
cr.) lessons per week—225E

Natural Science

\$1.00—1, 2, 3, 4, 5, 6
2.00—7, 8, 9

Physical Education (men)

\$1.00 per cr.—1A, 1B, 1C, 2A, 2B, 2C
1.50 per cr.—4A, 4B, 4C, 5A, 5B, 5C,
6A, 6B, 6C, 7A, 7B, 7C, 8, 9A, 9B,
60B

2.00 per cr.—55, 73, 74, 75

Note: Towel and locker fee for students using PE facilities for activity, \$2.50 per term payable at dept. Uniforms for class or recreational activity, \$2.00 per term payable at dept.

Physical Education (women)

\$2.00 per cr.—47, 48, 49, 62, 77A, 77B, 83, 90A, 90B, 90C, 94

3.25 (max. \$6.50 per term)—All non-professional, 7, 8, 13, 18, 32, 33, 37; also 20A, 20B, 20C, 21A, 21B, 21D, 21E, 22A, 22B, 22C, 40A, 40B, 40C, 40D, 41A, 41B, 42A, 54, 70, 76, 87, 88

Physical Medicine

\$3.00—75, 93

Physics

\$1.00—13 Part I, 13 Part II

2.00—1a, 2a, 3a, 4, 5, 6, 7, 8, 9, 12, 13, 14A, 50A, 51A, 110, 112, 120, 121, 122, 134, 136, 144, 146, 148

Psychology

\$1.00—135, 136, 137

2.00—4, 5, 130, 290, 291

Public Health

\$1.00 per cr.—65, 66, 67, 119, 125, 129, 138, 139, 173

1.00—80, 140, 150

1.50—121, 122, 131

2.00 per cr.—181

2.00—111

3.00—143, 144, 184, 185, 186, 187, 188

100.00—169, 190

Rhetoric

\$1.00—1, 12, 22, 28, 54, 59

Russian

\$20.00—(1a-2a or 51-52-53)

Social Work

\$5.00—210, 211, 212, 215, 216, 217

Soils

\$2.00—108, 111

Speech

\$1.00—1, 2, 3, 5, 6, 51, 55, 56, 57, 61, 65, 67, 81, 82, 83, 141, 142

2.00—31, 32, 33, 34, 66, 71, 72, 73, 78, 79, 91, 92, 93, 111, 112, 113, 131, 132, 133, 143, 153

Technical Aid

\$2.00—80A, 80B, 81, 81A, 81B, 82, 82A, 82B, 83, 83A, 84, 84A, 85A

Zoology

\$1.50—21, 51, 52, 53, 55, 57, 58, 59, 75, 81, 100, 101, 102, 107, 108, 109, 110, 111, 115, 116, 117, 118, 119, 120, 121, 125, 126, 127, 132, 143, 144, 145, 146, 149, 150, 155, 156, 157, 160, 161, 162, 170, 180, 183, 184, 185

2.00—14, 15

3.00—1, 2, 50, 112, 113

5.00—128, 129, 140

8.00—182

10.00—22

Fees for Courses Requiring Deposit Cards

Deposit cards may be purchased from the bursar (or from the cashier, Coffey Hall for Agricultural Biochemistry). Chemistry and Biochemistry cards are \$10.00; all others are \$5.00

The course fees listed below will be charged against your deposit card, together with laboratory, material, and breakage, and the unused balance refunded at end of the course. You must present your deposit card to be assigned a lab. desk. Veterans (P.L. 16, 346) will receive information from their instructor concerning deposit cards and lab. assignments

Agricultural Biochemistry

\$2.00—2

5.00—10, 103, 110, 117, 118, 129, 130, 131, 132, 133, 202, 203, 212

Analytical Chemistry

\$3.00—1, 2, 7, 9, 96, 97, 98, 101, 102, 103, 104, 105, 106, 107, 108, 109, 122, 123, 127, 131, 132, 134, 138, 140

Chemical Engineering

\$3.00—105, 106, 111, 112, 113, 151, 152, 153, 154, 155, 156, 160, 176, 177, 179

Food Technology

\$5.00—51, 52

Inorganic Chemistry

\$3.00—1, 2, 4, 5, 6, 7, 9, 10, 11, 12, 13,
96, 97, 98, 102, 109, 110; Mort. Sci.
11, 12

Organic Chemistry

\$3.00—61, 62, 64, 96, 97, 98, 102, 130
10.00—110, 139

Pharmacognosy

\$3.00—55, 56
5.00—162, 163

Pharmacy

\$5.00 deposit required of all soph., jr.,
sr. students in Pharmacy

Physical Chemistry

\$3.00—96, 97, 98, 104, 105, 106, 107, 108,
110, 111, 112, 113, 132, 133, 134, 211,
212, 213, 231

Physiological Chemistry

\$3.00—100, 101, 102, 103

Special Fees

Music Practice Room

\$1.00 per term for one, \$2.00 for two,
50 cents for each addtl. hr. per
week—all instruments except organ
.20 per hr.—small organ
.40 per hr.—large organ

**Speech and Hearing Clinic—Nonstu-
dents**

Articulatory cases, per 10 weeks—\$15.00
for 1, \$25.00 for 2, \$30.00 for 3,
\$35.00 for 4, \$40.00 for 5 lessons per
week

Stuttering, per session—\$100.00 for full-
time remediation

Speech and Hearing Clinic—Students

\$5.00 per term—spec. clinical treatment

Miscellaneous

\$5.00—Credential examination
5.00—Large diploma
2.50—Master's thesis binding
35.00—Ph.D. thesis binding
5.00—Special examination

Refund of Fees

Students who cancel their Summer Session registration without class attend-
ance shall be allowed a full (100 per cent) refund of fees. Students who cancel after
having attended classes shall be allowed a refund of fees on the following basis:

Length of Term	80 Per Cent Refund for Attendance	No Refund for Attendance of More Than
5 weeks	1 day to 5 days	5 days
4 weeks	1 day to 4 days	4 days
3 weeks	1 day to 3 days	3 days
2 weeks	1 day to 2 days	2 days
1 week	1 day	1 day

Scheduling Code and Course Descriptions

This bulletin contains announcements of the courses offered in the several col-
leges and schools of the University. Departmental statements also indicate certain
requirements as to entrance and credits. For more detailed statements of these
matters, reference should be made to the *Bulletin of General Information* and the
regular bulletin of the college concerned.

Following each course is a statement, in parentheses, of credits, classes of stu-
dents eligible, prerequisites, class hours, days of the week, and location of the class.
Thus: (3 cred.; jr., sr., grad.; prereq. 12, 13; II MTWThF; F 117) means that
course carries 3 credits, is open to juniors, seniors, and graduate students, has for
prerequisites courses 12 and 13 in the department under which the course is listed,
meets at the second hour on Monday, Tuesday, Wednesday, Thursday, and Friday
in Folwell Hall, room 117. Abbreviations for class hours and buildings are inter-
preted by the lists on pages 3 and 4.

Department offices will supply information on instructor, hours, and rooms not listed or listed as arranged (ar.).

Auditors

Fees for auditors are the same as for students registered for credit. Permission to attend classes as auditors may be granted by the dean of the college or school with the consent of the department concerned. The procedure for registration as auditor is the same as for registration for credit, except that "auditor" should be indicated on the registration sheet. It is expected that auditors will be registered in at least one course for credit, but this regulation may be waived in exceptional cases.

Credit

Credit is administered on the following basis: 1 quarter credit usually requires not less than 10 lectures or recitation periods (2 per week for a summer term requiring 2 hours of preparation each) or not less than 20 periods of laboratory work requiring $\frac{1}{2}$ hour of preparation each; or not less than 30 hours of laboratory work with no preparation. Courses carrying 2 or more units of credit require corresponding multiples of these amounts.

Amount of Work

A maximum of 9 credits or two 5-credit courses is considered a full program for either term. Registration for a greater number requires special permission from the Committee on Student Scholastic Standing or the dean of the school or college in which the student is registered.

Examinations

Examinations are held at the last scheduled class hour for each course.

Regulations Governing Granting of Degrees

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

1. **Curriculum requirements**—Certification by the university recorder of the completion of all requirements of the course of study as outlined in the college announcement, or its equivalent as determined by the faculty of the college offering the course.

2. **Recommendation by the faculty.**

3. **Residence requirement**—The student must earn at least one year's credit in residence in 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 under such rules as may be established by each college for such exemptions. In addition, special residence requirements must be met in several of the schools and colleges. Extension courses (not correspondence study courses) completed in Minneapolis, St. Paul, or Duluth may apply toward the residence requirement.

4. **Payment or satisfactory arrangement** of all financial obligations due the University.

5. **Attendance at commencement**—A candidate for a degree is required to be present at the commencement exercises at which his degree is conferred. Commencement exercises for Summer Session candidates will be held:

First term.....Thursday, July 15, 8:00 p.m.

Second term.....Thursday, August 19, 8:00 p.m.

A student who fails to attend may not receive his diploma until the expiration of one year, unless in the meantime he attends commencement exercises or unless excused from such attendance by the dean of the college.

6. **Graduation fee**—each degree, \$10.

7. **Placement Service fee**—required of candidates for degrees from:

Institute of Technology..... \$2.50

College of Education (except Nursing Education)..... 5.50

GRADUATE SCHOOL

The Graduate School presents unusual opportunities for advanced study and research in many fields. It brings together in a single organization all the programs and offerings of the University at the level of advanced instruction that may lead to the higher degrees of master of arts, master of science, and doctor of philosophy.

The privileges of the Graduate School are open, upon application, to those with satisfactory character and professional qualifications who have received Bachelor's degrees from recognized colleges and universities and whose records demonstrate that they are adequately prepared for successful work in their chosen major fields of study. Applications are considered by the Graduate School as such and by graduate advisers in the departments in which the applicants propose to carry major work and with due consideration of the available facilities for accepting additional graduate students. In many instances applicants are required to present evidence supplementary to that contained in their official transcripts. This evidence may take the form of tests such as the Graduate Record Examination, the Miller Analogies Test, or the Ohio Psychological Examination.

ADMISSION

Students must make application for admission at least four weeks before the opening of the Summer Session which they expect to attend in order to avoid delay and last-minute disappointment as well as possible penalty for late registration. Applicants who do not hold a degree from the University of Minnesota must present a transcript in duplicate of their undergraduate work. Applicants who hold a degree from the University of Minnesota are expected to present a certified copy of their scholastic record. Applications should be sent to the Dean of the Graduate School, University of Minnesota, Minneapolis 14.

CANDIDACY FOR A DEGREE

Admission to the Graduate School does not admit a student to candidacy for a degree. Admission to such candidacy is contingent upon the ability of the student and the quality of his work in the Graduate School of the University of Minnesota. Admission to candidacy indicates a judgment by members of the graduate faculty that the student shows sufficient promise to be permitted to proceed toward a degree. Under no circumstances will a student be admitted to candidacy until he has been in residence for at least one quarter or one term of the Summer Session and until he has removed any deficiencies which may have conditioned his admission to the Graduate School.

Following the completion of from 9 to 15 graduate credits, at least 3 of which must be in the major, the student who expects to obtain a Master's degree should apply for admission to candidacy for that degree on a blank provided for the purpose. This application should be submitted as soon as a student has earned sufficient credits to be eligible for candidacy. The *application for candidacy* will be reviewed by an appropriate committee normally from the major department, division, or college. This committee will recommend to the dean, through the appropriate Graduate Group Committee, the acceptance or rejection of the application for candidacy. The dean or the reviewing committee may require any evidence which is thought pertinent to the consideration of the application.

MASTER'S DEGREE, PLAN A

The *course work* for the Master's degree according to Plan A may be completed in four separate summer terms of five weeks each. In this case, the candidate

will be expected to register for thesis work either in residence or *in absentia* to complete the equivalent of three quarters. All requirements for the Master's degree under Plan A must be completed within six years after the initiation of the degree program.

The Master's degree under Plan A may be earned by qualified students who complete a minimum of 27 quarter credits, 18 in the major and 9 in the minor, who meet special requirements such as that of a reading knowledge of a foreign language, and who present a satisfactory thesis and pass the required final written and/or oral examinations.

Theses of Summer Session students must be complete and registered in the Graduate School office at least six weeks before the end of the term in which they take the degree (first term: Thursday, June 3, 1954; second term: Thursday, July 8, 1954).

MASTER'S DEGREE, PLAN B

The requirements under this plan in matters of admission, residence, transfer of credits from other institutions, and language requirements follow Plan A. Plan B differs in substituting for the thesis a heavier course requirement which, if met in Summer Sessions, means more than the minimum four sessions of course work possible under Plan A. All requirements for the Master's degree under Plan B must be completed within seven years after the initiation of the degree program.

Under Plan B, candidates for the Master's degree must complete, with an average of B, a minimum of 45 quarter credits in courses listed in the *Graduate School Bulletin*. At least 21 credits shall be in a single field of concentration. At least 18 credits shall be in related fields, and it is understood that this work shall include at least *two fields*. The Master's degree under Plan B, as compared with Plan A, is somewhat less a test of research interest and is more adapted to those who, for example, as teachers or school administrators, will profit by a broader range of knowledge in the fields with which they are professionally concerned. The requirements under Plan B are meant to forward the students' advanced education, not on a different level but for a somewhat different purpose than in the case of the requirements for Plan A. The transfer from one plan to the other may be made only with the approval of the adviser and the appropriate Graduate Group Committee.

Under Plan B, at least 9 quarter credits either in the field of concentration or in related fields must be in advanced courses, seminars, or independent work under faculty supervision and requiring the preparation of written reports representing the quality but not the range of a Master's thesis. *Courses which offer an opportunity to meet this 9-hour requirement are marked in this bulletin with an asterisk (*)*.

A full statement of the requirements for advanced degrees may be found in the Graduate School bulletins.

Students must register in the Graduate School if their work is to count toward an advanced degree.

All requests for information concerning graduate work, including admission to the Graduate School, should be addressed to the dean of the Graduate School.

INSTITUTE OF AGRICULTURE

There are many courses, primarily for graduate students, in the College of Agriculture, Forestry, and Home Economics and in the School of Veterinary Medicine. Most departments correlate thesis and problem work with work in the Agricultural Experiment Station.

Information concerning admission to the Graduate School should be obtained from the dean of the Graduate School. Students wishing information regarding courses at the graduate level should confer with the graduate staff of the department or school in which they will be working.

Undergraduate students also will find courses for their needs.

High school teachers of agriculture may take advanced courses in those agricultural fields which are applicable to the requirements of the Department of Agricultural Education.

The School of Home Economics will offer courses for undergraduate students and qualified graduate students the first term. Courses leading to graduate degrees through Summer Session attendance will be offered in home economics education.

An asterisk (*) indicates courses that may be taken by graduate students for independent work under Plan B. (See Graduate School)

College of Agriculture, Forestry, and Home Economics

AGRICULTURAL BIOCHEMISTRY

First Term and Second Term

- 203. Research Problems.** (Page 41†) (2 to 5 cred.; grad.; consent of instructor; ar.) Staff

AGRICULTURAL ECONOMICS

First Term

- 105. Advanced Farm Management.** A study of factors affecting a farmer's success, and methods for evaluating a farm business. Sources of information, measures of quality of organization and operation, farm business analysis. Analysis of an actual farm operation. Meets for first three weeks of term only. (3 cred.; jr., sr., grad.; prereq. 102 or equiv.; I-II MTWThF; HH 311) Engene
- 200. General Seminar in Agricultural Economics.** Special problems for individual work by qualified students. (3 cred.; grad.; prereq. consent of instructor in advance of registration; ar.) Staff

Second Term

- 201. General Seminar in Agricultural Economics.** (See 200, first term) Staff

AGRICULTURAL EDUCATION

See index

† For description see *Bulletin of the Graduate School* for 1952-54.

AGRONOMY AND PLANT GENETICS

First Term and Second Term

AGRONOMY

- 201.* **Research in Farm Crops.** (Page 45†) (Cred. ar.; grad.; prereq. 121, 123; ar.) Dunham, Schmid

PLANT GENETICS

- 241.* **Research in Plant Genetics.** (Page 45†) (Cred. ar.; grad.; ar.) Myers, Burnham, Rinke, Lambert, Thomas
244. **Laboratory Methods in Plant Breeding.** (Page 46†) (1½ cred.; grad.; ar.) Staff

ANIMAL HUSBANDRY

First Term and Second Term

- 213.* **Research in Animal Husbandry.** Special problems assigned to students to be worked out under the supervision of a faculty member. (3 to 5 cred.; grad.; ar.) Ferrin, Hanson, Harvey, Winters

DAIRY HUSBANDRY

First Term and Second Term

- 208.* **Research in Dairy Production.** (Page 79†) (Cred. ar.; prereq. preliminary grad. work; ar.) Fitch, Gullickson, Petersen, Bayley
- 209.* **Research in Dairy Manufacturing.** (Page 79†) (Cred. ar.; prereq. preliminary grad. work; ar.) Combs, Coulter, E. Thomas, Morris
- 215.* **Research in Dairy Bacteriology.** (Page 79†) (Cred. ar.; prereq. preliminary grad. work; ar.) Olson, Jezeski

ENTOMOLOGY AND ECONOMIC ZOOLOGY¶

First Term

197. **Introduction to Research.** Preparation for investigational work in lines of entomology. Advanced laboratory, field, and library work; training in the preparation of bibliographies and manuscripts; special problems. (Cred. ar.; jr., sr., grad.; prereq. 9 hrs. entomology, and other prescribed work; CofH; ar.) Mickel, Granovsky, Hodson, Holdaway, Marshall, Richards, Cutkomp, Haydak, Smith, Beer, Cook, Barr
204. **Research in Entomology.** Ample opportunity for research work in various phases of entomology will be afforded properly qualified students. This work will be individual. Students who plan to undertake special problems should correspond with the department relative to methods of collection and preparation of material. (Cred. ar.; grad.; ar.) Mickel, Granovsky, Hodson, Holdaway, Marshall, Richards, Cutkomp, Haydak, Smith, Beer, Cook, Barr

† For description see *Bulletin of the Graduate School* for 1952-54.

¶ For additional courses in the first term see Lake Itasca Forestry and Biological Station.

Second Term

13. **Field Zoology.** Offered at Itasca Park. (2 cred.; no prereq.) Krogstad
 197. **Introduction to Research.** (See first term)
 204. **Research in Entomology.** (See first term)

FORESTRY†

OFFERED ON THE ST. PAUL CAMPUS

First Term

- 203.* **Research Problems in Forest Management.** (Cred. ar.; grad.) Schneider, Schantz-Hansen, Hansen, Duncan, Hall, Brown, Beazley
 213.* **Research Problems in Forest Utilization.** (Cred. ar.; grad.) Kaufert, Hossfeld, Rees

Second Term

- 204.* **Research Problems in Forest Management.** (Cred. ar.; grad.) Schneider, Schantz-Hansen, Hansen, Duncan, Hall, Brown, Beazley
 214.* **Research Problems in Forest Utilization.** (Cred. ar.; grad.) Kaufert, Hossfeld, Rees

OFFERED AT ITASCA FORESTRY AND BIOLOGICAL STATION

Second Term

Open only to students who have completed at least two quarters of forestry, or one year in a junior college or other college. Preparatory courses in botany, dendrology, and zoology are desirable. The schedule is arranged to occupy the student's full time for 5½ days per week. Largely field or laboratory work. In addition to the regular field work in Forestry 5 and 6, special field trips to federal, state, and private forestry operations are required. Required of all forestry students including transfer students in the Forest Management and Forestry-Wildlife Management curricula.

2. **Important Forest Plants.** (Page 67†) (2 cred.; no prereq.) Rees
 5. **Field Forest Ecology.** (Page 67†) (2 cred.; no prereq.) Hansen
 6. **Field Measurements.** (Page 67†) (2 cred.; no prereq.) Brown
 Ent.13. **Field Zoology.** Field and laboratory work on insect life and the natural history of common animals in the Itasca Park area. (2 cred.; no prereq.) Krogstad

HOME ECONOMICS**First Term**

- F.L.15. **The Home and Its Furnishing.** Present-day problems in choice of a house; house plans as they affect family living; comparative costs and financing; selection of location; exterior and interior design; selection and arrangement of appropriate furnishings and accessories. (3 cred.; all; no prereq.; II MTWThF; WeH 206) Ludwig

† For description see *Bulletin of the College of Agriculture, Forestry, and Home Economics* for 1953-55.

‡ For additional courses in the first term see Lake Itasca Forestry and Biological Station.

27. **Related Art Problems.** Emphasis on home furnishings. Using house furnishing materials, the student learns good treatment and combinations of colors, forms, and textures; studies the relationship of design to materials, techniques; the needs of people and suitability to use. Some craft problems included. (3 cred.; soph., jr., sr.; prereq. 21; VIII-IX MTWThF; HE 360) Ludwig
28. **Construction and Refinishing of Home Furnishings.** Laboratory problems in refinishing and reupholstering furniture and making slip covers and draperies. Emphasis on design. Techniques suitable for homemakers, extension workers, and homemaking teachers. Students need to furnish own materials. (3 cred.; prereq. consent of instructor; I-II MTWThF; HE 433) Myren
34. **Nutrition Problems.** A consideration of the problems commonly met by adults and children in typical families. (4 cred.; 3rd qtr. soph., jr., sr.; not open to students having cred. for H.E. 76 or 170 and 171; prereq. 31, 40, physiology or human biology; IV MTWThF plus 3 hrs. ar.; HE 44) Gormican
46. **Cafeteria Experience.** Experience in the service of food including cafeteria, dining hall, and special service of meals. (3 cred.; soph., jr., sr.; no prereq. IV-VI MTWThF; Cafeteria) Scholl, Claypoole
50. **Textiles.** Consumer textile problems; the characteristics of fibers, fabrics, and modern finishes; the selection, maintenance, and serviceability of fabrics for clothing and home furnishing; laboratory study of selected fabrics. (3 cred.; jr., sr.; prereq. 1; VI-VII MTWThF; HE 303) Knight
86. **Home Management Laboratory.** (Students should not register for a first period class.) Residence for five weeks in one of the two home management houses, with direct experience in managing and sharing the various activities and responsibilities involved in the group living of the students in residence. (4 cred.; jr., sr.; open only to students registered in the regular year; prereq. 85 or parallel, 40, 41 advised, Public Health 52a,b) Sherrill, Strattner
120. **Art History.** A general view of the history of art from the Egyptian period to the present. The painting, sculpture, architecture, furniture, and costume of the past studied for their present influences and contributions and their significance to contemporary houses and furnishings and to dress. Field trips. (3 cred.; jr., sr., grad.; VII MTWThF; HE 350) Myren
141. **Current Literature in Foods.** Lecture and discussion of recent literature dealing with food products and preparation. (3 cred.; jr., sr., grad.; prereq. 40 or equiv.; II MTWThF; HE 227) Trammell
153. **Recent Developments in Clothing Construction.** Discussion, demonstration, and laboratory work with emphasis on management of time and materials, including newer construction techniques. (3 cred.; jr., sr., grad.; prereq. 53 or consent of instructor; III-IV MTWThF; HE 328) Knight
184. **Home Management Principles.** A study and discussion of managerial aspects of homemaking; work simplification of household activities; financial records and budget-making for the individual and the family. (3 cred.; jr., sr., grad.; prereq. 40, 41 advised; III MTWThF; HE 227) Sherrill

HOME ECONOMICS EDUCATION

See index

HORTICULTURE

First Term

51. **Garden Flowers.** (Page 76§) (3 cred.; jr., sr.; prereq. 9 cred. in botany or equiv., consent of instructor; ar.) Phillips
- 190-191-192. **Special Problems.** (Page 132†) (2-4 cred.; prereq. consent of instructor; ar.) Staff
- 247.* **Reports on Special Horticultural Topics.** (Page 133†) (Cred. ar., maximum 9 cred.) Staff
- 249.* **Research in Horticultural Crop Breeding.** (Page 133†) (Cred. ar., maximum 9 cred.) Currence, Krantz, Hutchins, Wilcox

Second Term

- 190-191-192. **Special Problems.** (See first term)
- 247.* **Reports on Special Horticultural Topics.** (See first term)
- 249.* **Research in Horticultural Crop Breeding.** (See first term)

PLANT PATHOLOGY AND BOTANY¶

First Term and Second Term

- 206.* **Research in Plant Pathology.** (Page 170† description for 203-204-205) (Cred. ar.; grad.; PP) J. J. Christensen, Eide, Hart, C. M. Christensen, Doslall, Kernkamp, King
- 210.* **Special Problems in Mycology.** (Page 170†) (Cred. ar.; grad.; prereq. 105-106-107; PP) J. J. Christensen, C. M. Christensen, Doslall
- 257.* **Research Problems in Applied Plant Physiology.** (Page 171†) (Cred. ar.; grad.; AgrBot) Landon
- 263.* **Research Problems in Agricultural Botany.** (Page 171†) (Cred. ar.; grad.; AgrBot) J. J. Christensen

POULTRY HUSBANDRY

First Term and Second Term

- 214.* **Research in Poultry Husbandry.** Research problems assigned to meet the needs of the student. (Cred. ar.; grad.; prereq. consent of instructor; ar.) Ar.
- 215.* **Research in Poultry Nutrition.** (Cred. ar.; grad.; prereq. consent of instructor; ar.) Johnson
- 216.* **Research in Poultry Breeding.** (Cred. ar.; grad.; prereq. consent of instructor; ar.) Shoffner
- 218.* **Research in Poultry Products.** (Cred. ar.; grad.; prereq. consent of instructor; ar.) Swanson

† For description see *Bulletin of the Graduate School* for 1952-54.

§ For description see *Bulletin of the College of Agriculture, Forestry, and Home Economics* for 1953-55.

¶ For additional courses in the first term see Lake Itasca Forestry and Biological Station.

RHETORIC

First Term

47. **Efficient Reading.** Designed for students, teachers, business or professional people of average reading ability wishing to improve speed, comprehension, and vocabulary. Techniques valuable in achieving or maintaining superior scholastic or professional status. Maximum use of recently developed visual aids. Of special value to teachers interested in laboratory-type experience in adult reading techniques. Not a remedial course. (Section limited to 30) (3 cred.; no prereq.) Wright

Sec. 1, III MTWThF, ForH 85

Sec. 2, IV MTWThF, ForH 85

51. **Exposition.** Essays and articles, technical writing, application letters, review of English usage. (3 cred.; jr., sr.; prereq. satisfaction of freshman communication requirements; III MTWThF; En 308) Thurston

Second Term

47. **Efficient Reading.** (See first term) Brown

Sec. 1, III MTWThF, ForH 85

Sec. 2, IV MTWThF, ForH 85

SOILS

First Term and Second Term

- 202.* **Research Problems in Soils.** (Page 195†) (2-5 cred.; grad.; prereq. consent of instructor in advance of registration; ar.) McMiller, Burson, Caldwell, MacGregor, Arneman

School of Veterinary Medicine‡

All classes scheduled by arrangement

First Term and Second Term

104. **Special Studies in Veterinary Anatomy.** Individual problems for further study in gross anatomy, histology, embryology, neurology, hematology, and histological techniques. (1-5 cred. per term; registration for more than one term permitted; prereq. 111 or equiv. and consent of instructor) Kitchell, Weber
137. **Problems in Animal Physiology.** (Cred. ar.; jr., sr., grad.; prereq. 135 and 136 or Physiology 106 and 107) Sellers
157. **Veterinary Post-Mortem Pathology.** (1-3 cred.; registration for more than one term permitted; jr., sr., grad.; prereq. 153 or equiv., with consent of instructor) Sautter, Kernkamp
158. **Veterinary Surgical Pathology.** Study of neoplasms, surgical biopsies, post-mortem material, together with a review of pertinent literature. (1-3 cred.; jr., sr., grad.; prereq. 153 and consent of instructor) Sautter, Kernkamp
201. **Advanced Animal and Poultry Pathology.** Studies of clinical material, collateral reading, and conferences. (Cred. ar.; prereq. consent of instructor) Kernkamp, Fenstermacher, Pomeroy, Sautter

† For description see *Bulletin of the Graduate School* for 1952-54.

‡ Tuition fees per term in Veterinary Medicine are \$45 for resident and \$77.50 for non-resident students, and incidental fee per term is \$10.50.

205. **Advanced Animal Bacteriology.** Studies on clinical material, collateral reading, and conferences. (Cred. ar.; prereq. consent of instructor) Pomeroy, Fenstermacher
209. **Advanced Clinical Techniques.** A more detailed application of clinical techniques in the diagnosis and therapy of animal diseases. (Cred. ar.; prereq. consent of instructor) Campbell, Hoyt, Mather, Pritchard
213. **Veterinary Obstetrics and Gynecology.** A course designed to give the student a more comprehensive training in the disorders and diseases of reproduction of domestic animals through studies on clinical material, collateral reading, and conferences. (Cred. ar.; prereq. consent of instructor) Staff
230. **Research.** (Cred. ar.) Staff

Lake Itasca Forestry and Biological Station

June 14—July 17

During the first term of the Summer Session an excellent opportunity for the study of terrestrial and fresh-water biology in its most fundamental aspects is presented by the Biological Station of the University of Minnesota, located at Itasca State Park, approximately 220 miles northwest of the Twin Cities.

These classes will be conducted cooperatively by various departments in the College of Agriculture, Forestry, and Home Economics and the College of Science, Literature, and the Arts. Classes will be held at the Station beginning June 14, ending July 17.

Interested persons may find the following opportunities offered:

1. Elementary and advanced instruction for college undergraduates, graduate students, high school and nature study teachers, and others interested.
2. Opportunities for graduate students who may wish to pursue biological investigation in the lakes, fields, or forests close to the Station.
3. Opportunities for teachers of botany, zoology, and biology.
4. Opportunities for guest investigators for independent research in terrestrial and fresh-water biology.

For a special bulletin describing in detail the opportunities and facilities at the Station and for reservations write to Dean of the Summer Session, 968 Johnston Hall, University of Minnesota, Minneapolis 14.

Admission and Registration¶

The courses are open to all qualified graduate and undergraduate students who have had usual preliminary courses in biological subjects.

Application for admission to the Graduate School should be sent directly to Dean of Graduate School, University of Minnesota, Minneapolis 14. Students must make such application at least four weeks before the opening of the Biological Station Summer Session. (See also information under Graduate School.) Attention is called to the fact that, pending admission to the Graduate School, students can register as adult special students. Credit so earned may be transferred, upon petition, to a graduate record if the student is later admitted to the Graduate School. If the student is not admitted to the Graduate School the credit earned as an adult special student will not be given official validation toward a graduate degree.

¶ See section on general admission and registration.

All students must make reservations. Students on the Twin Cities campuses make reservations at the College Office on the St. Paul Campus. Students unable to reach this campus should write to the dean of the Summer Session for reservation forms. Students should note that a reservation is not registration. All on-campus students must complete their registration at the admissions office on either campus as early as possible but not later than June 11. Off-campus students may register upon arrival at the Biological Station on June 14 if registration before arrival is impossible.

Fees and Expenses

Registrations will be accepted during May and June but not later than June 15. The following fees are payable by each registrant on or before June 15 and must be paid before registration is completed:

Tuition fee	\$50.00
Incidental fee	10.50
Laboratory fee	10.00
Total fees for the term.....	\$70.50

In addition, it is estimated, on the basis of the experience of other groups of students, that board which is on a cost basis will be approximately \$60 for the five weeks. A charge of \$10 is made for room in the dormitories and cabins of the Biological Station and is to be paid to the director during the first week of the session.

Laboratory fee includes the use of microscopes, nets, boats, various class supplies, and accessories.

The estimated cost of \$140.50 for the five-week session does not include traveling expenses, clothing, laundry, and minor incidental personal expenses.

Tuition and fees are payable on or before June 15. After that date the late fee will be charged according to the following schedule:

Wednesday, June 16.....	\$2.00
Thursday, June 17.....	3.00
Friday, June 18.....	4.00
Monday, June 21.....	5.00

No registration will be accepted after June 21 without the approval of the director in charge and payment of the \$5 late fee.

Courses of Instruction†

An asterisk (*) indicates courses that may be taken by graduate students for independent work under Plan B. (See section on Graduate School.)

First Term

BOTANY

- Pl.Path.56. Introduction to the Study of Fungi. (See Plant Pathology)
112. Aquatic Flowering Plants. (4 cred.; prereq. 10 cred. in botany or zoology, or consent of instructor; WS) Morley
116. Summer Flora of Minnesota. (4 cred.; prereq. 10 cred. in botany or zoology or consent of instructor; TF) Morley

† For detailed description of courses write to Dean of the Summer Session, 968 Johnston Hall, University of Minnesota, Minneapolis 14, for special *Bulletin of the Lake Itasca Forestry and Biological Station*.

135. **Vegetation Analysis.** (4 cred.; prereq. Bot. 50 or 130 or For. 2-3-4; MTh) Hulbert
136. **Organisms, Microclimate, and Weather.** (Not offered in 1954)
155. **Fresh-water Algae.** (4 cred.; prereq. 10 cred. in biology, or consent of instructor; TF) Drouet
- Pl.Path.156. **Advanced Study of Fungi.** (See Plant Pathology)
157. **Bryophytes and Pteridophytes.** (Not offered in 1954)
- 196.* **Problems in Ecology, Taxonomy, Bryology, or Algology.** (Cred. ar.; advanced students with proper qualifications) Morley, Hulbert, Drouet
- 208.* **Research Problems in Taxonomy.** (Cred. ar.; grad. students with proper qualifications) Morley
- 224.* **Research Problems in Ecology.** (Cred. ar.; grad. students with proper qualifications) Hulbert
- 236.* **Research Problems in Cryptogams.** (Cred. ar.; grad. students with proper qualifications) Drouet

ENTOMOLOGY AND ECONOMIC ZOOLOGY

59. **Field Entomology.** (4 cred.; jr., sr.; prereq. Zool. 1-2-3 or equiv.; TF) Peterson
68. **Natural History of the Higher Vertebrates.** (Not offered in 1954)
124. **The Biology of Immature Insects.** (4 cred.; prereq. 15 cred. in zoology and Ent. 52 or equiv. or consent of the Department of Entomology and Economic Zoology; WS) Peterson
162. **Ecology of Terrestrial Vertebrates.** (4 cred.; prereq. Ent. 68 or Zool. 57-58 and Ent. 63, or equiv. and Bot. 20; MTh) (There will be a "cost basis charge" for mileage on field trips) Marshall
- 196.* **Special Problems in Entomology and Economic Zoology.** (Cred. ar.; advanced students with proper qualifications) Marshall, Peterson

PLANT PATHOLOGY AND BOTANY

56. **Introduction to the Study of Fungi.** (4 cred.; jr., sr.; prereq. 9 cred. in botany or consent of instructor; MTh) C. M. Christensen
156. **Advanced Study of Fungi.** (4 cred.; prereq. 9 cred. in botany or consent of instructor; MTh) C. M. Christensen
- 210.* **Special Problems in Mycology.** (Cred. ar.; grad.; prereq. 105-106-107) C. M. Christensen

ZOOLOGY

55. **Natural History of Invertebrates and Fishes.** (4 cred.; prereq. Zool. 1-2-3 or equiv.; WS) Eddy
107. **Protozoology.** (Not offered in 1954)
115. **Advanced Natural History of Invertebrates and Fishes.** (4 cred.; prereq. 15 cred. in zoology; WS) Eddy
119. **Limnology.** (4 cred.; prereq. 15 cred. in zoology; MTh) Eddy
135. **Ornithology.** (4 cred.; prereq. 15 cred. in zoology; TF) Hickey
143. **Animal Parasites.** (Not offered in 1954)
- 198.* **Problems in Parasitology, Ecology, and Limnology.** (Cred. ar.; advanced students; prereq. Zool. 1-2-3 and special requirements) Eddy, Hickey

SCHOOL OF BUSINESS ADMINISTRATION

Admission

For admission to the School of Business Administration a student must have satisfied the requirements as listed in one of the two-year prebusiness courses in either the College of Science, Literature, and the Arts, the Institute of Agriculture, or the Institute of Technology. These requirements may be completed at another institution. A student must have a minimum of 90 credits, with one honor point per credit or a smaller number of credits determined as follows: For every five honor points in excess of one per credit, the number 90 is diminished by one.

Special Students

High school graduates who have reached the age of twenty-four and can furnish evidence that they have had business experience in an executive capacity may be admitted as special students. If later they decide to become candidates for a degree, they must complete the requirements for admission.

Students in Other Schools or Colleges of the University

Regularly enrolled students in other schools or colleges of the University may be admitted to such courses in the School of Business Administration as are authorized by the faculties of the School of Business Administration and the school or college concerned. Such students are urged to select their business subjects in accordance with a definite plan and, as far as possible, to complete a systematic course of business study.

Note—Special provision has been made this summer for the direction of graduate students working on theses. For further information, inquire at the office of the dean of the School of Business Administration.

Courses fulfilling the requirement of independent work and the preparation of written reports for the Master's degree, Plan B, shall be of graduate level and shall be made part of an approved program only upon recommendation of the candidate's adviser and the instructor for the course.

