

BULLETIN *of the*



UNIVERSITY *of*

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UNIVERSITY OF MINNESOTA
Minneapolis Minnesota
1955

SUMMER SESSION

First Term

June 13-July 16

Second Term

July 18-August 20

FOREWORD

The University of Minnesota Summer Session provides one of the most varied and distinguished summer programs to be found anywhere. It offers training on the graduate and undergraduate levels for students in education; in science, literature, and the arts; in engineering and other technical fields; in medicine; in nursing; in home economics; in most branches of agriculture; and indeed in virtually every major field of instruction to be found in the curriculum of a great American university.

This bulletin, describing the summer program in general and listing more than one thousand formally organized courses provides a broad overview of the Summer Session activities.

It is a cordial invitation to participate in a program of carefully planned study and recreation for the summer of 1955. We hope that you will be among those who accept the invitation.

Special Programs

**A Summer Travel Course in
European Art**

Modern Language Institute

Journalism and Communications

Home Economics

Speech and Drama Institute

Scandinavian Area Studies

Efficient Reading

Nursing

Improving Nursing Care

Nursing in Rehabilitation

Institute on Minnesota

Government and Politics

Program in Audiology

American Studies Program

Film Week

Public Health

Statistics

Interdisciplinary

Biostatistics

Problems of the Mentally

Retarded Child

Higher Education Workshops

Industrial Education

**Workshops for Industrial Arts
Teachers**

Activities for Nonmajors

Driver Education

Workshop in Family Life

Education

Demonstration Facilities

Workshops for School

Administrators

Group Dynamics in Education

Language Arts

Economic Education

**A SUMMER
TRAVEL COURSE
IN EUROPEAN
ART**

The summer travel course in European art will be conducted by the Department of Art under the auspices of the Summer Session. It will cover the main phases of ancient, medieval, Renaissance, and modern art in a series of lectures, guided visits, and discussions held at important cultural centers, museums, and cathedrals. Among the cities to be visited are Paris, Avignon, Nimes, Genoa, Pisa, Rome, Florence, Siena, Venice, Salzburg, Munich, Rothenburg, Speyer, Wiesbaden, Cologne, and Amsterdam. Five credits will be given in Art 59 to students successfully completing the course.

The group will depart from New York by steamer on June 25, spend approximately six weeks in Europe, and disembark in New York on August 22. The total cost, including University fees, transatlantic passages, travel in Europe, hotel accommodations, breakfasts, and dinners (but not travel within the United States) will be about \$970.

For information write to Dean of Summer Session, 550 Johnston Hall, University of Minnesota, Minneapolis 14.

**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 for the Deutsches Haus; Assistant Professor Rodolfo Floripe for the Casa Hispánica; and Associate Professor Guy Desgranges 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.

This year opportunity for observation of and participation in language instruction on the grade school level will also be provided.

The Institute 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 Maison Française and the Deutsches Haus.

JOURNALISM AND COMMUNI- CATIONS

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 colleges.

The School also offers four courses and two seminars in the area of mass communications. Communications in a democratic world will be studied in *The Press in a Dynamic Society* and in *International Communications and Foreign Affairs*, while the history of communications will be traced in both a lecture course and seminar. 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 a graduate seminar.

**HOME
ECONOMICS**

The Twin Cities will be host to the National meeting of the American Home Economics Association from June 28 to July 1.

For those who wish to combine academic work with attendance at this convention, the School of Home Economics has expanded its regular programs in both terms and in addition has planned certain courses for those who may wish to take work prior to or following the meetings.

WORKSHOPS

The following three workshops are planned for that purpose:

**Applied
Nutrition**

One is in applied nutrition (Home Economics 174A) from June 13 to 24, exploring the recent advances in nutrition and their application to the problems of schools and public agencies.

**Household
Equipment**

The second workshop, which will be on Household Equipment (Home Economics 49) from June 13 to 24, will cover the selection, operation, care, and arrangement of equipment in the home.

**Problems in
Related Art**

The third workshop on Problems in Related Art (Home Economics 295) will follow the meetings, from July 5 to 15. Problems will be selected in the related art field based on individual needs of students.

**CONCENTRATED
RELATED ART
COURSE**

Recent trends in art with emphasis on new developments in home furnishings will be the content of this concentrated course. Recent Developments in Related Art (Home Economics 127), which will be given June 13 to 24.

REGULAR COURSES

Subject matter courses will include both undergraduate and graduate work in related art, textiles and clothing, foods, nutrition, home management and family relationships, and institution management. Special problems courses will be available and also several courses in home economics education.

In the second term there will be classes in home management and family relationships.

Classes will make use of the especially fine community resources available in the Twin Cities area. These include the art galleries and museums, institution and commercial kitchens, clothing industries, foods and equipment companies, and social service organizations.

Opportunity will be provided for Summer Session students to attend the American Home Economics Association meetings.

SPEECH AND DRAMA INSTITUTE

As a special feature of the University High School program (June 20 through July 22), a Speech and Drama Institute will be open to high school students. The institute will have two sections, each section composed of thirty high school students. The first group will work on forensic activities, oral interpretation of literature, extemporaneous and other public speaking, discussion, and debate. The second group will work on dramatics for high school students.

High school speech teachers are urged to register for the regular graduate offerings of the Summer Session in order that they may take advantage of the observation opportunities offered by the Speech and Drama Institute in University High School. A more detailed announcement concerning the institute will be sent on request. Write to the Dean of the Summer Session, 550 Johnston Hall, University of Minnesota, Minneapolis 14.

SCANDINAVIAN AREA STUDIES

The Scandinavian Area Studies program, held alternate summers at the University of Wisconsin and the University of Minnesota, for the summer of 1955 is scheduled to be held at the University of Wisconsin. For particulars consult Professor Einar Haugen, Department of Scandinavian Area Studies, University of Wisconsin, Madison, Wisconsin, or Professor Arik Gustafson, Department of Scandinavian Languages, 13 Folwell Hall, University of Minnesota, Minneapolis 14.

**EFFICIENT
READING**

Adult reading needs are a matter of real concern. The course Efficient Reading, Rhetoric 47 (see index), designed for the average and above-average adult reader, provides a unique combination of activities for improving reading speed, comprehension, and vocabulary.

**NURSING
IMPROVING
NURSING CARE**

A first-term course, Improving Patient Care Through In-Service Education, will be of special interest to nurses. Captain Drusilla Poole of the Army Nurse Corps, who will be the visiting instructor, has been active in planning and carrying out in-service education programs in various areas of the country. (See Nurs.Ad. 172, School of Nursing)

**NURSING IN
REHABILITATION**

The Role of Nursing in Rehabilitation is the title of another special five-week course in the first term. Problems encountered by the patient, techniques for helping the patient with these problems, the nurse's role in relation to the other professional personnel, and the need for instructing nursing personnel and students in present concepts of rehabilitation will be included. Opportunities for observation will be provided. A visiting instructor, Teresa Fallon, Director and Consultant for the Nursing Advisory Service for Orthopedics and Poliomyelitis of the National League for Nurses, and consultants will participate. (See Nurs. 181, School of Nursing)

**INSTITUTE ON
MINNESOTA
GOVERNMENT
AND POLITICS**

An Institute on Minnesota Government and Politics (Political Science 114, three credits) held the first two weeks of the second term, July 18-29 inclusive, is intended to introduce those who attend the sessions to some of the major problems of Minnesota's government. The topics will be presented by panels of public officials, leaders of civic groups, journalists, and educators, with adequate opportunity for those who enroll to enter into the discussions.

The topics and panel members for this summer have not

been chosen. The Institute last summer featured sixty panel members composed of sixteen legislators, including the Speaker of the House of Representatives; the Governor and eight other executive and administrative officials; the Chief Justice and three judges; three members of the Board of Regents of the University; fifteen leaders of civic and political organizations; three journalists; and twelve educators. The topics considered were constitutional revision, responsible political parties, party designation of legislators, reapportionment, administrative reorganization, finance, civil service, judicial reform, local government, and citizen participation.

A related course on State Government, Political Science 115, may be taken during the last three weeks of the second term for three additional credits.

PROGRAM IN AUDIOLOGY

The speech department in co-operation with the Audiology Clinic at the University Hospitals will offer work in two courses, and present a special institute for parents of deaf children.