First Term

Econ.3. Elements of Money and Banking. Basic principles of money and a description of the various types of financial institutions, their functions and relation to the whole economic organization. (3 cred.; no cred. if B.A. 57 completed; 2nd and 3rd qtr. fr., soph., jr., sr.; no prereq.: I MTWThF; VH 6) McCartney

Econ.6. Principles of Economics. A course in the fundamental principles of economics intended to serve as a foundation for advanced courses in business administration and economics. (3 cred.; soph., jr., sr.; no prereq.) Borak

Sec. 1, III MTWThF, VH 6

Sec. 2, IV MTWThF, VH 6

Econ.24. Principles of Accounting. The balance sheet, profit and loss statement, the recording process, special journals, control accounts, adjustments, closing entries, work sheet, and the voucher system. (3 cred.; no cred. if B.A. 54 completed; 3rd qtr. fr., soph.; no prereq.; II MTWThF; VH 205) Meyers

Econ.50. Insurance Principles. The nature and measurement of risk and the development and uses of personal, property, and liability insurance. Forms of protection; policy contracts; social insurance and government regula-

tion. (3 cred.; jr., sr.; prereq. Econ. 7 or equiv.; I MTWThF; VH 113) Williams

- Econ.64. Economics of Money and Banking.** Banking policy viewed from the social standpoint with primary reference to the problems of the Federal Reserve System. Selected problems in monetary policy; monetary reconstruction and monetary reform. (3 cred.; no cred. if Econ. 142 completed; jr., sr.; prereq. Econ. 3 and 80 or equiv.; III MTWThF; VH 113) Smith
- B.A.66. Managerial Costs.** A general survey of cost accounting from the point of view of the executive who must use cost information in the conduct of his business. (3 cred.; no cred. if B.A. 130 or 152 completed; jr., sr.; prereq. Econ. 26 or equiv.; III MTWThF; VH 205) Meyers
- Econ.73. Manpower Economics and Labor Problems.** Covers (1) the marketing of manpower resources; (2) the institutional structure of labor markets; (3) economic and social problems arising out of labor marketing processes; (4) methods, procedures, and proposals for solving these problems. (3 cred.; no cred. if Econ. 161 completed; jr., sr.; prereq. Econ. 7 or equiv.; I MTWThF; VH 207) Turnbull
- B.A.77. Survey in Marketing.** Descriptive analysis of (1) marketing institutions and their control; (2) market areas; (3) marketing costs; (4) the operation of supply and demand in marketing. (3 cred.; no cred. if Econ. 185 completed; jr., sr.; prereq. Econ. 7 or equiv.; II MTWThF; VH 207) Vaile
- Econ.80. Intermediate Economic Analysis: Income and Employment.** The determinants of national income, employment, and price level, with particular attention to aggregate consumption and investment. (3 cred.; no cred. if Econ. 103-104 completed; jr., sr.; prereq. 20 cred. in social science including Econ. 7 or equiv.; IV MTWThF; VH 207) Buttrick
- Econ.85. Government Regulation of Business.** The economic aspects of legislation affecting the market processes. Topics studied include the economic origins of business limitations on free competition, the regulation of public utilities, the purposes and effect of anti-trust laws and laws relating to "unfair business practices," and government assistance to economic groups. (3 cred.; jr., sr.; prereq. Econ. 81 for majors, for others suitable background in law or political science or consent of instructor; II MTWThF; VH 113) Boddy
- B.A.89. Production Management.** Location and layout of industrial plants; types of operating organizations; shop personnel; standards of operation; purchasing and inventory control; routing, scheduling, and dispatching of product; scientific management; practical problems in production control. (3 cred.; no cred. if B.A. 187 completed; jr., sr.; prereq. Econ. 7 or equiv.; V MTWThF; VH 301) Mitton
- Econ.103. Advanced Economic Theory.** An advanced course in general economic theory with special emphasis on the systematic development of the tools of modern economic analysis. (3 cred.; no cred. if Econ. 80-81 completed, no cred. until Econ. 104 completed; jr., sr. with consent of instructor, grad.; prereq. 20 cred. in social science including Econ. 7 or equiv.; IV MTWThF; VH 113) Boddy
- Econ.125. Current Economic Problems and Their Analysis.** A special survey of economic problems designed for education students and for elementary and secondary school teachers who wish background in economics in order to teach social studies courses more effectively. (3 cred.; jr., sr., grad.; prereq. Econ. 6 or consent of instructor; V MTWThF; VH 6) Smith
- B.A.130. Managerial Cost Accounting.** Cost accounting and analysis from the point of view of its use by management in making decisions and setting policies, and in establishing controls over costs. (3 cred.; no cred. if B.A. 66

or 152 completed; jr., sr. with consent of instructor, grad.; prereq. Econ. 26 or equiv.; III MTWThF; VH 205) Meyers

Econ.142. Monetary and Banking Policy. An advanced course in money and banking policy viewed from the social standpoint with primary reference to the problems of the Federal Reserve System. Selected problems in monetary policy, monetary reconstruction, and monetary reform. (3 cred.; no cred. if Econ. 64 completed; jr., sr. with consent of instructor, grad.; prereq. Econ. 3 and 80 or equiv.; III MTWThF; VH 113) Smith

Econ.143. Economic Analysis: Income and Employment. A study of the interrelationships among income, employment, wage levels, money supply, interest rates, and the price level in the economic system as a whole. The course will include a survey of some of the principal theories and systems of aggregative analysis as applied to a market economy. (3 cred.; no cred. if Econ. 80 completed; jr., sr. with consent of instructor; grad.; prereq. Econ. 7 or equiv.; IV MTWThF; VH 207) Buttrick

B.A.150. Intermediate Accounting I. Principles and procedures involved in the valuation of assets and the determination of periodic income. (3 cred.; jr., sr., grad.; prereq. Econ. 26 or equiv., Math. 20; II MTWThF; VH 2) Heilman

B.A.152. Cost Accounting. The basic principles of cost accounting with special reference to the job order cost system. (3 cred.; no cred. if B.A. 66 or 130 completed; jr., sr., grad.; prereq. Econ. 26 or equiv.; I MTWThF; VH 2) Heilman

Econ.161. General Manpower Economics and Labor Problems. Includes (1) marketing of manpower resources; (2) institutional structure of labor markets; (3) economic and social problems arising out of labor marketing processes; (4) methods, procedures, and proposals for solving these problems. (3 cred.; no cred. if Econ. 73 completed; jr., sr. with consent of instructor, grad.; prereq. Econ. 7 or equiv.; I MTWThF; VH 207) Turnbull

Econ.165. Current Trends in Industrial Relations. This course meets once each week for one hour to discuss new developments in various phases of industrial relations. Discussion of trends, new problem areas, new research studies and findings, and other up-to-date happenings in industrial relations in management, unions, and the government. Sessions are led by staff members of the University's Industrial Relations Center who are actively engaged in research and consultation. (1 cred.; jr., sr., grad.; prereq. B.A. 167; ar.) Turnbull and others

Econ.169. Labor Legislation: Economic Security. An analysis of (1) the origins and development of economic and social problems of the individual worker; (2) executive, legislative, and judicial attempts to deal with these problems; and (3) economic and social consequences of the developments. Treatment of "protective labor legislation" involving child labor, hours and wages, industrial accidents and illness, old age, and unemployment. (3 cred.; jr., sr., grad.; prereq. Econ. 73 or 161; II MTWThF; VH 6) Turnbull

Econ.175. Government Regulation of Market Behavior. A study of the administrative and legislative controls in the United States in the following areas: general restraints of trade and monopoly, regulation of the standards of fair competition, licensing and regulation of entry into trade and professions, and the regulation of public utility rates and services. The emphasis will be on the economic and legal analysis of federal regulation, but state and local regulation will be studied. (3 cred.; no cred. if Econ. 85 completed; jr., sr. with consent of instructor, grad.; prereq. Econ. 104 or equiv.; II MTWThF; VH 113) Boddy

- Econ.176. Introduction to International Economics.** The techniques of international economic analysis. The approach, while primarily theoretical, will indicate the relevance of the theory to current problems. The balance of payments, the foreign exchanges, free trade versus protection, techniques of trade control, international commercial policies, contemporary international economic problems and institutions. (3 cred.; jr., sr., grad.; prereq. Econ. 7 or equiv.; III MTWThF; VH 2) Coen
- Econ.178. Economics of Consumption.** The nature of human wants, the origins and the personal distribution of money income and purchasing power, demand and price, standards and levels of living, relationship of consumption to the population problem and possibilities for improvement in the plane of consumption. (3 cred.; jr., sr., grad.; prereq. Econ. 7 or equiv.; IV MTWThF; VH 205) Vaile
- B.A.184. Scientific Management in Industry.** The origin and development of the movement to apply the methods of science to the management of industrial enterprises; the effects upon individual plant management and the influence upon "rationalism" in industrial society. (3 cred., no cred. if B.A. 180G completed; sr., grad.; prereq. B.A. 89 or 187; III MTWThF; VH 301) Mitton
- Econ.185. Economics of Marketing.** Covers (1) the role of market distribution in our total economy; (2) the costs of market distribution; (3) regional specialization and market distribution; (4) public, quasi-public, and corporate control of market distribution; (5) the role of the consumer in market distribution. (3 cred.; no cred. if B.A. 77 completed; jr., sr., grad.; prereq. Econ. 7 or equiv.; II MTWThF; VH 207) Vaile
- B.A.187. Administration of Production.** This nontechnical course develops the production function of business from the general management viewpoint. Students satisfying the requirements may use this course as a prerequisite for any of the advanced courses for which B.A. 89 is a prerequisite. (3 cred.; no cred. if B.A. 89 completed; jr., sr. with consent of instructor, grad.; prereq. Econ. 7 or equiv.; V MTWThF; VH 301) Mitton

Second Term

- Econ.5. Elements of Statistics.** Elementary concepts in statistical methods: averages, ratios, errors, sampling, index numbers, graphic representation, collection of material. (3 cred.; no cred. if B.A. 70 or Soc. 45 completed; 3rd qtr. fr., soph., jr., sr.; no prereq.; IV MTWThF; VH 6) Sauerlender
- Econ.7. Principles of Economics.** (Continuation of Econ. 6) (3 cred.; soph., jr., sr.; prereq. Econ. 6) Heller, McKenna
 Sec. 1, I MTWThF, VH 207 Sec. 2, II MTWThF, VH 2
- Econ.25. Principles of Accounting.** Bank reconciliation, interest and discount, notes and drafts, classification and codification of accounts, partnership organization, dissolution, profit sharing, goodwill, corporation accounting; stock, surplus, dividends, reserves, treasury stock, funds, and bonds. (3 cred.; no cred. if B.A. 55 completed; soph.; prereq. Econ. 24 or equiv.; III MTWThF; VH 207) Reighard
- B.A.58. Elements of Public Finance.** Public expenditures, revenues, debts, fiscal policy, and financial administration. This is a condensed course given especially for School of Business Administration students. (3 cred.; no cred. if Econ. 189 or 191-192 completed; jr., sr.; prereq. Econ. 7 or equiv.; IV MTWThF; VH 2) Heller
- B.A.65. Analysis of Financial Statements.** Interpretation and analysis of financial statements. Credit, investment, and managerial analysis of financial statements. Consolidated statements. Industrial, public utility, railroad

statements. (3 cred.; no cred. if B.A. 139 or 151 completed; jr., sr.; prereq. Econ. 26 or equiv.; II MTWThF; VH 205) Reighard

Econ.73. Manpower Economics and Labor Problems. (See first term) (I MTWThF; VH 2) Cheit

B.A.74. Business Statistics. Explanation and criticism of statistical techniques for dealing with time series; measurements of trend, seasonals, cycles; index numbers. Statistical control of quality in manufacturing operations. (3 cred.; no cred. if B.A. 112 completed; jr., sr.; prereq. Econ. 5 or equiv.; III MTWThF; VH 2) McKenna

Econ.75. Corporation Finance. The corporation in comparison with other types of business units. Attention is given to such subjects as organization and capital structure, raising fixed and circulating capital, treatment of corporate earnings, incentives to and forms of combination, and trusteeship and reorganization. (3 cred.; no cred. if Econ. 155 completed; jr., sr.; prereq. Econ. 3 and 7 or equiv.; III MTWThF; VH 113) Stehman

Econ.81. Intermediate Economic Analysis: Firms and Households. The analysis of individual decision-making, by firms and households, under conditions of monopoly, competition, and monopolistic competition. (3 cred.; no cred. if Econ. 103-104 completed; jr., sr.; prereq. 20 cred. in social science including Econ. 7 or equiv.; IV MTWThF; VH 205) Papandreou

Econ.104. Advanced Economic Theory. Advanced course in general economic theory with special emphasis on the systematic development of the tools of modern economic analysis. (3 cred.; no cred. if Econ. 81 completed; jr., sr. with consent of instructor, grad.; prereq. Econ. 103; III MTWThF; VH 6) Papandreou

B.A.112. Time Series Analysis and Quality Control. Covers (1) the explanation and criticism of statistical techniques applied to time series analysis; (2) index numbers; and (3) statistical control of quality. (3 cred.; no cred. if B.A. 74 completed; jr., sr. with consent of instructor, grad.; prereq. Econ. 5 or equiv.; III MTWThF; VH 2) McKenna

B.A.113. Sales Management. The major functions and responsibilities of sales executives including sales policies and planning, sales promotion, sales organization and channels of distribution, selection, training and compensation of salesmen, control of sales performance, sales budgets and cost control. Extensive use of case materials. (3 cred.; jr., sr., grad.; prereq. B.A. 77 or equiv.; II MTWThF; VH 113) Lewis

B.A.139. Corporate Statements. Preparation of corporate statements and analysis from management, investment, and credit viewpoint. Report required analyzing statement of an assigned corporation. (3 cred.; no cred. if B.A. 65 or 151 completed; jr., sr. with consent of instructor, grad.; prereq. Econ. 26; II MTWThF; VH 205) Reighard

B.A.146. Investments. A general or "cross cut" survey of the external and internal factors influencing the prices of securities, and of the principles of an investment policy for the individual investor. Emphasis is placed upon objective analysis from source materials of factors explaining price differentiation. (3 cred.; jr., sr., grad.; prereq. Econ. 75 or equiv.; IV MTWThF; VH 113) Stehman

Econ.149. Business Cycles. Analysis of factors involved in business fluctuations. Comparison of theories of their causes. Examination of proposals for the stabilization of employment, production, and capital formation. Introduction to the statistical data and methods of business forecasting. (3 cred.; sr., grad.; prereq. Econ. 64 or 142 or consent of instructor; II MTWThF; VH 6) Sutton

- B.A.151. Intermediate Accounting II.** Principles and procedures involved in the valuation of liabilities and stockholders' interests, formation and dissolution of partnerships, analysis of financial statements. (3 cred.; no cred. if B.A. 65 or 139 completed; jr., sr., grad.; prereq. B.A. 150; I MTWThF; VH 205) Nelson
- B.A.153. Cost Accounting.** (Continuation of B.A. 152) Procedures of a process cost system. An introduction to budgetary control, standard costs, and distribution cost accounting. Analysis and interpretation of cost data for specialized uses. (3 cred.; jr., sr., grad.; prereq. B.A. 152; III MTWThF; VH 205) Nelson
- Econ.155. The Modern Corporation.** Incorporation. The various types of corporate securities and their uses. Financial plans for industrial, utility, and other types of corporations. Financial affairs of an established business. General financial problems of the holding company, consolidations, mergers, and reorganizations. (3 cred.; no cred. if Econ. 75 completed; jr., sr. with consent of instructor, grad.; prereq. Econ. 3 and 7 or equiv.; III MTWThF; VH 113) Stehman
- Econ.161. General Manpower Economics and Labor Problems.** (See first term) (I MTWThF; VH 2) Cheit
- B.A.167. Introduction to Industrial Relations.** A survey of policy and practice in manpower management. The course provides a professional viewpoint toward major functions, including policy formulation, determination of labor needs, job analysis, recruitment, selection, training and safety, service rating, employment stabilization, collective bargaining, and wage and salary administration. (3 cred.; jr., sr., grad.; prereq. Econ. 73 or 161; I MTWThF; VH 6) Ar.
- Econ.189. Principles of Public Finance.** Public expenditures, revenues, debts, fiscal policy, and financial administration. Special attention is given to tax principles, practices, and policies. (3 cred.; no cred. if B.A. 58 or Econ. 191-192 completed; jr., sr., grad.; prereq. Econ. 7 or equiv.; IV MTWThF; VH 2) Heller

INSTITUTE OF CHILD WELFARE

The Institute of Child Welfare was organized for three purposes: research in child development; training future workers with children; and bringing information to parents on the care and training of children. The Institute offers graduate and undergraduate courses and conducts a nursery school and kindergarten for demonstration and research purposes.

Nursery School and Kindergarten

The Nursery School and Kindergarten will be in session from 8:00 a.m. to 12:00 noon, beginning June 14 and closing July 16. Applications for the enrollment of children will be received at the office of the Institute. The fee will be \$35 for tuition, which includes a mid-morning snack. Parents are responsible for the transportation of their children to and from the school.

First Term

- 80. **Child Psychology.** (3 cred.; jr., sr.; prereq. Psy. 1-2; II MTWThF; OUHS 212) Ar.
- 131. **Personality, Emotional, and Social Development of the Child.** (3 cred.; sr., grad.; prereq. 12 cred. in psychology or equiv.; I MTWThF; OUHS 212) Templin
- 140. **Behavior Problems in Younger Children.** (3 cred.; sr., grad.; prereq. 12 cred. in psychology, educational psychology, or sociology; III MTWThF; OUHS 212) Templin
- 150. **Childhood Education.** Survey of early childhood education. (3 cred.; sr., grad.; prereq. 12 cred. in education; II MTWThF; OUHS 206) Fuller
- 170. **Parent Education.** (3 cred.; sr., grad.; prereq. 15 cred. in psychology, education, home economics, or sociology; IV MTWThF; OUHS 206) Ar.
- 270.* **Readings and Research in Child Development.** Independent readings and reports in any field such as physical growth, mental development, social behavior, nursery school theory, parent education, etc., which meets the approval of instructor. (Cred. ar.; grad. only; hrs. ar.) Staff

The following courses, Ed.T. 77, Student Teaching in the Nursery School, and Ed.T. 78, Student Teaching in the Kindergarten, listed under Methods and Student Teaching, in the College of Education; Ed.C.I. 162, Laboratory in Nursery School and Kindergarten Instructional Practices, and Ed.C.I. 163, Plastic Materials, Story Telling and Social Studies for Young Children, listed under Curriculum and Instruction, in the College of Education, are also offered by the Institute of Child Welfare.

Second Term

- 130. **Motor, Linguistic, and Intellectual Development of the Child.** (3 cred.; sr., grad.; prereq. 12 cred. in psychology or equiv.; I MTWThF; OUHS 212) Deno
- 132. **Later Childhood and Adolescence.** (3 cred.; sr., grad.; prereq. 12 cred. in psychology or equiv.; III MTWThF; OUHS 212) Deno
- 141. **Behavior Problems in Older Children.** (3 cred.; sr., grad.; prereq. 12 cred. in psychology, educational psychology, or sociology; IV MTWThF; OUHS 212) Blodgett
- 142. **Psychology of Atypical Children.** (3 cred.; sr., grad.; prereq. 12 cred. in psychology or equiv.; II MTWThF; OUHS 212) Blodgett
- 270.* **Readings and Research in Child Development.** (See first term) Staff

SCHOOL OF DENTISTRY

The School of Dentistry will not offer courses regularly scheduled in the dental curriculum unless the necessity arises to offer instruction for students who may fail and will need to remove such failures before being promoted to the next succeeding class. The clinic will remain open, however, for those who wish to receive instruction in clinical work or for those who may not have completed specified clinical or laboratory requirements for promotion.

The following instructors will be available:

First Term—Listiak, Wittich, Hall, Clark, Speidel, Zander, Yock, Mitchell, Jensen, Holland, Tam, Serr

Second Term—Wittich, Hall, Clark, Speidel, Zander, Yock, Mitchell, Hillmann, Jensen, Holland, Tam, Serr

Dentistry fees during the summer quarter are: full-time tuition, resident \$90, nonresident \$145; half-time tuition, resident \$45, nonresident \$72.50. Credit hour fee: resident \$7, nonresident \$12.25. There will be an incidental fee of \$21.

COLLEGE OF EDUCATION

Courses in elementary and secondary education listed in the following pages may be used for *renewal of teaching certificates*. Former teachers re-entering the profession should consult the advisers in elementary and secondary education or the dean's office, College of Education, concerning a program for renewal of certificates.

Students should note that under the titles Curriculum and Instruction, Educational Administration, Educational Psychology, and Methods and Student Teaching the courses are grouped for those interested in elementary, secondary, and higher education fields. Under each division courses of general interest are listed *General Courses* and these are followed by the offerings in *Elementary Education*, *Secondary Education*, and *Higher Education*.

Professional courses in education presuppose completion of Junior College requirements in the University of Minnesota or the equivalent in colleges of similar grade elsewhere. Graduation from the two-year curriculum of Minnesota state teachers colleges is accepted as equivalent. Students in the College of Education with this training may be admitted to any course for which they have satisfied the prerequisite.

For all general matters relating to admission, advanced standing, credits, honor points, curricula, and requirements for graduation, students should consult the *Bulletin of the College of Education*, 1954-56.

Summer Session students who are not candidates for a degree do not need to make application for admission nor present credentials (see Admission and Registration). Students expecting to become candidates for a Bachelor's degree, however, should apply for admission as regular students in the College of Education by filling out the application form in the Office of Admissions and Records and filing in that office any credentials on the basis of which they wish to request advanced standing. They should also seek as early as possible the advice of the major adviser in the department concerned in order to learn the requirements of the curriculum they will need to complete. Adult special students are not regular degree candidates.

Counseling Services

The staff of the Student Personnel Office of the college will be available during both terms for consultation concerning admission, requirements of the teaching profession, and for counseling. Appointments should be made in 206 Burton Hall.

Committee on Student Scholastic Standing

Undergraduate students with questions concerning program adjustments and substitutions for required work should consult their advisers or the chairman of the Committee on Student Scholastic Standing. The office of the adviser for this committee will be 206 Burton Hall (Mr. Glotzbach) during both terms.

Workshops

Graduate credit for workshops—The amount of graduate credit in workshops which may be used on a Master's degree program is limited. Graduate students planning to register for any workshop should consult their advisers concerning the possibility of using credit for the workshop in their graduate programs.

Workshops in higher education—Two workshops in higher education will be jointly sponsored by the College of Education and the North Central Association of Colleges and Secondary Schools. In the first term, the workshop will be scheduled

from June 14 to July 9 for the study of problems in the liberal arts related to teacher education. In the second term, the workshop, scheduled from July 26 to August 20, has been planned for teachers colleges staff members studying the problems of teacher education. Applicants for either workshop should write to Dean of the College of Education, University of Minnesota, Minneapolis 14. (See Curriculum and Instruction, course 228)

Workshops for school administrators—As a part of the advanced graduate program (one year beyond the Master's degree) leading to the certificate of Specialist in Education—School Administration, two workshop courses are scheduled for the first term. Each course will require full-time work from the participants for two and one-half weeks. See Curriculum and Instruction, course 240, Improvement of Instruction in the Elementary School, June 14 to June 30, and Educational Administration, course 234, Problems in State School Administration, July 1 to July 16. Both groups will be limited in size, and prerequisite to both is the completion of a Master's degree program for school superintendents. A special announcement concerning the Specialist in Education program will be sent by the Dean's office, College of Education, on request.

Workshop in teaching display—In the first term, a two-week workshop will provide assistance for workers in distributive education on their many problems in teaching display. Further information about the display workshop may be obtained on request to 105 Burton Hall, University of Minnesota, Minneapolis 14. (See Curriculum and Instruction, course 147)

Workshop and special courses in Industrial Education—See index, Industrial Education.

Workshop in language teaching—See index, Foreign Language Auxilium.

Institute of Minnesota Government and Politics—See index.

Summer Demonstration High School

The University High School, grades seven to twelve, will be in session in Peik Hall during the last four weeks of the first term and the first week of the second term. Instruction will be offered in English, mathematics, modern languages, speech, science, and typing. Individual and group work in remedial reading will be provided. The summer program will emphasize remedial instruction and the enrichment of the student's background.

Admission to the University High School Summer Session is open to any pupil of normal high school age. Children of teachers or other professional workers who are attending the Summer Session of the University are especially welcomed. For information regarding fees and registration procedure, address the Principal, University High School, Minneapolis 14.

Students registered in Ed.T. 52 will be assigned to observation and student teaching in the classes of the high school. The facilities of the school are available to the college classes in special methods and to other classes for demonstration purposes. (I, II, III, IV MTWThF)

Summer Demonstration Elementary School

An elementary school, grades one to six inclusive, will be in operation during the last four weeks of the first term. This school will be staffed by the principal and teachers of the Tuttle School which is used as the demonstration elementary school of the College of Education by a cooperative agreement with the Board of Education of the city of Minneapolis. The school, conducted on an activity basis, may be observed by students of elementary school methods and supervision. A laboratory course in elementary school practices is available. (See Curriculum and Instruction,

course 186) (I, II, III, IV TWThF; Tuttle School, Talmadge Avenue and Eighth Avenue Southeast)

Psycho-Educational Clinic

The Psycho-Educational Clinic will be in operation during both terms for purposes of training, research, and service. The clinic program will include remedial reading classes for children whose difficulties have been previously diagnosed and for whom special remedial work has been recommended. These children will attend school two hours daily (9 to 11), Monday through Friday, and the full two-hour period will be used for individualized instruction. In addition, the Psycho-Educational Clinic will provide diagnosis and recommendation for school problem cases from the state on the same basis as during the school year. The services of the clinic, including the remedial reading classes, will provide demonstrations for various College of Education classes, as well as clinical practice opportunities for advanced students registered under Ed.Psy. 150 and 151. Information may be obtained from the Director, Psycho-Educational Clinic, Pattee Hall, University of Minnesota, Minneapolis 14.

Nursery School and Kindergarten

The Institute of Child Welfare maintains a nursery school and kindergarten in the first term. (See Institute of Child Welfare) These schools are also available for demonstration and observation. Courses offered by the Institute and listed under Institute of Child Welfare are given for teachers who wish nursery school and kindergarten training and for others interested in child development.

Minimum Fee for Graduate Students

Graduate students who have completed all their graduate work with the exception of the thesis will be allowed to register for the Summer Session for thesis work only, upon the payment of a fee of \$22.50 per term plus incidental fee.

Course Fees

Course fees are charged for all courses concerned with methods or problems of teaching. These fees are used in the provision of demonstration and practice facilities, and are charged for any course in this classification, whether or not observation is required for that particular course. The curriculum laboratory, the demonstration schools, and radio and visual materials are partially provided through these fees. (See Course Fees)

Detailed Description of Courses

For detailed description of courses and curricula in education see the *Bulletin of the College of Education, 1954-56*.

Notice Concerning Starred Courses

Graduate students who wish to work on individual problems to count toward the 9 credits in problems courses required for the Master's degree under Plan B may register for this credit in any course starred (*) in the following list. Other students taking these courses will not be held to the same quality of individual problems work, nor will written reports always be required of them. (See Graduate School)

AGRICULTURAL EDUCATION

First Term

82. **Teaching Agriculture in the Secondary School.** Fundamentals of teaching agriculture to high school students; use of the home, farm and community in structuring courses of study; the Future Farmers of America, the Vo-Ag Planning and Record Book; organization and management of the farm and school shop; building and utilizing teaching units. (4 cred.; jr., sr.; prereq. Ed. 55B; I-II MTWThF; Hr 302) Kitts
121. **Enterprise Analysis.** Analyzing the farm business as a basis for identifying problems. Planning learning experiences to improve farm management at the high school, young farmer, and adult levels. (3 cred.; sr., grad.; prereq. consent of instructor; III-IV MTWThF; Hr 302) Swanson
122. **Teaching Units in Animal Nutrition.** Development of teaching units based on recent research in the science of animal nutrition. Specific emphasis on dairy, poultry, and livestock feeding developments. Construction of resource units, demonstrations, and materials of instruction for adult, young farmer, and high school classes. (3 or 6 cred.; prereq. An.Hu. 56, 57 or Dy.Hu. 103, or consent of instructor; VI-IX MTWThF first 3 weeks; ar. second 2 weeks; Hr 301) Swanson
- 156.* **Rural Education Through Extension Method.** Use of mass techniques of education in rural areas; methods and techniques of instruction in non-school educational programs. Consideration of special problems. (3 cred.; sr., grad., or consent of instructor; I-II MTWThF first 3 weeks; ar. second 2 weeks; Hr 301) Swanson
165. **Techniques of Instruction in Mechanized Farming.** A study of the problems and opportunities in teaching resulting from the mechanization and electrification of agriculture. Farm and home improvements, rural sanitation, farm power and machinery, electricity on the farm, soil and water management, and farm shop. Teaching aids and implications for programs of rural education. (3 cred.; prereq. consent of instructor; III-IV MTWThF first 3 weeks; ar. second 2 weeks; Hr 301) Kitts
169. **Techniques of Instruction in Farm Buildings.** Developing a program of instruction in farm buildings. Planning, maintenance and rearrangement of farm buildings and labor saving devices. Planning farmstead for efficiency, sanitation, and safety. Teaching aids, development of units of instruction, job sheets and demonstrations, facilities and materials for instruction of adult, young farmer and high school classes. (Limited to 30) (3 cred.; grad. or consent of instructor; prereq. 165 or concurrently; VI-IX MTWThF first 3 weeks; ar. second 2 weeks; Hr 302) Kitts
221. **Field Problems.** The development and study of special problems in the field of the individual student's choice. (3 cred.; grad.; ar.) Peterson, Kitts
- 232.* **Research in Agricultural Education.** (Designed especially for students meeting the Plan B requirement) Investigation in problems of education for farm people. Selecting research problems, preparing bibliographies, analyzing and interpreting data, and preparing manuscripts. (3 to 9 cred.; grad.; ar.) Peterson, Kitts

Second Term

91. **Supervised Student Teaching.** Observation and participation in the learning-teaching process. Teaching experience and program analysis under supervision of selected teachers. Organization and execution of activities

necessary to successful teaching of agriculture in Minnesota high schools. (6 cred.; jr.; ar.) Kitts, Swanson

221. **Field Problems.** (See first term) Kitts, Swanson

232.* **Research in Agricultural Education.** (See first term) Kitts, Swanson

ART EDUCATION

The Department of Art Education offers professional training and guidance for teaching and supervisory positions in the field of art. The art education curriculum provides opportunities to combine a creative art career with a teaching position, a combination popular with many outstanding contemporary artists. The department also provides courses for general teachers who will integrate art with other educational experience.

First Term

17. **Pictorial Expression for Elementary Education.** Provides a background survey of art in life and education. Materials, techniques, and ideas important to children's art expression, relationship to adult expression, and significance in educational growth. (3 cred.; I-II MTWThF; J 109) Hastie
152. **Curriculum Building in Art Education.** Functions of art in society for educational potentialities toward social improvement. Selection, evaluation, and organization of subject matter for the purpose of creating original teaching units, projects, etc. (3 cred.; III MTWThF; J 109) Gayne
184. **Advanced Course in the Teaching and Supervision of Art in the Elementary School.** Improving current practices through critical evaluation and utilization of research findings and introduction of new materials. Development of closer cooperation between classroom teachers and art education specialists. (3 cred.; sr., grad.; IV MTWThF; J 109) Gayne
185. **Advanced Course in the Teaching of Art in the Secondary School.** For experienced teachers of art and advanced students planning to teach in secondary schools. Emphasis on general research and critical examination of high school art programs. (3 cred.; VI MTWThF; J 109) Hastie
295. **Problems in Art Education.** Individual specialization and creative projects selected. Projects may include advanced laboratory practice or technical solution of problems involving research or reading in a chosen field. Registration by special permission of major adviser. (Cred. ar.; ar.) Gayne, Hastie
296. **Seminar in Art Education.** Reports, evaluation of problems, recent literature. Participation by art education staff and guest specialists from related departments and from off campus. Open to advanced students in education. (No cred.; VII Th; J 105) Gayne, Hastie

Second Term

84. **Teaching Art in the Elementary School.** Place and content of art in elementary school curriculum. Methods for securing optimum educational outcomes from art activities. (3 cred.; prereq. 17, 18; III MTWThF; J 109) Gayne
295. **Problems in Art Education.** (See first term) Gayne

EDUCATIONAL ADMINISTRATION

First Term

GENERAL COURSES

124. **Public School Administration.** The organization, administration, and general support of public schools in state and local school districts. (3 cred.; sr.; prereq. 9 cred. in education; I MTWThF; NH 211) Davidson
210. **Financial Aspects of Public School Business Administration.** Financial program planning, budgeting, accounting, cost finding, income and expenditure control; and the preparation and analysis of financial reports. (3 cred.; prereq. 227; II MTWThF; F 3) Reeder
225. **Pupil Personnel Administration.** Child accounting records and reports, attendance department, school census, pupil adjustment and progress, pupil health and safety and legal aspects of pupil personnel administration. (3 cred.; prereq. 124; III MTWThF; P 110) Cramer
226. **School Plant Planning and Management.** Plant program planning and financing, including operation and maintenance of public school buildings. (3 cred.; prereq. 227; II MTWThF; JohH 313) Williams
227. **Teacher and Employee Administration.** Selection and placement of school employees, salary schedules, conditions of service, records and reports, and legal aspects of teacher and employee personnel administration. (3 cred.; prereq. 225; I MTWThF; F 213) Kearney
- 228.* **Special Problems in Educational Administration.** Designed primarily for superintendents and principals qualified to make intensive studies of specific problems related to the administration of a school system. (1-3 cred.; prereq. 225; II TTh; JohH 105) Neale, Domian
230. **Public Relations for Schools.** Theory and practice of educational interpretation. Principles involved; machinery and personnel; techniques of working with groups; the teacher's contacts with the community; the role of the pupil; professional and lay organization. (3 cred.; prereq. 225; III MTWThF; NH 211) Davidson
234. **Problems in State School Administration.** State legislative program; state aid; district reorganization; transportation; area vocational schools; and other problems of state school administration. A practicum intended primarily for school superintendents who have completed the work for a Master's degree with a major in school administration. (Limited to 35) (4 cred.; grad.; July 1 to 16; I-IV MTWThF; JohH 307, 309) Staff Members, Minnesota State Department of Education
235. **Seminar in Educational Administration.** Enrollment limited to candidates for Master's degrees under Plan A and candidates for Ph.D. degrees in educational administration. (No cred.; II W; JohH 105) Neale
236. **Field Study in Educational Administration.** This course is a part of the requirements for the certificate, Specialist in Education. The ten credits which may be earned in this course will be given on the basis of a written report covering an approved field study. Students may register for the general planning and organization of their field study without credit. (0-10 cred.; grad.; prereq. consent of instructor; ar.) Neale

ELEMENTARY EDUCATION

115. **Organization of the Elementary School.** Problems relating to the organization for instruction and classification of pupils in elementary schools with critical examination of current practices. (3 cred.; prereq. 9 cred. in education; I MTWThF; NH Aud) Cramer

SECONDARY EDUCATION

133. **Basic Procedures in Student Personnel Work.** (Also listed as Ed.Psy. 133)
(3 cred.; prereq. 9 cred. in education; III MTWThF)
Sec. 1 (for administrators), NH 213, Gerritz Sec. 2 (for counselors-teachers), NH 209, Laliberte
218. **Recent Literature in Secondary Education.** (Cred. ar.; VI-VII W; Bu 112) Bossing, R. Keller
264. **Administration of Instructional Activities in the Secondary School.** (3 cred.; II MTWThF; F 301) Fisher
265. **Administration of the Noninstructional Activities in the Secondary School.** (3 cred.; IV MTWThF; Bu 111) J. Anderson
- 270.* **Special Problems in Secondary Education.** (Cred. ar.; prereq. consent of instructor; VI-VII W; Bu 112) Bossing, R. Keller

HIGHER EDUCATION

274. **The Junior College.** (3 cred.; III MTWThF; F 3) R. Keller

Second Term

GENERAL COURSES

124. **Public School Administration.** (See first term) (I MTWThF; ForH 180) Davidson
210. **Financial Aspects of Public School Business Administration.** (See first term) (III MTWThF; F 107) Davidson
225. **Pupil Personnel Administration.** (See first term) (III MTWThF; JohH 122) Cramer
226. **School Plant Planning and Management.** (See first term) (II MTWThF; F 102) Williams
227. **Teacher and Employee Administration.** (See first term) (I MTWThF; F 2) Kearney
- 228.* **Special Problems in Educational Administration.** (See first term) (II Th; JohH 303) Neale, Domian
235. **Seminar in Educational Administration.** (See first term) (II T; F 208) Neale
236. **Field Study in Educational Administration.** (See first term) Neale

ELEMENTARY EDUCATION

115. **Organization of the Elementary School.** (See first term) (I MTWThF; JohH 113) Cramer

SECONDARY EDUCATION

133. **Basic Procedures in Student Personnel Work.** (See first term) (I MTWThF; NH 209) K. Hoyt
218. **Recent Literature in Secondary Education.** (See first term) (VII-VIII W; Bu 112) Bossing, R. Keller
263. **Organization of the Secondary School.** (3 cred.; IV MTWThF; Bu 111) J. Anderson
264. **Administration of Instructional Activities in the Secondary School.** (See first term) (II MTWThF; PeikH 175) Mitchell
- 270.* **Special Problems in Secondary Education.** (See first term) (VII-VIII W; Bu 112) Bossing, R. Keller

CURRICULUM AND INSTRUCTION

First Term

GENERAL COURSES

101. **Driver Education.** Materials and methods for driver education; building a plan for driver education for a specific school; behind-the-wheel training. Valid Minnesota driver's license required. Content planned to meet requirements of State Department of Education for driver education in the schools. (Limited to 32) (2 cred.; no prereq.; 1:00 to 5:00 p.m. June 21 to July 2; ForH 20, 30) Neal and ar.
105. **Audio-Visual Materials in Education.** (3 cred.; sr., grad.; I MTWTh and 1 hr. ar.; WeH 206) Pearson
106. **Coordinating an Audio-Visual Education Program.** (3 cred.; prereq. 105 or consent of instructor; III MTWThF; WeH 206) Pearson
107. **Radio and Television in Education.** (3 cred.; prereq. 9 cred. in education; III MTWThF; MurH 302) Tyler
117. **Rural Education for Administrators and Teachers.** (3 cred.; I MTWThF; JohH 105) Archer
129. **Principles and Problems of Teaching Social Hygiene.** Social hygiene or sex education in its broadest aspects; physical, sociological, and psychological. Methods of social hygiene education and integration of material with total health curriculum. Primarily for teachers. (Limited to 30) (3 cred.; prereq. 9 cred. in education; III MTWThF; SBH 360) Ferguson
145. **Reading Difficulties.** (3 cred.; prereq. course in reading or basic training in counseling or school psychological work; IV MTWThF; P 110) Tinker
171. **Curriculum Laboratory Practice.** A practice course in the analysis and construction of units, courses of study, and curricula according to needs, interests, level, and specialization. (3 cred.; prereq. 170A or B, consent of instructor; ar.) Bossing
- 174-175-176. **Clinical Methods and Practice in Speech Pathology.** (3 cred. each; prereq. Speech 61, 67, 119, 162, and 163 or concurrent registration; ar.) Bryngelson
188. **Language Auxilium.** Workshop on the problems of language teaching; relation to modern trends in language and culture analysis; current trends in methodology and motivation; application and evaluation of special materials; continuity from introductory to advanced levels of instruction. Limited to eighty participants, with scholarships available for language teachers in colleges, high schools, and elementary schools. See Foreign Language Auxilium under Special Programs. (6 cred.; prereq. consent of instructor; III, IV, VII, VIII MTWThF; OUHS 210) Birkmaier, Falk, Forbes, Mendel, and consultants
- 205.* **Problems in Audio-Visual Education.** (Cred. ar.; prereq. consent of instructor; ar.) Pearson
- 207.* **Problems in Radio and Television Education.** (1-3 cred.; prereq. 107; ar.) Tyler
- 271.* **Problems in Curriculum Construction.** (Cred. ar.; prereq. consent of instructor; ar.) Bossing, Boeck, Goossen, D. Johnson
- 273.* **Problems in Reading.** (Cred. ar.; prereq. 143 or 144 or consent of instructor; V T; Bu 103) Bond, Tinker

ELEMENTARY EDUCATION

102. **Teaching the Social Studies in the Elementary School.** (3 cred.; prereq. Ed. 71C or equiv.; III MTWThF; P 2) Jarolimek
103. **Teaching of Science in the Elementary School.** Emphasis on resources and materials, and their application to the elementary grades. (3 cred.; sr., grad.; prereq. Ed. 71A-B or teaching experience; III MTWThF; F 301) Boeck
119. **Elementary School Curriculum.** (3 cred.; prereq. Ed. 71C or equiv.)
 Sec. 1, I MTWThF, Bu 111, Jarolimek Sec. 2, II MTWThF, P 110, Goossen
121. **Selecting Literature for the Elementary School.** Course will deal with research backgrounds in curriculum units, children's interests in reading, difficulty of reading materials, and principles of selection and use of books in the elementary school. Opportunity will be given to survey books available and to apply the principles and information learned. Course is recommended for majors in reading, for elementary teachers with degrees who want to go beyond mere acquaintance with the field of children's books; and for those who have already graduated without needed background in children's literature. (3 cred.; I MTWThF; P 2) D. V. Smith
123. **Speech in the Elementary School.** Lectures; discussion; individual projects. The role of the elementary teacher in the promotion of good speech, the prevention of speech problems, and the handling of speech defects. Projects related to the teacher's own teaching situation. (3 cred.; sr.; no prereq.; I MTWThF; F 2) Henrikson
143. **Teaching and Supervision of Reading in the Elementary School.** (3 cred.; prereq. 9 cred. in education; II MTWThF; NH 211) Bond
150. **Supervision and Improvement of Instruction.** (3 cred.; prereq. Ed. 71C or equiv.; IV MTWThF; NH 211) Goossen
162. **Laboratory in Nursery School and Kindergarten Instructional Practices.** Open to experienced teachers; other professional workers admitted by special permission. (3 cred.; IV MWF and hrs. ar.; OUHS 212) Fuller
163. **Plastic Materials, Story Telling, and Social Studies for Young Children.** Open to experienced teachers; other professional workers admitted by special permission. (3 cred; VI MTWThF and observation hrs. ar.; OUHS 105-106) Headley
186. **Laboratory in Elementary Instructional Practices.** Daily observation of elementary classes with discussion of techniques, emphasis on activity units, visual aids, enriched materials, individual differences, and socialized situations. Students enrolling in this course must carry at least one other course in the College of Education. (2 cred.; experienced teachers only; observation 4 hrs. weekly ar. MTWThF, Tuttle School; lect. VI WTh, NH 216) Staudenmaier
240. **Improvement of Instruction in the Elementary School.** A graduate practicum intended for those who have a Master's degree in School Administration; study of current programs and procedures in the improvement of instruction in the elementary school; examination of current research on instructional methods in the major instructional fields; planning programs for the improvement of instruction; instructional materials. (4 cred.; grad.; June 14 to 30; I-IV MTWThF; JohH 307, 309) Fay, Wardeberg
- 261.* **Special Problems in the Improvement of Instruction.** (Cred. ar.; prereq. consent of instructor; ar.) Goossen

SECONDARY EDUCATION

113. **High School Curriculum.** (3 cred.; prereq. Ed. 55A-B or equiv.; II MTWThF; OUHS 210) Bossing
122. **Literature for Adolescents.** (3 cred.; prereq. Ed. 55B or junior-senior high school teaching experience; I MTWThF; NH 216) Alm
125. **Occupational Information Laboratory.** (Limited to 25) (3 cred.; prereq. consent of instructor; I MTWThF; NH 122) Borow
131. **Advanced Course in Teaching the Technical Business Subjects.** Recent research and trends in teaching the technical business subjects. (3 cred.; II MTWThF; Bu 112) Finch
132. **Teaching the Basic Business Subjects.** Recent trends and developments in teaching junior business training, economic geography, marketing, business law, consumer education, and bookkeeping. (3 cred.; I MTWThF; Bu 103) Price
134. **Materials and Methods in Consumer Education.** Development of teaching units, emphasis on teaching methods, and recent aids and materials. (3 cred.; prereq. consent of instructor; III MTWThF; Bu 103) Price
135. **Group Procedures in Guidance.** (Limited to 35) (3 cred.; prereq. 9 cred. in education, Ed.Psy. 133 or consent of instructor; IV MTWThF; F 3) K. Hoyt
- 137A. **Materials and Methods in Cooperative Part-Time Classes.** Related vocational materials and methods for cooperative part-time distributive, office, miscellaneous trades and diversified occupations classes. (3 cred.; II MTWThF; Bu 103) Meyer
139. **Coordination Techniques.** Practical problems encountered by the coordinator in his daily work concerning the cooperative part-time program. Guidance and selection; placing students in work stations; assisting adjustments; developing the training program. (3 cred.; IV MTWThF; Bu 103) Meyer
140. **Teaching of Speech.** (3 cred.; jr., sr., grad.; prereq. Speech 1-2-3 or Speech 5-6 or equiv. or consent of instructor; II MTWThF; F 304) D. K. Smith
144. **Teaching of Reading in Secondary Schools.** (3 cred.; prereq. 9 cred. in education; II MTWThF; F 5) Tinker
147. **Workshop in Teaching Display.** A two-week workshop for coordinator-instructors of occupational part-time programs in high schools and junior colleges. Content includes interior display, window display, and showcard writing. Workshop members will have practice in using flannel board, peg board, Deca Pole, mannequins, show cases, and other display equipment. Lectures and demonstrations by display artists and trips to display departments and fixture distributors will be arranged. Class members will take home units of instruction in display for use in the classroom. (Limited to 20) (2 cred.; 1:30 to 4:00 p.m., June 21 to July 2; Bu 103) E. Nelson
155. **Materials Laboratory for Social Studies Teachers.** (3 cred.; prereq. consent of instructor; IV MTWThF; JohH 314) McCune
161. **Curriculum Construction in Business Education.** (3 cred.; prereq. 113; III MTWThF; JohH 313) Finch
- 173B. **Organizing Units of Instruction in the Secondary School.** (3 cred.; prereq. 113 or consent of instructor; I MTWThF; NH 107) Bossing
192. **Mathematics Laboratory.** A study of the sources and types of materials, laboratory projects and techniques of using mathematical devices and instruments, visual aids, and community resources. (3 cred.; prereq. graduate student or experienced teacher; IV MTWThF and V TTh; PeikH 315) D. Johnson

- 199E. **Internship.** (Cred. ar.; available for M.Ed. students in recreation; ar.) Fitzgerald
- 201.* **Problems in Teaching the Social Studies.** (Cred. ar.; prereq. 168, 204 or consent of instructor; ar.) McCune
- 225.* **Special Problems in Supervision of Instruction in Secondary Schools.** (Cred. ar.; prereq. consent of instructor; VI-VII W; Bu 112) R. Keller
- 238.* **Problems in Distributive Education.** (Cred. ar.; prereq. consent of instructor; ar.) Meyer
- 239.* **Problems in Business Education.** (Cred. ar.; prereq. consent of instructor; ar.) Price
266. **Supervision of High School Instruction.** (3 cred.; prereq. Ed.Psy. 293 or consent of instructor; III MTWThF; P 210) Fisher
- 287.* **Advanced Course in the Teaching of Science.** (3 cred.; grad.; IV MTWThF; PeikH 375) Boeck
- 294.* **Advanced Course in Curriculum and Methods in Secondary School English.** (3 cred.; prereq. Ed.T. 75A-B-C or equiv.; II MTWThF; NH 216) D. V. Smith
- 296.* **Special Problems in Teaching English.** (Cred. ar.; ar.) D. V. Smith

HIGHER EDUCATION

- 228.*§ **Workshop: Problems of Higher Education and Teacher Education.** (6 cred.; grad.; June 14 to July 9; ar. MTWThF; CCS) Cooper, Eckert, Mork, Stecklein, Stevens, Furrow, and consultants
250. **Higher Education in the United States.** (3 cred.; prereq. a year of graduate study in any field or 18 cred. in education; IV MTWThF; JohH 105) Eckert
251. **Curriculum Trends in American Colleges.** (3 cred.; prereq. a year of graduate study in any field or 18 cred. in education; 1:30 to 3:00 p.m. MWF; JohH 105) Eckert
252. **Effective College Teaching.** (3 cred.; prereq. a year of graduate study in any field or 18 cred. in education; I MTWThF; JohH 303) McCune

Second Term

GENERAL COURSES

101. **Driver Education.** (See first term) (1:00 to 5:00 p.m. August 2 to 13; ForH 20, 30) Neal and ar.
105. **Audio-Visual Materials in Education.** (See first term) (I MTWTh and 1 hr. ar.; WeH 206) Pearson
109. **Audio-Visual Materials and Equipment Laboratory.** (Limited to 30) (3 cred.; prereq. 105 or concurrent registration or consent of instructor; II MTWThF; WeH 206) Pearson
133. **Consumer Education in the Schools.** (3 cred.; II MTWThF; Bu 103) Price
145. **Reading Difficulties.** (See first term) (IV MTWThF; NH 207) Reynolds
151. **Diagnosis and Treatment of Learning Difficulties.** (3 cred.; VI MTWThF; Bu 111) Clymer
171. **Curriculum Laboratory Practice.** (See first term) Bossing

§ Graduate students planning to register for any workshop should consult their advisers concerning the possibility of using credit for the workshop in their graduate program.

- 205.* Problems in Audio-Visual Education.** (See first term) Pearson
271.* Problems in Curriculum Construction. (See first term) Bossing, Goossen
273.* Problems in Reading. (See first term) (V T; Bu 103) Reynolds, Clymer

ELEMENTARY EDUCATION

- 102. Teaching the Social Studies in the Elementary School.** (See first term) (I MTWThF; P 210) Jarolimek
103. Teaching of Science in the Elementary School. (See first term) (IV MTWThF; PeikH 375) Goossen
119. Elementary School Curriculum. (See first term) (II MTWThF; F 3) Jarolimek
143. Teaching and Supervision of Reading in the Elementary School. (See first term) (III MTWThF; NH 209) Clymer
146. Current Developments in Language Expression in the Elementary School. (3 cred.; prereq. Ed. 71C or equiv.; IV MTWThF; Bu 112) Archer
149. Teaching and Supervision of Arithmetic in the Elementary School. (3 cred.; prereq. Ed. 71C or equiv.; not open to those with credit in 62A or B; II MTWThF; JohH 114) Curtis
150. Supervision and Improvement of Instruction. (See first term) (IV MTWThF; F 308) Goossen
261.* Special Problems in the Improvement of Instruction. (See first term) Goossen

SECONDARY EDUCATION

- 113. High School Curriculum.** (See first term) (II MTWThF; FraH 102) Bossing
135. Group Procedures in Guidance. (See first term) (III MTWThF; F 102) K. Hoyt
144. Teaching of Reading in Secondary Schools. (See first term) (II MTWThF; NH 207) Alm
156. Trends in Business Education. (3 cred.; IV MTWThF; Bu 103) Price
168. Current Developments in the Social Studies. (3 cred.; grad.; IV MTWThF; JohH 115) McCune
170B. Curriculum and Course of Study Construction. (3 cred.; prereq. 113 or 119 or consent of instructor; I MTWThF; JohH 303) Bossing
201.* Problems in Teaching the Social Studies. (See first term) McCune
225.* Special Problems in Supervision of Instruction in Secondary Schools. (See first term) (VII-VIII W; Bu 112) R. Keller
239.* Problems in Business Education. (See first term) Price
266. Supervision of High School Instruction. (See first term) (III MTWThF; Bu 111) R. Keller

HIGHER EDUCATION

- 228.*§ Workshop: Problems of Higher Education and Teacher Education.** (See first term) (July 26 to August 20; ar. MTWThF; CCS) Grim, D. Johnson, Travis, and consultants

§ Graduate students planning to register for any workshop should consult their advisers concerning the possibility of using credit for the workshop in their graduate program.

EDUCATIONAL PSYCHOLOGY

First Term

GENERAL COURSES

100. **Individual Appraisal for Counseling.** (3 cred.; prereq. 9 cred. in education; III MTWThF; Bu 111) K. Hoyt
120. **Basic Principles of Measurement.** (3 cred.; VII MTWThF; NH 211) D. Johnson
125. **Group Dynamics in Education.** (Limited to 30) (3 cred.; sr., grad.; VI-VII TWTh; JohH 303) Flanders
140. **Instruments and Techniques of Measurement.** (3 cred.; sr., grad.; prereq. 120 or equiv.; III MTWThF and IV ThF; Bu 112) Edson
150. **Clinical Practice in Remedial Teaching.** Practice in remedial tutoring of individual children who have experienced difficulty in school learning. (3 cred.; prereq. Ed.C.I. 145 or 151 and consent of instructor; II and III MTWThF and 1 hr. ar.; Pt 108) Bond, Reynolds
151. **Clinical Practice in Educational Diagnosis.** Practice in diagnosis of school learning problems. Includes measurement, interview technique, preparation of case reports, etc. Work with children referred to the Psycho-Educational Clinic. (3 cred.; prereq. 142 or Ed.C.I. 145 and consent of instructor; 1:00 to 4:00 p.m. MTWThF; Pt 108) Reynolds
159. **Personality Development and Mental Hygiene.** (3 cred.; I MTWThF; WuH 202) Jones
182. **Education of Exceptional Children.** Overview of the field of special education. Especially for classroom teachers, counselors, supervisors, and administrators; also the initial course for students working for special class certificates. Reports on individual work equivalent to one credit. (3 cred.; prereq. Ed. 55B or 71C or equiv.; VI MTWThF; JohH 313) Reynolds
- 208.* **Methods in Educational Research.** A study of the methods and techniques employed in the investigation and report of educational problems. Suggested for all candidates for graduate degrees. (3 cred.; grad.; II MTWThF; Bu 111) P. O. Johnson
216. **Statistical Methods in Education.** (3 cred.; grad.; I MTWThF; Bu 112) P. O. Johnson, Moonan
- 216a. **Statistical Methods in Education—Laboratory.** (Limited to 15) (2 cred.; VII-VIII MWF; Bu 221) Moonan
225. **Diagnosis as a Phase of Counseling.** (3 cred.; prereq. 140 or consent of instructor and 133 or Psy. 130; IV MTWThF; JohH 313) Borow
- 233.* **Problems in Guidance and Personnel Work.** (Cred. ar.; ar.) Dugan, Edson
- 253.* **Research Problems.** (Cred. ar.; prereq. consent of instructor; ar.) Dugan, P. O. Johnson, Edson, Flanders, Mork, Reynolds
290. **Individual Differences.** (3 cred.; IV MTWThF; JohH 306) Flanders
- 293.* **Psychology of Learning.** (3 cred.; prereq. 12 cred. in psychology and educational psychology; VI MTWThF; NH 211) Mork

SECONDARY EDUCATION

133. **Basic Procedures in Student Personnel Work.** (Also listed as Ed.Ad. 133) (3 cred.; prereq. 9 cred. in education; III MTWThF)

Sec. 1 (for administrators), NH 213,
Gerritz

Sec. 2 (for counselors-teachers), NH 209,
Laliberte

134. **School Counseling Procedures.** (Limited to 30) (3 cred.; prereq. 120, 133 and consent of instructor; II MTWThF; JohH 115) Dugan
282. **Practice in High School Personnel Work.** (3 cred.; prereq. consent of instructor; ar.) Dugan

Second Term

GENERAL COURSES

116. **Introduction to Statistical Methods in Education.** (3 cred.; III MTWThF; NH 213) C. Hoyt
- 116a. **Introduction to Statistical Methods in Education—Laboratory.** (Limited to 15) (2 cred.; prereq. concurrent registration 116; V-VI MWF; Bu 221) Moonan
120. **Basic Principles of Measurement.** (See first term) (IV MTWThF; NH 211) C. Hoyt
150. **Clinical Practice in Remedial Teaching.** (See first term) (II and III MTWThF and 1 hr. ar.; Pt 108) Reynolds, Clymer
151. **Clinical Practice in Educational Diagnosis.** (See first term) (1:00 to 4:00 p.m. MTWThF; Pt 108) Reynolds
159. **Personality Development and Mental Hygiene.** (See first term) (II MTWThF; NH 211) Jones
217. **Statistical Methods in Education.** (3 cred.; grad.; I MTWThF; Bu 111) Moonan
- 217a. **Statistical Methods in Education—Laboratory.** (Limited to 15) (2 cred.; VII-VIII MWF; Bu 221) Moonan
- 226.* **Interviewing Procedures in Counseling.** (3 cred.; prereq. 140, 133 or 250, or Psychology 130 and 225 or equiv.; III MTWThF; NH-107) Wrenn
- 233.* **Problems in Guidance and Personnel Work.** (See first term) Dugan, Wrenn
- 253.* **Research Problems.** (See first term) Dugan, Wrenn, C. Hoyt, D. Johnson, Reynolds
- 293.* **Psychology of Learning.** (See first term) (VI MTWThF; NH 211) D. Johnson

SECONDARY EDUCATION

133. **Basic Procedures in Student Personnel Work.** (See first term) (I MTWThF; NH 209) K. Hoyt
134. **School Counseling Procedures.** (See first term) (I MTWThF; JohH 115) Dugan

HISTORY AND PHILOSOPHY OF EDUCATION

First Term

141. **Critical Issues in Contemporary Education.** (3 cred.; II MTWThF; NH 209) Beck
156. **History of Ideas in American Education.** The study of selected readings in American political, economic, and social development with special reference to an emerging system of public education. (3 cred.; IV MTWThF; F 2) Ellis
180. **The School and Society.** (Limited to 60 in each section) (3 cred.; sr.; pre-req. Ed. 55A-B or 71A-B-C)

Sec. 1, III MTWThF, F 204, Beck

Sec. 2, VI MTWThF, JohH 115, Ellis

- 241.* **Problems in the History and Philosophy of Education.** (Cred. ar.; pre-req. consent of instructor; ar.) Beck, Ellis

Second Term

131. **Comparative Education.** (3 cred.; III MTWThF; NH 211) Beck
 180. **The School and Society.** (See first term) (II MTWThF; NH 209) Beck
 241.* **Problems in the History and Philosophy of Education.** (See first term) Beck

HOME ECONOMICS EDUCATION

First Term

191. **Advanced Course in the Teaching of Home Economics.** A study of materials, equipment, and teaching procedures based on newer concepts of learning and changing social and economic needs of families. The course offers the inexperienced teacher an opportunity to study problems related to her own situation at the secondary or higher educational level. (3 cred.; sr., grad.; prereq. 91, 93, or consent of instructor; IV MTWThF; HE 103) Ford
195. **Space, Equipment, Furnishings, and Materials for Home Economics Departments.** Study of remodeling old and planning new departments, and equipping and furnishing them. Review of research; investigation of special problems. Designed for graduate students and adult specials, but open to seniors by consent of instructor. (3 cred.; prereq. 91, 93, H.E. 49; VI MTWThF; HE 103) Ford
243. **Trends in Home Economics.** The place of home economics in the educational program today; the ways in which content and procedures are being modified to meet changing conditions. (3 cred.; grad.; prereq. consent of instructor; II MTWThF; HE 129) Rose
- 293.* **Problems in Home Economics Education.** Designed to meet the needs of advanced students for independent study of current educational problems. (Cred. ar.; grad.; prereq. 294 recommended, consent of instructor; ar.; HE 129) Rose

INDUSTRIAL EDUCATION

First Term

101. **Tests in Industrial Subjects.** Study and application of principles of evaluation with emphasis on shop and drawing subjects. (3 cred.; prereq. Ed. 55B, jr., sr., grad.; II MTWThF; TNUH 113) Micheels, Nelson
106. **Industrial Education Workshop—Project Design and Development.** A laboratory course for experienced teachers. Out of the design and construction activities of the workshop will come a better understanding of the philosophy and approach of modern industrial designers. Workshop members will pool their efforts and take with them a duplicated and bound kit of project ideas. (3-6 cred.; prereq. teaching experience or consent of instructor; III-IV and VI-VII MTWThF; TNUH 1) Tinkham
109. **Conference Leading for Industry.** Purposes, advantages, and limitations of conference method. Instruction in techniques of conference procedure. Experience in planning, leading and evaluating conferences and in writing summaries. (3 cred.; prereq. consent of instructor; III MTWThF; TNUH 116) Widdowson

- 111. Instructional Materials Laboratory for Non-Majors.** A laboratory and activity course for experienced elementary teachers, recreation leaders and others needing manipulative skills and craftwork activities in their teaching; individual and group projects, study of instructional materials. (3 cred.; prereq. teaching experience or consent of instructor; III-IV MTWThF; TNUH 14) Nelson
- 115. Supervision of Industrial Education.** Principles of creative supervision applied in industrial teaching; analysis of duties, organization for supervision. (3 cred.; prereq. 60, 80, or 105; I MTWThF; TNUH 113) Widowson
- 200.* Research Problems.** (3-6-9 cred.; prereq. approval of candidacy for Master's degree; individual conferences with advisers) Micheels, Nelson

Second Term

- 136. Instructional Materials Laboratory.** Designed for two purposes: (1) to provide intensive shop and laboratory experience relating to new materials, processes and equipment, and (2) to provide assistance in the development of complementary instructional materials by individual teachers. Three areas of industrial arts will be stressed: metal work, graphic arts, and crafts. During the first week the participants will spend full time (all day) in concentrated laboratory and shop activities related to the metals industry. The second and third weeks will be conducted similarly for graphic arts and crafts activities. The fourth and fifth weeks will be spent in completing individual instructional materials projects growing out of the concentrated laboratory experiences (instruction sheets, teaching aids, teaching guides, etc.). A person enrolling for only 3 credits will select the one week of concentrated activity which interests him most and will spend the last two weeks working on an individual basis with departmental advisers. Those enrolling for 6 or 9 credits similarly will select two or three of the areas for concentration. (3-6-9 cred.; prereq. teaching experience or consent of instructor; TNUH) Micheels, Nelson, and staff
- 200.* Research Problems.** (See first term) Micheels, Nelson

METHODS AND STUDENT TEACHING

First Term

NURSING EDUCATION

- Ed.T.51A. The Teaching of Nursing.** (2 cred.; prereq. Ed. 55B or 55N; open only to students who will also be registered for 2 cred. in this course in the second term; see instructor; VI MWF; TSP 207) Boyle, Norris

ELEMENTARY EDUCATION

- Ed.T.77.† Student Teaching in the Nursery School.** Five half-days each week spent in classroom participation under supervision. (3 cred.; sr., prereq. 55, 56, 57, and 58 plus consent of instructor; ar.) Fuller
- Ed.T.78.† Student Teaching in the Kindergarten.** Five half-days each week spent in classroom participation under supervision. (3 cred.; sr.; prereq. 55, 57, 58, and 59 plus consent of instructor; ar.) Headley

† Students registering for this course must make out the application required for methods courses and student teaching. Forms are available in the office of the director of student teaching, 210C Burton Hall.

SECONDARY EDUCATION

- Ed.T.52.† Student Teaching.** Open only to students who need a limited number of credits in student teaching to graduate at the end of the first summer term or to students who wish to qualify for the junior high school endorsement. (Limited to 40) (Cred. ar.; ar.; PeikH) Grim
- Ed.T.84A-B-C. Practice and Field Work in Recreation Leadership.** (2 cred.; prereq. recreation major; ar.; ar.) Fitzgerald
- Ed.T.85A-B-C. Practice and Field Work in Recreation.** (2 cred. for majors, 1 cred. for minors; prereq. recreation majors or minors; ar.; ar.) Fitzgerald

Second Term

NURSING EDUCATION

- Ed.T.51A. The Teaching of Nursing.** (See first term) (VI MWF; TSP 207) Boyle, Norris

MUSIC EDUCATION

First Term

- 51. Teaching of Music.** For nonmusic majors. Appreciation, music history, methods, materials. (3 cred.; prereq. Mu. 1; I MTWThF; ScH 104) Caswell
- 60†-61-62. Supervision and Teaching of Music.** (3 cred.; sr.; prereq. 50B, 53, Ed. 55B, consent of instructor; VI-VII T; ScH 4) Ivory
- 64. Band Organization.** Organization, promotion, curriculum, administration, equipment, and other problems of the school band. (3 cred.; prereq. 4-5-6, consent of instructor; III MTWThF; NMA 4) Sperry
- 104. Advanced Topics in Vocal Music Education.** Designed for experienced teachers and qualified students. (3 cred.; sr.; prereq. consent of instructor; III MTWThF; ScH 4) Caswell
- 160. Organization and Supervision of Vocal-Instrumental Music in Secondary Schools.** Practical problems in secondary school music; individual projects, group activities, general discussions; classroom management, techniques of supervision, scheduling, unit construction, instruments, repertory, others. (3 cred.; sr.; prereq. 6 cred. in music education, 9 cred. in music and 6 cred. in general education; II MTWThF; ScH 4) Ivory, Caswell
- 224. Research Problems.** (3-9 cred.; grad.; prereq. consent of instructor; VII WF; ScH 104) Ivory, Caswell
- 225E. Advanced Applied Music.** (2-4 cred.; prereq. entrance exam.; ar.; ScH 107) Ar.

Second Term

- 52. Teaching of Music.** For nonmusic majors. Appreciation, music history, methods, materials. (3 cred.; prereq. 51; III MTWThF; ScH 103) Ivory
- 105. Advanced Topics in Instrumental Music Education.** Designed for experienced teachers and qualified students. (3 cred.; sr.; prereq. consent of instructor; II MTWThF; ScH 4) Ivory
- 224. Research Problems.** (See first term) (V MW; ScH 104) Ivory
- 225E. Advanced Applied Music.** (See first term) Ar.

† Students registering for this course must make out the application required for methods courses and student teaching. Forms are available in the office of the director of student teaching, 210C Burton Hall.

PHYSICAL EDUCATION FOR MEN

First Term

- Phys.Ed.1C. Beginning Golf.** (1 cred.; no prereq.; V-VI MWF; Golf Course) Bolstad
- Phys.Ed.2C. Advanced Golf.** (1 cred.; no prereq.; V-VI TThF; Golf Course) Bolstad
- Phys.Ed.5A. Touchball, 6-Man Football, Conditioning Drills, Tactics.** (1 cred.; no prereq.; II MTWThF; CH) Shawbold
- Phys.Ed.5B. Apparatus Gymnastics and Tumbling.** (1 cred.; no prereq.; III MTWThF; CH) Shawbold
- Phys.Ed.6C. Aquatics (Swimming and Diving).** (1 cred.; prereq. ability to swim 100 yards; VI MTWThF; CH) Piper
- Phys.Ed.9A. Folk Dancing.** (1 cred.; no prereq.; V MTWThF; NGW) Piper
- Phys.Ed.65. Adapted Physical Education Program.** Philosophy, principles and techniques of adapting the physical education program to the needs of handicapped students. (3 cred.; prereq. Anat. 57 or 50, 51; II MTWThF; CH) Osell
- Phys.Ed.73†-74-75. Directed Teaching in Physical Education.** Actual practice in teaching physical education activities. (2 cred. each; prereq. 55, Ed. 55A-B, junior comprehensive tests, C plus average in major courses, and consent of director of student teaching in the College of Education; 10 to 12 hours a week ar.; CH 220) Piper
- Phys.Ed.101. Principles of Physical Education.** A study of the aims, scope, and biological aspects of physical education with special consideration of the place of physical activity in education. (3 cred.; jr., sr., grad.; prereq. 32, 55, and 9 cred. of activity courses; I MTWThF; CH) Keller
- Phys.Ed.110. Recreation Surveys.** Methods and techniques of conducting recreation surveys. (3 cred.; sr., grad.; VI MTWThF; CH) Fitzgerald
- Phys.Ed.135. Tests and Measurements in Physical Education.** Analysis of physical education tests, methods of testing, use of results. (3 cred.; prereq. sr. or grad.; II MTWThF; CH) Keller
- Phys.Ed.224.* Research Problems in Health Education, Physical Education and Recreation.** Independent study on problems selected by students and approved by instructor. Conferences of individual students with instructor. (Cred. ar.; prereq. consent of instructor; CH) Keller, Nordly, Piper, Fitzgerald
- Phys.Ed.244. Problems in the Construction and Administration of the Physical Education Curriculum.** The application of principles of curriculum construction to physical education. Problems encountered in the attainment of objectives in the several phases of the program. (6 cred.; prereq. 63, 101 or equiv.; III-IV MTWThF; CH) Nordly

Second Term

- Phys.Ed.2A. Beginning and Intermediate Swimming.** (1 cred.; no prereq.; VI MTWThF; CH) Piper
- Phys.Ed.8. Tennis and Golf.** (1 cred.; no prereq.; II-III MWF; CH) Piper, Bolstad

† Students registering for this course must make out the application required for methods courses and student teaching. Forms are available in the office of the director of student teaching, 210C Burton Hall.

- Phys.Ed.9B. Square and Social Dancing.** (1 cred.; no prereq.; VII MTW; VIII-IX Th; NGW) Piper
- Phys.Ed.111. Recreation Areas and Facilities.** Latest material on recreation facilities and areas. Problems of maintenance, equipment standards, and purchasing of supplies and equipment. (3 cred.; sr., grad.; II MTWThF; CH) Fitzgerald
- Phys.Ed.155. Instructional Aids in Health, Physical Education, and Recreation.** A survey and evaluation of instructional materials in these fields with emphasis on audio-visual aids; lecture and laboratory. (3 cred.; sr., grad.; IV-V MTWThF first 4 weeks; CH) Piper
- Phys.Ed.224.* Research Problems in Health Education, Physical Education, and Recreation.** (See first term) Keller, Nordly, Piper, Fitzgerald
- Phys.Ed.236. Recent Literature and Research in Physical Education and Recreation.** Research methods applied to physical education and recreation; preparation of designs for research problems. (3 cred.; grad.; I MTWThF; CH) Nordly
- Phys.Ed.241. The Administration and Supervision of Public Recreation.** The organization for recreation; policies and procedures relating to finance, program, facilities, office management, legislation, and public relations. (3 cred.; grad.; III MTWThF; CH) Fitzgerald
- Phys.Ed.261A. Seminar in Contemporary Problems in Physical Education.** Presentation of problems by class members; readings, discussions, problems selected for individual study. (3 cred.; grad.; II MTWThF; CH) Nordly

PHYSICAL EDUCATION FOR WOMEN

Physical Examination

It is recommended that every woman student avail herself of the opportunity offered by the Students' Health Service for a physical examination. Everyone, but especially a teacher, should know her health status. The Department of Physical Education for Women strongly urges every person to make an appointment for a physical examination at the Health Service. Health Service approval must be secured for participation in activity classes.

Fees

The rental fee for suits and towels for open swimming is 20 cents. There will be a nominal fee charged for the use of the tennis courts and the golf course. Towels for shower baths may be procured from the matron for 10 cents apiece.

Facilities for Recreation

The swimming pool is open for recreational use from 2:45 to 4:30 during the first term and from 1:00 to 2:30 during the second term. At these times also the facilities of Norris Gymnasium for Women are open to women for individual practice; inquire in the main office concerning the procedure.

The University tennis courts and golf course are open to students at a nominal fee.

Teaching Qualifications

Those interested in teaching physical education in the state of Minnesota must qualify in one of the following professional programs:

1. Courses applying this summer to the state minor in physical education are: Phys.Ed. 13, 18, 37, 117 (by petition).

2. Courses applying this summer to the undergraduate major in physical education are: Phys.Ed. 13, 18, 33, 37, 117 (by petition).
3. Courses applying to advanced and graduate degrees with a major in physical education are: Phys.Ed. 117, 118, 124, 125, 130, 224.

First Term

- Phys.Ed.7. Tennis for Beginners.** Open to those with little or no experience in tennis. Instruction will include the service, forehand drive, backhand drive, rules and etiquette of the game. Individual coaching will be stressed. Students are required to furnish own rackets and balls. (Limited to 20) (1 cred.; no prereq.; V MTWTh; NGW 151) Ar.
- Phys.Ed.8. Golf for Beginners.** This course is open to those with little or no experience in golf. The fundamental strokes and individual analysis of the player's game are stressed along with the rules and etiquette of the game. (Limited to 20) (1 cred.; no prereq.; III MTWTh; NGW 60) Ar.
- Phys.Ed.13. Tumbling, Stunts, Pyramids, and Methods.** Instruction and practice in technique of individual, companion, and group tumbling and stunts with progression from elementary through high school level. Discussion and application of principles underlying pyramid building. A unit in introductory trampoline skills will be featured. Teaching methods appropriate to this activity area will be discussed and experienced. (2 cred.; no prereq.; practical work II MWF, lect. II TTh; NGW 153) Wilson
- Phys.Ed.18. Elementary Folk Dancing, Games, and Methods.** Graded folk dances and games usable at the elementary and secondary levels; teaching methods suited to the different age levels and the content will be discussed and experienced. (2 cred.; no prereq.; practical work V MWF, lect. V TTh; NGW 151) Ar.
- Phys.Ed.32.† Elementary Swimming.** For those who are unable to swim in deep water. Instruction includes: orientation activities, water safety skills, crawl, side stroke, backstroke, and diving. (1 cred.; no prereq.; VI MTWTh; NGW 58) Ar.
- Phys.Ed.33.† Intermediate Swimming and Methods.** For those who can swim in deep water. Instruction includes: the crawl, side stroke, back crawl, breast stroke, personal water safety skills, diving. The class will be divided into groups according to ability, interests, and experience of the swimmers. Methods will be treated from the standpoints of high school and college groups. (2 cred.; prereq. consent of instructor; VII MTWThF; NGW 58) Eibner
- Phys.Ed.37. Individual and Dual Games and Methods.** Deals with the various methods and techniques suitable for the teaching of the individual sports. The needs of the class determine the sports emphasized: archery, badminton, bowling, golf, tennis, and recreational sports. Consideration of group methods adaptable to the organization and teaching of these activities on the junior and senior high school levels. (2 cred.; no prereq.; practical work IV MWF, lect. IV TTh; NGW 153) Jaeger
- Phys.Ed.118E.§ Problems in Teacher Education in Health, Physical Education, and Recreation.** For M.Ed. students who are interested in participating in the conduct and development of professional teacher education programs in the fields of school health education, physical education, and the recreational function of physical education. Individual projects and conferences. (3 cred.; prereq. consent of graduate advisers) Staff

† Health Service approval must be secured for participation in this course.

§ Courses marked "E" carry credit toward the degree of master of education.