The courses are Speech 127, Language Training for the Deaf, and Speech 156, Auditory Training.

The institute which will follow the close of the second term will be designed to help the parent of the deaf child deal with the special problems involved.

AMERICAN STUDIES PROGRAM

During the summer of 1955, visiting professors in history, literature, art, anthropology, and philosophy will offer American courses, as will members of the University of Minnesota staff in these and other departments (economics, sociology, education, and music). A visiting professor will also conduct an American Studies seminar.

The American Studies summer program is designed for candidates for the B.A., the M.A., and the Ph.D. degrees. 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.

FILM WEEK

A six-day program of lectures, discussions, workshops, and film screenings on the film as a creative medium, with particular emphasis on documentary film techniques and practices in factual and feature films, will be offered to educators, teachers, artists, designers, museum staff, film makers, and interested laymen during the first week of the first term, June 13-20, inclusive.

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

The first-term courses, Film Workshop and the Art of the Film, given in the Department of Art, are co-ordinated with this film festival.

PUBLIC HEALTH

Two workshops for public health nurses will provide opportunities for short-time study in rehabilitation nursing and in field practice in public health nursing. For further information see the section on Schools and Colleges—Public Health.

STATISTICS

INTERDISCIPLINARY

Interdisciplinary work in statistics sponsored by the Graduate School Committee on Statistics will be given first term by a distinguished visiting statistician. These courses, 138A Multivariate Analysis, and 139A Experimental Designs for Research Workers, will be offered in the Department of Mathematics in

the College of Science, Literature, and the Arts, and will be of interest to all students of statistics.

BIOSTATISTICS

The School of Public Health has scheduled two special courses second term in biostatistics, 120 Biostatistics II and 121 Biostatistics Laboratory II.

PROBLEMS OF THE MENTALLY RETARDED CHILD

This workshop, presented jointly by the Institute of Child Welfare and the Psycho-Educational Clinic, will be held from August 22 to 26. It is designed to acquaint teachers, counselors, professional caseworkers, graduate students, and senior undergraduate majors with recent trends and developments in diagnosis, care, and training of children with mental defects.

Prerequisites for enrollment are one course in psychology or educational psychology and two years of college training. The workshop may be taken for credit or by special students who fulfill the prerequisites, without credit.

The three-hour morning and afternoon sessions will consist of a lecture presentation by a specialist, a question-and-answer period, a short intermission, and a discussion section. The group will be broken down into smaller discussion groups for each of which there will be a qualified leader.

Because of the heavy daily schedule, evenings are left free for individual activities.

For further information and for fees write to Dean of Summer Session, 550 Johnston Hall, University of Minnesota, Minneapolis 14.

HIGHER EDUCATION WORKSHOPS

The very useful higher education workshops (228 under Curriculum and Instruction) are available again. The first-term workshop is 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.

**INDUSTRIAL
EDUCATION**

Industrial Education offers three special projects, two for industrial arts teachers and one for nonmajors:

**WORKSHOPS FOR
INDUSTRIAL ARTS
TEACHERS**

In the first term, William A. Kavanaugh will conduct a workshop on the teaching of electricity and electronics in an industrial arts program. Workshop members will work on individual problems and will also pool their efforts, producing a kit of instructional materials for each participant. In the second term, industrial arts teachers may enroll for three, six, or nine credits in the Instructional Materials Laboratory, stressing metalwork, graphic arts, and crafts.

**ACTIVITIES FOR
NONMAJORS**

For 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.

For a detailed description write to Dean of Summer Session, 550 Johnston Hall, University of Minnesota, Minneapolis 14.

**DRIVER
EDUCATION**

The course in Driver Education (101 under Curriculum and Instruction) will provide the special background required for high school instructors in driver training. Sections will be available both terms on the Minneapolis Campus and first term at Duluth. Because registration is limited, interested summer students should apply in advance for this work.

**WORKSHOP IN
FAMILY LIFE
EDUCATION**

An outstanding group of resident and visiting staff will conduct a Workshop in Family Life Education during the last four weeks of the second term, July 25 through August 19. The workshop will serve as part of a four-state project for the improvement of family life education for prospective teachers, initiated last year

in Minnesota, Iowa, North Dakota, and South Dakota with the assistance of the American Social Hygiene Association.

In addition to staff members from the teacher-education institutions in this regional project, applicants are encouraged from the fields of social work, public health, teaching, the ministry, and other areas concerned with family life problems. A total of sixty participants will be accepted, registering for six credits under Curriculum and Instruction, 212. More detailed information and application forms may be requested from the Dean of Summer Session, 550 Johnston Hall, University of Minnesota, Minneapolis 14.

**DEMONSTRATION
FACILITIES**

The University High School and the Tuttle Demonstration Elementary School will both be in operation during the first term. All school staff members will be welcome to observe these programs. This year for the first time, the Tuttle School will include a brief period of foreign language teaching with elementary children, a special feature of interest to many summer students.

The Institute of Child Welfare conducts a nursery school and a kindergarten in which students may observe children of preschool ages.

In both terms, the Psycho-Educational Clinic will be available for summer students who wish to observe its individual and group remedial projects.

**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 270 under Curriculum and Instruction, Improvement of Instruction in the Secondary School, June 13 through June 29; and 229 under Educational Administration, Problems in Planning School Buildings, June 30 through July 15.) Both groups will be limited

in size, and prerequisite to both is the completion of a Master's degree program for school superintendents.

For a special announcement concerning the Specialist in Education program write to the Dean of Summer Session, 550 Johnston Hall, University of Minnesota, Minneapolis 14.

**GROUP
DYNAMICS
IN EDUCATION**

Designed for school teachers and administrators, the first-term workshop on the Educational Implications of Group Dynamics will provide an opportunity for improving understanding of group membership and leadership. The social and emotional dimensions of school problems will be explored and special interest groups will be provided through which the participants may work together on these problems. The workshop is scheduled for four weeks, June 20 through July 15, with registration for six credits under Educational Psychology, 125-126. A more detailed announcement is available from the Dean of Summer Session, 550 Johnston Hall, University of Minnesota, Minneapolis 14. (Enrollment limited to 30.)

**LANGUAGE
ARTS**

Several departments are co-operating in a special first-term program in the Language Arts . . . reading, speaking, writing, listening, children's literature. Supplementing the courses will be an Institute at the Center for Continuation Study, June 27 through June 30, emphasizing sound practices for elementary and secondary school instruction in the language arts.

**ECONOMIC
EDUCATION**

A special overview of current national and international economic problems is embodied in a first-term course in Current Economic Issues (Econ. 129, School of Business Administration) 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.

General Information

Dates of Summer Session

University Facilities

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, 550 Johnston Hall, University of Minnesota, Minneapolis 14.

The University of Minnesota is on the quarter system, and the Summer Session is so organized that the two terms make it possible for the student to complete a full quarter's academic work.

**DATES OF
SUMMER
SESSION**

The Summer Session consists of two terms of five weeks each: June 13 to July 16 and July 18 to August 20. Students may register for subjects of their choice in either or both terms. Registration and payment of fees for the first term close at 4:00 on Tuesday, June 14. First term classes on the Minneapolis Campus will begin Tuesday, June 14, 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 18. Classes for this term will open Tuesday, July 19.

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



*A panoramic view of the
Minneapolis Campus from
across the Mississippi River.*

Academic procession—president, faculty, and officers of the University.



UNIVERSITY FACILITIES

The Summer Session student has available all the facilities of a great university; its distinguished faculty . . . its libraries . . . laboratories . . . classrooms . . . and its highly specialized technical equipment. An expanding physical plant, with more than 1,000 buildings, serves his needs.

SEVERAL CAMPUSES

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

The Institute of Agriculture is located on the St. Paul Campus and includes the College of Agriculture, Forestry, and Home Economics, and the School of Veterinary Medicine. A variety of related courses is offered on the St. Paul Campus, and extensive laboratory and recreational facilities are also available. 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.