- Phys.Ed.124. Supervision of Physical Education.** Presents a consideration of the function, organization, and administration of supervision in physical education; adaptations of accepted procedures for observation, guidance, and training of teachers in the field; standards for qualifications of supervisors; problems peculiar to supervision of physical education. (3 cred.; II MTWThF; NGW 3) Baker
- Phys.Ed.125. Curriculum Trends in the Professional Preparation of Teachers of Physical Education.** A study of current needs and issues, philosophy and objectives, present trends, characteristic curricular patterns and standards for the professional education curriculum. (3 cred.; sr., grad.; prereq. teaching experience or consent of instructor; VI MTWThF; NGW 3) Jaeger
- Phys.Ed.130. Contribution of Basic Sciences to Physical Education.** A course planned to provide stimulation and assistance to the student in the understanding of recent research in basic sciences pertinent to physical education and in the interpretation, integration, and wider application of the scientific principles derived from these sciences. Intensive exploration of at least one topic and its relationship to physical education by each student. (3 cred.; grad.; prereq. consent of instructor; I MTWThF; NGW 3) Wilson
- Phys.Ed.224.* Research Problems in School Health Education, Physical Education, and Recreation.** Individual problems and conferences. (Cred. ar.; consent of graduate advisers)

Second Term

- Phys.Ed.12. Social Recreation—Ballroom and American Country Dance.** Ballroom dance skills and country dances selected for use in high school teaching. Simple mixers for social groups will be included. (1 cred.; no prereq.; VII MTW, VIII-IX Th; NGW 151) Ar.
- Phys.Ed.117. Advanced Course in School Health Instruction.** Instructional problems in school health education at all levels. Application of course to individual problems. (3 cred.; prereq. 83, or consent of instructor; IV MTWThF; NGW 201) Slocum
- Phys.Ed.118E.§ Problems in Teacher Education in Health, Physical Education, and Recreation.** (See first term)
- Phys.Ed.224.* Research Problems in School Health Education, Physical Education, and Recreation.** (See first term)

GENERAL COLLEGE

Admission to the General College requires graduation from an accredited high school or satisfactory performance on university entrance tests, but no specific pattern of high school subjects is required. The college offers a program of general education which provides a background for adult activities. Students who do not qualify for admission to other colleges of the University because of inadequate preparation or poor high school record may also demonstrate their ability to handle work of college caliber through a careful selection of courses in the General College. Students who successfully demonstrate their ability may make application to transfer to another college of the University without undue loss of time or credit.

The degree of associate in arts is conferred by the University upon students who successfully complete a two-year program in the General College.

The regular *Bulletin of the General College*, which may be received upon request from the Office of Admissions and Records of the University, indicates in detail the requirements for the associate in arts degree, general regulations, and additional general information. All students entering the General College for the first time are required to take an over-all comprehensive examination, the results of which will be useful to the student and his adviser in planning his program for subsequent quarters.

For more complete description of the courses during the summer terms, see the regular *Bulletin of the General College*.

First Term

3. **Home Life Orientation.** Consideration of the biological, psychological, and sociological foundations of family life. Discussion of adjustment and human relations in present and future home life and factors associated with success or failure in marriage. (3 cred.; all; no prereq.; IV MTWThF; NH 207) Anderson
- 10A. **Human Biology: The Fundamental Similarities in the Living World.** A study of the variety and relationship of living organisms serves to illustrate the general principles in biology. Special emphasis is given to man's place in the world of living organisms. Man's embryonic development, heredity, racial characteristics, and evolution are considered. Films and demonstration laboratories supplement the lectures. (3 cred.; all; no prereq.; II MTWThF; NH 213) Cieslak
- 23A. **Art Laboratory.** Provides the student with a variety of art experiences. Problems may be selected according to individual needs and interests. Laboratory work is supplemented with readings, discussion, lectures, and field trips. (3 cred.; all; no prereq.; I-II MTWThF; NH 100) Safer
- 30C. **Literature Today: Themes in Current Literature.** Three or four books of fiction, drama, or nonfiction are studied intensively, both as interpretations of life and society and as specimens of literature. Each is a representative book by a prominent present-day author and is used as a basis for comparison with other authors who have dealt with similar themes or used similar techniques. (3 cred.; all; no prereq.; III MTWThF; NH 207) Draxten
- 31A. **Writing Laboratory: Practice in Effective Writing.** The student's writing abilities are used as a basis for individual instruction in effective written expression. (3 cred.; all; no prereq.; III-IV MTWTh; NH 216) Sheldon
- 43A. **Background of the Modern World.** This course offers students some idea of the historical development of the world in which they live. It retains political development as the main thread, but emphasis is also placed on art, science,

economics, religion, and philosophy. (3 cred.; all; no prereq.; I MTWThF; NH 213) Ar.

Second Term

- 10B. Human Biology: How the Living Machinery in Man Works.** This course deals with the body functions of man. The activities of cells, organs, and systems are considered from the point of view of both normal and abnormal physiology. (3 cred.; all; prereq. 10A; II MTWThF; NH 213) Dearden
- 31D. Writing Laboratory: Business Writing.** Attention centers on factors important for effective business writing. Business situations serve as a basis for the various types of letters the student writes. The student receives individual instruction as he plans and writes his letters. (3 cred.; all; prereq. 31A; III-IV MTWTh; NH 216) Kivits
- 32A. Speech Laboratory: Basic Principles of Oral Communication.** Readings and discussions on speech hygiene, analysis of causes and treatment of stage fright, study of language problems, and training in explanatory speaking. (3 cred.; all; no prereq.; I MTWThF; NH 107) Hansen
- 40B. Straight and Crooked Thinking.** Emphasizing the close connection between thinking and communication, this course presents some of the rules of accurate reading, writing, and reasoning in their practical application to the problems of evaluation and choice constantly arising in the ordinary affairs of life. (3 cred.; all; no prereq.; III MTWThF; NH 207) McCoy

COLLEGE OF MEDICAL SCIENCES

Medical School

Students in the freshman, sophomore, and junior years at the University of Minnesota Medical School are required to be in attendance during the first term of the Summer Session of 1954. Their courses are a continuation of those begun in the spring quarter and are not open to students from other institutions. For other courses offered in various departments of the Medical School attention is directed to the course listings by departments.

A student applying to register in preclinical subjects for the purpose of making up deficiencies incurred at other medical schools should present, at the time of application for such registration, a letter from the dean of his medical school approving the purpose of the registration. Medical students from other schools, whether their purpose is make-up work or to accelerate or broaden their medical education, are registered as adult special students and receive subject credit only. If such students desire legal time credit toward a medical degree, they should make arrangements with the institution from which they intend to receive the degree. No obligation to accept such students for registration in the regular medical course is attached to adult special registration. They should consult the deans or department heads in their own schools as to the equivalence of the courses in which they might be interested at the University of Minnesota. (See departmental listings.)

In the *clinical departments*, instruction of junior medical students is a continuation of spring quarter courses up to the end of the first term. During the second term both sophomore and junior medical students, at their election, may continue in their clinical work as externs. Similar externship training is offered to medical students from other institutions and to practicing physicians during both first and second terms of the Summer Session. (See departmental schedules.)

The externships will offer an integrated program of bedside teaching and clinical responsibilities, ward rounds, conferences and seminars, occupying approximately three fourths of the registrant's time, on the wards of the University Hospitals, the Minneapolis General Hospital, and the Veterans Hospital, for recently graduated physicians, and qualified medical students from other institutions who are recommended by their respective deans. Registration may be for either or both terms of the Summer Session. Research opportunities may be afforded registrants who remain for both terms. At the discretion of individual clinical departments, selected registrants may remain during the month of September for additional clinical training. Since an externship will not occupy completely the registrant's time, about one fourth of this time may, if he chooses, be devoted to electives in basic sciences or in another clinical department. Medical classes of the Summer Session 1954 will begin on June 15.

Opportunity for Practitioners

In addition to the externships which have been described above, attention is called to continuation courses offered from time to time throughout the year under the General Extension Division and the Center for Continuation Study. These courses are primarily for practitioners and are largely practical in nature. Circulars may be obtained from the Center for Continuation Study.

Clinics and conferences in the University of Minnesota Hospitals and Dispensary, the Minneapolis General Hospital, the Ancker Hospital, Glen Lake Sanatorium, and the Wilder Dispensary, St. Paul, will go on as usual during the Summer Session, and will be open to visiting physicians.

Graduate and Special Continuation Courses

Opportunities are offered in the various departments of the Medical School for work during the Summer Session for advanced degrees, either in laboratory or clinical branches of medicine. Such work involves admission to, and registration in, the Graduate School. For detailed information see the statement under Graduate School in this bulletin or the special bulletin on graduate work in medicine.

An asterisk (*) indicates courses that may be taken by graduate students for independent work under Plan B. (See section on Graduate School)

Fees

Medical students desiring time credit—The Medical School tuition fee for the full summer quarter is \$90 for residents of Minnesota, and \$175 for nonresidents. Less than a full program may be paid for on a credit-hour basis, namely \$7 per credit hour (nonresidents \$14.75). In addition each student will pay the incidental fee of \$21. Students in certain courses are required to furnish microscopes.

Term fees are one half the quarter fees. Laboratory fees are not required under this plan. The schedule of total fees will be therefore:

	Summer Quarter	Summer Term
Tuition fee	\$90.00 (\$175.00)	\$45.00 (\$87.50)
Incidental fee	21.00	10.50

Medical students or physicians registering for externships—A tuition fee of \$45 *per term* is charged for the externships listed under the various clinical departments. This is the same for residents and nonresidents of Minnesota. No additional tuition will be charged for such electives in the basic sciences or clinical work as the registrant may have time for, not to exceed one-fourth time. Each registrant for an externship will pay the incidental fee of \$10.50 per term. In elective courses where a microscope is required this may be rented from the University.

Nonmedical Summer Session students—Students who do not desire to register for time credit toward a medical degree, and who are ineligible to register for an externship or for a program of clinical subjects, may pay the regular Summer Session fees (see index—fees) per term plus special course fees.

ANATOMY

First Term

REQUIRED COURSES

Courses 104 and 111, which are required work for freshman medical students, are continued from the spring quarter through the first term of the Summer Session. Not open to students from other medical schools. Graduate students who have registered for either of these courses in the spring quarter may continue by registering in the first term of the Summer Session.

ELECTIVE COURSES

- 150. Special Topics in Neurology.** Study of literature on selected phases of human neurology. (Cred. ar.; prereq. 111; ar.; ar.) Hartmann
- 156. Advanced Anatomy.** Individual problems in gross anatomy, histology, hematology, or neurology. (Cred. ar.; consent of instructor; ar.; ar.) Wells, Hartmann, Sundberg, Williams

- 165. § Hematology.** For medical technologists and others. (Enrollment limited) (4 cred.; prereq. 103, 104 or equiv.; lect. II MTWTh, IA 104; lab. III-IV MTWTh, IA 301) Sundberg
- 204. Research in Anatomy.** (Gross anatomy, histology, hematology, or neurology) (Cred. ar.; consent of instructor; ar.; ar.) Wells, Hartmann, Sundberg, Williams

Second Term

ELECTIVE COURSES

- 156. Advanced Anatomy.** (See first term) Wells, Sundberg
- 204. Research in Anatomy.** (See first term) Wells, Sundberg

BACTERIOLOGY AND IMMUNOLOGY

First Term

- 53. § General Bacteriology.** Lectures, demonstrations, and laboratory exercises are employed for instruction in the morphology, physiology, taxonomy, and ecology of bacteria. The practical applications of these fundamental principles in other phases of science and industry are emphasized. (5 cred.; soph. with a C average in the prerequisite courses, jr., sr.; prereq. 10 cred. in chemistry and 4 cred. in biological sciences or consent of instructor; lect. II MTWThF, MH 129; lab. III-IV MTWThF, MH 201) Johansson
- 114. Medical Mycology.** The pathogenic fungi and the mycotic infections in man and animals; emphasis on diagnostic procedures. (3 cred.; prereq. 102; lect. II MTThF, MH 214; lab. III-IV MTThF, MH 201) Roth
- 153. Special Problems.** (Cred. and hrs. ar.) Watson
- 201. Research in Bacteriology and Immunology.** Graduate students with the requisite preliminary training may elect research, either as majors or minors, in bacteriology or immunology. (Cred. and hrs. ar.) Staff

Second Term

- 116. Immunology.** Mechanism of the interactions between host and parasite. Techniques and theories of serologic procedures; laws of hemolysis, quantitative relationship between antigen and antibody; opsonins, serums, vaccines, toxin, antitoxin, complement fixation, neutralization, precipitative and agglutinative reactions, blood grouping, atopy, anaphylaxis. (4 cred.; prereq. 53 or 102 or 105; lect. II MTWThF, MH 214; lab. III-IV MTWTh, MH 201) Watson
- 121. Physiology of Bacteria.** A detailed study covering: chemical and physical structure; staining; growth; influence of environment on growth; nutrition; enzymes; metabolism. Required of all bacteriology majors. (3 cred.; prereq. 53, 8 cred. in org. chem. or biochem.; lect. VI MTWThF; MH 214) Lichstein
- 153. Special Problems.** (Cred. and hrs. ar.) Lichstein
- 201. Research in Bacteriology and Immunology.** (See first term) Staff

§ Microscope required. Students may obtain use of microscope by purchasing \$3 microscope cards from the bursar.

MEDICINE

DIVISION OF INTERNAL MEDICINE

First Term

REQUIRED COURSES

Courses 102, 104, and 111, which are required work for sophomore and junior medical students, are continued from the spring quarter through the first term of the Summer Session. Not open to students from other medical schools.

First Term and Second Term

ELECTIVE COURSES

132. **Diagnosis and Treatment of Diseases of the Lungs.** Lectures and clinics in the dispensary and on the hospital wards. Lectures with or without hospital work. (Cred. and hrs. ar.; jr., sr.; not less than 10 students) Myers
136. **The Respiratory Organs in Health and Disease.** (Cred. and hrs. ar.; jr., sr.; limited to 6 students) Myers
140. **Externship in Medicine.** Not less than 10 students; limited to 54 students. Of the total number, 15 can be taken to serve as junior clerks on each of the medical services at the University and the Minneapolis General Hospitals, and 24 to serve as senior clerks in the Medical Clinic at the University Hospitals. Applicants must have passed satisfactorily the first two years of medicine in a Class A medical school. In selecting the senior clerks to serve in the Medical Clinic at the University Hospitals, preference will be given to students who have also satisfactorily completed the third (junior) year of medicine. Watson and staff

COURSES FOR GRADUATE STUDENTS

201. **Clinical Medicine.** (Cred. ar.) Watson, Spink, Lowry, Flink, Stead, Hoffbauer, Nesbitt, Kennedy, Hagen, Hall
202. **Research in Medicine.** Watson, Spink, Flink, Hoffbauer, Nesbitt, Schwartz, Thomas, Hall, Hagen, Kennedy, Zieve, Stead
205. **Tuberculosis.** Myers
206. **Clinical Conference.** Presentation of problem cases. Discussion of diagnosis and treatment and consideration of pertinent literature. (1 cred.; 9 a.m. F) Watson, Spink, Hoffbauer, Lowry, Flink, and staff
207. **Clinical Pathological Conference.** Presentation of clinical features, necropsy findings, and discussion. Medical and surgical cases. (1 cred.; 11 a.m. W) Dawson and staff
208. **Clinical Radiological Conference.** Presentation and discussion of X-ray films, from the Medical Service, with clinical correlation. (1 cred.; 9 a.m. M) Rigler, Watson, and staff
213. **Cardiovascular Seminar.** Weekly conference on clinical cardiovascular problems, held jointly by the Departments of Medicine and Pediatrics. (1 cred.; hrs. ar.) Watson, Thomas, Winchell, and others

DIVISION OF DERMATOLOGY**First Term and Second Term****ELECTIVE COURSES**

- 159.† Assistantship, Dermatology and Syphilis. (Prereq. jr. med. clerkship; limited to 1 student; Minneapolis General Hospital) Laymon
- 160.† Assistantship and Conference* in Dermatology. (Prereq. jr. med. clerkship; limited to 1 student; University Hospitals) Michelson and staff
- 162.† Assistantship in Dermatology. (Prereq. 124; limited to 2 students; Minneapolis General Hospital) Laymon
- 163.† Treatment of Syphilis. (Limited to 2 students; University Hospitals) Michelson and staff
- 164.† Seminar in Pathology. Histopathology of the skin. Clinical and pathological phases will be exemplified. (Prereq. Path. 102) Michelson
- 165.† Seminar in Dermatology. Michelson and staff
- 166.† Allergy and Dermatology. (Limited to 1 student) Michelson

COURSES FOR GRADUATE STUDENTS

225. Clinical Dermatology and Syphilology. (University Hospitals) Michelson and staff
226. Clinical Dermatology and Syphilology. (Minneapolis General Hospital) Laymon and staff
227. Histopathology of the Skin. Michelson and staff
228. Research in Dermatology and Syphilology. Michelson, Laymon, and staff

Second Term**ELECTIVE COURSES**

167. Externship in Dermatology. (Limited to 10 students) Michelson and staff

DIVISION OF CLINICAL LABORATORY MEDICINE**First Term and Second Term****COURSES FOR GRADUATE STUDENTS**

235. Advanced Clinical Laboratory Medicine. Benson and staff
236. Research on Clinical Laboratory Problems. Benson and staff

OBSTETRICS AND GYNECOLOGY**First Term****REQUIRED COURSES**

Course 124, which is required work for junior medical students, is continued from the spring quarter through the first term of the Summer Session. Not open to students from other medical schools.

† Consent of instructor required.

ELECTIVE COURSES

- 160a. Externship in Obstetrics and Gynecology.** (Limited to 10 students) Elective for junior and senior medical students and recent graduates. Course will consist of clinical work in obstetrics and gynecology. Under exceptional circumstances investigative work can be done. Registration may be for one or both terms. (6 cred.) McKelvey and staff

Second Term

- 160b. Externship in Obstetrics and Gynecology.** (See 160a, first term) McKelvey and staff

First Term and Second Term

COURSES FOR GRADUATE STUDENTS

- 201. Advanced Obstetrics and Gynecology, Part I.** Required of first-year fellows. McKelvey, Sadler, Mitchell, and staff
- 205. Advanced Obstetrics and Gynecology, Part II.** Required of second-year fellows. McKelvey, Sadler, Mitchell, and staff
- 209. Advanced Obstetrics and Gynecology, Part III.** Required of third-year fellows. McKelvey, Sadler, Mitchell, and staff
- 216. Research.** Staff
- 303. Obstetrics and Gynecologic Histology.** (6 cred.; hrs. ar.) McKelvey and staff

PATHOLOGY

First Term

- 104. Autopsies.** (Cred. and hrs. ar.; prereq. 102) Dawson, McCartney
- 106. Diseases of the Heart.** (2½ cred.; prereq. 102; 2:00-4:00 TTh) McCartney
- 111. Conference on Autopsies.** (1 cred.; prereq. 102; 12:30-1:30 T; IA 104) Dawson
- 112.† Diagnosis of Tumors.** (2½ cred.; prereq. 102; hrs. ar.) McCartney
- 113.† Surgical Pathology.** (2½ cred.; prereq. 102; 10:00-12:00 MTWThF) McCartney
- 201. Research.** Students with the necessary preliminary training may elect research either as a major or minor in pathology. Permission required. (Cred. and hrs. ar.) Dawson, McCartney

Second Term

- 104. Autopsies.** (Cred. and hrs. ar.; prereq. 102) Dawson, Hebbel
- 111. Conference on Autopsies.** (1 cred.; prereq. 102; 12:30-1:30 T; IA 104) Dawson
- 112.† Diagnosis of Tumors.** (2½ cred.; prereq. 102; hrs. ar.) Hebbel
- 113.† Surgical Pathology.** (2½ cred.; prereq. 102; 10:00-12:00 MTWThF) Hebbel
- 120. Diseases of the Lungs.** (1 cred.; prereq. 102; hrs. ar.) Dawson
- 121. Diseases of the Alimentary Tract.** (1 cred.; prereq. 102; hrs. ar.) Hebbel

† Second term 112 and 113 are not repetitions of the first term but rather continuations.

201. **Research.** Students with the necessary preliminary training may elect research either as a major or minor in pathology. Permission required. (Cred. and hrs. ar.) Dawson, Hebbel

PEDIATRICS

First Term

REQUIRED COURSES

Courses 122 (2 cred.) and 124 (6 cred.), which are required work for junior medical students, are continued from the spring quarter through the first term of the Summer Session. Not open to students from other medical schools. Course 135 (3 cred.), which is required work for senior medical students, is continued through both terms of Summer Session. (See *Bulletin of the Medical School* for 1952-54, pages 35 and 36)

First Term and Second Term

ELECTIVE COURSES

- 152.† **Fundamental Principles of Nutrition and Metabolism as Applied to Children.** Seminar course. (1 cred.; hrs. ar.; Hosp W205) McQuarrie, Ziegler, Raile
- 154.† **Endocrinology as Applied to Pediatrics.** Seminar course. (1 cred.; hrs. ar.; Hosp W205) McQuarrie, Raile
- 162.† **Common Behavior Disturbances in Childhood.** Their recognition and management. (1 cred.; hrs. ar.; Hosp W600) Jensen and staff
170. **Rheumatic Infection and Heart Diseases in Childhood.** (1 cred.; hrs. ar.; VCHH, 3rd floor) Thomas, Dwan, Good, Anderson, Adams
- 174A. **Dispensary Externship in Pediatrics.** Patients in Pediatric Dispensary are assigned to individual students for examination, treatment, and "follow-up" observation under supervision. Special clinics in well-baby care, allergy, heart, metabolism, endocrinology, convulsive disorders, cerebral palsy, and child psychiatry are attended weekly. (Limited to 10 students) (4 cred. per term; 9:00-12:00 and 1:00-3:00 MTWThF; University Hospitals and Minneapolis General Hospital) Jensen, Good, Platou, Stoesser, Raile, and other senior staff members
- 174B. **In-Patient Externship in Pediatrics.** Patients in the pediatric wards at the University Hospitals and Minneapolis General Hospital are assigned to individual students for clinical history, physical and laboratory diagnosis, treatment and "follow-up" observation under supervision of the pediatric and consulting staff members. (4½ cred. per term; 9:00-12:00 and 1:00-5:00 MTWThF, 8:00-12:00 S) McQuarrie, Jensen, Thomas, Good, Raile, and junior staff members

COURSES FOR GRADUATE STUDENTS

200. **Graduate Seminar in Pediatrics.** (1½ cred.; 4:00-5:30 T; Ped. Conf. Rm.) McQuarrie, Ziegler, and senior staff
202. **Pediatric Clinic.** (5 cred.; 9:00-12:00 MTWThF; Out-Patient Departments, Minneapolis General and University Hospitals) McQuarrie, Jensen, and junior staff
204. **Three-Month Residence in Pediatrics at the University Hospitals or Minneapolis General Hospital.** (7 cred.; 9:00-12:00 and 1:00-5:00 MTWThF)

† Not offered to fewer than 10 students.

McQuarrie, Jensen, Thomas, Good at University Hospitals; Dwan, Platou, Seham, Stoesser, Richdorf at Minneapolis General Hospital

- 208. Pediatric Research.** Special problems. Students may collaborate with members of the staff or with other students. (Cred. ar.; hrs. ar.; Ped.Labs.) McQuarrie, Thomas, Good, Jensen, Ziegler
- 210. Special Clinics in Pediatrics.** (1 cred.; Out-Patient Departments, Minneapolis General Hospital or University Hospitals) Jensen, Dwan, Stoesser

PHARMACOLOGY

First Term

REQUIRED COURSE

Course 102, which is required work for sophomore medical students, is continued from the spring quarter through the first term of the Summer Session. Not open to students from other medical schools.

ELECTIVE COURSES

- 109. Pharmacological Problems.** (Cred. and hrs. ar.) Bieter, Wright, Cranston
- 110. Toxicology.** A study of systemic qualitative toxicological analysis. Lecture and laboratory. Lecture only may be taken if desired. (2 or 5 cred.; hrs. ar.) Wright

First Term and Second Term

- 9. Pharmacology for Nursing Students.** (2 cred.; lect. 22 hrs., VI TTh; Owre 111) Cranston
- 203. Research in Pharmacology.** For graduate and advanced students. (Cred. and hrs. ar.) Wright, Bieter

PHYSICAL MEDICINE AND REHABILITATION

First Term and Second Term

ELECTIVE COURSES FOR MEDICAL STUDENTS

- 103. Physical Therapy Clinic.** Externship in diagnosis and treatment in Physical Medicine and Rehabilitation. (Cred. and hrs. ar.; jr., sr., medical students) Kottke, Kubicek

COURSES FOR GRADUATE MEDICAL STUDENTS

- 200. Physical Medicine Service.** Supervised practice in in-patient and out-patient Physical Medicine and Rehabilitation. (Cred. and hrs. ar.) Staff
- 203. Poliomyelitis Clinic.** Evaluation of problems and treatment of acute anterior poliomyelitis. (1 cred.; II-IV Th) Kottke and staff
- 210. Research in Physical Medicine.** (Cred. and hrs. ar.) Kottke, Kubicek

PHYSIOLOGICAL CHEMISTRY

First Term

REQUIRED COURSES

- 109. Physiological Chemistry.** 7 cred.; jr., sr.; prereq. organic and physical chemistry and physics; lect. IV MTWThF, VI MTWThF, Owre 12; lab. I-III MThF, MH 310) Armstrong, Barnum, Carr

ELECTIVE COURSES

153. **Problems in Physiological Chemistry.** Special work arranged with qualified students. May be taken one or both terms. (Cred. and hrs. ar.; prereq. 100, 101) Armstrong, Barnum
205. **Research in Physiological Chemistry.** (Cred. and hrs. ar.) Armstrong, Barnum

Second Term

REQUIRED COURSES

101. **Physiological Chemistry.** (6 cred.; jr., sr.; prereq. 100; lect. IV MTWThF, VI MWF, Owre 113; lab I-III MTWTh, MH 310) Glick, Cohen, Carr

ELECTIVE COURSES

153. **Problems in Physiological Chemistry.** (See first term) Glick, Cohen
205. **Research in Physiological Chemistry.** (See first term) Glick, Cohen

PHYSIOLOGY

First Term

REQUIRED COURSES

Course 107, which is required work for freshman medical students, is continued from the spring quarter through the first term of the Summer Session. Not open to students from other medical schools. Formerly part of 103-104.

4. **Human Physiology.** An elementary course consisting of lectures and demonstrations for students desiring an introduction to the subject. (4 cred.; all; prereq. high school or college biology and chemistry; lect. or dem. II-III TWThF; Owre 12) Grim

ELECTIVE COURSES

113. **Problems in Physiology.** Each student will be assigned a topic for special laboratory study. Conferences and reading. (Cred. and hrs. ar.) Ar.
203. **Research in Physiology.** (Cred. and hrs. ar.) Visscher and others

Second Term

REQUIRED COURSE

60. **Human Physiology.** An elementary course in human physiology. (6 cred.; primarily for med. tech. and 5-year nursing students; prereq. courses in physiological chemistry and human or mammalian anatomy; lect. VI MWF, VII TThF, VIII TTh, Owre 111; conf. IV TTh, Owre 111; lab. VII-IX MW) Ar.

ELECTIVE COURSES

113. **Problems in Physiology.** (See first term)
203. **Research in Physiology.** (Cred. and hrs. ar.) Ar.

PSYCHIATRY AND NEUROLOGY

First Term

REQUIRED COURSES

The following courses, which are required work for freshman and junior medical students, are continued from the spring quarter through the first term of the Summer Session: 103 and 120. Not open to students from other medical schools.

First Term and Second Term

ELECTIVE COURSES FOR MEDICAL STUDENTS

- 145. Reading in Psychiatry.** Supervised reading. (Cred. and hrs. ar.) Staff
- 145x. Reading in Neurology.** Supervised reading. (Cred. and hrs. ar.) Staff
- 152. Externship in Psychiatry.** (Limited to 10 students) This course offers the opportunity for medical students and physicians in practice to obtain clinical psychiatric training during the Summer Session. The training consists largely of work with patients under supervision and seminar type discussion of cases. (6 cred.; hrs. ar.) Staff
- 153. Externship in Neurology.** (Limited to 10 students) This course offers the opportunity for medical students and physicians in practice to obtain clinical neurological training during the Summer Session. The training consists largely of work with patients under supervision and seminar type discussion of cases. (6 cred.; hrs. ar.) Staff
- 155. Therapeutics in Neurology.** This course offers medical students and physicians supervised training in the out-patient care of the chronic neurologic patient. (2 cred.; hrs. ar.) Staff

COURSES FOR GRADUATE MEDICAL STUDENTS

- 208. Clinical Neurology.** Supervised practice, in-patient and out-patient services. (Cred. and hrs. ar.) Baker and staff
- 208x. Clinical Psychiatry.** Supervised practice, in-patient and out-patient services. (Cred. and hrs. ar.) Hastings and staff
- 208y. Clinical Child Psychiatry.** Supervised practice, in-patient and out-patient services. (Cred. and hrs. ar.) Jensen and staff
- 209. Research in Neurology and Psychiatry.** (Cred. and hrs. ar.) Staff
- 212. Survey of Neuropathology.** (Cred. ar.; prereq. 210; hrs. ar.) Baker
- 221. Psychometric Clerkship.** (Cred. ar.; clinical psychology majors only; hrs. ar.) Hathaway, Schofield
- 226. Neurological-Neurosurgical Conference.** (Same as Surgery 318) Review of X-rays, case histories, and neuropathological material on neurological and neurosurgical cases. (1 cred.; hrs. ar.) Baker
- 228. Research in Neuropathology.** (Cred. and hrs. ar.) Baker, Tichy
- 231. Applied Electroencephalography and Myography.** (Cred. and hrs. ar.) Baker and staff
- 233. Applied Neuropathology.** (Cred. and hrs. ar.) Baker, Tichy
- 243. Prolonged Psychotherapy.** (1 cred.; hrs. ar.) Hastings, Schiele, Aldrich, Kiesler
- 245. Case Conference for Clinical Psychologists.** (Cred. and hrs. ar.; clinical psychology majors only) Staff

PUBLIC HEALTH

See School of Public Health.

RADIOLOGY

First Term

REQUIRED COURSE

Course 121, which is required work for junior medical students, is continued from the spring quarter through the first term of the Summer Session. Not open to students from other medical schools.

Second Term

ELECTIVE COURSE

109. **Externship in Roentgen Diagnosis and Radiation Therapy.** Participation in the work of the X-ray Department both in technic and in interpretation. The student will be given opportunity to observe and do some fluoroscopy, to assist in x-ray technic, and to observe x-ray interpretation. (Limited to 8 students. Permission required for registration) (4 cred.; senior medical students)

First Term and Second Term

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 111.* **Medical Roentgenologic Conference.** Weekly meetings with the medical staff at which all the important medical cases which have had x-ray diagnostic procedures are reviewed from both the clinical and roentgenological points of view. (1 cred.; II M; Todd Amphitheater, University Hospitals) Rigler and staff
- 124.* **Pediatric Roentgenologic Conference.** Weekly meetings with the pediatric staff at which all the important pediatric cases which have had x-ray diagnostic procedures are reviewed from both the clinical and roentgenological point of view. (1 cred.; II T; Eustis Amphitheater, University Hospitals) Rigler and staff
- 135c.* **Surgical Roentgenologic Conference.** Weekly meetings with the surgical staff at which all the important surgical cases which have had x-ray diagnostic procedures are reviewed from both the clinical and roentgenological viewpoints. (1 cred.; II S; Todd Amphitheater, University Hospitals) Rigler and staff
- 163a.* **Neurosurgical Roentgenologic Conference.** Weekly meetings with the neurosurgical staff at which all the important neurosurgical cases which have had x-ray diagnostic procedures are reviewed from both the clinical and roentgenological points of view. (1 cred.; VI F; Todd Amphitheater, University Hospitals) Peterson
200. **Research in Roentgenology.** Problems in roentgen diagnosis. (Cred. and hrs. ar.) Rigler and staff
204. **Research Related to Radiation Therapy.** (Cred. and hrs. ar.) Stenstrom and staff
206. **Roentgenoscopy.** The theory and practical application of roentgenoscopy, particularly to diseases of the gastrointestinal tract, lungs, and heart. (Cred. and hrs. ar.) Rigler and staff
207. **Roentgen and Radium Therapy.** Treatments of patients under supervision both with medium and high voltage machines and with radium. Problems in connection with these treatments will be thoroughly discussed. (Cred. and hrs. ar.) Stenstrom and staff

- 209. Roentgen Diagnosis.** The theory and practical application of roentgen diagnostic methods to medical cases in general. (Cred. and hrs. ar.) Rigler and staff
- 210. Roentgen Technic.** A consideration of the theory and practical application of the principles of roentgen technic including the study of x-ray machines and x-ray tubes, exposure, technic, and darkroom work. (Cred. and hrs. ar.) Rigler and staff
- 238. Roentgen-Surgical Pathology Conference.** Weekly meetings with the surgical pathology staff at which surgical specimens and roentgenograms are reviewed from the pathologic and roentgenologic point of view. (1 cred.; 1 W; Todd Amphitheater, University Hospitals) Rigler, Lober
- 240. Conference in Radiation Therapy.** Discussion of methods and dosage used for treatment of patients referred for x-ray and radium therapy and review of the results from previous treatments on patients with similar conditions. (Cred. and hrs. ar.) Stenstrom and staff

SURGERY

First Term

REQUIRED COURSES (UNDERGRADUATE STUDENTS)

Courses 121, 127, 129, and 135, which are required work for sophomore or junior medical students, are continued from the spring quarter through the first term of the Summer Session. Not open to students from other medical schools.

- 139. Operative Surgery.** The student is permitted to participate in surgical procedures on hospital patients in the operating room. (Cred. and hrs. ar.) Wangenstein and staff
- 152. Problems in Clinical Investigations.** A study of special case records correlated with literature study. (Cred. and hrs. ar.) Wangenstein and staff
- 167. Problems in Experimental Surgery.** Students under supervision will investigate problems assigned to them. As their experience increases, they are permitted to do the operations incident to their problems. (Cred. and hrs. ar.) Wangenstein and staff

Second Term

- 135abcdek. Junior Clinical Clerkship.** (Externs) Wangenstein and staff
- 139. Operative Surgery.** (Externship) Wangenstein and staff
- 152. Problems in Clinical Investigation.** (Externs) Wangenstein and staff
- 167. Problems in Experimental Surgery.** (Externs) Wangenstein and staff
- 200. Out-Patient Clinic in Surgery.** Wangenstein and staff
- 204. Tumor Clinic.** (Externs) Hay, Hitchcock
- 214. Surgical Ward Conference.** (Externs) Varco and staff
- 215. Roentgenological Conference.** (Externs) Wangenstein and staff
- 218. Medical and Surgical Pathology Conference.** (Externs) Wangenstein and staff

DIVISION OF GENERAL SURGERY

First Term and Second Term

REQUIRED COURSES FOR GRADUATE STUDENTS

- 200. Out-Patient Clinic in Surgery.** The student is required to assist in the Out-Patient Surgical Clinic and to participate in diagnosis and treatment. University Hospitals surgical staff

202. **Applied Surgical Anatomy on the Cadaver.** Surgical fellows prepare dissections with staff supervision. Wangenstein and staff
203. **Proctoscopy and Sigmoidoscopy.** The diagnosis and treatment of lesions of the lower bowel. University Hospitals surgical staff
204. **Tumor Clinic.** A combined clinical and pathological consideration of tumors as seen by the general surgeon. Staffs of Departments of Surgery and Biophysics. Wangenstein and staff
205. **Surgical Diagnosis.** The surgical fellow assists in the instruction of the clinical clerks and interns, and studies problems in diagnosis in the Out-Patient Department and in the University Hospitals. Wangenstein and staff
208. **Surgical Service.** The surgical fellow acts as house surgeon at the University Hospitals. Wangenstein and staff
211. **Operative Surgery.** The surgical fellow acts as first assistant at operations in the University Hospitals, and later may be permitted to operate. Wangenstein and staff
214. **Surgical Ward Conference.** Presentation of interesting cases by the students. University Hospitals surgical staff
215. **Roentgenological-Surgical Conference.** A weekly review of the films of all surgical patients. Staffs of the Departments of Radiology and Surgery
216. **Surgical Research.** Problems in experimental or clinical surgery. University Hospitals surgical staff
217. **Surgical Seminar.** Conferences for review of surgical literature, for presentation of cases, and as research. University Hospitals surgical staff
218. **Medical and Surgical Pathological Conference.** Review of interesting cases by the medical, surgical, and pathological staffs

DIVISION OF NEUROSURGERY

REQUIRED COURSES

305. **Neurosurgical Surgery.** The neurosurgical fellow assists in the instruction of the clinical clerks and interns, and studies problems in diagnosis in the Out-Patient Department and in the University Hospitals. Peyton, French
308. **Neurosurgical Service.** The neurosurgical fellow acts as house surgeon at the University Hospitals. Peyton, French
311. **Operative Neurosurgical Surgery.** The neurosurgical fellow acts as first assistant at operations in the University Hospitals, and later may be permitted to operate. Peyton, French
316. **Neurosurgical Research.** Problems in experimental or clinical surgery. University Hospitals surgical staff. Peyton, French
318. **Neurosurgical Conference.** A review of X-rays and case histories on Neurosurgical Service. Peyton

DIVISION OF UROLOGY

REQUIRED COURSES

250. **Urological Surgery.** Creevy, Smith, Price
251. **Cystoscopy and Urological Diagnosis.** Creevy, Smith, Price
252. **Urological Conference.** Creevy, Smith, Price
253. **Research in Urology.** Creevy, Smith, Price

School of Public Health†

First Term

- 50.¶ Personal and Community Health.** Causes of diseases and of physical defects; fundamental principles and working methods of health conservation and disease prevention. Lectures, discussions, and directed readings. (3 cred.; no prereq.; not open to students who have taken 3, 4, 51, 52, 100 or General College 10C; III MTWThF; MH 129) Bates
- 62. Principles of Public Health Nursing I.** Trends, principles, and techniques in public health nursing service including family health guidance. (5 cred.; public health nurses; others admitted by permission; prereq. 100 or equiv. but may be taken concurrently; II-III MTWThF; Owre 111) Murphy
- 65.§ Field Work in Public Health Nursing.** Practical experience under direction of staff of a public health agency. (15-16 cred.; prereq. 62 and 100 and C average in all courses) Murphy
- 75. Introduction to Environmental Sanitation.** Principles of urban and rural sanitation relating to water, food, wastes, housing, air, insects, rodents. (3 cred.; prereq. 3 cred. in public health; IV MTWThF; MH 129) Bond
- 100. Elements of Preventive Medicine and Public Health.** Susceptibility and resistance to disease; occurrence and prevention of communicable, degenerative, and industrial diseases; protection of food, water, and milk; school health work; vital statistics. (6 cred.; medical students only; ar.) Thomson
- 133. Mental Hygiene.** Discussion of emotional factors underlying wholesome family relations and of problems which interfere with successful adjustment in family and community life. Illustrative case material related to problems met by the public health nurse will be used. (3 cred.; prereq. 62 or experience in public health nursing; I MTWThF; MH 214) Cline
- 148. Workshop on Rehabilitation Nursing.** (June 21 to July 3) A consideration of rehabilitation as a part of total nursing care and the application of rehabilitation concepts to generalized public health nursing practice. Opportunity for observation at rehabilitation centers. (Limited to 25) (3 cred.; TSP 107) Morrissey, Hegstad, Murphy, Cline
- 149. Workshop on Preparation for Parents Classes.** (July 6-July 17) Preparation of the nurse as a leader of expectant parents classes; organization and planning, selection of content from obstetrics and family living, demonstration of certain methods, evaluation. (3 cred.; TSP 107) Thomas, Murphy, Cline, Sandve

BIOSTATISTICS

- 110. Biometric Principles.** An introduction to statistical analysis with emphasis on the basic principles of statistical reasoning. The description of univariate distributions, normal correlations, simple tests of significance, and goodness of fit. To be taken concurrently with 111. (3 cred.; prereq. 18 cred. in biological science or mathematics through analytical geometry; I MWF, Owre 111, IV MWF, Owre 111) Bearman
- 111. Biometry Laboratory.** Practical training in machine calculation and statistical techniques. To be taken concurrently with 110. (2 cred.; lab. 12 hrs. ar.; MH 118) Bearman

† Room schedule posted on bulletin board outside 121 Millard Hall.