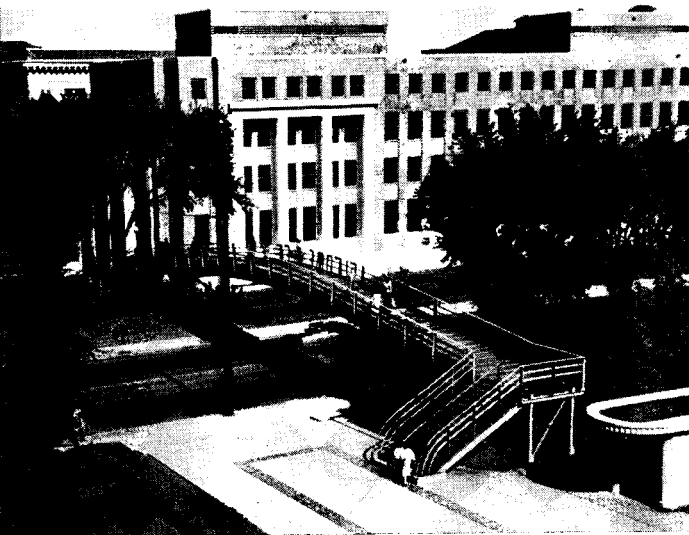
The Lake Itasca Forestry and Biological Station, located on historically famous Lake Itasca in Itasca State Park is scheduled for the **first term** this year. It offers courses in various fields of biology. (See index)

Facilities of the Duluth Campus, and courses offered at Duluth, are discussed elsewhere in this bulletin. (See index)

LIBRARIES

Full library privileges are available to the summer student. Among the finest university libraries in existence, the University of Minnesota Libraries contain more than one and three-quarter million volumes and a wide variety of periodicals and pamphlets. Large, comfortable reading rooms provide an excellent atmosphere for study.

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



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

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.

**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.

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

FACULTY

The summer faculty is made up of distinguished instructors drawn largely from the staff of the University of Minnesota, and augmented by eminent scholars from other institutions. This faculty, numbering about 800, includes people with international reputations in a variety of fields.

**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 275 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 co-operative 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.

**DINING HALL
DORMITORY,
ST. PAUL
CAMPUS**

Contingent upon the number of applications, Dining Hall Dormitory 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.

**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 pro-

*Men's residence halls are cool
and tree shaded.*



vided 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.

**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 the dining facilities in the 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 to attend the Summer Session only 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 in the section on the Graduate School. (See index)

**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
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 the following dates:

First term Registration: Monday, June 13, 8 a.m. to 4 p.m.

Fee payment, last day without penalty: Tuesday, June 14

Second term Registration and fee payment: Monday, July 18, 8 a.m. to 4 p.m.

**LATE
REGISTRATION**

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

Wednesday, June 15.....	\$2.00
Thursday, June 16.....	3.00
Friday, June 17.....	4.00
Monday, June 20.....	5.00

No registrations are allowed for the first term after Monday, June 20, 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 19.....	\$2.00
Wednesday, July 20.....	3.00
Thursday, July 21.....	4.00
Friday, July 22.....	5.00

No registrations will be accepted for the second term later than Friday, July 22, 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.*

FEES

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).....	\$50.00
Incidental fee (per term).....	8.00
	<hr/>
Total fee (per term).....	\$58.00

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)	\$39.00
Incidental fee (per term).....	8.00
	<hr/>
Total fee (per term).....	\$47.00

INCIDENTAL FEE

The incidental fee of \$8 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, course fees are charged for Civil Engineering Camp, Modern Language Institute, Music, Physical Education, Public Health, and Itasca Biological Station as indicated in the section on course fees in the regular *Bulletin of the Summer Session*.

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 \$26 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, \$23 per term; 3 credits or less or thesis only, \$11.50 per term; plus incidental fee.

AUDITORS	<i>Fees for auditors are the same as for students registered for credit.</i>
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.

Summer Recreation

Sports

Excursions

Films

Coffman Memorial Union

St. Paul Campus Union

Concerts and Lectures

University Theatre

Museum of Natural History

University Gallery

**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**

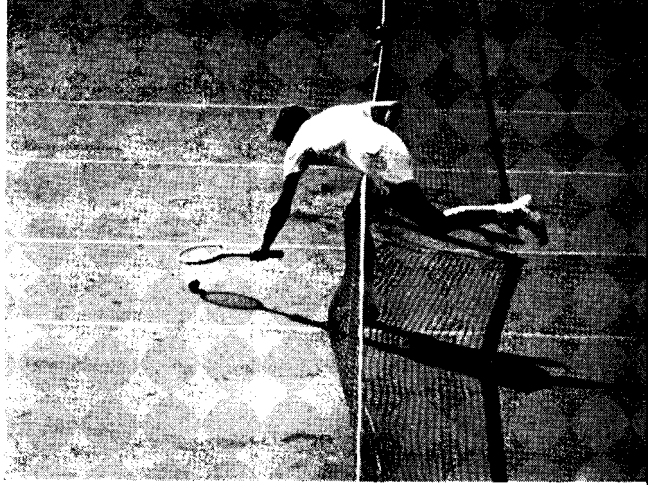
A program of tennis and golf tournaments as well as other competitive sports is arranged each summer. A daily sports hour for women including such activities as aerial darts, badminton, and table tennis is planned at the Norris Gymnasium. At scheduled hours, swimming pools with attendants and instructors 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



The University has 25 tennis courts for student use.

Tennis, golf, and other sports tournaments are popular.



for use of the golf course. Without tickets a slightly higher 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 co-operation of the Department of Audio-Visual Education.



Folk dancing at the Union is popular with students.

**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.

**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.

*University Theatre's production
of Sophocles' King Oedipus.*



**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 on the third and fourth floors of Northrop Memorial Auditorium. 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. Tuesday through Thursday 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 Thursday 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 Technology

College of Engineering

School of Chemistry

**School of Mines and
Metallurgy**

**School of Business Admin-
istration (including Economics)**

Institute of Agriculture

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

**School of Veterinary
Medicine**

Law School

General College

College of Education

Physical Education for Men

Physical Education for Women

Institute of Child Welfare

Medical School

School of Nursing

School of Public Health

School of Dentistry

Biological Station

**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 is the largest undergraduate college of the University of Minnesota, offering instruction leading to the Bachelor's degree in all of the liberal arts and science subjects. A broad and varied program of general education offered in the first two years prepares students for further liberal education, professional or vocational curricula, or for taking one's place in society without further formal education. In addition to programs for a major in most of the subjects of a liberal arts college, students may elect in the college pre-professional curricula, or professional curricula in journalism, librarianship, or social work.

Summer courses offered by the College are chosen from the College's regular curricula to provide students a wide variety of



A corner of the art studio in Jones Hall.

programs in general education, liberal arts and sciences, and vocational or professional studies. This selection of courses is made from the offerings of twenty-seven departments, and includes in addition to the departments listed many courses suitable for interdepartmental majors.

Courses in each of the departments of the College will be found in the section on List of Courses and will be seen to include introductory, intermediate, and advanced work. A few of the programs of the College are discussed in the following paragraphs.

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 again co-ordinated with a Film Week. (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.

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, 550 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 and those preparing to become teachers of music and professional per-

formers may take courses in applied music, music literature, music history, and music theory under nationally known musicians.

Students wishing a broader knowledge of symphonic literature will be interested in the courses, Symphonies of Beethoven and Symphonies of the Romantic Era. The courses in American Music should interest the general student and be of special interest to those majoring in American studies.



A student teacher demonstrates rhythm to an elementary class.

Chorus directors will find the course, Realization and Interpretation of Choral Masterpieces, most valuable.

Music education courses, helpful to elementary teachers as well as to music education majors, will be offered both terms.

The concertmaster of the Minneapolis Symphony Orchestra will be on campus this summer to instruct those particularly interested in string work at a special fee (Music 60B-61B-62B).

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. 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 co-operation with the School of Social Work, a special sequence is designed as preparation for graduate study in the School of Social Work.

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.