§ Students must maintain a C average in theory completed before they are admitted to any field work.

¶ No credit is granted for this course in the major sequence in public health nursing.

Second Term†

58. **Maternal and Child Hygiene.** Trends in the health care of mothers during the maternity cycle and of the child from conception through the preschool years; health problems, public health programs, and other community facilities. (3 cred.; nurses; prereq. 53 or 100 and 62; VI MTWThF; MH 129) Sandve
- 59.¶ **Health of the School Child.** Mental and physical growth; discovery of physical defects; exercise, fatigue, emotional problems; health habits; diseases of school children; practical problems of health supervision and health instruction. (3 cred.; prereq. 3 and 4, or 3 and 51, or General College 10C and 4, or General College 10C and 51, or 50, or 53 or 100, exemption from 3 on the basis of military service will not be accepted as substitute for suitable course in personal health; III MTWThF; MH 214) Ar.
60. **Tuberculosis and Its Control.** History of tuberculosis movement and campaign in the United States. Early diagnosis and sanatorium treatment; tuberculosis in children; the psychology of tuberculosis; supervision of returned sanatoria patients; state program for the eradication of tuberculosis; legislation. (2 cred.; jr., sr.; prereq. 4 or 50 or 51 or 52 or 53, or 100 and 62; IV MTWF; MH 129) Myers
63. **Principles of Public Health Nursing II.** Organization of public health nursing services; program planning; evaluation; professional problems in public health nursing. (3 cred.; public health nurses, others admitted by permission; prereq. 53 or 100 or equiv. but may be taken concurrently; III MTWThF; Owre 111) Murphy
- 65.§ **Field Practice in School Nursing.** Credits allowed according to experience in this field. Working with the school nurse, the student observes and participates in the activities included in the school nursing program; special attention to organization, relationships, techniques, methods of informal health teaching, provision for handicapped children, and home visiting. (Cred. ar.; public health nurses only, jr., sr.; prereq. 53 or 100, 62 and 67) Sandve
100. **Elements of Preventive Medicine and Public Health.** Susceptibility and resistance to disease; occurrence and prevention of communicable, degenerative, and industrial diseases; protection of food, water, and milk; school health work; vital statistics. This course was formerly P.H. 53. (5 cred.; prereq. 3 or 50 or equiv. and a course in bacteriology; public health nurses and students in social work; lect. I MTWThF, Owre 111; rec. II MTWF, Owre 111) Anderson
170. **Supervision in Public Health Nursing.** Supervision as guidance; methods; administrative functions; preparation and selection of supervisors. (3 cred.; prereq. 100, 133 and experience in public health nursing, or by permission; July 19-31; I-II MTWThF; TSP 107) Shetland

School of Nursing††

Courses and Fees

The program of courses in the 1954 Summer Session has been planned primarily to meet the needs of graduate nurses. The student may complete courses totaling up to 9 credits or two 5-credit courses in each term. Students who have

† Room schedule posted on bulletin board outside 121 Millard Hall.

§ Students must maintain a C average in theory completed before they are admitted to any field work.

¶ No credit is granted for this course in the major sequence in public health nursing.

†† For courses in Public Health Nursing, see index.

been admitted as candidates for the bachelor of science degree in nursing education register in the College of Education and pay Summer Session fees. Graduate nurses planning to register only for Summer Session courses register in the School of Nursing and pay Summer Session fees.††

Curriculum for Graduate Nurses Leading to the Degree of Master of Education in Nursing Education

Elective courses in this program are available during the Summer Session. Students registering for this program for the first time should complete their application prior to the beginning of the session. Qualified college graduates who have completed a basic professional program in nursing may begin this program in the Summer Session. Students planning to register for the academic year 1954-55 should consult the major adviser early, preferably during the first term. Students register in the College of Education and pay Summer Session fees.

Curriculum for Graduate Nurses Leading to the Degree of Master of Nursing Administration

The fourth quarter of the major sequence in this program is offered during the Summer Session. Elective courses in this program are available during the Summer Session. Students registering for this program for the first time should complete their application prior to the beginning of the session. Students planning to register for the academic year 1954-55 should consult the major adviser early, preferably during the first term. Students register in the School of Nursing and pay Summer Session fees.

Curriculum for Graduate Nurses Leading to the Degree of Bachelor of Science

Nursing education majors may register for courses during Summer Session. College graduates who have completed a basic professional program in nursing may begin the nursing education major in Summer Session.

Prerequisites for clinical nursing minors—medical, obstetric, operating room, nursing of children, psychiatric, rural, surgical, tuberculosis—may be taken in the Summer Session.

Students register in the College of Education and pay Summer Session fees.

Basic Curriculum in Professional Nursing Leading to a Degree of Bachelor of Science

High school graduates and transfer students from colleges or universities may register for prenursing courses§ in the Summer Session. Students register in the College of Science, Literature, and the Arts and pay Summer Session fees.

Students in the professional portion of the curriculum§ register in the School of Nursing and pay regular School of Nursing fees: Residents \$33, nonresidents \$50. Students admitted spring quarter, 1954, pay in addition an incidental fee of \$21.

Curriculum in Practical Nursing Leading to a Certificate†¶

The fourth quarter of the four-quarter program leading to a certificate in practical nursing is offered during the Summer Session. Applicants are admitted at the

† For additional information see *Bulletin of the School of Nursing*, 1953-55, pages 28-29.

§ *Bulletin of the School of Nursing*, 1953-55, pages 17-19.

¶ For program in Practical Nursing and Home Management see *School of Agriculture Bulletin*, 1952-54, pages 20-24.

†† The Summer Session may be used to supplement deficient basic nursing experience.

beginning of the fall quarter only. Students register in the School of Nursing and pay regular practical nursing fees: Residents \$33, nonresidents \$50, plus \$21 incidental fee for the summer quarter.

Improving Nursing Care

See *Special Features* and Nurs.Ad. 171, first term.

Teacher Education in Nursing Workshop

August 9 to August 20

See *Special Features* and Nurs.Ed. 181, second term.

Conference on Rural Nursing

Teachers and school administrators will be interested in a conference on rural nursing experience in basic professional and practical nursing curricula to be held at the Center for Continuation Study (July 26-30). Advance registration is requested. Housing will be available at the Center. Applications should be made directly to the Center for Continuation Study, University of Minnesota.

Institute for Teachers of Practical Nursing

An institute for teachers of practical nursing will be held at the Center for Continuation Study (August 2-6). Advance registration is requested. Housing will be available at the Center. Applications should be made directly to the Center for Continuation Study, University of Minnesota.

First Term

- Nurs.Ad.160. Ward Administration.** The organization of the hospital; principles of administration and their application to ward management; analysis and maintenance of nursing service; selection, orientation, assignments, and motivation of personnel; planning and conducting clinical teaching programs. (5 cred.; sr., grad. nurse; no prereq.; III-IV MTWThF; Owre 113) Grainger
- Nurs.Ad.170. § The Administrative Process in Nursing Service Administration.** Study of selected principles of administration, and application of these principles to nursing; individual or group projects utilizing some administrative principles; overview of present-day concepts of nursing administration. (3 cred.; jr., sr., grad., grad. nurse; no prereq.; IV MTWThF; ForH 130) Harris
- Nurs.Ad.171. Improving Nursing Care Through Cooperative Planning.** Principles and techniques of instituting and developing the group method of assignment in hospitals. Opportunities for observation of team assignment and planning of nursing care will be provided. (3 cred.; graduate professional nurses; no prereq.; VII MTWThF; ForH 185) Harris, Newcomb, and staff
- Nurs.Ad.193. Principles of Administration Applied to Nursing Service Administration.** Budgeting; principles of budget making; formulation; execution; evaluation; appreciation of the meaning of fiscal terms; cost accounting; economy and efficiency in the utilization of manpower and materials; participation in community health program; legal problems in nursing. (3 cred.; open only to fourth quarter students in the Master of Nursing Administration Program; I MTWThF and ar.; MH 26) Harris

§ Cannot be taken for credit by students in Master of Nursing Administration Program.

- Nurs.Ed.68. Construction and Use of Examinations and Other Measurement in Basic Nursing Courses.** Criteria for judging and improving methods of educational measurement; examinations as aids to student progress; relation of examination scores to grading systems. Practice in making and scoring course examinations. (3 cred.; sr., grad. nurse; no prereq.; II MTWThF; Owre 113) Johnston
- Nurs.Ed.105. Helping Students with Patient Teaching.** A course primarily for teachers of basic nursing students. Problems met by students when teaching patients; the selection of first teaching experiences; the planning of teaching with students, and evaluation techniques to determine the effectiveness of patient-teaching by students. (3 cred.; prereq. 15 cred. in education or nursing education or consent of instructor; II MTWThF; PoH 3209) Boyle
- Nurs.Ed.162. Personnel Work in Nursing.** Principles and techniques of personnel work applied to problems in nursing. Individual differences, human behavior, psychological tests, personnel records, orientation periods, remedial programs, counseling interviews, etc. (3 cred.; sr., grad. nurse; no prereq.; I MTWThF; Owre 113) Johnston
- Nurs.Ed.190. The Survey in Nursing Education.** Survey techniques in evaluating an educational situation, as related to existing programs, expanding programs, and proposed new programs. (3 cred.; sr., grad.; prereq. consent of instructor; IV MTWThF and ar.; MH 26) Harrington
- Note**—See also Ed.T.51A, The Teaching of Nursing, College of Education, Methods and Student Teaching.

Second Term

- Nurs.Ad.193. Principles of Administration Applied to Nursing Service Administration.** (Continuation of Nurs.Ad.193. See first term) (2 cred.; III-IV MW; ForH 175) Harris
- Nurs.Ed.181. Workshop.** Teacher education in nursing. Problems to be considered will be of special interest to college supervisors and instructors of methods courses and to clinical instructors working with student teachers. (3 cred.; prereq. 15 cred. in education or nursing education or consent of instructor; August 9-20; I-IV MTWThF and ar.; CCS) Boyle, Harrington, Heidgerken, Norris, and consultants
- Note**—See also Ed.T.51A, The Teaching of Nursing, College of Education, Methods and Student Teaching.

MEDICAL TECHNOLOGY

Before registering, students should consult special advisers in the Medical Technology Office, W-225, University Hospitals, Minneapolis 14, Minnesota.

OCCUPATIONAL THERAPY

Consult Occupational Therapy Office, 211 TWH. After July 1, 829 Mayo Memorial, University of Minnesota, Minneapolis 14, Minnesota.

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

For general information, for the requirements for admission as regular or as unclassified students, for general rules and regulations, and for the requirements for degrees in the different curricula offered by the college, students should consult one of the administrative officers or the *General Information Bulletin* and the complete *Bulletin of the College of Science, Literature, and the Arts*. (For Summer Session see Admission and Registration.)

Courses announced in the bulletin as open to "juniors and seniors" or to "juniors, seniors, and graduates" are called "Senior College courses." They are open to sophomores under certain conditions. See the complete bulletin of the college or consult one of the administrative officers.

Some of the numbers given in the statement of prerequisites for courses in this bulletin refer to courses listed in the bulletin of the college.

Some of the courses scheduled in this *Summer Session Bulletin* by the School of Business Administration, the Medical School, the Institute of Technology, and the College of Agriculture, Forestry, and Home Economics are open to students of the College of Science, Literature, and the Arts under the same conditions that prevail during the regular college year. For information, consult one of the administrative officers of the College of Science, Literature, and the Arts.

Students are invited to bring any questions or problems to the College Offices, 214 and 223 Johnston Hall.

An asterisk (*) indicates courses that may be taken by graduate students for independent work under Plan B.

AMERICAN STUDIES

First Term

- Hum.21. American Life I.** The growth of individualism and democracy (with particular attention to minorities) as recorded in American history, social thought, literature, and the arts. (See General Studies, Humanities) (3 cred.; all; no prereq.; I MTWThF; F 9) Cleaver
- 200.* Introduction to American Studies.** Exposition of interdisciplinary methods and of the concept of American Studies. (3 cred.; grad., limited to candidates for the M.A. in American Studies; III MTWThF; F 4) McDowell
- 250. Readings in American Civilization.** Independent study of interdisciplinary aspects of American civilization under guidance of members of various departments. (Cred. ar.; grad.; prereq. consent of department chairman; ar.; ar.) Ar.

Second Term

- Hum.22. American Life II.** The place in American civilization of the land, the city, and the good life; their implications and interrelations. (See General Studies, Humanities) (3 cred.; all; no prereq.; I MTWThF; F 9) Rock
- 251. Readings in American Civilization.** Independent study of interdisciplinary aspects of American civilization under guidance of members of various departments. (Cred. ar.; grad.; prereq. consent of department chairman; ar.; ar.) Ar.

Note—See also approved courses in participating departments as listed in the *Bulletin of the Program in American Studies*.

ANTHROPOLOGY

First Term

2. **Introduction to World Ethnology.** The appearance of Man in the Old and New Worlds; the formation of culture patterns and the spread of culture and its adaptation in various settings in Asia, Africa, the South Seas, and among the American Indians; the development of civilization; changes in art, beliefs, and social institutions of primitive communities as observed in modern times. (3 cred.; all; no prereq.; II MTWThF; ForH 20) Johnson
122. **Problems in Anthropology.** Individually directed readings. (Cred. ar.; jr., sr., grad.; prereq. consent of instructor; ar.; ar.) Johnson
140. **Field Trip in Archeology.** Excavations of prehistoric mounds and village sites in the state of Minnesota. (1 to 6 cred.; jr., sr., grad.; prereq. male students only, consent of instructor; ar.; ar.) Wilford
165. **Psychological Phases of Culture.** The impact of cultural tradition on human experience. The significance of culture patterns in the structure and functioning of human experience. (3 cred.; jr., sr., grad.; no prereq.; IV MTWThF; ForH 20) Johnson

Second Term

1. **Introduction to Anthropology.** A topical treatment of the main phases of anthropology, including physical, archeology, technology, and culture. (3 cred.; all; no prereq.; I MTWThF; ForH 20) Ar.
80. **The American Indian.** A survey of native cultures of the New World. Physical and cultural characteristics. (3 cred.; jr., sr.; no prereq.; II MTWThF; ForH 20) Ar.
123. **Problems in Anthropology.** (See 122, first term) (Cred. ar.; ar.; ar.) Ar.
140. **Field Trip in Archeology.** (See first term) (1 to 6 cred.; jr., sr., grad.; prereq. male students only, consent of instructor; ar.; ar.) Wilford

ART

First Term

HISTORY OF ART

- Art 3. **Principles of Medieval Art.** (Page 31†) (3 cred.; prereq. 2 or consent of instructor; III MTWThF; J 207b) Tselos
- Art 59. **Traveling Summer Course in European Art.** A course designed to cover the main epochs in Western art history, from antiquity to the present, in a series of lectures at the chief museums of Europe and in guided visits to important centers, archaeological excavations, monuments and churches in France, Italy, Austria, and Germany. The course will include surveys of ancient, medieval, Renaissance, and Baroque art and will conclude in an intensive examination of contemporary post-war painting, architecture, and city planning. It will guide the student through a succession of important repositories of art in various European countries and will focus the discussion of the main phases of Western art on selected, crucial works of painting, sculpture, and architecture. (5 cred.; jr., sr., grad.; no prereq.; leave New York June 15, return July 27) Eitner

† For description see the *Bulletin of the College of Science, Literature, and the Arts*, 1953-55.

- Art 68. Modern Art: Contemporary Art in Europe and America.** (Page 32†) (3 cred.; jr., sr.; prereq. 1 or 64 or consent of instructor; IV MTWThF; J 207b) Tselos
- Art 158A.* European and American Painting.** (Page 34†) (3 cred.; sr., grad.; prereq. 9 cred. in history of art or 9 cred. in history or literature with consent of instructor; IV MTWThF; J 207b) Tselos

STUDIO COURSES

- Art 23-24. Drawing and Design I.** Basic problems of drawing and design. (3 cred.; prereq. 1 or consent of instructor; I-II MTWThF; J 104) Downs
- Art 40-41-42. Sculpture I.** (Page 31†) (3 cred.; prereq. 1 or consent of instructor; I-II MTWThF; F 24) Rood
- Art 60-61-62. Drawing and Painting II.** (Page 36†) (3 cred.; jr., sr.; prereq. 24 or 31 or equiv. or consent of instructor)
 Sec. 1, I-II MTWThF, J 200a, Arnest Sec. 2, III-IV MTWThF, J 200b, Quirt
- Art 70-71-72. Drawing and Painting III.** (Page 36†) (3 cred.; jr., sr.; prereq. 24 or 31)
 Sec. 1, III-IV MTWThF, J 200a, Arnest Sec. 2, I-II MTWThF, J 200b, Quirt
- Art 80-81-82. Sculpture II.** (Page 36†) (3 cred.; jr., sr.; prereq. 42 or equiv.; III-IV MTWThF; F 24) Rood
- Art 150-151-152. Problems in Painting.** (Page 37†) (Cred. ar.; jr., sr., grad.; prereq. 72 and consent of instructor)
 Sec. 1, III-IV MTWThF, J 200a, Arnest Sec. 2, I-II MTWThF, J 200b, Quirt
- Art 180-181-182. Problems in Sculpture.** (Page 37†) (Cred. ar.; jr., sr., grad.; prereq. 82, 102, or 142 or consent of instructor; III-IV MTWThF; F 24) Rood
- Art 200-201-202. Advanced Problems in Studio Work.** (Page 38†) (Cred. ar.; prereq. consent of instructor; ar.; ar.) Arnest, Quirt

PHOTOGRAPHY†

- Art 86. The Art of the Film I: Background and History.** Beginnings and early development. The silent film. The sound film. The color film. Animation. 3-D and other technical innovations. Survey by countries. Evolution and analysis of the fiction film. Evolution and analysis of the documentary film. Social significance of the film medium. Film pioneers and masters. The course will be illustrated with films and slides. Guest speakers to be announced later. (3 cred.; no prereq.; for graduate cred. consult instructor; I-II MWF; J 207b) Amberg
- Art 87. The Art of the Film II: Film as Art.** Evolution and analysis of the motion picture as an art form. Discussion of film techniques: camera work, sound, color, editing, montage, etc., in terms of their artistic uses. Film form: fundamentals of film esthetics. Psychological analysis of the film medium. Film criticism: comprehensive analysis of select films. Demonstration of films and stills. Guest speakers to be announced later. (3 cred.; no prereq.; for graduate cred. consult instructor; I-II TThF; J 207b) Amberg
- Art 123-124-125. Film Workshop.** A practical study of the motion picture as an art form. Studio problems in script preparation, camera technique, and editing, with an emphasis on the visual aspects of film making. Analysis of selected professional films and visits to local studios. (3 cred.; prereq. major in art, theater, humanities, or music, or consent of instructor; III-IV MTWThF; J 2) Downs

† For description see the *Bulletin of the College of Science, Literature, and the Arts*, 1953-55.

‡ Students enrolled in these photography courses may take advantage of a *Film Festival*. See section on Special Features.

Art 186. The Art of the Film I. (3 cred.; sr., grad.; prereq. consent of instructor; I-II MWF; J 207b) Amberg

Art 187. The Art of the Film II. (3 cred.; sr., grad.; prereq. consent of instructor; I-II TThF; J 207b) Amberg

Second Term

HISTORY OF ART

Art 1. Principles of Art. (Page 30†) (3 cred.; no prereq.; II MTWThF; J 207b) Tselos

Art 108. Romanesque and Gothic Art of the Middle Ages. (Page 33†) (3 cred.; prereq. 9 cred. in history of art or 9 cred. in history or literature with consent of instructor; IV MTWThF; J 207b) Tselos

Art 196-197-198. Readings in Art History and Criticism. (3 cred.; sr., grad.; prereq. consent of instructor; ar.; ar.) Tselos

STUDIO COURSES

Art 40-41-42. Sculpture I. (See first term) (I-II MTWThF; J 11) Morton

Art 53-54-55. Design Workshop. (Page 35†) (3 cred.; jr., sr.; prereq. 1 or consent of instructor; I-II MTWThF; J 11) Morton

Art 70-71-72. Drawing and Painting III. (See first term) (III-IV MTWThF; J 200a) Collins

Art 73-74-75. Presentation Techniques. (Page 36†) (3 cred.; prereq. 25, no prereq. for architects; I-II MTWThF; J 104) Collins

Art 140. Jewelry. (3 cred.; jr., sr., grad.; prereq. consent of instructor; III-IV MTWThF; J 11) Morton

Art 141. Enameling. (3 cred.; jr., sr., grad.; prereq. consent of instructor; III-IV MTWThF; J 11) Morton

Art 150-151-152. Problems in Painting. (See first term) (III-IV MTWThF; J 200a) Collins

Art 193-194-195. Advanced Problems in Design. (Page 37†) (3 cred.; jr., sr., grad.; prereq. 9 Senior College credits in design and consent of major adviser; ar.; ar.) Collins, Morton

Art 200-201-202. Advanced Problems in Studio Work. (See first term) (Ar.; ar.) Collins, Morton

ASTRONOMY

First Term

11. Descriptive Astronomy. (5 cred.; all; no prereq.; III-IV MTWF and one evening a week for observation; Ph 133) Luyten

13. Stellar and Practical Astronomy. Deals primarily with the observational aspect of astronomy, with the constellations and individual stars. Two lectures a week and as much observing as weather permits. (3 cred.; all; no prereq.; 7:30 to 9:00 p.m. MW, approximately the latter half of the time being used in observation; Ph 133) Luyten

† For description see the *Bulletin of the College of Science, Literature, and the Arts*, 1953-55.

BOTANY§

First Term

4. **General Botany.** A survey lecture and laboratory course on the form, structure, and functions of plants; reproduction in plants and the principles of inheritance and variation; relations of plants to environment; the principal groups of plants; and organic evolution. (5 cred.; all; no prereq.; lect. I MTWThF, Bo B6; lab. II-III MTWThF, Bo 4, 5) Hall
- 194.* **Problems.** Advanced work in some specialized field of botany. (1-5 cred.; jr., sr., grad.; prereq. consent of instructor; ar.; ar.) Ar.

Second Term

5. **General Botany.** (See 4, first term) (5 cred.; all; prereq. 4 or equiv.; lect. I MTWThF, Bo B6; lab. II-III MTWThF, Bo 4, 5) Ar.
- 195.* **Problems.** (See 194, first term) (1-5 cred.; ar.; ar.) Ar.

CLASSICS

First Term†

LATIN

151. **Caesar's Commentaries.** A reading course with emphasis on the documentary values of Caesar's work, including literary, historical, cultural, political, economic data and the character of Gallic civilization. (3 cred.; jr., sr., grad.; I MTWThF; F 103) DeWitt

COURSE FOR WHICH NO KNOWLEDGE OF GREEK OR LATIN IS REQUIRED

- 24¶. **Technical Terms of Science, Medicine, and the Humanities.** A course in vocabulary building with special reference to Greek and Latin elements in English; prefixes, suffixes, and root words in modern technical vocabularies. (3 cred.; soph., jr., sr.; no prereq.; III MTWThF; F 110) McDonald

COMMUNICATION

See index.

ECONOMICS

See School of Business Administration and Agricultural Economics.

EFFICIENT READING

See Rhetoric.

† See Foreign Language Auxilium.

§ For additional courses in the first term, see Lake Itasca Forestry and Biological Station.

¶ Credit will be allowed in either English or Classics.

ENGLISH¶¶

First Term

LITERATURE

22. **Introduction to Literature.** The Restoration and the Eighteenth Century. Pope, Swift, Addison and Steele, Johnson, Boswell, Fielding, and Sheridan. (6 cred.; soph., jr., sr.; prereq.§; I-II MTWThF; F 204) Buckley
55. **Shakespeare.** The reading of plays from Shakespeare's early and middle periods—*Richard II*, *A Midsummer Night's Dream*, *The Merchant of Venice*, *Much Ado About Nothing*, and two or three other plays selected by the instructor. (3 cred.; jr., sr.; prereq.§§; I MTWThF; F 207) Christie
- 56.¶ **Shakespeare.** The reading of plays from Shakespeare's middle and later periods—*Twelfth Night*, *Hamlet*, *Macbeth*, *The Tempest*, and two other plays selected by the instructor. (3 cred.; jr., sr.; prereq.§§; IV MTWThF; F 109) del Plaine
- 74.† **American Literature.** Notable authors from Whitman to Hemingway. (3 cred.; jr., sr.; prereq.§§; I MTWThF; F 206) Hornberger
75. **Chaucer.** The reading of selections from the *Canterbury Tales* with introduction dealing with the grammar and literary forms of fourteenth-century English. (3 cred.; jr., sr.; prereq.§§; I MTWThF; F 305) Allen
100. **Old English (Anglo-Saxon).** An introduction to the sounds and grammar with some prose reading. The relation to modern English is stressed. (6 cred.; jr., sr.; grad.; prereq.††; I-II MTWThF; F 303) Clark
- 105.* **Hawthorne and Melville.** (3 cred.; jr., sr., grad.; prereq.††; IV MTWThF; F 207) Marx
- 106.* **Whitman and Mark Twain.** (3 cred.; jr., sr., grad.; prereq.††; II MTWThF; F 206) Marx
- 139.* **The Nineteenth Century in English Literature.** Poetry and prose of the late Victorian period: George Eliot, Pater, G. M. Hopkins, William Morris, the Aesthetic Movement. (3 cred.; jr., sr., grad.; prereq.††; IV MTWThF; F 303) Stange
- 143.* **Twentieth-Century Literature (American).** Pound, Cummings, Moore, Wharton, Cather, Hemingway. (3 cred.; jr., sr., grad.; prereq.††; III MTWThF; F 304) Coxe
- 162.* **Milton.** The minor poems, *Areopagitica*, *Paradise Lost*, and *Samson Agonistes*. (3 cred.; jr., sr., grad.; prereq.††; II MTWThF; F 305) Coxe
165. **Introduction to Modern English.** A scientific approach to the sounds and grammar of present-day English, with some attention to syntax; implications for a reasonable attitude toward English usage in America. (Required of education majors in English) (3 cred.; jr., sr., grad.; prereq.††; III MTWThF; F 305) Allen
- 187.* **Eighteenth-Century Literature.** Studies in Pope and Swift. (3 cred.; jr., sr., grad.; prereq.††; III MTWThF; F 209½) Stange

† Students may take 74 before 73 if necessary.

§ English A-B-C, or Composition 4-5-6, or Communication 1-2-3, or exemption from requirement.

¶ Students may take 56 before 55 if necessary.

†† Six credits in English literature, exclusive of A-B-C.

§§ Composition 4-5-6, or Communication 1-2-3, and 6 additional credits; or English A-B-C; or 10 credits in 21-22-23.

¶¶ Credit will be allowed in English for Classics 24.

COMPOSITION

- 4.† **Freshman Composition.** Practical training in reading and writing. (3 cred.; all; prereq. placement test; III MTWThF; F 303) Christie
- 5.† **Freshman Composition.** A continuation of Comp. 4. (3 cred.; all; prereq. Comp. 4 or Communication 1; I MTWThF; F 205) Ar.
- 6.† **Freshman Composition.** A continuation of Comp. 5. (3 cred.; all; prereq. Comp. 5 or Communication 2; II MTWThF; F 109) Guthrie
27. **Advanced Writing.** A course in formal exposition, stressing adequate content, logical development, and organization of material. (Not to be confused with Comp. 7) (3 cred.; soph., jr., sr.; prereq.§; III MTWThF; F 109) del Plaine

Second Term

LITERATURE

23. **Introduction to Literature.** The Romantic movement and the Victorians. Wordsworth, Byron, Shelley, Keats, Lamb, Carlyle, Browning, and Arnold. (6 cred.; soph., jr., sr.; prereq.§; I-II MTWThF; F 204) Montgomery
55. **Shakespeare.** (See first term) (III MTWThF; F 205) Unger
- 56.¶ **Shakespeare.** (See first term) (I MTWThF; F 303) Erdman
73. **American Literature.** Notable authors from Edwards to Holmes. (3 cred.; jr., sr.; prereq.§§; II MTWThF; F 206) Ward
- 109.* **Romantic Poets of the Early Nineteenth Century.** Wordsworth, Coleridge, Scott, etc. (3 cred.; jr., sr., grad.; prereq.††; IV MTWThF; F 109) Jackson
- 113.* **American Short Story.** A historical examination of the American short story from the eighteenth century to the present. (3 cred.; jr., sr., grad.; prereq.††; I MTWThF; F 206) Ward
- 121.* **Interpretation of Poetry.** A study of certain technical aspects of poetry in relation to poetic meaning: analysis of a number of short poems. (3 cred.; jr., sr., grad.; prereq.††; II MTWThF; F 207) Unger
- 129.* **Modern Drama, 1880 to the Present.** A survey of the chief dramatists, English, American, and Continental, from the time of Ibsen. (3 cred.; jr., sr., grad.; prereq.††; III MTWThF; F 206) Hillhouse
- 151.* **Recent Poetry.** The development of twentieth-century poetry in England and America. Yeats, Hardy, Housman, Robinson. Movements in the second decade—Georgians, Imagists, etc. Lawrence, Sandburg, Frost, Eliot, Jeffers, younger poets. (3 cred.; jr., sr., grad.; prereq.††; III MTWThF; F 109) Jackson
- 155.* **American Novel.** The history of the American novel from Howells to the present. (3 cred.; jr., sr.; grad.; prereq.††; II MTWThF; F 109) Bowron

COMPOSITION

- 6.† **Freshman Composition.** (See first term) (II MTWThF; F 303) Erdman

† Composition 4, 5, 6 open to students in the Institute of Technology.

§ English A-B-C, or Composition 4-5-6, or Communication 1-2-3, or exemption from requirement.

¶ Students may take 56 before 55 if necessary.

†† Six credits in English literature, exclusive of A-B-C.

§§ Composition 4-5-6, or Communication 1-2-3, and 6 additional credits; or English A-B-C; or 10 credits in 21-22-23.

FAMILY LIFE

See General Studies.

FOREIGN LANGUAGE AUXILIUM

See index.

FOREIGN STUDY SEMINAR

See General Studies.

GENERAL STUDIES*First Term***FAMILY LIFE**

F.L.1. Preparation for Marriage. A discussion of such topics as the function of the family today, problems of dating and courtship, the engagement, relations of husband and wife, family crises, and bases of marital stability. (3 cred.; all; no prereq.)

Sec. 1, II MTWThF, TNM 107, Neubeck Sec. 2, IV MTWThF, TNM 107,
Lucky

F.L.15. The Home and Its Furnishing. Present-day housing problems; choice of location; house plans as they affect family living; exterior and interior design; choice of appropriate furnishings and accessories; building furnishing costs. (3 cred.; all; no prereq.; II MTWThF; WeH 206) Ludwig

FOREIGN STUDY

F.S.161. Seminar for Foreign Study I. A directed field study in selected foreign countries, investigating the current economic, political, educational, cultural, and religious patterns of life. Each student in the seminar will study the country carefully before embarking and write a comprehensive report of his findings upon returning. (6 cred.; prereq. approval before December by a faculty selection committee. Grad. students must have also the approval of their faculty adviser.) Cuneo, Mueller, Spencer, Swain

HUMANITIES

Hum.1. Humanities in the Modern World I. The old regime, the revolution, neo-classicism, and romanticism. Period: from about 1740 to about 1820. Authors: Voltaire, Rousseau, Burke, Paine, Goethe, and the poets. One historical novel, Tolstoy's *War and Peace*. (3 cred.; all; no prereq.; III MTWThF; JohH 122) Bryan

Hum. 4. Humanities in the Modern World IV. An introduction to the study of the humanities since World War I. The authors studied include Freud, Lenin, Koestler, T. S. Eliot, Kafka, Ortega, and others. The background topics include civilization between two wars, the impact of psychoanalysis, communism versus fascism, etc. (3 cred.; all; no prereq.; II MTWThF; JohH 122) Ames

Hum.21. American Life I. The growth of individualism and democracy (with particular attention to minorities) as recorded in American history, social thought, literature, and the arts. (See American Studies) (3 cred.; all; no prereq.; I MTWThF; F 9) Cleaver

- Hum.51. Humanities in the Modern World.** (See description of Hum. 1) A student may not receive credit for this course if he has completed 1. (3 cred.; jr., sr.; no prereq.; IV MTWThF; JohH 122) Bryan
- Hum.61. The Greek Heritage.** The golden age of Athens—tragedy, the concepts of goodness and beauty, the struggle for the state; the age of reason—the concepts of reason, justice, order. Selected readings in the historians and Aristotle; longer readings in Homer, Plato, the dramatists. Greek architecture and sculpture. A student may not receive credit for this course if he has completed 11. (3 cred.; jr., sr.; no prereq.; III MTWThF; JohH 115) Ames

PERSONAL ORIENTATION

- Per.Or.1. How to Study.** Practical assistance to the student in developing efficient study habits, organizing materials, training the memory, preparing for examinations, and improving the speed and comprehension of reading. (Limited to 30) (2 cred.; all; no prereq.; IV MTWThF; JohH 303) Ar.