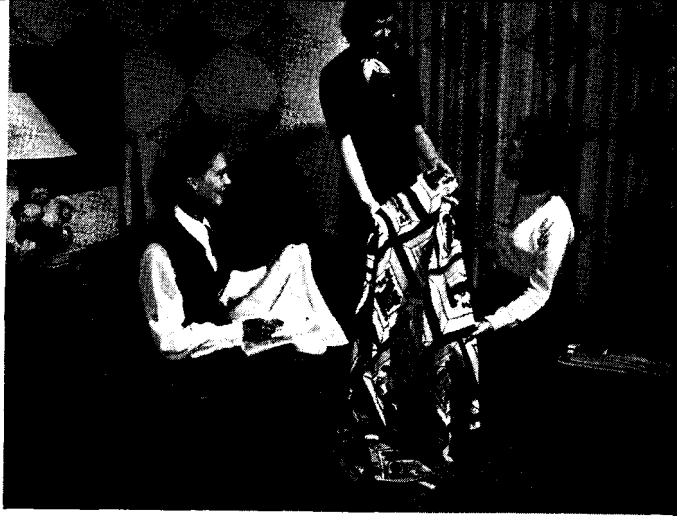
**INSTITUTE OF
AGRICULTURE

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).

Discussing fabrics in home furnishing laboratory.



The School of Home Economics, realizing that many people will want to combine attendance at the meetings of the American Home Economics Association in the Twin Cities with some academic work, has scheduled several workshops and courses for two weeks before and two weeks after the meetings. Further information is given under the section on Special Programs.

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

LAW SCHOOL

A student who has completed at least one year of work in this Law School or in another accredited law school may take the courses listed in this bulletin (see index). Beginning students are admitted to the regular courses in the fall quarter only.

The course in Modern Social Legislation will meet the requirement of the School with respect to this subject.

Registration for a single term is not possible because all courses will continue through both terms without interruption.

**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.

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*.

**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 1955, the Department is presenting a particular opportunity in individual and dual sports. Three nationally known professionals in golf, tennis, and badminton, respectively, will present two clinics in each sport. Since these sports are being taught increasingly in the public schools, the entire series of six clinics will be presented in terms of problems of teaching and adaptation to public school use.

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.

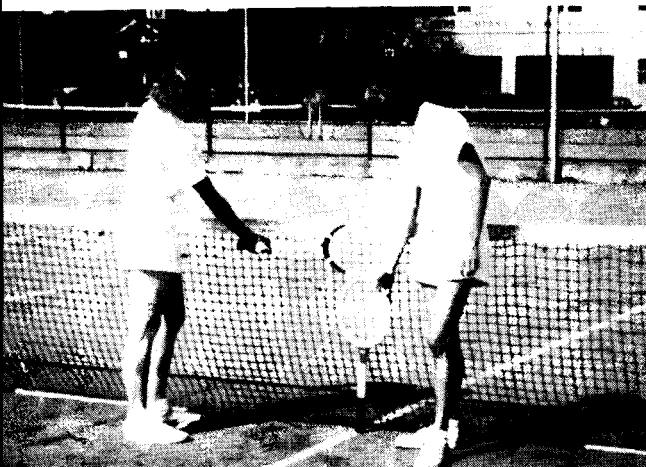
The Department presents a regular program of teaching demonstrations in physical education during the first term at the Tuttle Demonstration Elementary School.

**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.

**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.



Leisure time recreation and instruction in sports are stressed at Norris Gymnasium for Women.

Young children at sand play are interesting.



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 psychology, adolescent psychology, behavior problems of children, child development, childhood education, and parent education. The nursery school and kindergarten 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.

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 13. 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, personnel work, the survey in nursing education, and nursing service administration. Two special courses are planned, Improving Patient Care and The Role of Nursing in Rehabilitation, about which additional information is given under Special Programs in the front of this bulletin.

**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.

**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, suitable electives will be available each term for advanced students. Workshops provide opportunities for those who can devote only a short time to summer study.

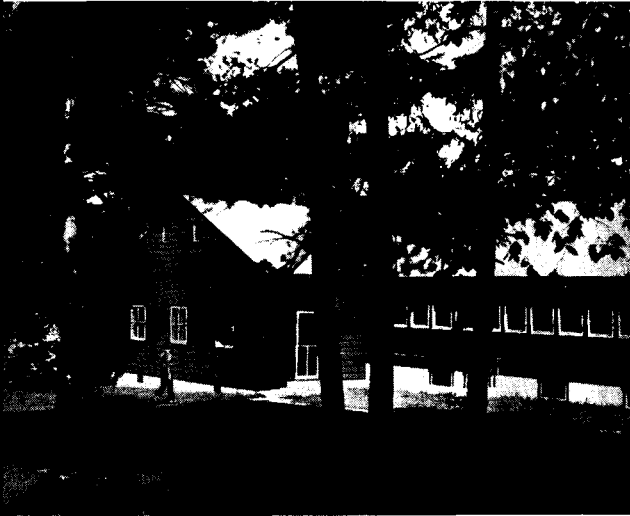
A Workshop on Rehabilitation Nursing (148 under Public Health) during the last two weeks of the first term (July 5-16) will consider special nursing problems that arise in connection with the rapidly growing field of rehabilitation of the handicapped and crippled. This will be followed during the first two weeks of the second term (July 18-30) by another workshop (65 under Public Health) which will deal with problems of field practice in public health nursing. This latter workshop will be of special interest to nurses and to nursing agencies that are receiving students for supervised field experience. These workshops are limited in registration. Inquiries should be addressed directly to the School of Public Health.

**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.

**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, bryophytes, pteridophytes, entomology and economic zoology, plant pathology and botany, and zoology including ornithology. (See index for course listings)



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

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, 550 Johnston Hall, University of Minnesota, Minneapolis 14.



Duluth Branch

General Information

Master of Arts Degree

Bachelor of Science Program

Studies in Rural Education

Workshops in Painting

Business Education

New England Tour

Audio-Visual Institute

**Laboratory Experiences for
Teachers**

Facilities of Special Interest

Recreation

**DULUTH
BRANCH**

**GENERAL
INFORMATION**

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

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 Duluth Campus is noted
for its coolness and beauty.*

The Tweed gallery's tastefully displayed exhibitions are a popular Summer Session feature at Duluth.



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)

**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.

**STUDIES IN
RURAL EDUCATION**

Continuing its tradition of offering special work in the field of rural education, UMD will present a group of courses which will be of specific value to rural teachers and administrators. Emphasis will be placed upon the problems of the community school and the role of educational leadership in the rural community. Ample

opportunity will be available for students to explore specific problems arising in their own localities and to seek answers with sympathetic fellow students and colleagues. For details: Division of Education and Psychology, University of Minnesota, Duluth Branch, Duluth 5.

**WORKSHOPS IN
PAINTING**

A strong cultural tradition in the Duluth Summer Session is the workshop opportunity in painting. Six eminent American artists have conducted workshops in advanced painting in previous summers. The 1955 guest instructor will be another distinguished artist widely recognized as one of America's finest contemporary painters. The workshop is held at the Lakeshore Studio, a UMD facility overlooking the lake.

**BUSINESS
EDUCATION**

A workshop in office management and secretarial practices will be available to present or prospective business education teachers during the second summer term. In addition, a course in advanced techniques in business education will be offered. Several other courses in the fields of business and economics or in education also will be of special interest to business education teachers. For details: Social Studies Division, University of Minnesota, Duluth Branch, Duluth 5.

**NEW ENGLAND
TOUR**

A highly successful history tour of the Far West last summer has encouraged the Duluth Branch to organize another credit tour for 1955—a 4,000-mile, three-week trip to the New England states. Scheduled during the second term, the tour will include visits to Harvard, Yale, Columbia, and Cornell, and the Eastman School of Music in Rochester, with lectures at each institution by internationally known authorities and teachers. A four-day visit in New York City will include points of historic and current interest as well as Columbia University. The rich historical background of the entire New England area will enhance the tour, which has been carefully planned to give maximum reward to the traveling students. For details: Social Studies Division, University of Minnesota, Duluth Branch, Duluth 5.

**AUDIO-VISUAL
INSTITUTE**

Arranged for elementary and secondary teachers and audio-visual workers wishing to develop skills in the production of audio-visual materials, the Institute will emphasize techniques of production suited to the person with limited skills, equipment, and resources. Enrollment will be limited to 24 students. Those taking the course may not enroll for other course work. The classes will be held from 1:00 to 4:30 daily for twelve days, July 18 through July 29. The staff of the Institute will include several members of the Duluth Branch faculty, as well as some guest instructors. Persons interested in enrolling may write to the Division of Education and Psychology to make a reservation.