SOCIAL SCIENCE

- Soc.Sci.1. Introduction to Social Science.** An integrated study of the factors—historical, political, economic, social, psychological and cultural—that influence man's behavior. Course 1 deals with the basic theme of the development of personality. The entire course, 1-2-3, but not any part of it, will satisfy the social science requirement under Plan I for admission to the Senior College of Science, Literature, and the Arts, the School of Business and to the College of Education. (3 cred.; all; no prereq.; III MTWThF; JohH 113) Mouratides
- Soc.Sci.3. Introduction to Social Science.** (Continuation of 1-2) The integrating theme is the quest for community in modern society. (3 cred.; all; no prereq.; I MTWThF; JohH 113) Potter
- Soc.Sci.11. International Relations.** A survey of the world's critical areas and an examination of international forces in war and peace. This course offers a basis for informed evaluation of future as well as present international situations. (3 cred.; all; no prereq.; III MTWThF; JohH 114) Levi

Second Term

FAMILY LIFE

- F.L.1. Preparation for Marriage.** (See first term) (II MTWThF; TNM 107) Neubeck

FOREIGN STUDY

- F.S.162. Seminar for Foreign Study II.** (Continuation of 161, see first term) (6 cred.) Cuneo, Mueller, Spencer, Swain

HUMANITIES

- Hum.2. Humanities in the Modern World II.** The industrial revolution; liberalism and socialism; the psychology of the individual. Period: from about 1776 to 1890. Authors: Carlyle, Mill, Marx, Smith, Malthus, Ibsen, Flaubert, Dostoyevsky, and the poets. (3 cred.; all; no prereq.; III MTWThF; JohH 115) Blum
- Hum.4. Humanities in the Modern World IV.** (See first term) (II MTWThF; JohH 115) Rosenfeld
- Hum.22. American Life II.** The place in American civilization of the land, the city, and the good life; their implications and interrelations. (See American Studies) (3 cred.; all; no prereq.; I MTWThF; F 9) Rock

Hum.52. Humanities in the Modern World. (See description of Hum. 2) A student may not receive credit for this course if he has completed Hum. 2. (3 cred.; jr., sr.; no prereq.; I MTWThF; JohH 122) Rosenfeld

PERSONAL ORIENTATION

Per.Or.1. How to Study. (See first term) (Limited to 30) (IV MTWThF; JohH 303) Farquhar

SOCIAL SCIENCE

Soc.Sci.2. Introduction to Social Science. (Continuation of 1) The integrating theme is work as a central aspect of modern life. (3 cred.; all; no prereq.; II MTWThF; JohH 122) Rozental

GEOGRAPHY

First Term

- 1.† **Geography of Physical Resources.** The characteristics and geographic patterns of the world's natural resources; regional problems in resource discovery, use, and conservation. (5 cred.; no prereq.; I, III MTWThF; ForH 285) Salisbury
- 122.§ **East Asia.** The physiographic features of China, Korea, and Japan, together with the forms of resource utilization in their regional diversity. Geographic aspects of the problems of population pressure, development of resources, and international relations. (3 cred.; jr., sr., grad.; prereq. 5 cred. in geography or consent of instructor; II MTWThF; ForH 285) Ginsburg
153. **Urban Geography.** An analysis and classification of cities in selected regions, with emphasis on their distribution, specific location, regional functions and growth, as well as their forms and internal patterns of land use. Special attention will be given to the geographic aspects of problems in city and regional planning. (3 cred.; jr., sr., grad.; open to students majoring in one of the social sciences or architecture; consent of instructor for others; IV MTWThF; ForH 285) Ginsburg

Second Term

- 67.¶ **Geography of Minnesota.** A geographical analysis of the physical and human resources and commercial production of Minnesota. Discussion of map sources, literature, and problems of the geography of the state. Saturday field trips in central and eastern Minnesota will replace the MTW classroom periods and a part of the outside reading during the last three weeks of the session. (3 cred.; jr., sr.; prereq. 5 cred. in geography or consent of instructor; II MTWThF; ForH 285) Borchert
110. **South America.** A regional survey of the physical resources, population, agriculture, manufacturing, and transportation in the countries of South America. (3 cred.; jr., sr., grad.; prereq. 5 cred. in geography or consent of instructor; IV MTWThF; ForH 285) Borchert

† Not open to students who have taken the old course 11.

§ Not open to students who have taken the old course 120.

¶ Not open to students who have previously taken 47.

GEOLOGY AND MINERALOGY

First Term

1. **General Geology (Geologic Processes and Their Results).** A study of the varied aspects of our natural environment with special reference to the influence of geologic processes and structures on landscape development. The interpretation of natural scenery produced by glaciers, streams, ground water, geysers, oceans, volcanoes, etc. Lectures supplemented by laboratory work with minerals and rocks. Also several field excursions. (5 cred.; all; no prereq.; I-II MTWThF; P 210) Thiel
100. **Field Work in Northern Minnesota.** (July 15 to 30, approximately) Selected areas in the iron districts of Minnesota. (3 cred.; jr., sr.; prereq. 25) Gruner
- 150.† **Field Geology (Black Hills).** (June 15 to July 15, approximately) (Cred. ar.; jr., sr., grad.; prereq. 125) Swain
170. **Geologic Problems.** (3 cred.; jr., sr., grad.; prereq. consent of major adviser; ar.; ar.) Thiel

Second Term

2. **Historical Geology.** A study of the probable conditions of earth origin, the antiquity of the earth and the evolution of the continents and of the life that inhabited the seas and the land areas of past ages. (5 cred.; all; prereq. 1 or 8; I-II MTWThF; P 110) Sloan
170. **Geologic Problems.** (See first term) Sloan

In addition to the courses definitely offered, graduate students may register for Geology 211, 241, 243, or 245 and do their work under the supervision of the instructors in residence.

Note—For further information see instructors.

GERMAN

First Term§

1. **Beginning German.** (5 cred.; all; no prereq.; I-II MTWThF; F 209½) Downs
3. **Beginning German.** (5 cred.; all; prereq. 2 or two years of high school German; I-II MTWThF; F 209) Staff
4. **Intermediate German.** (5 cred.; prereq. 3 or three years of high school German; I-II MTWThF; F 209) Staff
- 110a.* **Walther von der Vogelweide and the Medieval Minnesang.** (3 cred.; sr., grad.; prereq. 72 or equiv. and 11 cred. above 59; VI-VII MTh; F 208) Downs
- 153.* **Thomas Mann.** The problem of the artist and humanism. (3 cred.; sr., grad.; prereq. 72 or equiv. and 11 cred. above 59; VI-VII TF; F 208) Ramras

DEUTSCHES HAUS¶

22. **Intermediate Conversation and Oral Practice.** (Offered only in German House) This course is intended for students who understand German fairly well but who need assurance in self-expression and a basic active vocabulary.

† A maximum of 6 credits will be granted after report is completed.

§ See Foreign Language Auxilium.

¶ See Modern Language Institute.

A thorough study will be made of the material to be used in the conversation sections for the day. Then the students will subdivide into smaller groups and their entire time be devoted to actual conversation under the supervision of native teachers. (5 cred.; prereq. 1 and 2 or equiv.) Staff

66. **Advanced Oral Practice and Self-Expression.** (Offered only in German House) This course is intended primarily to develop self-confidence in expressing ideas in German. It will consist of daily training in current German based on the techniques used by the Army Language Training School; prepared discussion on assigned topics with definite vocabulary preparation, short debates, oral reports, and oral criticisms of books and articles. (5 cred.; prereq. 3 and 4 or equiv.) Staff
107. **German Stylistics.** (Offered only in German House) The purpose of this course is to enable advanced students and especially teachers of German to acquire a finer feeling for German style, a sense for shades of expression, and a complete mastery of certain grammatical and idiomatic difficulties. Model selections of prose will form the basis for imitative composition. The course aims to strengthen the background and broaden the range of the American teacher of German. (4 cred.; prereq. consent of instructor) Staff

Second Term

2. **Beginning German.** (5 cred.; all; prereq. 1 or one year of high school German; I-II MTWThF; F 209½) Prottegeier

HISTORY

First Term

1. **Civilization of the Modern World, Part I.** (3 cred.; all; no prereq.; II MTWThF; ForH 120) Bowman
20. **American History, Part I.** (3 cred.; all; no prereq.; I MTWThF; ForH 140) Rogers
21. **American History, Part II.** (3 cred.; all; no prereq.; II MTWThF; ForH 140) Rogers
86. **American Colonies, Part I.** (3 cred.; jr., sr.; II MTWThF; ForH 115) Tyler
101. **History of the Ancient Near East, Part II.** (3 cred.; jr., sr., grad.; IV MTWThF; ForH 115) Jones
109. **Europe in the Twentieth Century, Part I.** (3 cred.; jr., sr., grad.; III MTWThF; ForH 120) Bowman
117. **European Overseas Expansion, Part III.** (3 cred.; jr., sr., grad.; II MTWThF; ForH 185) Willson
- 130a. **Modern England, Part III.** (3 cred.; jr., sr., grad.; IV MTWThF; ForH 175) Willson
- 137a. **American History, Part I.** (3 cred.; jr., sr., grad.; II MTWThF; ForH 160) Loehr
145. **American Folklore, Part III.** (3 cred.; jr., sr., grad.; I MTWThF; ForH 185) Jordan
147. **American Economic and Social History, Part II.** (3 cred.; jr., sr., grad.; III MTWThF; ForH 160) Loehr
149. **American Social and Intellectual History, Part I.** (3 cred.; jr., sr., grad.; III MTWThF; ForH 115) Tyler
- 187d. **Readings in Nineteenth-Century American History, Part III.** (3 cred.; sr., grad.; III MTWThF; ForH 175) Jordan

200. **Historical Bibliography and Criticism.** (Required of all candidates for advanced degrees) (3 cred.; I MTWThF; ForH 175) Jones

Second Term

2. **Civilization of the Modern World, Part II.** (3 cred.; all; no prereq.; I MTWThF; ForH 115) Bowditch
3. **Civilization of the Modern World, Part III.** (3 cred.; all; no prereq.; II MTWThF; ForH 160) Wolf
22. **American History, Part III.** (3 cred.; all; no prereq.; I MTWThF; ForH 120) Chambers
80. **The United States in the Twentieth-Century, Part II.** (3 cred.; jr., sr.; no prereq.; III MTWThF; ForH 155) Chambers
87. **American Colonies, Part II.** (3 cred.; jr., sr.; II MTWThF; ForH 120) Osgood
89. **Economic History of Modern War.** (3 cred.; jr., sr.; II MTWThF; ForH 115) Bowditch
110. **Europe in the Twentieth Century, Part II.** (3 cred.; jr., sr., grad.; IV MTWThF; ForH 115) Wolf
- 124.*† **Scandinavian History Since 1809.** (3 cred.; jr., sr., grad.; I MTWThF; F 12) Sandler
- 148 **American Economic and Social History, Part III.** (3 cred.; jr., sr., grad.; III MTWThF; ForH 115) Beatty
158. **Latin-American History, Part II.** (3 cred.; jr., sr., grad.; I MTWThF; ForH 160) Beatty
- 186a. **Readings in the West in American History, Part II.** (3 cred.; sr., grad.; III MTWThF; ar.) Osgood

HOW TO STUDY

See General Studies, Personal Orientation.

HUMANITIES

See General Studies.

ITALIAN

See Romance Languages.

SCHOOL OF JOURNALISM¶

First Term

55. **Advertising and Newspaper Typography.** The principles of graphic presentation. Newspaper make-up. Preparation of layouts for advertisements and printed pieces. Instructions in handling headline forms, copy blocks, illustrations, borders, decorations, and other typographical and make-up problems. Appropriate uses of types. Practical work in hand composition. The course is planned for supervisors of school publications as well as for undergraduate majors in

† No knowledge of a Scandinavian language required.

¶ See Journalism and Communications under Special Features.

journalism. (3 cred.; jr., sr.; prereq. for journalism majors, Senior College standing; for minors, 11 and 41)

Lect. VI MW, MurH 302, Wilson

Lab. 1, VI-VII TTh, MurH 315, Wilson
2, VII-VIII MW, MurH 315,
Wilson

73. **Magazine Writing.** Planning and writing feature articles for general, class, and trade publications; marketing manuscripts; employe and industrial journal problems; problems of magazine editing. (3 cred.; jr., sr.; prereq. 15, 19, or consent of instructor; II MTWThF; MurH 302) Charnley
82. **Supervision of School Publications.** Practical consideration of teaching, editorial, business management, and production problems facing supervisors of high school, junior college, and teachers college newspapers, magazines, year-books. (3 cred.; jr., sr.; prereq. consent of instructor; I MTWThF; MurH 311) Wilson
103. **Literary Aspects of Journalism.** The literary, creative aspects of journalism as exemplified in the works of English and American fiction writers, poets, critics, essayists, and humorists. Lectures, discussions, and weekly papers. (3 cred.; jr., sr., grad.; prereq. consent of instructor; III MTWThF; MurH 311) Ford
- 115.* **Communication Media Analysis.** Methods for analyzing the content and reader- or listenership of newspapers, periodicals, broadcasts, and motion pictures. Attitude studies and reading tests involving these media. (3 cred.; jr., sr., grad.; prereq. 51 and consent of instructor, or Economics 5 or Psychology 70 or equiv. and consent of instructor; IV MTWThF; MurH 311) Jones
- 230.* **Seminar in Public Opinion and Propaganda.** The theoretical bases of public opinion and propaganda. Studies of the developing literature in this field. Topics in the opinion-making processes. Studies of recent research in the field of organized persuasion. (3 cred.; grad.; prereq. 130-131 or consent of instructor; ar.; ar.) Jones

Second Term

- 110.* **History of Journalism.** The course begins with the rise of the popular press in the 1830's and deals generally with the emergence of the modern newspaper in America. Stress is placed on the major social influences that have shaped the pattern of the press. Contributions of leading publishers and editors are discussed. (3 cred.; jr., sr., grad.; II MTWThF; MurH 311) Price
- 125.* **Communication Systems of the Free World.** Methods of studying communication systems of other countries. Sources of information. The role of the mass media in the major countries of the free world. Press reconstruction in "liberated" countries. (3 cred.; jr., sr., grad.; prereq. 15 cred. in social sciences, preferably including Senior College work in international relations, or consent of instructor; III MTWThF; MurH 302) Nixon

LATIN

See Classics.

LIBRARY SCHOOL

The Library School offers in cooperation with the Graduate School a program leading to the Master's degree with a major in library science. This is the only program preparing for full-time professional library work. In addition, the school offers, through the College of Education, a minor of 23 credits in library science to prepare students for part-time library work in connection with teaching. For requirements see the Library School bulletin.

Students who have work in progress for the B.S. in L.S. degree or the B.S. with a major in library science may continue in the program, but they should complete their degree work by 1955.

Students who expect to enroll in the fall of 1954 for the Master's program with a major in library science and who do not meet the library science course requirements for admission are urged to register for Library Science 50, 55, 62, 70, and 81 this summer.

First Term

- 53. **School Library Management.** Principles and methods. (3-4 cred.; no prereq.; II MTWThF; Lib 4b) Fitch
- 55. **Library Administration.** (3 cred.; I MTWThF; Lib 4a) Berninghausen
- 61. **Library Practice.** (1-3 cred.; 18 cred. in library science or satisfactory library experience; ar.) Sullivan
- 62. **Reference I.** General reference tools and other sources of information in reference work; theory and practice of reference work. (3 cred.; no prereq.; III MTWThF; Lib 4a) Fulmer
- 81. **Bibliographical Description of Library Materials.** The description of books and other materials in bibliographies and library catalogs. (3 cred.; no prereq.; IV MTWThF; Lib 4a) Ar.
- 82. **Subject Organization of Library Materials.** The structure of subject bibliographies, library classification and subject headings. (3 cred.; prereq. 81; II MTWThF; Lib 4a) Ar.
- 131. **Library Extension and Development.** (3 cred.; no prereq.; I MTWThF; Lib 4b) Fulmer
- 172. **Reading Guidance for Adolescents.** (3 cred.; prereq. 70; IV MTWThF; Lib 4b) Fitch
- 185. **Special Problems.** Individual study on library problems for advanced students in library science. (1 to 3 cred.; prereq. approval of director, Library School; ar.) Shove, Fulmer
- 260. **Seminar in Advanced Bibliography.** Literature of the social sciences. (3 cred.; ar.) Shove
- 262. **Seminar in Advanced Bibliography.** Science Literature. (3 cred.; ar.) Shove

Second Term

- 50. **Libraries and Society.** History and types of libraries, agencies and services; libraries in the modern world; librarianship as a profession. (3 cred.; no prereq.; I MTWThF; Lib 4a) Shove
- 61. **Library Practice.** (See first term) Sullivan
- 70. **Reading Guidance.** The library user, his personality and background; the matching of book and user. (3 cred.; no prereq.; II MTWThF; Lib 4b) Fulmer
- 151. **Invention and Spread of Printing.** History of the development of printing and its spread to the end of the fifteenth century. (2 cred.; no prereq.; II MTWTh; Lib 4a) Shove
- 163. **Reference II.** Reference work in subject fields; the reference department; practical bibliography. (3 cred.; prereq. 62; IV MTWThF; Lib 4a) Ar.
- 173. **Adult Reading Guidance.** (3 cred.; prereq. 70; III MTWThF; Lib 4a) Fulmer
- 185. **Special Problems.** (See first term) Shove, Fulmer
- 255. **Seminar in Library Administration.** Personnel Administration. (3 cred.; ar.) Hopp

271. **Library Work with Children and Young People.** (3 cred.; ar.) Fitch
 272. **Library Work with Children and Young People.** (3 cred.; ar.) Fitch

MATHEMATICS

See also Mathematics, Institute of Technology.

First Term

1. **Higher Algebra.** A collegiate treatment of the topics of elementary algebra for those who have had one year of elementary algebra. (5 cred.; all; prereq. one year of elementary algebra in high school; open for credit to any student offering not more than one-half year of high school higher algebra for entrance credit and to other students who obtain permission from the department; I-II MTWThF; F 105) Yeh
6. **Trigonometry.** A treatment of plane trigonometry and logarithms. (5 cred.; all; prereq. plane geometry and either 1 or high school higher algebra; open for credit even to students offering high school trigonometry for entrance; I-II MTWThF; F 104) Kimme
15. **Elementary Mathematical Analysis I.** This, together with 16, provides a course for premedical and other students who desire a survey of college mathematics including trigonometry, algebra, and calculus with emphasis on fundamental ideas rather than on technical preparation for more advanced courses in mathematics. (5 cred.; all; prereq. plane geometry and either 1 or high school higher algebra; credit cannot be obtained for both 7 and 15 or 8 and 15; III-IV MTWThF; F 105) Shapiro
50. **Calculus I: Differential Calculus.** Includes derivatives and differentials of elementary functions; curve tracing; definitions of velocity, acceleration, etc.; maxima and minima; related rates; mean value theorems; indeterminate forms; infinite series; expansions of functions. (5 cred.; jr., sr.; prereq. 30; III-IV MTWThF; F 104) Gibbens
109. **Theory of Numbers.** Elementary properties of integers; prime and composite numbers; Euclid's algorithm; congruences; the theorems of Fermat and Wilson; primitive roots; indices; Pythagorean and Heronian triangles; Diophantine equations. (3 cred.; jr., sr., grad.; prereq. 51; II MTWThF; F 101) Kalisch
126. **Calculus of Finite Differences.** The basic definitions and formulas with applications to the summation of series; interpolation; numerical integration; solution of simple difference equations; analogy between the calculus of finite differences and infinitesimal calculus; introduction to the Euler-Maclaurin summation formula. (3 cred.; jr., sr., grad.; prereq. 51; I MTWThF; F 101) Loud
130. **Elementary Theory of Summability.** Review of the concepts of convergence and divergence of sequences and series. Criteria for convergence and divergence. Summability introduced as a generalization of convergence, exemplified by Cesàro, Hölder, Abel, Toeplitz, Hausdorff methods. Applications to Cauchy products of series, evaluation of limits by Abel summability, Fourier series (Féjer's theorem). Discussion of the case of continuous parameters. (3 cred.; jr., sr., grad.; prereq. 51; IV MTWThF; F 101) Kalisch
135. **Integral Equations.** An introduction to integral equations with emphasis on applications and techniques of solution including the Fredholm formula, Neumann series, Laplace transforms, successive approximations and numerical methods. The relation of integral equations to systems of linear algebraic equations and to differential equations. (3 cred.; jr., sr., grad.; prereq. 51; III MTWThF; F 101) Loud

Second Term

6. **Trigonometry.** (See first term) (I-II MTWThF; F 105) O'Neill
7. **College Algebra.** Selected topics in algebra commencing with quadratic equations and extending through the theory of equations, probability, and determinants, omitting logarithms. (5 cred.; all; prereq. 1 or high school higher algebra; III-IV MTWThF; F 104) Lewis
16. **Elementary Mathematical Analysis II.** (See 15, first term) (5 cred.; all; prereq. 15; III-IV MTWThF; F 105) Olmsted
112. **Mathematical Reasoning and Theory of Sets.** Basic properties of the operations of set algebra. Partial ordering and Boolean algebras. Denumerability and applications. Cardinal numbers. Implication and negation. The nature of mathematical proof. Counterexamples. Construction of definitions. (3 cred.; jr., sr., grad.; prereq. 51; II MTWThF; F 101) Slye
137. **Advanced Theory of Equations.** Reciprocal equations, regular polygons, solution of cubic and quartic equations, symmetric equations, elimination, resultants, discriminants, indeterminate equations. (3 cred.; jr., sr., grad.; prereq. 51 and 62; IV MTWThF; F 101) Slye
141. **Mathematics of Transient Analysis.** A treatment of the problems of transients in physical systems which are governed by linear differential equations. The methods will be those of Heaviside operational calculus and the Laplace transform, both of which will be developed to the extent necessary. Applications in the fields of communication and automatic control (servomechanisms). (3 cred.; jr., sr., grad.; prereq. 51; I MTWThF; F 101) Gelbaum
176. **Intermediate Differential Equations.** Topics in differential equations not contained in a first course but not requiring a broad background of analysis. Emphasis on linear equations of second order of interest in physics. (3 cred.; jr., sr., grad.; prereq. 106; III MTWThF; F 101) Gelbaum

MUSIC**First Term**

- A. **Piano.** (No cred.; for students without entrance requirements in piano; no prereq.; two lessons a week; ar.; ScH 107) Rymer, Weiser
- D. **Voice.** (No cred.; for students without entrance requirements in voice; no prereq.; two lessons a week; ar.; ScH 107) Stern
1. **Fundamentals of Music.** (2 cred.; nonmusic majors—primarily child welfare students and elementary teachers; no prereq.; IV MTWThF; NMA 4) Sperry
- 7B. **Ear Training.** Résumé of aural work included in Music Theory 4T-6T, with concentration on its application. (3 cred.; prereq. consent of instructor; no credit allowed if comparable course taken in regular academic year; I, IV MTWThF; ScH 103) George
- 8A. **Harmony.** Résumé of part-writing and harmonization of chorales which are included in Music 1T-3T with concentration on their application. (3 cred.; prereq. consent of instructor; no credit allowed if comparable course taken in regular academic year; II, VI MTWThF; ScH 103) George
10. **Introduction to Music.** A lecture and laboratory course introducing the student to the basic elements of music, such as notation and the characteristics of musical tone, together with a study of fundamental musical concepts of rhythm, melody, harmony, polyphony, and form. These musical concepts will be demonstrated by recordings and performance of music of all types in western

civilization. This course together with Art 1 and Philosophy 4 forms a sequence in Fine Arts. (4 cred.; no prereq.; IV, V MTWThF; ScH 4) Riedel

11. **Piano.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Rymer, Weiser
12. **Voice.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Stern
13. **Violin.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Cullen
- 13B. **Violin.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Ar.
14. **Viola.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Ar.
15. **Cello.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Jamieson
16. **Double Bass.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Fitch
17. **Flute.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Arnegard, Opava
18. **Oboe.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Angelucci
19. **Clarinet or Saxophone.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Fitch, Handlon
20. **Bassoon.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Santucci
21. **Trumpet.** Two lessons a week. (2-4 cred.; ar.; ScH 107) MacKay
22. **French Horn.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Linder
23. **Trombone.** Two lessons a week. (2-4 cred.; ar.; ScH 107) MacKay
24. **Tuba.** Two lessons a week. (2-4 cred.; ar.; ScH 107) MacKay
25. **Percussion.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Ar.
26. **Harp.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Miller
27. **Organ.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Berryman
- 33A. **Music Literature.** Primarily for students not majoring in music. Study of various styles, forms, and types of music. (3 cred.; all; no prereq.; II MTWThF; ScH 104) Downes
46. **Concert Band.** (3 cred.; prereq. consent of instructor; VII MTWThF; NMA 4) Sperry
- 60B, 61B, 62B. **Instrumental Ensemble.** (2 cred.; jr., sr.; prereq. consent of instructor; ar.; ScH 107) Ar.
- 104A. **American Music.** A study of music in America from early colonial times to the present through reading and record listening. (3 cred.; sr., grad.; III MTWThF; ScH 104) Riedel
126. **History of Opera.** (3 cred.; jr., sr., grad.; prereq. 9 cred. in either History of Music, History of Art, History of Theatre, European History from 1600, or consent of instructor; V MTWThF; ScH 104) Downes
- 127-128-129. **Composition.** (2 cred.; sr., grad.; prereq. 97-98-99 and 121-122-123; V MTWThF; ScH 103) George
184. **International Music Festivals.** An intensive and comparative study of music history and literature in performance at the international music festivals in Europe. (3-12 cred.; jr., sr., grad.; prereq. 6 cred. in either Music Literature, Introduction to Music, History of Music, History of the Theatre, European History from 1600, or consent of instructor; ar. [See Special Features]) Ar.
204. **Graduate Applied Music.** (3 cred.; prereq. placement test by Music Dept. staff; ar.; ScH 107) Ar.
- 212.* **Special Problems.** (3 to 9 cred.; grad.; prereq. 202 or 211; VII TTh; ScH 104) Riedel
- 227-228-229. **Seminar in Composition and Orchestration.** (3 cred.; grad.; prereq. consent of instructor; V MTWThF; ScH 103) George

Second Term

- A. Piano.** (See first term) Kendall
- D. Voice.** (See first term) Schuessler
- 1. Fundamentals of Music.** (See first term) (I MTWThF; ScH 104) Kendall
- 7A. Ear Training.** Résumé of aural work included in Music Theory 1T-3T, with concentration on its application. (3 cred.; prereq. consent of instructor; no credit allowed if comparable course taken in regular academic year; I, IV MTWThF; ScH 103) Fetler
- 8B. Harmony.** Résumé of part-writing and harmonization of chorales which are included in Music 4T-6T, with concentration on their application. (3 cred.; prereq. consent of instructor; no credit allowed if comparable course taken in regular academic year; II, VI MTWThF; ScH 103) Fetler
- 11. Piano.** (See first term) Kendall
- 12. Voice.** (See first term) Schuessler
- 13 through 27.** (See first term)
- 31A. Music Literature.** (See 33A, first term) (III MTWThF; ScH 4) George
- 60B, 61B, 62B. Instrumental Ensemble.** (See first term) Ar.
- 76. Form and Analysis.** (3 cred.; jr., sr.; prereq. 6T; II MTWThF; ScH 104) George
- 106A. American Music.** (See 104A, first term) (IV MTWThF; ScH 104) Oberg
- 127-128-129. Composition.** (See first term) Fetler
- 184. International Music Festival.** (See first term) Ar.
- 204. Graduate Applied Music.** (See first term) Ar.
- 209-210-211. Advanced Topics.** (3 cred.; grad.; III MTWThF; ScH 104) Oberg
- 212.* Special Problems.** (See first term) V TTh; ScH 104) Oberg
- 227-228-229. Seminar in Composition and Orchestration.** (See first term) (V MTWThF; ScH 4) George

PERSONAL ORIENTATION

See General Studies.

PHILOSOPHY

First Term

- 1. Problems of Philosophy.** Introduction to the subject; the main fields of investigation; permanent problems; principal methods and schools of philosophy; historical and contemporary views. (3 cred.; soph., jr., sr.; no prereq.; I MTWThF; WeH 202) Brodbeck
- 2. Logic.** A study of the difference between logical and fallacious reasoning; the functions and uses of language; rules of good definition and sound argument. (3 cred.; soph., jr., sr.; no prereq.; II MTWThF; WeH 202) Terrell
- 105. Introduction to American Philosophy: Puritanism to Pragmatism.** (Formerly Phil. 114) (3 cred.; jr., sr., grad.; especially for students of American history and literature; II MTWThF; JohH 113) Brodbeck
- 107. Philosophy in Modern Literature.** (Formerly Phil. 135) A survey of basic philosophical ideas in modern civilization as they are expressed in major works of literature. (3 cred.; jr., sr., grad.; no prereq.; III MTWThF; JohH 310) Terrell

160. **Philosophy of Science.** (Formerly Phil. 153) An attempt to provide a clear understanding of the meaning, methods, and implications of modern science through the examination of basic concepts, presuppositions, and procedures. The topics include description, explanation, prediction, experimentation; space, time, number, matter, energy; causality, probability, statistics; organic life, evolution, mind. (3 cred.; jr., sr., grad.; prereq. 2 or consent of instructor; III MTWThF; WeH 202) Flew

Second Term

2. **Logic.** (See first term) (I MTWThF; WeH 202) Shaw
3. **Ethics.** An examination of the problems which arise when human beings attempt to think systematically about conduct and values (are there absolute standards?—the problem of free will), and a survey of historical views about the right and the good. (3 cred.; soph., jr., sr.; no prereq.; III MTWThF; WeH 202) Raab
50. **History of Philosophy (ancient).** A survey of Greek philosophy from Thales to (and including) Aristotle. (3 cred.; soph., jr., sr.; no prereq.; II MTWThF; WeH 202) Shaw
137. **Kierkegaard and Scandinavian Philosophy.** (Formerly Phil. 113) A study of the philosophical tradition in the Scandinavian countries with special reference to Kierkegaard and his significance. (3 cred.; jr., sr., grad.; prereq. one course from 50-51-52 or consent of instructor; II MTWThF; JohH 113) Holmer
140. **Contemporary Philosophy.** (Formerly Phil. 115) A study of current systematic and critical philosophies, especially idealism, naturalism, realism, pragmatism, positivism, and existentialism, as represented by their principal exponents. (3 cred.; jr., sr., grad.; prereq. 52 or consent of instructor; IV MTWThF; JohH 113) Raab
182. **Philosophy of Religion.** Discussion of the ground and sanctions of religion, according to various philosophies. (3 cred.; jr., sr., grad.; prereq. 6 cred.; III MTWThF; JohH 113) Holmer

PHYSICAL EDUCATION FOR WOMEN

The following courses may be taken for elective credit in the College of Science, Literature, and the Arts:

First term: Phys.Ed. 7, 8, 13, 18, 32, 37.

Second term: Phys.Ed. 12.

PHYSICS

First Term

1. **Introduction to Physical Science.** Mechanics and heat. Lectures and experimental demonstrations. (3 cred.; all; prereq. high school algebra and plane geometry; lect. I MTWThF; Ph 133) Valasek
- 1a. **Introduction to Physical Science.** Mechanics and heat. Lab. (two 2-hr. periods) included. May be applied toward group requirements in SLA. (4 cred.; all; prereq. high school algebra and plane geometry) Valasek

Lect. I MTWThF, Ph 133

Lab. 1, III-IV TTh, ar.
2, VI-VII MW, ar.

13. **General Physics for Engineers, Part I.** Third quarter of sequence. Sound and light. Lab. (one 2-hr. period) included. (2½ cred.; all; prereq. 11 and 12 or equivalent and registration in analytical geometry) Valasek

Lect. and quiz III MTWThF, Ph 166

Lab. 1, I-II T, ar.

2, I-II W, ar.

Lab. 3, VI-VII W, ar.

4, VI-VII T, ar.

Second Term

2. **Introduction to Physical Science.** Electricity and magnetism. (See 1, first term) (3 cred.; lect. I MTWThF; Ph 133) Ar.

- 2a. **Introduction to Physical Science.** Electricity and magnetism. (See 1a, first term) Lab. (two 2-hr. periods) included. (4 cred.) Ar.

Lect. I MTWThF, Ph 133

Lab. 1, III-IV TTh, ar.

2, VI-VII MW, ar.

13. **General Physics for Engineers, Part II.** (See first term) Ar.

Lect. and quiz III MTWThF, Ph 166

Lab. 1, I-II T, ar.

2, I-II W, ar.

Lab. 3, VI-VII W, ar.

4, VI-VII T, ar.

POLITICAL SCIENCE

First Term

- A. **The State in the Modern World.** (Part A of A-B-C) The development, principles, structure, and operation of the modern nation state. (3 cred.; all; no prereq.; IV MTWThF; ForH 180) Sibley

1. **American Government and Politics.** (Part 1 of 1-2-3) An examination of the fundamentals of American government, nature and growth of the Constitution, citizenship, individual rights and liberties, political parties, public opinion, nominations, and elections. (3 cred.; all; no prereq.; III MTWThF; ForH 180) Christensen

25. **World Politics.** An introduction to the field of contemporary international relations, the policies of the great powers today, nationalism, internationalism, Europe and the postwar settlement. (3 cred.; no prereq.; II MTWThF; ForH 55) Mills

120. **Municipal Functions.** A general survey of "line" functions: safety, health, welfare, works, utilities, etc. (3 cred.; prereq. 6 cred. or consent of instructor; II MTWThF; ForH 150) Ludwig

137. **American Political Parties.** The role and functions of the party in American government; party composition and organization; the process of nomination and policy formulation; the regulation of party organization and activities. (3 cred.; jr., sr., grad.; prereq. 6 cred. or consent of instructor; I MTWThF; ForH 115) Christensen

163. **The Political Theory of Utopia.** An examination of selected great utopias from the viewpoint of the political theorist; the idea of planning in ideal states; the achievement of utopia; stability and change in the great utopias; the problem of authority and law; anarchist, socialist, and conservative utopias; utopia and totalitarian idealogy; utopia and democratic ideology. (3 cred.; jr., sr., grad.; prereq. 6 cred. or consent of instructor; III MTWThF; ForH 155) Sibley

187. **Problems of European Organization.** Plans for political, economic and social organization of Europe; contributions of European and non-European nations toward organization; present situation in key states; politics of organization. (3 cred.; jr., sr., grad.; prereq. 6 cred. or consent of instructor; I MTWThF; ForH 85) Levi

197. **The Mediterranean Area in World Affairs.** Economic, political, and strategic conditions; policies of the European and Asiatic states; post-war conflict of interests between the Western powers and Russia. (3 cred.; jr., sr., grad.; prereq. 25 or History 125a-126a-127a; III MTWThF; ForH 80) Mills

Second Term

- B. **The State in the Modern World.** (Part B of A-B-C) (See A, first term) (3 cred.; IV MTWThF; ForH 185) Lindblad
2. **American Government and Politics.** (Part 2 of 1-2-3) Organization of national, state, and local government; legislative, executive, and judicial branches and their procedures. (3 cred.; all; no prereq.; II MTWThF; ForH 185) McLaughlin
100. **The Constitution and Social Change.** Constitutional problems involved in the use of political authority to carry on social and economic organization; attention will be given to the historical background of these problems, with emphasis on recent trends in constitutional interpretation. (3 cred.; jr., sr., grad.; no prereq.; I MTWThF; ForH 150) Warp
114. **Institute on Minnesota Government and Politics.** Panels of public officials will discuss topics under the chairmanship of University of Minnesota professors. Topics will include the following: Does Minnesota Need a New Constitution, How Can Minnesota's Political Parties Be Made More Responsible, Should Minnesota's Legislators Be Elected on a Party Basis, Minnesota's Reapportionment Problems, Administrative Reorganization in Minnesota, Financing Our State, The Improvement of Civil Service in Minnesota, Proposals for Reforming Minnesota's Judicial System, The Problems of Local Government in Minnesota, Avenues of Citizen Participation in Minnesota Government. In addition, the Institute will feature group discussions, a field trip to the State Capitol Building in St. Paul, and a dinner meeting which will be addressed by principal state officers. (3 cred.; jr., sr., grad.; no prereq.; III-IV MTWThF, July 19-30 only; ar.) Warp and others
- Note**—Students enrolled in the Institute may also enroll in Course 115 which will be given during the last three weeks of the term.
115. **State Government.** A study of government and administration in the American states with special reference to Minnesota. (3 cred.; jr., sr., grad.; prereq. 6 cred.; III-IV MTWThF August 2-21; ForH 150) Short
- Note**—This course is open to Summer Session students whether they enroll for Course 114 or not.
116. **Local Government.** The structure and legal status of counties, cities, villages, and townships, with special reference to Minnesota. (3 cred.; jr., sr., grad.; prereq. 6 cred.; II MTWThF; ForH 140) Naftalin
- 129.*† **Social Legislation and Social Institutions in the Scandinavian Countries.** (3 cred.; jr., sr., grad.; prereq. Soc. 1 or consent of instructor; III MTWThF; F 12) Sandler
138. **American Political Campaigns and Elections.** The dynamics of politics in action, covering the function of the political party, leadership, formation of public opinion, party finance, and campaign methods. (3 cred.; jr., sr., grad.; prereq. 6 cred.; IV MTWThF; ForH 180) Naftalin
183. **Recent Problems in International Law.** A survey of recent legal problems in connection with military occupation, war crimes, use and outlawry of atomic weapons, international guarantees of civil liberties, the veto power and regional

† No knowledge of a Scandinavian language is required.

defense pacts in the UN security system. Suggestions for the modernization of international law; prospects for codification. (3 cred.; jr., sr., grad.; no prereq.; I MTWThF; ForH 140) McLaughlin

PSYCHOLOGY

First Term

- 1-2.† **General Psychology.** An introductory survey of psychology; its materials, fundamental laws, applications, and relations to other sciences. (6 cred.; soph., jr., sr.; no prereq.; I-II MTWThF; FraH 102) MacCorquodale, Russell
- 4-5.† **Introductory Laboratory Psychology.** Simple experiments illustrating subject matter of contemporary psychology. Included are human and animal learning, visual experience, differences in artistic, musical, and other kinds of abilities, measurement of each student's personality traits, and reactions to advertisements. (4 cred.; soph., jr., sr.; prereq. general psychology; I-III MTWThF; Psy 211) Peterson
90. **Readings in Psychology.** (Cred. ar.; jr., sr.; prereq. 1-2 and 3 additional cred. and written consent of instructor; hrs. ar.) Russell
- 125-126.¶ **Psychology of Individual Differences.** Quantitative studies of such factors as age, sex, race, and nationality, physical traits, family heredity, and environment in the causation of individual differences in abilities and temperament. (6 cred.; sr., grad.; prereq. 1-2, 4-5, or 5 cred. in statistics; II-III MTWThF; WuH 201) Jenkins
- 144-145.† **Abnormal Psychology.** Normal and abnormal behavior contrasted. Emphasis on the dynamics, and particularly the social determinants, of personality maladjustments. (6 cred.; jr., sr., grad.; prereq. 9 cred. in psychology or 6 cred. in psychology and either Zoology 1-2-3 or 12 cred. in social science; II-III MTWThF; NHAud) Bird
- 171-172.† **Clinical Psychology.** A survey of the methods of clinical psychology emphasizing basic concepts and research problems, especially in a psychiatric setting. Topics include the theory of diagnosis, the history and mental status, structured tests, the major diagnostic groups, psychological deficit, prediction, psychotherapy, and interprofessional relations. (6 cred.; sr., grad.; prereq. 145 and a course in mental measurements or statistics. Students intending to use this course professionally should postpone taking it until they are in the Graduate School; II-III MTWThF; Psy 115) Schofield
210. **Research Problems.** Laboratory investigations. (Cred. ar.; grad. students only; hrs. ar.) Russell
250. **Topics in Psychology.** (Cred. ar.; grad. students only, with consent of instructor; hrs. ar.) Russell

Second Term

- 1-2.† **General Psychology.** (See first term) (II-III MTWThF; WuH 202) Bastian
- 4-5.† **Introductory Laboratory Psychology.** (See first term) (II-IV MTWThF; Psy 211) MacKinney
156. **Psychology of Advertising.** Psychological analysis of the basic principles underlying advertising and selling. Consumer research is stressed. Research techniques for investigating advertising problems and the analysis of consumer

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

¶ 126 may not be taken until after completion of 125.

wants are considered in detail. (3 cred.; jr., sr., grad.; prereq. 1-2 and principles of economics; II MTWThF; P 2) Longstaff

160. **Psychology in Personnel Work.** Psychology as applied to selection and retention of a stabilized personnel. The standardized interview; principles and technique of employment tests; methods of judging character qualities; the rating scale; personnel classification methods. (3 cred.; jr., sr., grad.; prereq. 1-2, 4-5, or 3 cred. in statistics, and principles of economics or consent of instructor; III MTWThF; P 2) Longstaff

ROMANCE LANGUAGES

First Term¶

FRENCH

1. **Beginning French.** (5 cred.; all; no prereq.; I-II MTWThF; F 202) Ar.
- 3-4. **Intermediate French.** (Students receive credit either for 3 or for 4) (5 cred.; all; prereq. 2 or 3 or two or three years of high school French; I-II MTWThF; F 201) Ar.
75. **French Civilization and Culture.** (Course conducted in French) Equivalent to 75f. (2 cred.; jr., sr.; prereq. 3-4; II TWThF; F 302) Blinoff
- 159.* **Contemporary French Literature: Mauriac, Bernanos, Sartre.** (Course conducted in French) Equivalent to 159s. (2 cred.; jr., sr., grad.; prereq. Survey of French Literature or equiv.; IV TWThF; F 307) Blinoff
- 259.* **Directed Readings in French.** (Cred. ar.; grad.; prereq. consent of instructor; ar.; ar.) Blinoff

MAISON FRANCAISE†

22. **Practical French Conversation.** (Offered only in French House) The primary purpose of this course is to build a practical vocabulary and to give the students an opportunity to use it appropriately in small drill sections under the guidance of native instructors. (5 cred.; prereq. 1-2 or equiv.) Carduner and staff
58. **Advanced Practical French Conversation.** (Offered only in French House) In this course, the students will acquire fluency by presenting short oral reports and participating in debates, etc. They will be divided into small groups under the guidance of native instructors. (5 cred.; prereq. 3-4 or equiv.) Carduner and staff
109. **Oral Diction.** (Offered only in French House) The purpose of this course is to enable advanced students to acquire a finer feeling for the language, a sense for shades of expression, a knowledge of specialized and technical vocabulary, and a complete mastery of certain grammatical and idiomatic difficulties. (4 cred.; prereq. consent of instructor) Carduner and staff

SPANISH

1. **Beginning Spanish.** (5 cred.; all; no prereq.; III-IV MTWThF; F 202) Ar.
- 3-4. **Intermediate Spanish.** (Students receive credit either for 3 or for 4) (5 cred.; all; prereq. 2 or 3 or two or three years of high school Spanish; III-IV MTWThF; F 201) Pattison

† See Modern Language Institute.