**LABORATORY
EXPERIENCES
FOR TEACHERS**

Teachers and prospective teachers will find excellent opportunities to observe modern practices in classroom and clinical work. During the first term the Laboratory school will provide a demonstration center, illustrating methods of dealing with remedial problems in reading, arithmetic, and other areas. Additional observation will be available for those interested in speech and hearing disorders at the annual summer speech and hearing clinic, June 20 to August 15.

**FACILITIES
OF SPECIAL
INTEREST**

UMD's Darling Observatory, located at 910 West Third Street, is one of the Duluth Campus' most popular summer facilities. Each month the observatory is opened for lectures and observation with the nine-inch refractor.

On UMD's upper campus, a growing number of new buildings offer exceptional facilities for study, research, and recreation. Nearly complete is a \$700,000 library. Under construction is a \$1,300,000 student service center and dormitory area. Now in use are the new science group with a 400-seat lecture auditorium and the health and physical education building with official intercollegiate pool, regarded as one of the finest facilities of its kind in the Midwest. An Air Force ROTC building also is situated on the new campus. Inspecting officers have termed it one of the finest buildings of its kind they have seen. On the lower campus are cafeteria, dormitory, student lounge, recreation center, administrative offices, and many classrooms.

RECREATION

The Duluth Campus and the community in which it is located offer a rich variety of cultural and recreational activity. Thousands of vacationers find Duluth's climate and recreational resources



Recreation opportunities abound on and near cooling Lake Superior.

healthful and relaxing. UMD summer students will find these recreational values a welcome supplement to their summer program. On the UMD special events calendar are numerous stimulating convocations and films, picnics, outings to points of industrial or scenic interest, boat excursions on Lake Superior, faculty-student sports events and other activities. Boating, fishing, golfing, tennis, picnicking—all are within a few minutes' drive of the campus.

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.

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	176	Economic Problems of Beginning Farmers (3)	Raup
	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

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	208	Research in Dairy Production (ar.).....	Fitch, Gullickson, Petersen, Bayley
Second Terms	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

First Term	<i>(Offered on St. Paul Campus)</i>		
	200	Research Problems in Silviculture (ar.).....	Hansen, Schantz-Hansen, Duncan
	203	Research Problems in Forest Management (ar.).....	Schantz-Hansen, Hall
	205	Research Problems in Forest Economics (ar.).....	Beazley, Hall, Kaufert
	213	Research Problems in Forest Utilization (ar.).....	Kaufert, Hossfeld, Rees

Second Term	<i>(Offered at Lake Itasca)</i>		
	<i>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.</i>		
	2	Important Forest Plants (2).....	Rees
	5	Field Forest Ecology (2).....	Hansen
	6	Field Measurements (2).....	Brown
	Ent.13	Field Zoology (2).....	Krogstad
	Soil.3A	Field Forest Soils (1).....	Arneman

(Offered on St. Paul Campus)

	201	Research Problems in Silviculture (ar.).....	Hansen, Schantz-Hansen, Duncan
	204	Research Problems in Forest Management (ar.).....	Schantz-Hansen, Hall
	206	Research Problems in Forest Economics (ar.).....	Beazley, Hall, Kaufert
	214	Research Problems in Forest Utilization (ar.).....	Kaufert, Hossfeld, Rees

HOME ECONOMICS

First Term	F.L.15	The Home and Its Furnishings (3).....	Ludwig
	28	Construction and Refinishing of Home Furnishings (3).....	Myren
	34	Nutrition Problems (4).....	Peterson

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

†† See Forestry for other course offerings.

	49	Household Equipment (3) (June 13-24)	Bonnell
	50	Textiles (3)	Knight
	86	Home Management Laboratory (4)	Jeary, Stephens
	116	Family Clothing Problems (3)	Morris
	127	Recent Developments in Related Art (3) (June 13-24)	Esteros
	140	New Developments in Food Preparation (3)	Trammell
	150	Textile Problems (3)	Knight
	153	Recent Developments in Clothing Construction (3)	Knight
	167	Problems in Lunchroom Management (3)	Streater, Claypoole
	174A	Workshop in Applied Nutrition (3) (June 13-24)	Leichsenring
	180	Home Planning and Furnishing (5)	Ludwig
	184	Home Management Principles (3)	Jeary
	185	Family Relationships (3)	Bellinger
	295	Special Problems in Home Management and Family Relationships (1-5)	Bellinger
	295	Special Problems in Home Economics—Related Art (3) (July 5-15)	Esteros
Second Term	86	Home Management Laboratory (4)	Bellinger and Stephens
	184	Home Management Principles (3)	Bellinger
	295	Special Problems in Home Management and Family Relationships (1-5)	Bellinger

HOME ECONOMICS EDUCATION

See courses listed under College of Education.

HORTICULTURE

First Term	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, Dosedall, Kernkamp, King, DeVay, French, Kommedahl
	210	Special Problems in Mycology (ar.)	J. J. Christensen, C. M. Christensen, Dosedall
	257	Research Problems in Applied Plant Physiology (ar.)	Landon, DeVay
	263	Research Problems in Agricultural Botany (ar.)	J. J. Christensen, Kommedahl

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

POULTRY HUSBANDRY

First and	214	Research in Poultry Husbandry (ar.)	Johnson and staff
Second Terms	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 (3 sec.) (3)	Brown, Wright
Second Term	22	Public Speaking (3)	Nichols
	47	Efficient Reading (2 sec.) (3)	Wright
	51	Exposition (3)	Nichols

SOILS

First and	202**	Research Problems in Soils (2-5)	Martin, Burson, Caldwell, MacGregor, Schmidt, Arneman
Second Terms			
Second Term††	3A	Field Forest Soils (1)	Arneman

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, Kernkamp, Pomeroy, Sautter
	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)	Ownbey
116	Summer Flora of Minnesota (4)	Buell
135	Ecology of the Itasca Region (4)	Buell
155	Fresh-water Algae (4)	Evans
157	Bryophytes and Pteridophytes (4)	Evans
196	Problems (1-5)	Ownbey, Buell, Evans
208	Research Problems in Taxonomy (1-5)	Ownbey
224	Research Problems in Ecology (1-5)	Buell
236	Research Problems in Cryptogams (1-5)	Evans

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

†† Offered only at Lake Itasca.

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 Zoology (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	Limnology (4)	Eddy
135	Advanced Ornithology (4)	Kendeigh
197	Problems (ar.)	Eddy, Kendeigh

SCHOOL OF BUSINESS ADMINISTRATION

(including ECONOMICS)

First Term

Econ.3	Elements of Money and Banking (3)	Coen, Williams
Econ.6	Principles of Economics (3)	Borak, Heller
Econ.24	Principles of Accounting (3)	Nightingale
Econ.26	Principles of Accounting (3)	Boddy
Econ.50	Insurance Principles (3)	Williams
B.A.54	Elementary Accounting (combined course) (4)	Lund
B.A.58	Elements of Public Finance (3)	Heller
Econ.64	Economics of Money and Banking (3)	Smith
B.A.65	Analysis of Financial Statements (3)	Reighard
B.A.71	Transportation: Services and Charges I (3)	Nightingale
Econ.73	Manpower Economics and Labor Problems (3)	Mahoney
B.A.77	Survey in Marketing (3)	Lewis
Econ.80	Intermediate Economic Analysis: Income and Employment (3)	Papandreou
Econ.85	Government Regulation of Business (3)	Papandreou
B.A.89	Production Management (3)	Wickesberg
Econ.103	Advanced Price Theory (3)	Boddy
B.A.113	Sales Management (3)	Lewis
Econ.129	Current Economic Issues (3)	Smith
B.A.139	Corporate Statements (3)	Reighard
Econ.142	Monetary and Banking Policy (3)	Smith
Econ.143	Economic Analysis: Income and Employment (3)	Papandreou
B.A.150	Intermediate Accounting I (3)	Lund
B.A.152	Cost Accounting (3)	Reighard
Econ.161	General Manpower Economics and Labor Problems (3)	Ar.
Econ.164	Labor Legislation: Collective Bargaining (3)	Seltzer
Econ.165	Current Trends in Industrial Relations (1)	Staff
Econ.166	Settlement of Labor Disputes (3)	Seltzer
Econ.172	Economics of Transportation (3)	Nightingale

Econ.175	Government Regulation of Market Behavior (3)	Papandreou
Econ.176	Introduction to International Economics (3)	Coen
B.A.184	Scientific Management in Industry (3)	Wickesberg
Econ.185	Economics of Marketing (3)	Lewis
B.A.187	Administration of Production (3)	Wickesberg
Econ.189	Economics of Public Finance (3)	Heller

Second Term

Econ.5	Elements of Statistics (3)	Holloway
Econ.7	Principles of Economics (3)	Buttrick
Econ.25	Principles of Accounting (3)	Sutton
B.A.55	Elementary Accounting (combined course) (4)	Nelson
B.A.66	Managerial Costs (3)	Meyers
Econ.73	Manpower Economics and Labor Problems (3)	Turnbull
B.A.74	Business Statistics A (3)	McKenna
Econ.75	Corporation Finance (3)	Stehman
Econ.81	Intermediate Economic Analysis: Firms and Households (3)	McKenna
Econ.104	Market Structure and Price Theory (3)	Brownlee
B.A.112	Time Series Analysis and Quality Control (3)	McKenna
Econ.124	Theory of Employment, National Income, and the Price Level I (3)	Brownlee
B.A.130	Managerial Cost Accounting (3)	Meyers
Econ.144	Economic Analysis: Firms and Households (3)	McKenna
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)	Meyers
Econ.155	The Modern Corporation (3)	Stehman
Econ.161	General Manpower Economics and Labor Problems (3)	Turnbull
B.A.167	Introduction to Industrial Relations (3)	Turnbull
B.A.173	Market Analysis and Research (3)	Holloway

INSTITUTE OF CHILD WELFARE

First Term	80	Child Psychology (3)	Bassham
	130	Motor, Linguistic, and Intellectual Development of the Child (3)	Bassham
	132	Later Childhood and Adolescence (3)	Overlade
	141	Behavior Problems in Older Children (3)	Overlade
	150	Childhood Education (3)	Fuller
	270	Readings and Research in Child Development (ar.)	Staff

See also Ed.C.I. 162 and 164, listed under Curriculum and Instruction, and Ed.T. 77 and 78, under Methods and Student Teaching, College of Education.

Second Term	131	Personality, Emotional, and Social Development of the Child (3)	Gollin
	140	Behavior Problems in Younger Children (3)	Cummings
	142	Psychology of Atypical Children (3)	Gollin
	170	Parent Education (3)	Cummings
	270	Readings and Research in Child Development (ar.)	Staff

SCHOOL OF DENTISTRY

See index.

COLLEGE OF EDUCATION

AGRICULTURAL EDUCATION

First Term	82	Teaching Agriculture in the Secondary School (4).....	Kitts
	105	FFA Program of Work (3).....	Swanson
	123	Teaching Units in Livestock Management (3).....	Swanson
	154	Rural Education and Community Leadership (3).....	Swanson
	165	Techniques of Instruction in Mechanized Farming (3).....	Kitts
	166	Techniques of Instruction in Rural Electrification (3).....	Kitts
	172	Teaching Units in Farm Credit (3).....	Peterson, Granger
221	Field Problems (3).....	Peterson, Kitts, Swanson	
232	Research in Agricultural Education (3-9).....	Peterson, Kitts, Swanson	
Second Term	91	Supervised Teaching Experience (6).....	Kitts, Swanson
	221	Field Problems (3).....	Peterson, Kitts, Swanson
	232	Research in Agricultural Education (3-9).....	Peterson, Kitts, Swanson

ART EDUCATION

First Term	17	Pictorial Expression for Elementary Education (3).....	Bratlee
	18	Design Activities for Elementary Education (3).....	Hastie
	151	Curriculum Building in Art Education (3).....	Hastie
	156	Intercultural Education Through Art (3).....	Gayne
	184	Advanced Course in the Teaching and Supervision of Art in the Elementary School (3).....	Gayne
	295	Problems in Art Education (ar.).....	Gayne, Hastie
	296	Seminar in Art Education (1).....	Staff
Second Term	18	Design Activities for Elementary Education (3).....	Hastie
	84	Teaching Art in the Elementary School (3).....	Gayne
	295	Problems in Art Education (ar.).....	Gayne

See also Department of Art, College of Science, Literature, and the Arts.

EDUCATIONAL ADMINISTRATION

First Term	GENERAL COURSES		
124	Public School Administration (3).....	Davidson	
210	Financial Aspects of Public School Business Administration (3).....	Reeder	
225	Pupil Personnel Administration (3).....	Cramer	
226	School Plant Planning and Management (3).....	Prentis	
227	Teacher and Employee Administration (3).....	Kearney	
228	Special Problems in Educational Administration (1-3).....	Prentis	
229	Problems in Planning School Buildings (June 30-July 15) (4).....	Williams and ar.	
230	Public Relations for Schools (3).....	Davidson	
235	Seminar in Educational Administration (0).....	Domian	
236	Field Study in Educational Administration (0-10).....	Domian	

ELEMENTARY EDUCATION

115	Organization of the Elementary School (3).....	Cramer
118	The Community School (3).....	Archer

SECONDARY EDUCATION

218	Recent Literature in Secondary Education (ar.).....	R. Keller
263	Organization of the Secondary School (3).....	Ringo

264	Administration of Instructional Activities in the Secondary School (3).....	Fisher
270	Special Problems in Secondary Education (ar.).....	Bossing, R. Keller

Second Term

GENERAL COURSES

124	Public School Administration (3)	Williams
210	Financial Aspects of Public School Business Administration (3)	Reeder
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).....	Prentis
235	Seminar in Educational Administration (0).....	Domian
236	Field Study in Educational Administration (0-10).....	Domian

ELEMENTARY EDUCATION

115	Organization of the Elementary School (3).....	Cramer
118	The Community School (3).....	Archer

SECONDARY EDUCATION

218	Recent Literature in Secondary Education (ar.).....	R. Keller
264	Administration of Instructional Activities in the Secondary School (3).....	Mitchell
265	Administration of the Noninstructional Activities in the Secondary School (3).....	Abel
270	Special Problems in Secondary Education (ar.).....	Bossing, R. Keller, Mitchell

CURRICULUM AND INSTRUCTION

First Term

GENERAL COURSES

101 -	Driver Education (June 20-July 1) (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).....	Bond
151	Diagnosis and Treatment of Learning Difficulties (3).....	Clymer
171	Curriculum Laboratory Practice (3).....	Bossing
174-175-176	Clinical Methods and Practice in Speech Pathology (3 each).....	Bryngelson
205	Problems in Audio-Visual Education (ar.).....	Pearson
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, Clymer

ELEMENTARY EDUCATION

60	The Teaching of Reading in the Elementary School (3)	Odland
61	The Teaching of the Social Studies in the Elementary School (3).....	Schwab
102	Teaching the Social Studies in the Elementary School (3)	Chase
103	Teaching of Science in the Elementary School (3).....	Boeck
119	Elementary School Curriculum (2 sec.) (3).....	Jarolinek
123	Speech in the Elementary School (3).....	Henrikson

143	Teaching and Supervision of Reading in the Elementary School (3)	Odland
149	Teaching and Supervision of Arithmetic in the Elementary School (3)	D. Johnson
150	Supervision and Improvement of Instruction (2 sec.) (3)	Goossen
153	Supervision and Teaching of English in the Elementary School (3)	Chase
162	Laboratory in Nursery School and Kindergarten Instructional Practices (3)	Fuller
164	Play Materials, Rhythms, and Nature Study for Young Children (3)	Helgerson
181	Foundation of Elementary School Methods (3)	Archer
186	Laboratory in Elementary Instructional Practices (2)	Jensen
261	Special Problems in the Improvement of Instruction (ar.)	Goossen

SECONDARY EDUCATION

113	High School Curriculum (3)	Bossing
114	Development of the Core Curriculum (3)	Bossing
122	Literature for Adolescents (3)	Petitt
125	Occupational Information Laboratory (3)	White
135	Group Procedures in Guidance (3)	Borow
136	Organization and Administration of Distributive Education (3)	Meyer
140	Teaching of Speech (3)	D. K. Smith
141	Co-operative Part-Time Work Experience Programs (3)	Meyer
142	Business and Distributive Programs for Adults (3)	Latterell
144	Teaching of Reading in Secondary Schools (3)	Clymer
161	Curriculum Construction in Business Education (3)	Price
168	Current Developments in the Social Studies (3)	McCune
192	Mathematics Laboratory (3)	D. Johnson
199E	Internship (ar.)	Fitzgerald
201	Problems in Teaching the Social Studies (ar.)	McCune
225	Special Problems in Supervision of Instruction in Secondary Schools (ar.)	R. Keller
238	Problems in Distributive Education (ar.)	Meyer
239	Problems in Business Education (ar.)	Price
266	Supervision of High School Instruction (3)	Fisher
270	Improvement of Instruction in the Secondary School (June 13-29) (4)	R. Keller, Varner
287	Advanced Course in the Teaching of Science (3)	Boeck