¶ See Foreign Language Auxilium

- 73a. Latin-American Civilization and Culture.** Mexico and Central America. (Course conducted in Spanish) (2 cred.; jr., sr.; prereq. 4 or equiv.; III TWThF; F 203) Rodgers
- 110.* Nineteenth-Century Spanish Literature: Drama.** Equivalent to 110f. (2 cred.; jr., sr., grad.; prereq. Survey of the Literature of Spain or consent of instructor; II TWThF; F 203) Pattison
- 259.* Directed Readings in Spanish.** (Cred. ar.; grad.; prereq. consent of instructor; ar.; ar.) Pattison

CASA HISPANICA†

- 22. Practical Spanish Conversation.** (Offered only in Spanish House) This course is intended for students who understand Spanish fairly well but need assurance in self-expression and a basic active vocabulary. Students divided into small groups will devote all their time to practical conversation under the guidance of native instructors. (5 cred.; all; prereq. 1-2 or equiv.) Rodgers and staff
- 58. Advanced Practical Spanish Conversation.** (Offered only in Spanish House) This course is intended primarily to develop self-confidence in expressing ideas in Spanish. The students will be divided into small groups for conversation on assigned topics, informal debates, and oral reports on current events, political and economic life, and development in Latin America and Spain. (5 cred.; all; prereq. 3-4 or equiv.) Rodgers and staff
- 109. Oral Diction** (Offered only in Spanish House) The purpose of this course is to study Spanish expression and enable advanced students and especially teachers of Spanish to acquire a finer feeling for the language and a mastery of certain grammatical and idiomatic difficulties. (4 cred.; jr., sr., grad.; prereq. consent of instructor) Rodgers and staff

ITALIAN

- 1. Beginning Italian.** Aural-oral approach. The aims of this course are as follows: (1) to master the fundamentals of Italian grammar and pronunciation (2) to enable the student to read simple prose texts (3) to offer a sound and practical basis for any future use of the language, whether for literary and educational pursuits or for business, travel, or social purposes. (4 cred.; all; no prereq.; II-III MTWTh; F 307) Pacifici

Second Term

FRENCH

- 2. Beginning French.** (5 cred.; all; prereq. 1 or one year of high school French; I-II MTWThF; F 202) Clefton
- 112.* Nineteenth-Century French Literature: Poetry.** (2 cred.; jr., sr., grad.; prereq. Survey of French Literature or equiv.; IV TWThF; F 203) Clefton
- 259.* Directed Readings in French.** (Cred. ar.; prereq. consent of instructor; ar.; ar.) Clefton

ITALIAN

- 2. Beginning Italian.** (See first term) (4 cred.; all; prereq. 1; II-III MTWTh; F 307) Pacifici

† See Modern Language Institute.

RUSSIAN

See index.

SCANDINAVIAN AREA STUDIES¶

Second Term

- Hist.124.*† Scandinavian History Since 1809.** (3 cred.; jr., sr., grad.; I MTWThF; F 12) Sandler
- Pol.Sci.129.*† Social Legislation and Social Institutions in the Scandinavian Countries.** (3 cred.; jr., sr., grad.; prereq. Soc. 1 or consent of instructor; III MTWThF; F 12) Sandler
- Phil.137. Kierkegaard and Scandinavian Philosophy.** (Formerly Phil. 115) (3 cred.; jr., sr., grad.; prereq. one course from 50-51-52 or consent of instructor; II MTWThF; JohH 113) Holmer
- Scand.162.*† The Contemporary Scandinavian Novel.** An examination of characteristic trends in Scandinavian life and thought in the twentieth century as expressed in the prose fiction of Sigrud Undset, Johannes V. Jensen, Olav Duun, Hjalmar Bergman, Pär Lagerkvist, Halldor Laxness, F. E. Sillanpää, and others. (3 cred.; jr., sr., grad.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature; II MTWThF; F 12) Gustafson
- Scand.172.*† Strindberg and the Drama in Revolt and Transition.** A study of Strindberg as master of the naturalistic drama and as "the father of modernity" in the European and American theatre since his day. (3 cred.; jr., sr., grad.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature; IV MTWThF; F 12) Gustafson

SCHOOL OF SOCIAL WORK

First Term

- Soc. 91. Case Method Applied to the Study of Human Problems.** (See Sociology) Saloshin
- C.W.140. Behavior Problems in Younger Children.** (See Institute of Child Welfare) Templin
- 205. Special Topics—Principles of Social Casework in Counseling.** An examination of the relationship between social work counseling and counseling in various other functions, such as educational counseling. (3 cred.; grad.; no prereq.; I MTWThF; ForH 130) Whitmore
- 293.* Special Studies in Social Work.** Supervised experience in research on an independent project to be offered for fulfillment of degree project requirements for the MSW degree. (1-9 cred.; grad.; prereq. 45 grad. cred. in social work) Whitmore

Second Term

- C.W.141. Behavior Problems in Older Children.** (See Institute of Child Welfare) Blodgett
- 275. Principles of Administration Applied to Social Work.** An analysis of the process of translating social policy into social services. (3 cred.; I MTWThF; ForH 175) Kidneigh
- 293.* Special Studies in Social Work.** (See first term) Kidneigh

† No knowledge of a Scandinavian language is required.

¶ See Foreign Language Auxilium conducted during the first term.

SOCIAL SCIENCE

See General Studies.

SLAVIC AND ORIENTAL LANGUAGES

First Term

RUSSIAN†

- 51-52-53. **Intensive Intermediate Russian.** Designed to meet the present need for students trained in the Russian language. This course offers twenty hours a week of spoken Russian. Class sections will be small and native speakers of Russian will serve as instructors. (9 cred.; prereq. 1 year previous study of Russian; I-IV MTWThF; TSF 253, 257, 259) Magner

SOCIOLOGY

First Term

1. **Introduction to Sociology.** A study of the characteristics of human group life. An analysis of the factors associated with the development of human group life and man's social environment; the structure of the social environment and its influence upon the individual's behavior. (3 cred.; no prereq.; II MTWThF; ForH 155) Sirjamaki
91. **Case Method Applied to the Study of Human Problems.** The general application of the interviewing method for students who plan to work professionally in fields involving human relationships, such as social work, public health nursing, speech pathology, etc. (3 cred.; jr., sr.; prereq. 49 or consent of major adviser; II MTWThF; ForH 170) Luck
123. **Intergroup Relations.** Interaction of social and cultural groups in America. Processes leading to group contact; characteristics and contributions of ethnic groups in the United States; mechanisms and problems of group adjustment. Democratic theory and practice; sources of prejudices; contemporary status of principal minority groups; international implications; trends and proposed solutions. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor; III MTWThF; ForH 185) Ramsey
152. **Contemporary American Culture.** A study of modern American culture and its major social institutions: the family, economic organizations, religion, government, and education. Social class and mobility; American values; cultural integration. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor; IV MTWThF; ForH 185) Sirjamaki
162. **Rural Social Institutions.** Factors in the rural environment which condition the functioning of rural social institutions, including the family, school, church, local government, health, and welfare. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor; I MTWThF; ForH 150) Ramsey

Second Term

1. **Introduction to Sociology.** (See first term) (II MTWThF; ForH 155)
Johnson

† See *Intensive Intermediate Russian* and *Foreign Language Auxilium* under Special Features.

49. **Social Problems.** A survey course in contemporary social problems with especial emphasis on personal demoralization and social disorganization. (3 cred.; no prereq.; IV MTWThF; ForH 155) Johnson
111. **Population Trends.** This course emphasizes the cultural and social phases of population change with particular reference to birth rates, death rates, and migration. The implications of population change are also discussed. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor; I MTWThF; ForH 185) Francis
120. **Social Psychology.** Research and theory regarding the relation of the individual to social groups. Emphasis on the socialization processes; effects of social interaction and isolation; individual behavior under conditions of social organization and disorganization; cultural influence and its limits. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor; III MTWThF; ForH 120) Francis
140. **Social Organization.** The organization and structure of social groups; basic culture patterns of economic, political, and social institutions. Integration and distintegration of social groups and institutions. Essentials of social dynamics. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor; II MTWThF; ForH 180) Taves

SPEECH AND THEATER ARTS

First Term

The facilities of the University Speech and Hearing Clinic are available both terms to students desiring a personal speech or hearing analysis or wanting help with their speech or hearing problems. Interested students are invited to confer with Professor E. H. Henrikson, Director of the Speech and Hearing Clinic (Office of the Dean of Students), Room 205 Shevlin Hall.

- 1.† **Fundamentals of Speech.** Development of basic skills in speech: voice and action, oral reading, discussion, extemporaneous speaking. (3 cred.; fr., soph., jr., sr.; no prereq.) Staff
 Sec. 1, I MTWThF, F 306 Sec. 2, III MTWThF, F 209
2. **Fundamentals of Speech.** (Second quarter of 1-2) (3 cred.; fr., soph., jr., sr.; prereq. 1; II MTWThF; F 306) Staff
3. **Fundamentals of Speech.** (Continuation of 1-2) (3 cred.; fr., soph., jr., sr.; prereq. 1-2; II MTWThF; F 306) Staff
31. **Introduction to the Theater.** History and theory of the various arts and crafts of the theater. Special projects in theater crafts. (3 cred.; fr., soph., jr., sr.; no prereq.; I MTWThF; ScH 19) Whiting
32. **Beginning Acting.** Creation and presentation of original scenes and skits. Ability to respond to the imaginative situation with sincerity, individuality, and effectiveness is stressed. (3 cred.; soph., jr., sr.; prereq. 1-2 or 5, 31; II MTWThF; ScH 19) Moulton
61. **Personal Development Through Speech.** A study of behavior as indicated through speech; speech symptoms evaluated from cause and effect relations; psychologic factors in speech; analysis of individual problems of self-conscious-

† Credit for Speech 1 without Speech 2 by petition only.

- ness, stage fright; speech as a means of self-control as applied to teacher and pupil. (3 cred.; jr., sr.; prereq. 1-2 or 5, Psychology 1-2; II MTWThF; F 308) Bryngelson
91. **Stage Design.** Theory and practice of designing scenery as a functional environment for the stage play. (3 cred.; jr., sr.; prereq. 1-2 or 5, 31; II MTWThF; NH 302) Josal
93. **Stage Costuming.** (3 cred.; jr., sr.; prereq. 1-2 or 5, 31; III MTWThF; NH 302) Moulton
101. **Argumentation and Persuasion.** Theories of modern motivational rhetoric. Analysis of persuasive speaking; practice in preparation and delivery of oral argument. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5; Psychology 1-2; 10 cred. in social sciences; IV MTWThF; F 306) Howell
111. **Stage Direction.** Theory of direction and preparation of the promptbook with exercises in blocking. (3 cred.; sr., grad.; prereq. 1-2 or 5, 31, 32-33, 34, 91-92-93 and consent of instructor; IV MTWThF; ScH 19) Whiting
152. **Hearing Disorders.** Basic orientation to audiology. Physiology and anatomy of auditory mechanism. Symptomatology and pathology of hearing disorders, their medical and surgical treatment. Clinical and classroom management, including discovery programs, hearing aids, language development, lip reading, speech correction, auditory training, psychology of hard-of-hearing and deaf, vocational guidance, educational channels. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, 61, 67, Psychology 1-2 or consent of instructor; IV MTWThF; Psy 113) Lassman
- 163.* **Speech Pathology.** Physiologic and psychologic aspects of organic and functional speech problems. Articulatory disorders. Diagnosis and treatment. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, 61, 67, 119; III MTWThF; F 306) Bryngelson
- 164-165-166.* **Clinical Methods and Practices in Speech Pathology.** (9 cred.; sr., grad.; prereq. 1-2 or 5, 61, 67, 119, 162, 163, consult instructor; ar.) Bryngelson
181. **Readings in Speech.** Directed reading and preparation of reports on selected subjects. (Cred. ar.; jr., sr., grad.; prereq. 1-2 or 5 and 6 additional cred. and consent of instructor) Staff
191. **Technical Stage Problems.** Advanced study in theory of scenic design, theater architecture, stagecraft, and lighting. Special projects and reports. (3 cred.; jr., sr., grad.; prereq. 111-112-113; ar.) Josal
203. **Debate Coaching.** Study of literature concerning and methods of directing extracurricular interscholastic public speaking, discussion, and debate activities. Each seminar member directs the preparation and practice of a group of undergraduate student speakers. (2 cred.; prereq. 1-2 or 5, 101-102-103, Psychology 1-2, 10 cred. in social science; ar.) Howell
291. **Research in Special Problems.** (Cred. ar.; jr., sr., grad.; prereq. 1-2 or 5 and consent of instructor; ar.) Staff

Second Term

- 1.† **Fundamentals of Speech.** (See first term) (II MTWThF; F 305) Staff
2. **Fundamentals of Speech.** (See first term) (III MTWThF; F 305) Staff
3. **Fundamentals of Speech.** (See first term) III MTWThF; F 305) Staff

† Credit for Speech 1 without Speech 2 by petition only.

- 81. Interpretative Reading.** Esthetic theory of literature and of oral reading. Practice in reading for interpretation and mastery technique. (3 cred.; jr., sr.; prereq. 1-2 or 5; III MTWThF; WeH 306) Thompson
- 106. Discussion.** Cooperative thinking; recognition and definition of problems, critical analysis of possible solutions. Planning, preparing for, participation in, and leading classroom, public, and radio discussions. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5; I MTWThF; F 306) Smith
- 109.* Classical Rhetoric.** Early history of rhetoric. Major issues in rhetoric in Aristotle, Plato, Cicero, Quintillian, etc. (3 cred.; jr., sr., grad.; prereq. consent of instructor; ar.) Smith
- 115. Playwriting and Production.** Creative practice in the problems of dramatic form and content. Two original one-act plays. (3 cred.; sr., grad.; prereq. 1-2 or 5, 31, 32-33 or consent of instructor; IV MTWThF; WeH 306) Thompson
- 116. Playwriting and Production.** Creative practice in the problems of dramatic form and content. One full length play. (3 cred.; sr., grad.; prereq. 115; IV MTWThF; WeH 306) Thompson
- 119.* Introduction to Speech Correction.** Basic orientation in speech correction. Analysis of common disorders of speech, their characteristics, prevention, and elimination. Designed as a basis for more advanced study in speech pathology or for a basic understanding of the field. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5; III MTWThF; F 306) Fletcher
- 122.* Introduction to Research.** Graduate research in speech: selection of topics and methods of investigation. Required of all graduate majors in speech. (3 cred.; sr., grad.; prereq. 1-2 or 5, Psychology 1-2; II MTWThF; F 308) Gilkinson
- 126.* History and Criticism of Public Address.** An examination of historical and critical studies of oratory. The study of orators: education and training, style, speech composition, topics and issues, historical settings. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, Psychology 1-2; III MTWThF; F 308) Gilkinson
- 131. Creative Dramatics.** Studies in the principles and methods of developing original dramatizations with children. Observation of children's classes in creative dramatics. Readings, projects, term papers. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, 31 or elementary education major, or consent of instructor, Ed.C.I. 63 recommended; IV MTWThF; NH 302) Graham
- 132. Children's Theater.** Studies in the theory and practice of selection, direction, and production of plays for children's audiences. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, 31, or consent of instructor; II MTWThF; NH 302) Graham
- 140. Introduction to Voice Science.** Consideration of fundamental aspects of the phonetic, anatomic, physiologic, and physical bases of speech. (3 cred.; jr., sr., grad.; prereq. 1, 2, or 5, Psy. 1-2, or consent of instructor [not open to those who have had 141 or 142]; II MTWThF; F 306) Fletcher
- Scand.172.*§ Strindberg and the Drama in Revolt and Transition.** A study of Strindberg as master of the naturalistic drama and as "the father of modernity" in the European and American theatre since his day. (3 cred.; jr., sr., grad.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature; IV MTWThF; F 12) Gustafson
- 181-182. Readings in Speech.** (See first term) Staff
- 291-292. Research in Special Problems.** (See first term) Staff

For Teaching of Speech see Ed.C.I. 140, listed under the College of Education.

§ No knowledge of a Scandinavian language is required.

ZOOLOGY

First Term†

- 1.¶ **General Zoology.** Structure, physiology, embryology, classification, and evolution of animals. (5 cred.; all; no prereq.; lect. V MTWTh, V-VI F, Bo B6; lab. VI-VIII MTWTh, Z 101, 107) Stephens
83. **Introduction to Genetics and Eugenics.** Facts and theories of heredity with special reference to man; chances of man to inherit traits; possible benefits of control by man for the betterment of himself and society. (3 cred.; jr., sr.; prereq. 1-2-3 or equiv. or 10 cred. in botany; II MTWThF; Bo B6) Anderson
100. **Zoological Techniques.** (Grad. students only) (Cred. and hrs. ar.) Staff.
- 197.* **Problems.** Advanced work in some special line. (3 cred. or more; jr., sr., grad.; prereq. Zoology 1-2-3 and special requirements; ar.) Ar.

Second Term

- 2.¶ **General Zoology.** (Continuation of 1. See first term) (5 cred.; all; prereq. 1 or equiv.; lect. V MTWTh, V-VI F, Bo B6; lab. VI-VIII MTWTh, Z 101, 107) Olson
- 198.* **Problems.** (See 197, first term)

† For additional courses in the first term, see Lake Itasca Forestry and Biological Station.

¶ The entire course in elementary zoology includes both 1 and 2. No credit is given for 1 until the satisfactory completion of 2.

INSTITUTE OF TECHNOLOGY

College of Engineering†

An asterisk (*) indicates courses that may be taken by graduate students for independent work under Plan B. (See Graduate School)

CIVIL ENGINEERING

First Term

23. **Surveying Camp.** (Page 86) (9 cred.; prereq. 20; ar.) Kersten, Cornell, Fant, Whittington

DRAWING AND DESCRIPTIVE GEOMETRY

First Term

4. **Engineering Drawing.** (Page 89) (3 cred.; no prereq.; VI-VIII MWThF, VI-IX T; E 18) Bullen
6. **Engineering Drawing.** (Page 90) (3 cred.; prereq. 5; VI-VIII MWThF, VI-IX T; E 201) Quaid
28. **Drafting.** (Aero.E.) (Page 90) (2 cred.; prereq. 6; VI-VIII MTWTh; E 18) Quaid
34. **Lettering.** (Page 90) (1 cred.; prereq. 4; V MW; E 18) Bullen

Second Term

5. **Engineering Drawing.** (Page 90) (3 cred.; prereq. 4; VI-VIII MWThF, VI-IX T; E 18) Schuck
10. **Solid Geometry.** (Page 90) (No cred.; prereq. plane geometry; VI MTWThF; E 201) Schuck

ELECTRICAL ENGINEERING

First Term

36. **Electrical Engineering Survey.** (Page 92) (3 cred.; for M.E. and Chem.E.; prereq. Mechanics and Materials 26 or 84) Caverley
- | | |
|------------------------|--------------------------|
| Lect. II MTWTh, EE 138 | Lab. 1, VI-IX M, EE 207c |
| | 2, VI-IX T, EE 207c |

Second Term

37. **Electrical Engineering Survey.** (Page 92) (3 cred.; for M.E. and Chem.E.; prereq. 36) Cartwright
- | | |
|------------------------|--------------------------|
| Lect. II MTWTh, EE 237 | Lab. 1, VI-IX M, EE 207a |
| | 2, VI-IX T, EE 207a |

† The page number in parentheses after the course title indicates the page in the *Bulletin of the Institute of Technology* for 1953-55 on which course description is given.

ENGLISH (ENGINEERING)¶*First Term*

85. **Advanced Technical Communication.** (Page 95) (3 cred.; prereq. 6; I MTWThF; E 215) Guthrie

Second Term

86. **Advanced Technical Communication.** (Page 95) (3 cred.; prereq. 85; I MTWThF; E 215) Haga

GENERAL ENGINEERING*First Term*

70. **The Slide Rule.** (Page 95) (1 cred.; prereq. Institute of Technology Mathematics 11 or registration in Institute of Technology Mathematics 11; V TTh; E 106) Bullen

Second Term

70. **The Slide Rule.** (See first term) (V TTh; E 106) Schuck

INDUSTRIAL ENGINEERING*First Term*

- 90.† **Industrial Assignment, Part I.** (Page 100) (1½ cred.; prereq. registration in work-study program; ar.) Algren
 92.† **Industrial Assignment, Part I.** (Page 100) (1½ cred.; prereq. registration in work-study program; ar.) Algren
 94.† **Industrial Assignment, Part I.** (Page 100) (1½ cred.; prereq. registration in work-study program; ar.) Algren
 150. **Elements of Industrial Engineering, Management.** (Page 100) (3 cred.; prereq. Mechanical Engineering 14; II F, III MTWThF; ME 102) Block

Second Term

- 90.† **Industrial Assignment, Part II.** (See first term) Algren
 92.† **Industrial Assignment, Part II.** (See first term) Algren
 94.† **Industrial Assignment, Part II.** (See first term) Algren

MATHEMATICS

See also Mathematics, College of Science, Literature and the Arts.

First Term

12. **College Algebra and Trigonometry II.** (Page 102) (5 cred.; prereq. 11; III-IV MTWThF; E 104) Culmer
 13. **Analytic Geometry.** (Page 102) (5 cred.; prereq. 11 and 12; I-II MTWThF; E 104) Loye

† These courses carry 3 credits and will be given on a quarter basis. Credit not given for first term unless course is completed second term.

¶ Composition 4, 5, 6, in the College of Science, Literature, and the Arts are open to students in the Institute of Technology.

80. **Elementary Differential Equations.** (Page 102) (3 cred.; prereq. 25; III MTWThF; E 205) Indritz
150. **Calculus III: Intermediate.** (Page 102) (3 cred.; prereq. 25; II MTWThF; E 205) Wilcox
- 154.* **Vector Analysis.** (Page 102) (3 cred.; prereq. 25; III MTWThF; E 215) Wilcox

Second Term

13. **Analytic Geometry.** (See first term) (I-II MTWThF; E 104) Braden
25. **Calculus II: Integral.** (Page 102) (5 cred.; prereq. 24; III-IV MTWThF; E 106) Turrittin
80. **Elementary Differential Equations.** (See first term) (III MTWThF; E 205) Koehler
152. **Calculus IV: Advanced.** (Page 102) (3 cred.; prereq. 150; II MTWThF; E 205) Koehler

MECHANICAL ENGINEERING

First Term

24. **Elements of Machine Design.** (Page 105) (3 cred.; prereq. Mechanics and Materials 128; lect. II MTWTh, ME 302; lab. V-VII TTh, ME 325) LaJoy
33. **Mechanical Engineering Laboratory I.** (Page 105) (2 cred.; prereq. 131 or registration in 131; lect. III MW, ME 302; lab. V-VIII MW, ME 370) LaJoy, Rosencrants
- 90.† **Industrial Assignment, Part I.** (Page 105) (1½ cred.; prereq. registration in work-study program; ar.) Algren
- 92.† **Industrial Assignment, Part I.** (Page 105) (1½ cred.; prereq. registration in work-study program; ar.) Algren
- 94.† **Industrial Assignment, Part I.** (Page 105) (1½ cred.; prereq. registration in work-study program; ar.) Algren
131. **Thermodynamics.** (Page 106) (3 cred.; prereq. Institute of Technology Mathematics 25, Physics 14; lect. I MTWThF, II M, ME 208; lab. ar.) Lee
160. **Heating, Ventilation, and Air Conditioning.** (Page 107) (3 cred.; prereq. 132; I MTWThF, II F, ME 214) Threlkeld

Second Term

12. **Casting Processes.** (Page 104) (2 cred.; prereq. Inorganic Chemistry 15, Drawing 6 [Prebus. no prereq.]; lect. I-II MW, ME 114; lab. VI-VIII MW, ME 50) Holtby
13. **Metal Processing.** (Page 104) (2 cred.; prereq. Inorganic Chemistry 15, Drawing 6 [Prebus. no prereq.]; lect. I-II TTh, ME 18; lab. VI-VIII TTh, ME 70) Hughes
34. **Mechanical Engineering Laboratory II.** (Page 105) (2 cred.; prereq. 33; lect. III MW, ME 302; lab. V-VIII MW, ME 370) LaJoy
35. **Mechanical Engineering Laboratory III.** (Page 105) (2 cred.; prereq. 34 or registration in 34 for work-study students; lect. III TTh, ME 302; lab. VIII-IX T, V-VIII F, ME 370) LaJoy
- 90.† **Industrial Assignment, Part II.** (See first term) Algren
- 92.† **Industrial Assignment, Part II.** (See first term) Algren

† These courses carry 3 credits and will be given on a quarter basis. Credit not given for first term unless course is completed second term.

- 94.† **Industrial Assignment, Part II.** (See first term) Algren
 121. **Machine Design.** (Page 106) (3 cred.; prereq. 24; lect. II MTWTh, ME 302; lab. V-VII TTh, ME 325) Ryan
 141. **Heat Power Engineering.** (Page 106) (3 cred.; prereq. 132; I MTWThF, II F, ME 208) Lee

MECHANICS AND MATERIALS

First Term

26. **Engineering Statics.** (Page 109) (5 cred.; prereq. Institute of Technology Mathematics 25; III-IV MTWThF; Ex 110) Kirmsner
 127. **Engineering Dynamics.** (Page 109) (5 cred.; prereq. 26; I-II MTWThF; Ex 110) James
 128. **Mechanics of Materials.** (Page 109) (5 cred.; prereq. 26; III-IV MTWThF; E 106) Miller
 141. **Materials Testing Laboratory.** (Page 110) (1 cred.; prereq. 128 or registration in 128; VI-VII MW; Ex 130) Miller

Second Term

127. **Engineering Dynamics.** (See first term) (III-IV MTWThF; Ex 110) Doeringsfeld
 128. **Mechanics of Materials.** (See first term) (I-II MTWThF; Ex 110) Chapin

School of Chemistry

An asterisk (*) indicates courses that may be taken by graduate students for independent work under Plan B.

INORGANIC CHEMISTRY

First Term

- General Inorganic Chemistry.** Study of the general laws of chemistry and of the nonmetals and their compounds. (4 cred.; all; no prereq.; lect. II MTWThF, C 100; rec. V T, C 100; lab. V-VII MW, C ar.) Pray
- General Inorganic Chemistry.** Study of the general laws of chemistry and of the nonmetals and their compounds. More intensive than Course 1. (4 cred.; for premedics, etc.; prereq. high school chemistry; lect. I MTWThF, C 100; rec. V Th, C 100; lab. V-VII MW, C ar.) Maynard
- General Inorganic Chemistry.** Study of the general laws of chemistry and of the nonmetals and their compounds. (5 cred.; all; no prereq.; lect. II MTWThF, C 100; rec. V T, C 100; lab. V-VIII MWF, C ar.) Pray
- General Inorganic Chemistry.** Study of the general laws of chemistry and of the nonmetals and their compounds. More intensive than Course 6. (5 cred.; prereq. high school chemistry; lect. I MTWThF, C 100; rec. V Th, C 100; lab. V-VIII MWF, C ar.) Maynard
- Semimicro Qualitative Analysis.** Laboratory work in systematic qualitative analysis of the cations with lectures on solutions, ionization, chemical and

† These courses carry 3 credits and will be given on a quarter basis. Credit not given for first term unless course is completed second term.

physical equilibria, oxidation and reduction, etc. (4 cred.; prereq. 2, 5, 7, or 10; lect. III MTWThF, C 100; rec. V M, C 100; lab. V-VIII MW, C ar.) Hugus

12. **Semimicro Qualitative Analysis.** Laboratory work in systematic qualitative analysis of the cations with lectures on solutions, ionization, chemical and physical equilibria, oxidation and reduction, etc. (5 cred.; prereq. 2, 5, 7, or 10; lect. III MTWThF, C 100; rec. V M, C 100; lab. V-VIII MWF, C ar.) Hugus
- 105.* **Advanced Inorganic Chemistry.** Coordination compounds. (3 cred.; prereq. Analytical Chemistry 1, 2, Organic Chemistry 62; lect. III MTWThF, C 215; rec. V T, C 215) Maynard
- 107.* **Chemistry of the Less Familiar Elements.** (3 cred.; prereq. Analytical Chemistry 1, 2, Organic Chemistry 62; lect. I MTWThF, C 215; rec. V W, C 215) Hugus
- 108.* **Nonaqueous Systems.** (3 cred.; prereq. Analytical Chemistry 1, 2, Organic Chemistry 62; lect. IV MTWThF, C 215; rec. II Th, C 215) Pray
- 301.* **Research in Inorganic Chemistry.** (Cred. and hrs. ar.) Maynard, Hugus, Pray

Second Term

2. **General Inorganic Chemistry.** (See 1, first term) (4 cred.; prereq. 1; lect. II MTWThF, C 100; rec. V T, C 100; lab. V-VII MW, C ar.) O'Brien
5. **General Inorganic Chemistry.** (See 4, first term) (4 cred.; prereq. 4; lect. I MTWThF, C 100; rec. V Th, C 100; lab. V-VII MW, C ar.) Pervier
7. **General Inorganic Chemistry.** (See 6, first term) (5 cred.; prereq. 6; lect. II MTWThF, C 100; rec. V T, C 100; lab. V-VIII MWF, C ar.) O'Brien
10. **General Inorganic Chemistry.** (See 9, first term) (5 cred.; prereq. 9; lect. I MTWThF, C 100; rec. V Th, C 100; lab. V-VIII MWF, C ar.) Pervier
11. **Semimicro Qualitative Analysis.** (See first term) (Lect. III MTWThF, C 100; rec. V M, C 100; lab. V-VIII MW, C ar.) Pervier
12. **Semimicro Qualitative Analysis.** (See first term) (Lect. III MTWThF, C 100; rec. V M, C 100; lab. V-VIII MWF, C ar.) Pervier
- 103.* **Advanced Inorganic Chemistry.** Atomic structure and the properties of elements based thereon. (3 cred.; prereq. Analytical Chemistry 1, 2, Organic Chemistry 62; lect. IV MTWThF, C 215; rec. V W, C 215) O'Brien
- 302.* **Research in Inorganic Chemistry.** (Cred. and hrs. ar.) O'Brien, Pervier

ANALYTICAL CHEMISTRY

First Term

1. **Quantitative Analysis.** (Gravimetric) Introductory course covering the general principles and methods of gravimetric analysis. Typical problems are assigned and attention given to proper laboratory practice. (5 cred.; prereq. Inorganic Chemistry 13 [for chemists], Inorganic Chemistry 12 [for chem. eng.]; lect., rec., quiz V-VI TTh, V F, C 325; lab. V-VIII MW, VII-VIII TTh, VI-VIII F, C 310) Herr
7. **Quantitative Analysis.** (Premed.) Introductory course covering the general principles and methods of quantitative analysis, both gravimetric and volumetric. Typical problems are assigned and attention given to proper laboratory practice. (4 cred.; prereq. Inorganic Chemistry 11 or 12; lect., rec., quiz V MWF, C 225; lab. VI-VIII MWF, V-VIII TTh, C 310) Herr
123. **Advanced Analytical Chemistry.** Analysis of complex materials by modern methods. (3 cred.; prereq. 1, 2, or by consent of instructor; ar.; ar.) Herr
- 301.* **Research in Quantitative Analysis.** (Cred. and hrs. ar.) Herr

ORGANIC CHEMISTRY

First Term

- 61.† **Elementary Organic Chemistry.** (For all colleges) Discussion of important classes of organic compounds, both aliphatic and aromatic. Laboratory includes the preparation of typical substances. (4 cred.; prereq. 12-15 cred. in chem.; lect. I MTWThF, C 325; rec. II TTh, C 410; lab. II-IV MWF, C 390; lab. conf. III TTh, C 410) Noland

Second Term

- 62.† **Elementary Organic Chemistry.** (See 61, first term) (4 cred.; prereq. 61; lect. I MTWThF, C 325; rec. II TTh, C 410; lab. II-IV MWF, C 390; lab. conf. III TTh, C 410) Fenton

PHYSICAL CHEMISTRY

First Term

- 104,105. **Physical Chemistry Laboratory.** (1 or 2 cred.; prereq. 101 for 104, 102 for 105, or concurrent registration; VI-VIII MW; C 190) Lipscomb
- 107.§ **Elementary Physical Chemistry.** (3 cred.; primarily for premed. students; prereq. two years of college chemistry, one year of college physics, Math 15-16 or 6-7; lect. I MTWTh, C 410; rec. I F, C 410; lab. VI-VIII MW, C 190) Lipscomb
301. **Research in Physical Chemistry.** (Cred. and hrs. ar.) Staff

Second Term

- 105,106. **Physical Chemistry Laboratory.** (1 or 2 cred.; prereq. 102 for 105, 103 for 106, or concurrent registration; VI-VIII MW; C 190) Lipscomb
- 108.§ **Elementary Physical Chemistry.** (3 cred.; primarily for premed. students; prereq. 107; lect. I MTWTh, C 410; rec. I F, C 410; lab. VI-VIII MW, C 190) Lipscomb
301. **Research in Physical Chemistry.** (See first term) Staff

School of Mines and Metallurgy

METALLOGRAPHY

First Term

- 170,171.* **Special Problems in Metallography.** (Page 111) (1, 2, or 3 cred.; prereq. 5th yr. Met.E or grad.; ar.) Ar.