HIGHER EDUCATION

228	Workshop: Problems of Higher Education and Teacher Education (June 13-July 8) (6)	Cooper, Eckert, Mork, Morris, Oppenheimer, 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 1-12) (2)	Neal and ar.
105	Audio-Visual Materials in Education (3)	Pearson
106	Co-ordinating an Audio-Visual Education Program (3)	Pearson
145	Reading Difficulties (3)	Tinker

171	Curriculum Laboratory Practice (3)	Bossing
205	Problems in Audio-Visual Education (ar.)	Pearson
212	Family Life Workshop (July 25-August 19) (6)	Bowman, Dyer, Flanders, Gamelin, M. Hansen, Morgan, and consultants
227	Problems in Rural Education (ar.)	Archer
271	Problems in Curriculum Construction (ar.)	Archer, Boeck, Bossing, Goossen, D. Johnson
273	Problems in Reading (ar.)	Clymer, Reynolds, 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 (3)	Jarolimek
143	Teaching and Supervision of Reading in the Elementary School (3)	Clymer
150	Supervision and Improvement of Instruction (3)	Goossen
153	Supervision and Teaching of English in the Elementary School (3)	Archer
261	Special Problems in the Improvement of Instruction (ar.)	Goossen

SECONDARY EDUCATION

113	High School Curriculum (3)	Bossing
125	Occupational Information Laboratory (3)	White
132	Teaching the Basic Business Subjects (3)	Price
134	Materials and Methods in Consumer Education (3)	Price
135	Group Procedures in Guidance (3)	Borow
137A	Materials and Methods in Co-operative Part-Time Classes (3)	Meyer
139	Co-ordination Techniques (3)	Meyer
144	Teaching of Reading in Secondary Schools (3)	Tinker
170B	Curriculum and Course of Study Construction (3)	Bossing
225	Special Problems in Supervision of Instruction in Secondary Schools (ar.)	R. Keller
238	Problems in Distributive Education (ar.)	Meyer
239	Problems in Business Education (ar.)	Price
266	Supervision of High School Instruction (3)	R. Keller

HIGHER EDUCATION

228	Workshop: Problems of Higher Education and Teacher Education (July 25-August 19) (6)	Boeck, Mork, Travis, and consultants
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EDUCATIONAL PSYCHOLOGY

First Term

GENERAL COURSES

60	Introduction to Measurement and Statistics (3)	Hoyt
120	Basic Principles of Measurement (3)	Hoyt
125-126	Group Dynamics in Education (June 20-July 15) (6)	Flanders, Havumaki, and ar.
140	Instruments and Techniques of Measurement (3)	Edson
148	Clinical Diagnosis of Reading Difficulties (3)	Reynolds
150	Clinical Practice in Remedial Teaching (3)	Clymer, Reynolds
151	Clinical Practice in Educational Diagnosis (3)	Reynolds
159	Personality Development and Mental Hygiene (3)	Wrenn

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, Collier
216a	Statistical Methods in Education—Laboratory (2)	Collier
225	Diagnosis as a Phase of Counseling (3)	Borow
233	Problems in Guidance and Personnel Work (ar.)	Dugan, Edson, Wrenn
253	Research Problems (ar.)	Dugan, Edson, Flanders, Hoyt, P. O. Johnson, Mork, Reynolds, Wrenn
280	Practicum in Group Leadership (3)	Flanders
293	Psychology of Learning (3)	Mork

SECONDARY EDUCATION

133	Basic Procedures in Student Personnel Work (2 sec.) (3)	White, Swan
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)	Stecklein
116a	Introduction to Statistical Methods in Education—Laboratory (2)	Collier
120	Basic Principles of Measurement (2 sec.) (3)	D. Johnson
142	Individual Mental Testing (3)	Reynolds
150	Clinical Practice in Remedial Teaching (3)	Clymer, Reynolds
151	Clinical Practice in Educational Diagnosis (3)	Reynolds
159	Personality Development and Mental Hygiene (3)	Swan
217	Statistical Methods in Education (3)	Collier
217a	Statistical Methods in Education—Laboratory (2)	Collier
226	Interviewing Procedures in Counseling (3)	Borow
233	Problems in Guidance and Personnel Work (ar.)	Borow, Dugan
253	Research Problems (ar.)	Dugan, Flanders, Mork, Reynolds
290	Individual Differences (3)	Flanders
293	Psychology of Learning (3)	Mork

SECONDARY EDUCATION

133	Basic Procedures in Student Personnel Work (3)	White
134	School Counseling Procedures (3)	Dugan

GENERAL EDUCATION

First Term	Ed.81	Introduction to Education for Public Health Nurses (3)	Grout
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HISTORY AND PHILOSOPHY OF EDUCATION

First Term	141	Critical Issues in Contemporary Education (3)	Beck
	156	History of Ideas in American Education (3)	Beck
	180	The School and Society (2 sec.) (3)	Dupuis
	241	Problems in the History and Philosophy of Education (ar.)	Beck
Second Term	131	Comparative Education (3)	Beck
	180	The School and Society (2 sec.) (3)	Beck, Dupuis
	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
	194B	Adult Education in Home Economics (3)	Ford
	293	Problems in Home Economics Education (ar.)	Rose
	295	Seminar in Home Economics Education (3)	Rose

INDUSTRIAL EDUCATION

First Term	106	Workshop in Industrial Education—Electricity and Electronics for Secondary Schools (3-6)	Kavanaugh
	107	Co-ordination (3)	Widdowson
	109	Conference Leading for Industry (3)	Widdowson
	111	Instructional Materials Laboratory for Nonmajors (3)	H. Nelson
	135	Industrial Course Construction (3)	Micheels, H. Nelson
	200	Research Problems (3-6-9)	Micheels, H. Nelson
Second Term	136	Instructional Materials Laboratory (3-6-9)	Micheels, H. Nelson, and staff
	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)	Norris, Dunning
	ELEMENTARY EDUCATION		
	Ed.T.77	Student Teaching in the Nursery School (3)	Helgerson
	Ed.T.78	Student Teaching in the Kindergarten (3)	Helgerson
	SECONDARY EDUCATION		
	Ed.T.52	Student Teaching (ar.)	Grim
	Ed.T.84A-B-C	Practice and Field Work in Recreation Leadership (2)	Fitzgerald
	Ed.T.85A-B-C	Practice and Field Work in Recreation (1 or 2)	Fitzgerald
	Second Term	NURSING EDUCATION	
Ed.T.51A		The Teaching of Nursing (2)	Norris, Dunning

MUSIC EDUCATION

First Term	51	Teaching of Music (3)	Caswell
	60-61-62	Supervision and Teaching of Music (3)	Ivory
	124	Selection and Conducting of Choral Materials (3)	Caswell
	125	Selection of Instrumental Music Materials (3)	Ivory
	224	Research Problems (3-9)	Ivory, Caswell
	225E	Advanced Applied Music (2-4)	Ar.
Second Term	52	Teaching of Music (3)	Caswell
	105	Advanced Topics in Instrumental Music Education (3)	Ivory
	150	Organization and Supervision of Vocal-Instrumental Music in Elementary Schools (3)	Ivory, Caswell
	224	Research Problems (3-9)	Ivory, Caswell
	225E	Advanced Applied Music (2-4)	Ar.

See also Department of Music, College of Science, Literature, and the Arts.