Second Term

- 170,171.* **Special Problems in Metallography.** (See first term)

† To receive credit for any part of this course, a student must complete both 61 and 62.

§ Course 108 is a continuation of 107. The entire course 107-108 must be completed before credit will be assigned (6 credits). Grades will not be sent in at the end of the first term.

METALLURGY*First Term*

- 124.* **Special Problems in Mineral Dressing.** (Page 112) (Cred. ar.; prereq. 112; ar.) Ar.
- 221.* **Special Problems in Advanced Metallurgy.** (Page 112) (Cred. ar.; intended primarily for research work; ar.) Ar.

Second Term

- 124.* **Special Problems in Mineral Dressing.** (See first term)
- 221.* **Special Problems in Advanced Metallurgy.** (See first term)

MINING ENGINEERING*First Term*

15. **Mine Surveying Field Work.** (Page 113) (6 cred.; prereq. 13, 14; four weeks beginning about June 15) Lacabanne, Hartman
- 151,152,153.* **Special Problems in Mining.** (Page 114) (Cred. ar.; prereq. 113; ar.) Ar.

Second Term

- 151,152,153.* **Special Problems in Mining.** (See first term)

Third Term

139. **Mining Field Trip.** Study of mining operations, mine plant, and metallurgical plants in several mining camps. (6 cred.; prereq. consent of instructor; three weeks beginning about Sept. 1) Pfeider, Yardley

PETROLEUM ENGINEERING*First Term*

- 155,156,157.* **Special Problems in Petroleum Engineering.** (Page 115) (Cred. ar.; prereq. 144 or 145 or consent of instructor; ar.) Ar.

Second Term

- 155,156,157.* **Special Problems in Petroleum Engineering.** (See first term)

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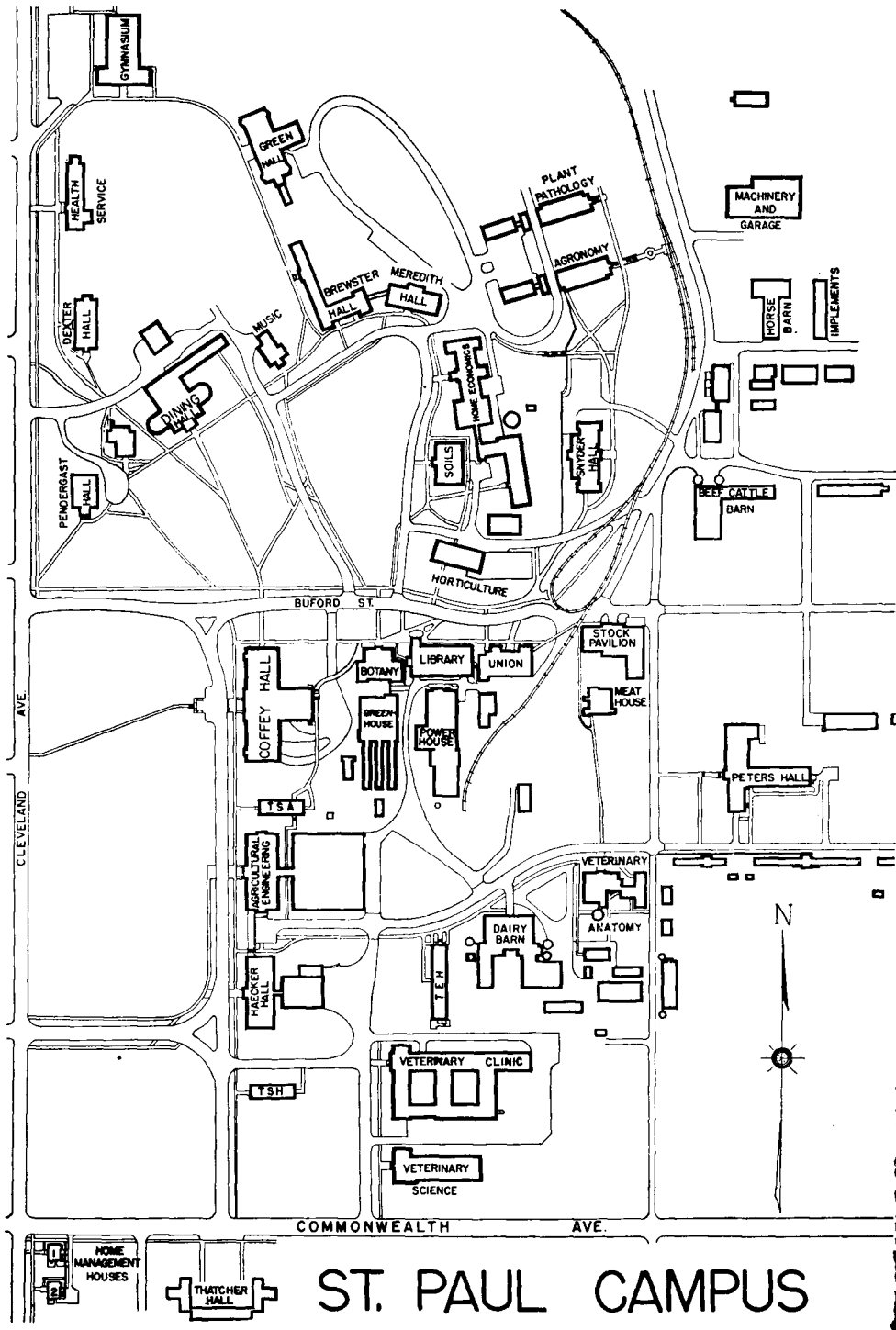
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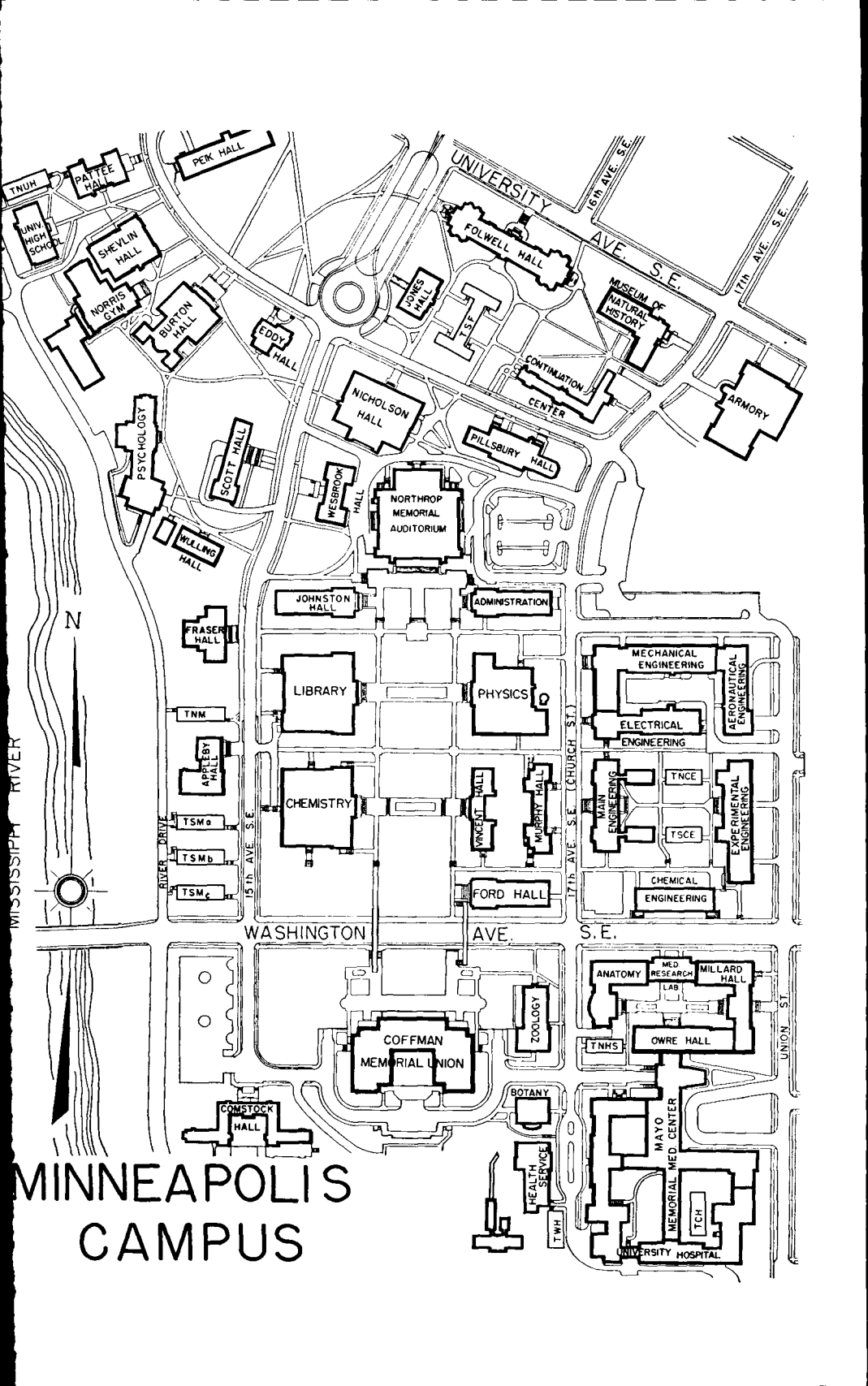
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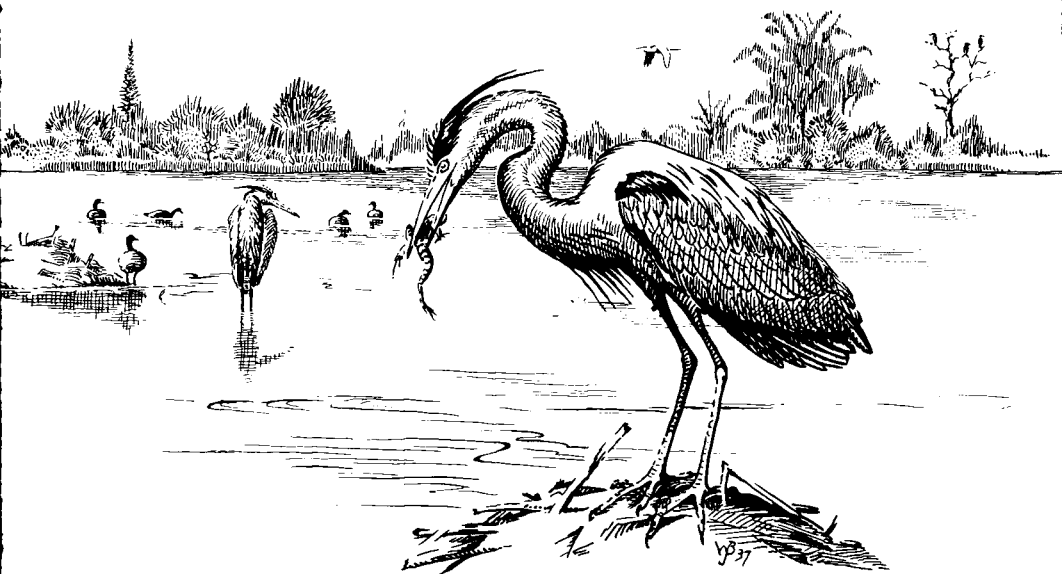


ST. PAUL CAMPUS



MINNEAPOLIS CAMPUS

Bulletin of the
UNIVERSITY OF MINNESOTA



*Lake Itasca Forestry and
Biological Station*

Summer Session 1954

June 14 to July 17

FOREWORD

This is a cordial invitation from the Biological Station Summer Session at Lake Itasca to you as

- ❧❧ **undergraduate students** interested in advanced study and research in the biological subjects, and to you who are interested in the natural sciences, but who have not found your field of major interest, and who need help in orientation—
- ❧❧ **graduate students** who are looking for an excellent field laboratory for research—
- ❧❧ **teachers** of all phases of biology in all schools and colleges desiring to continue advanced study and improve your status through independent research, or to learn how to conduct field classes—
- ❧❧ **students in wildlife management** who want to study life histories and ecology—
- ❧❧ **students** contemplating careers in **agricultural extension work** who are interested in training in conservation and nature study—
- ❧❧ **independent research workers**—

to make use of the unusual natural facilities combined with the planned laboratory equipment for study with outstanding instructional scientists.



Thorvald Schantz-Hansen
Director of Biological Station

**GENERAL
INFORMATION**

SPONSORSHIP

Sponsored by the Summer Session, the Station is a joint enterprise of various departments of the College of Science, Literature, and the Arts and of the College of Agriculture, Forestry, and Home Economics under the management of a resident director. By agreement, the University of Wisconsin is participating in the policy and planning of the Biological Station through membership on the Advisory Committee.

LOCATION

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

TRANSPORTATION

Public transportation to the Station is by bus to Douglas Lodge—about four miles from the Station—where students will be met by Station transportation. State Highway 92 and U. S. Highway 71 provide easy access through the towns of Bagley, Bemidji, or Park Rapids.

MAIL

Mail for students should be addressed to: Biological Station, Lake Itasca P. O., Minnesota.

INQUIRIES

Requests for bulletins and all information relating to the Biological Station should be addressed to:

Dean of the Summer Session
960 Johnston Hall
University of Minnesota
Minneapolis 14, Minnesota

Specific inquiries as to courses, accommodations, equipment, etc., will then be referred to the staff member concerned.



*Aquatic plant surveys on
the shore of Lake Mary*

**FIELD STUDY
OPPORTUNITIES**

Itasca Park—one of national renown—embraces fifty square miles of forests with an excellent system of roads and trails. Within this area are many lakes of different types providing unusual field opportunities for work in limnology, algae, aquatic flowering plants, and related fields. The forests of the park are unique. Here the northern coniferous and southern deciduous types meet and intermingle. 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 never cut—here truly is an unexcelled array of virgin timber stands and the communities developing into similar types.

Forty miles to the west a spectacular 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 not only many examples of vegetation but also a singular variety of birds, mammals, and insects of southern, northern, and western origin. Opportunities to study 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 afford many striking animal problems for study.

**COURSE WORK
AND RESEARCH**

Both graduate and undergraduate students of biology will find an excellent field laboratory for research and course work. Graduate students may devote themselves exclusively to research problem work under staff supervision and guidance. Students of wildlife management have the opportunity for the study of life history and ecology of vertebrates as well as basic courses in related fields. To teachers of biology in high schools and colleges the Station offers opportunity for course work, advanced study, and improvement through independent research. The necessary training for conducting classes in the field is also provided. Agriculture and home economics students contemplating careers in extension work will find this training in conservation and nature study useful preparation for rural extension work.

**GUEST
INVESTIGATORS**

Qualified independent guest investigators may arrange with the director for research in various fields of terrestrial and fresh-water biology. Advanced students and research workers needing laboratory space and special equipment and those wanting to carry on research during the entire field season should make prior arrangements with the director and the instructor involved.

**INSTRUCTIONAL
FACILITIES**

Seven well-equipped laboratories are located in three buildings. Since most of the instruction is in the field the laboratories, although not elaborate, are adequate and well lighted.

*The Lakeside Laboratory
overlooks Lake Itasca*



A fine herbarium of the region, collections of insects, fungi, bird skins, and small mammal skins are available for study. Two complete sets of aerial photos of the park area made in 1938 and 1951 are maintained at the Station with adequate stereoscopic equipment.

The Station equipment includes all necessary compound and dissecting microscopes, binoculars, collecting equipment, various types of nets, row boats, and launches, and the minor accessories for adequate instruction and research.

A library and administration building provides room for quiet study. Necessary supplies and textbooks can be bought at the store maintained by the University Bookstores at the Station.



Many fungi are brought inside for culturing

**BOARD AND
LODGING**
MEALS

Meals are served to both on-campus and off-campus students in an attractive dining hall located on the lake shore. It is operated by the administration in consultation with officers elected by students. Meals are carefully planned, well balanced, and prepared by experienced cooks. Fresh meat, vegetables, and fruit are served daily.

CABINS

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

MARRIED STUDENT ACCOMMODATIONS

Married students who wish to bring their families may find accommodations off campus in one of the many resorts in the vicinity or at the Park Service public campground which is about a mile from the Station where tenting or trailer space, water, fuel, ice, electricity, shower baths, and swimming beach are available. There are also a few cabins at the campgrounds which can be rented for short periods. A list of addresses of these facilities will be furnished on request.

PERSONAL NEEDS

Students must provide their own bed linen, towels, and blankets. Since the nights are often cool, it is suggested that you bring two or three good wool blankets. Essential personal equipment includes suitable shoes or boots for field work, a field suit or dress, a warm jacket, a raincoat, heavy socks, a swimming suit, flashlight, notebooks, pocket field books, pencils, hand lenses, dissecting sets, pins, vials, and corks.

RULES OF CAMP

Rules of camp are kept at a minimum. Weekend absences and extended field trips must be reported in advance. Off campus, the State Park regulations govern.

Students are expected to keep their own quarters clean and orderly. You may bring your car but no garages are provided. The State Park entry sticker (\$1.00) must be bought at the entrance if cars are used off-campus.

RECREATION


Swimming, fishing, boating, and hiking are relaxing counterbalances for a busy educational program. Social events in the large assembly hall are handled by the students, with some guidance. Weekly popular lectures by staff or visitors are scheduled for the entire campus population.

HEALTH SERVICE

A two-ward, well-equipped infirmary, with a registered nurse in attendance, is available for the care of minor ills and injuries. Medical attention, when necessary, can be secured at Park Rapids or Bemidji. The payment of the incidental fee covers the cost of this service and entitles the student to medical service not to exceed a cost of \$10. Special services, such as X ray, infrared treatments, etc., and the cost of filling prescriptions must be paid by the student.

**REGISTRATION
INFORMATION****ADMISSION**

Courses are open to all qualified graduate and undergraduate students who have had the usual preliminary courses in biological subjects. General rules for admission to the Summer Session apply to the Biological Station. Students with previous college work who wish only to attend the Summer Session may do so without filing credentials, provided they are in good standing and are not candidates for a degree. Students are advised to consult these regulations in the general *Summer Session Bulletin*.



Relaxation time

Collecting aquatic invertebrates in Lake Itasca



GRADUATE SCHOOL

Applications for admission to the Graduate School must be sent directly to the Dean of the Graduate School, University of Minnesota, Minneapolis 14, not later than May 14. Students not seeking graduate credit may register as special students. Graduate work taken at the Lake Itasca Forestry and Biological Station may be considered for resident requirement at the University of Wisconsin upon application to the Dean of the Graduate School at Madison and upon recommendation of the department concerned.

Only courses numbered 100 or over carry graduate credit.

SCHOLARSHIPS

The following awards are available for qualified students, and may be applied for by prospective students at the Station: Alexander P. Anderson and Lydia Anderson Fellowships at \$350 each. These are available only to persons holding a degree from the University of Minnesota.

The Caroline M. Crosby Memorial Fellowship in Botany. The fellowship provides for tuition, room and board, travel, and miscellaneous expenses up to \$400.

Requests for information and applications for the above fellowships should be made to the Graduate School, University of Minnesota, Minneapolis 14.



*Nearby streams are rich
in insect life*

REGISTRATION

Whenever possible, students should complete their registration at the Office of Admissions and Records on either the St. Paul Campus or the Minneapolis Campus. In exceptional cases registration can be completed at the Station.

G.I. and Rehabilitation students registering under the G.I. Bill (P.L. 346 or P.L. 16) must have the required authorization at the time of registration.

NORMAL LOAD

Two subjects are considered a normal load. Special permission must be secured from the director for a lighter or a heavier load. Advanced students may take two courses and in addition 1 or 2 credits of a well-delimited research problem.

RESERVATIONS

The station cabins accommodate ninety-two students. Reservations are required. A reservation form is printed on the inside of the back cover of this bulletin.

Instructional facilities accommodate an unlimited number of off-campus students.

ACADEMIC FEES

The following fees are payable by each registrant on or before June 15:

Tuition fee	\$50.00
Incidental fee	10.50
Laboratory fee	10.00
	<hr/>
	\$70.50

LATE FEES

Tuition and fees are payable at the time of registration on or before June 15. After June 16 late fees will be charged as follows:

Wednesday, June 16	\$2.00
Thursday, June 17	3.00
Friday, June 18	4.00
Monday, June 21	5.00

No registration will be accepted after June 21 without the approval of the director of the Station and the payment of the \$5 late fee.

Itasca's forests yield many ferns and mosses



ROOM AND BOARD COSTS

Fees for room and board include a \$10 service charge for dormitory and dining room facilities and, in addition, an initial payment of \$60 for board. The kitchen is run on an actual cost basis. These costs are payable to the director at the beginning of the term, and a refund or a slight additional assessment may be made at the end of the session.



The center of many activities is this combination assembly and dining hall

CONDENSED COURSE SCHEDULE

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Bot.135	Bot.116	Bot.112	Bot.135	Bot.116	Bot.112
	Ent.162	Bot.155	Ent.124	Ent.162	Bot.155	Ent.124
	Pl.Pa.56	Ent.59	Zool.55	Pl.Pa.56	Ent.59	Zool.55
	Pl.Pa.156	Zool.135	Zool.115	Pl.Pa.156	Zool.135	Zool.115
	Zool.119			Zool.119		

STAFF MEMBERS

Clyde M. Christensen, professor of plant pathology, University of Minnesota, is the author of two well-known books on fungi: *Common Edible Mushrooms* and *The Molds and Man* as well as numerous reports concerning many aspects of plant pathology.

Francis Drouet, curator of cryptogamic botany, Chicago Natural History Museum, is the author of several monographs on the blue-green algae.

Samuel Eddy, professor of zoology, University of Minnesota, has carried on teaching and research in Minnesota fish and limnological problems for many years. He is author of *Northern Fishes*, *Taxonomic Keys of the Common Animals of Minnesota*, and many popular articles in the fisheries field.

Joseph J. Hickey, associate professor of wildlife management, University of Wisconsin, is well known as the author of *A Guide to Bird Watching* and is an outstanding student of bird banding.

Lloyd C. Hulbert, instructor in botany, University of Minnesota, has carried on field research in the ecology of western grasslands and is currently working on plant ecology problems in relation to soil moisture.

William H. Marshall, professor of economic zoology, University of Minnesota, specializes in wildlife management and ecology of game animals. He has published technical articles on waterfowl, fur bearers, and upland game species.

Thomas Morley, assistant professor of botany and acting curator of the University Herbarium, University of Minnesota, specializes in the classification of flowering plants. He has published a monograph on the taxonomy of woody groups related to the myrtle family.

Alvah Peterson, professor of entomology, Ohio State University, has published several volumes on *Larvae of Insects* and *Entomological Equipment and Methods* as a result of lifelong studies of insects in the field.

T. Schantz-Hansen, professor of forestry, University of Minnesota, is director of the Lake Itasca Forestry and Biological Station. He is co-author of *This Is Our Land* and has published many technical forestry articles.

COURSES OF INSTRUCTION Other courses than those listed below and research problems may be arranged to suit individual needs.

An asterisk (*) indicates courses that may be taken by graduate students for independent work under Plan B.

BOTANY

Pl.Path.56. Introduction to the Study of Fungi. See Plant Pathology.

112.‡ Aquatic Flowering Plants. A study of the higher plants of aquatic and marsh habitats. Identification and collection; association of species; relations to the habitat; adaptive morphology and food value to wildlife. (4 cred.; prereq. 10 cred. in botany or zoology, or consent of instructor; WS) Morley

116. Summer Flora of Minnesota. A survey of the summer flowering plants and ferns of the state with particular reference to the local flora. Collection and identification of species; distribution in Minnesota; literature and taxonomic methods. Text: *Gray's New Manual of Botany*. (4 cred.; prereq. 10 cred. in botany or zoology or consent of instructor; TF) Morley

135. Vegetation Analysis. The study of the plant communities represented in Itasca Park and vicinity and their dynamic relationships. Also the relationships of the local communities to the vegetation of Minnesota as a whole. Use of modern methods of vegetational analysis and measurement of environmental factors. (4 cred.; prereq. Bot. 50 or 130 or For. 2-3-4; MTh) Hulbert

136. Organisms, Microclimate, and Weather. (Not offered in 1954)

155. Fresh-water Algae. The taxonomy and limnological relations of the fresh-water algae of Minnesota. Text: Smith, *Fresh-water Algae of the United States*. (4 cred.; prereq. 10 cred. in biology, or consent of instructor; TF) Drouet

Pl.Path.156. Advanced Study of Fungi. See Plant Pathology.

157. Bryophytes and Pteridophytes. (Not offered in 1954)

196.*‡ Problems in Ecology, Taxonomy, Bryology, or Algology. Advanced studies based on individual field work and research. (Cred. ar.; advanced students with proper qualifications) Morley, Hulbert, Drouet

208.* Research Problems in Taxonomy. (Cred. ar.; grad. students with proper qualifications) Morley

‡ A fee of \$1.50 is charged for this course.

- 224.* **Research Problems in Ecology.** (Cred. ar.; grad. students with proper qualifications) Hulbert
- 236.* **Research Problems in Cryptogams.** (Cred. ar.; grad. students with proper qualifications) Drouet

**ENTOMOLOGY
AND ECONOMIC
ZOOLOGY**

59. **Field Entomology.** A study of the insect fauna in various natural habitats of the park and surrounding areas. The course includes field trips, collection and classification of insects, as well as studies of general morphology, life histories, and habits of local species under ecological conditions governing the distribution of insect fauna of the region. Text: Lutz, *Field Book of Insects*. (4 cred.; jr., sr.; prereq. Zool. 1-2-3 or equiv.; TF) Peterson
68. **Natural History of the Higher Vertebrates.** (Not offered in 1954)
124. **The Biology of Immature Insects.** A field and laboratory course treating of habits, habitat, life history, and identification of immature insects with particular emphasis on aquatic forms. Text: H. F. Chu, *How to Know the Immature Insects*. (4 cred.; prereq. 15 cred. in zoology and Ent. 52 or equiv. or consent of the Department of Entomology and Economic Zoology; WS) Peterson
162. **Ecology of Terrestrial Vertebrates.** Field work demonstrating methods of studying vertebrate populations and their relationship to local environments. Texts: Dice, *Natural Communities*. Field projects, analyses, and lectures. (4 cred.; prereq. Ent. 68 or Zool. 57-58 and Ent. 63, or equiv. and Bot. 20; MTh) (There will be a "cost basis charge" for mileage on field trips) Marshall
- 196.* **Special Problems in Entomology and Economic Zoology.** Advanced work in entomology and economic zoology and ample opportunity for individual research, especially in various phases of faunistic studies in terrestrial, aquatic, and forest entomology and economic zoology. (Cred. ar.; advanced students with proper qualifications) Marshall, Peterson

**PLANT
PATHOLOGY
AND BOTANY**

56. **Introduction to the Study of Fungi.** The structure, development, and identification of fungi, especially those of economic importance. (4 cred.; jr., sr.; prereq. 9 cred. in botany or consent of instructor; MTh) C. M. Christensen

156. **Advanced Study of Fungi.** General characters of fungi; especially those used in identification; cultural and taxonomic procedures and practices. (4 cred.; prereq. 9 cred. in botany or consent of instructor; MTh) C. M. Christensen
- 210.* **Special Problems in Mycology.** Research work along the following suggested lines: taxonomy of natural groups, fungus flora of particular regions, localities, or habitats; morphology or physiology of special forms. (Cred. ar.; grad.; prereq. Myc. 105-106-107) C. M. Christensen

ZOOLOGY

- 55.‡ **Natural History of Invertebrates and Fishes.** A taxonomic and ecological survey of the local fauna, including life histories and habitats. Text: Eddy and Hodson, *Taxonomic Keys of the Common Animals of Minnesota*. (4 cred.; prereq. Zool. 1-2-3 or equiv.; WS) Eddy
- 107.‡ **Protozoology.** (Not offered in 1954)
- 115.‡ **Advanced Natural History of Invertebrates and Fishes.** An advanced taxonomic and ecological survey of the local fauna including a detailed and independent ecological study of several taxonomic groups. Text: Eddy and Hodson, *Taxonomic Keys of the Common Animals of Minnesota*; Ward and Whipple, *Fresh-water Biology*. (4 cred.; prereq. 15 cred. in zoology; WS) Eddy
- 119.‡ **Limnology.** A study of the conditions for life in the water and distribution of aquatic animals. Text: Welch, *Limnology*. (4 cred.; prereq. 15 cred. in zoology; MTh) Eddy
135. **Ornithology.** Field and laboratory studies of ecology and life histories of the birds in the Itasca Park region. (4 cred.; prereq. 15 cred. in zoology; TF) Hickey
- 143.‡ **Animal Parasites.** (Not offered in 1954)
- 198.* **Problems in Parasitology, Ecology, and Limnology.** Principles and further work in special lines adapted to needs of individual students. (Cred. ar.; prereq. Zool. 1-2-3 and special requirements; advanced students) Eddy, Hickey

‡ A fee of \$1.50 is charged for this course.

GRADUATE STUDENT THESES

- GORDON, W. F. Ontogenetic xeromorphy in the wild grape (*Vitis vulpina* L.). Ph.D. Thesis. 1941.
- SKUDLARK, JOSEPH E. A comparative limnological study of two deep Minnesota lakes. M.A. Thesis. 1944.
- HELLBERG, J. M. Studies of the vertical distribution of plankton in Lake Itasca, Minnesota, during August 1947. M.S. Thesis. 1948.
- HOOPER, F. F. The summer standing crop of a small Minnesota lake. Ph.D. Thesis. 1948.
- LEE, F. B. A comparison of bird occurrence and activity in two climax forests at Itasca Park, Minnesota. M.S. Thesis. 1948.
- HENDRICKS, H. A. The microfauna of the sandy beaches of three Minnesota lakes. M.A. Thesis. 1949.
- COLE, G. A. An ecological study of the microbenthic fauna of two Minnesota lakes. Ph.D. Thesis. 1949.
- FREEMAN, R. S. The biology and life history of *Monoecocestus* Beddard, 1914 (Cestoda): Anoplocephalidae (from the porcupine), with notes on Minnesota Oribatordea (Acarina). Ph.D. Thesis. 1950.
- MALONEY, J. E. A study of the relationship of food consumption of the bluegill, *Lepomis macrochirus* Rafinesque, to temperature. M.S. Thesis. 1949.
- OWENS, O. V. Some aspects of the ecological life histories of *Impatiens biflora* Walt. and *I. pallida* Nutt. M.S. Thesis. 1949.
- QUIMBY, D. C. The life history and ecology of the jumping mouse (*Zapus hudsonius*). Ph.D. Thesis. 1950.
- FASHINGBAUER, B. A. The effects of defoliation by the forest tent caterpillar, *Malacosoma disstria*, Hbn.: and spraying for the control of the forest tent caterpillar upon bird life; and the effect of spraying for the control of the forest tent caterpillar upon amphibians. M.S. Thesis. 1951. 221 pages.
- KRAFT, K. J. The ants of Itasca State Park, Minnesota. M.S. Thesis. University of North Dakota. 1952.
- LEISMAN, G. The rate of organic matter accumulation on the sedge mat zones of bogs in the Itasca State Park region of Minnesota. M.S. Thesis, 1952.

RESEARCH PUBLICATIONS

- MICKEL, C. E. and H. E. MILLIRON. The Caddice-fly, *Limnephilus indivisus* Walker and its hymenopterous parasite *Hemiteles biannulatus* Grav. Ann. of the Entomological Soc. of Amer., 32:515-80. 1939.
- BUELL, H. F. Further notes on communities of blue-green algae. *Torreya*, 40:32-33. 1940.
- CHRISTENSEN, C. M. Observations on *Polyporus circinatus*. *Phytopathology*, 30:957-63. 1940.
- LEACH, J. G., A. C. HODSON, S. J. P. CHILTON, and C. M. CHRISTENSEN. Observations on two ambrosia beetles and their associated fungi. *Phytopathology*, 30:227-36. 1940.
- HODSON, A. C. An Ecological Study of the Forest Tent Caterpillar, *Malacosoma disstria* Hbn. in Northern Minnesota. Univ. of Minn. Agric. Exp. Sta. Tech. Bull. 148. 1941. 55 pages.
- CHRISTENSEN, C. M. A bluestaining fungus inhabiting the heartwood of certain species of conifers. *Phytopathology*, 32:735-37. 1942.
- . Two cases of unusual development of fruiting bodies. *Mycologia*, 34:400-402. 1942.
- ISHII, N. New parasite records from the ruffed grouse. *Jour. of Parasitology*, 28:92. 1942.

- BUELL, M. F. and W. E. GORDON. Hardwood-conifer forest contact zone in Itasca Park, Minnesota. *Amer. Midl. Nat.*, 34:433-39. 1945.
- DAWLEY, C. W. Distribution of aquatic mollusks in Minnesota. *Amer. Midl. Nat.*, 38:671-97. 1947.
- BUELL, M. F. and R. L. WILBUR. Life form spectra of the hardwood forests of the Itasca Park region, Minnesota. *Ecology*, 29:352-59. 1948.
- CHANDLER, A. C. New species of the genus *Schistotaenia*, with a key to the known species. *Trans. Amer. Microscopical Soc.*, 67:169-76. 1948.
- HOOPER, FRANK F. The effect of Derris Root (Rotenone) upon plankton and bottom fauna organisms of a small Minnesota lake. *Proc. Minn. Acad. Sci.*, 16:29-33. 1948.
- CONWAY, V. M. The bogs of central Minnesota. *Ecol. Mono.*, 19:173-206. 1949.
- FREEMAN, R. S. Temperature, oribatid mites and the development of *Monoecocestus* (Cestoda: Anoplocephalidae). *Jour. of Parasitology*, 35(6):57. 1949.
- . Notes on the morphology and life cycle of the genus *Monoecocestus* Beddard, 1914 (Cestoda: Anoplocephalidae) from the porcupine. *Jour. of Parasitology*, 35(6):605-12. 1949.
- HOOPER, FRANK F. Age analysis of a population of the ameiriid fish *Schilbeodes mollis* (Hermann). *Copeia*, 1949(1):34-38. 1949.
- FASSETT, N. C. The juvenile state of *Elymus canadensis*. *Amer. Midl. Nat.*, 43:762. 1950.
- ABDEL-MALEK, E. T. Menthol relaxation of helminths before fixation. *Jour. of Parasitology*, 37:321. 1951.
- BUELL, M. F. and J. E. CANTLON. A study of two forest stands in Minnesota with an interpretation of the prairie-forest margin. *Ecology*, 32:294-316. 1951.
- CHANDLER, A. C. Studies on Metacercariae of *Perca flavens* in Lake Itasca, Minnesota. *Amer. Midl. Nat.*, 45:711-21. 1951.
- HOOPER, FRANK F. Limnological features of a Minnesota seepage lake. *Amer. Midl. Nat.*, 46(2):462-481. 1951.
- MARSHALL, W. H. Predation on shrews by frogs. *Jour. of Mammalogy*, 32(2):219. 1951.
- . Accidental death of a porcupine. *Jour. of Mammalogy*, 32(2):221. 1951.
- OWNBEY, G. B. Natural hybridization in the genus *Cirsium*—I. *C. discolor* (Muhl. ex Willd.) Spreng. x *C. muticum* Michx. *Bull. Torrey Bot. Club*, 78:233-53. 1951.
- QUIMBY, D. C. The life history and ecology of the jumping mouse, *Zapus Hudsonius*. *Ecol. Mono.*, 21:61-95. 1951.
- SPIETH, H. T. The breeding site of *Drosophila laticola* Patterson. *Science*, 113(2931):232. 1951.
- STERN, W. L. and M. F. BUELL. Life form spectra of New Jersey Pine forest and Minnesota Jack Pine forest. *Bull. Torrey Bot. Club*, 78:61-65. 1951.
- ABDEL-MALEK, E. T. *Cercaria chandleri*, a new echinostome species from the snail *Helisorna corpulentum*, in Lake Itasca, Minnesota. *Trans. Amer. Microscopical Soc.*, 71:277-281. 1952.
- CHANDLER, A. C. Two new species of *Oochoristica* from Minnesota skunks. *Amer. Midl. Nat.*, 48:69-72. 1952.
- ABDEL-MALEK, E. T. Life history of *Petasiger chandleri* (Trematoda Echinostomatidae) from the pied-billed grebe, *Podilymbus podiceps podiceps*, with some comments on other species of *Petasiger*. *Jour. of Parasitology*, 39:152-158. 1953.
- BUELL, M. F. and W. A. NIERING. Vegetation of a raised bog near Itasca Park, Minnesota. *Bull. Torrey Bot. Club*, 80:123-130. 1953.
- LEISMAN, G. A. The rate of organic matter accumulation on the sedge mat zones of bogs in the Itasca State Park region of Minnesota. *Ecology*, 34:81-101. 1953.

LAKE ITASCA FORESTRY AND BIOLOGICAL STATION
Request for Reservation

Name _____ Date _____

Address _____

Status (circle one): Grad.; Adult Special; Research; Undergrad.

Freshman, Sophomore, Junior, Senior; and College _____

G.I. (P.L. 346 or P.L. 16) or Korean Veteran (P.L. 550)

Occupation (if not full-time student) _____

Previous Station attendance (years) _____

Degree expected (when and where) _____

Courses to be taken _____

Date of arrival _____ Car or bus? _____

Meal service begins June 14, breakfast. Buses will be met at Douglas Lodge.

Please mail this form to Dean, Summer Session, 960 Johnston Hall, University
of Minnesota, Minneapolis 14, Minnesota