PHYSICAL EDUCATION FOR MEN

First Term	1A	Beginning Golf (1)	Bolstad
	1B	Advanced Golf (1)	Bolstad
	1C	Swimming (1)	Piper
	6A	Intramural Sports (Soccer, Speedball, Volleyball) (1)	Shawbold
	7A	Games and Relays (1)	Shawbold
	7C	Recreational Games (1)	Shawbold
	9A	Fundamental Rhythms (Folk Dance) (1)	Piper
	51	Mechanics of Movement (Kinesiology) (3)	Osell
	73-74-75	Directed Teaching (2)	Piper
	101	Principles of Physical Education (3)	Keller
	224	Research Problems in Health Education, Physical Education and Recreation (ar.)	Graduate staff
	236	Recent Literature and Research in Physical Education and Recreation (3)	Nordly
	238	Administration of Physical Education in Colleges and Universities (3)	Keller
	241	Administration of Public Recreation (3)	Fitzgerald
	261A	Seminar in Contemporary Problems in Physical Education (3)	Nordly
	Second Term	2A	Swimming (1)
8		Tennis and Golf (1)	Piper, Bolstad
9B		Folk, Square, and Ballroom Dancing (1)	Piper
60A		Prevention and Care of Injuries (3)	Stein
67		Football Coaching (2)	Warmath and staff
73-74-75		Directed Teaching (2)	Piper
110		Recreation Surveys (3)	Fitzgerald
155		Instructional Aids in Health, Physical Education, and Recreation (3)	Piper
224		Research Problems in Health Education, Physical Education, and Recreation (ar.)	Graduate staff
244		Construction and Administration of the Physical Education Curriculum (6)	Nordly

PHYSICAL EDUCATION FOR WOMEN

First Term	7	Tennis for Beginners (1)	Ar.
	8	Golf for Beginners (1)	Ar.
	18	Elementary Folk Dancing, Games and Methods (2)	Lampe
	32	Elementary Swimming (1)	Ar.
	37	Individual and Dual Sports and Methods (2)	Jaeger
	84	Physical Education Program in Elementary and Secondary Schools (3)	Jaeger
	85	Remedial Activities in Physical Education (3)	Wilson
	113	Physical Education in Elementary Schools (3)	Baker
	118	Problems in Teacher Education in Health, Physical Education, and Recreation (ar.)	Graduate staff
	125	Curriculum Trends in Professional Preparation of Teachers of Physical Education (3)	Jaeger
	135	Tests and Measurements in Physical Education (3)	Wilson
	224	Research Problems in Health Education, Physical Education, and Recreation (ar.)	Graduate staff

Second Term	114	Administration of School Health Education Program (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

GENERAL COLLEGE

First Term	3	Home Life Orientation (3)	W. J. Anderson
	10A	Human Biology: Fundamental Similarities in the Living World (3)	Cieslak
	19A	Problems of Business Transactions (3)	Rassweiler
	23A	Art Laboratory (3)	Safer
	30E	Literature Today: An Introduction to World Literature (3)	Appel
	31A 37	Writing Laboratory: Descriptive Writing (3) Social Trends and Problems (3)	Stockdale Stovall
Second Term	8A	Applied Mathematics: Mathematical Procedures with Empirical Data (3)	J. M. Harris
	10B	Human Biology: How the Living Machinery in Man Works (3)	Dearden
	31D	Writing Laboratory: Business Writing (3)	Draxten
	32A	Oral Communication: Basic Principles of Oral Communication (3)	Olson
	40B	Straight and Crooked Thinking (3)	McCoy

LAW SCHOOL

First and Second Terms (combined)		Income Taxation (3)	Anderson
		Estate and Gift Taxation (3)	Anderson
		Conflicts (3)	Paulsen
		Modern Social Legislation (3)	McClure
		Wills (3)	Dukeminier
		Local Government Law (3)	McClure

COLLEGE OF MEDICAL SCIENCES

MEDICAL SCHOOL

ANATOMY

First Term	104	Human Histology (4)	Williams
	111	Human Neurology (6)	Campbell
	156	Advanced Anatomy (ar.)	Staff
	204	Research in Anatomy (ar.)	Staff
Second Term	156	Advanced Anatomy (ar.)	Staff
	204	Research in Anatomy (ar.)	Staff

BACTERIOLOGY AND IMMUNOLOGY

First Term	53	General Bacteriology (5)	Johansson
	102	Medical Bacteriology (5)	Watson
	153	Special Problems (ar.)	Watson
Second Term	112	General Mycology (3)	Roth
	153	Special Problems (ar.)	Watson

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, Seibel, Janda, and staff
	205	Advanced Obstetrics and Gynecology, Part II (ar.)	McKelvey, Seibel, Janda, and staff
	209	Advanced Obstetrics and Gynecology, Part III (ar.)	McKelvey, Seibel, Janda, and staff
	216	Research (ar.)	McKelvey, Seibel, Janda, and staff
	301	Externship (6)	McKelvey, Seibel, Janda, and staff
Second Term	204	Advanced Obstetrics and Gynecology, Part I (ar.)	Kaiser, Seibel, Janda, and staff
	208	Advanced Obstetrics and Gynecology, Part II (ar.)	Kaiser, Seibel, Janda, and staff
	212	Advanced Obstetrics and Gynecology, Part III (ar.)	Kaiser, Seibel, Janda, and staff
	219	Research (ar.)	Kaiser, Seibel, Janda, and staff
	302	Externship (6)	Kaiser, Seibel, Janda, 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)	John Anderson and staff
	152	Fundamental Principles of Nutrition and Metabolism (1)	John Anderson, Ziegler
	154	Endocrinology as Applied to Pediatrics (1)	John Anderson
	162	Common Behavior Disturbances in Childhood (1)	Jensen, Quast, Engstrom
	170	Rheumatic Infection and Heart Diseases in Childhood (1)	Dwan, Ray Anderson, Good
	174A	Dispensary Externship in Pediatrics (4)	John Anderson and staff
	174B	In-Patient Externship in Pediatrics (4)	John Anderson and staff
	200	Graduate Seminar in Pediatrics (1½)	John Anderson and senior staff
	202	Pediatric Clinic, Out-Patient Department (5)	John Anderson and staff
	204	Three-Month Residency in Pediatrics (7)	John Anderson and staff
Second Term	152	Fundamental Principles of Nutrition and Metabolism (1)	John Anderson, Ziegler
	154	Endocrinology as Applied to Pediatrics (1)	John Anderson
	162	Common Behavior Disturbances in Childhood (1)	Jensen, Quast, Engstrom
	170	Rheumatic Infection and Heart Diseases in Childhood (1)	Dwan, Ray Anderson, Good
	174A	Dispensary Externship in Pediatrics (4)	John Anderson and staff
	174B	In-Patient Externship in Pediatrics (4)	John Anderson and staff
	200	Graduate Seminar in Pediatrics (1½)	John Anderson and senior staff
	202	Pediatric Clinic, Out-Patient Department (5)	John Anderson and staff
	204	Three-Month Residency in Pediatrics (7)	John Anderson 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)	Fayle
	203	Research in Pharmacology (ar.)	Bieter

PHYSICAL MEDICINE AND REHABILITATION

First and	103	Physical Therapy Clinic (ar.)	Kottke, Kubicek
Second Terms	200	Physical Medicine Service (ar.)	Staff

203	Poliomyelitis Clinic (1).....	Kottke and staff
210	Research in Physical Medicine (ar.).....	Kottke, Kubicek

PHYSIOLOGICAL CHEMISTRY

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

PHYSIOLOGY

First Term	4	Human Physiology (4).....	Johnson, King
	107	Human Physiology (5).....	Visscher, Lifson, Brown King, Johnson
	203	Research in Physiology (ar.).....	Visscher, Lifson, Brown, Johnson
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, Hathaway	
	145x	Reading in Neurology (ar.).....	Baker	
	155	Therapeutics in Neurology (2).....	Baker	
	208	Clinical Neurology (ar.).....	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).....	Tichy	
	221	Psychometric Clerkship (2).....	Hathaway	
	226	X-ray Conference (1).....	Baker	
	228	Research in Neuropathology (ar.).....	Tichy	
	231	Applied Electroencephalography (1).....	Baker and staff	
	233	Applied Neuropathology (1).....	Tichy	
	243	Prolonged Psychotherapy (1).....	Hastings, Hathaway	
	245	Case Conference for Psychologists (1).....	Hathaway	
	Second Term	145	Reading in Psychiatry (ar.).....	Schiele, Kiesler, Glueck
		145x	Reading in Neurology (ar.).....	Baker and staff
152		Externship in Psychiatry (6).....	Schiele, Kiesler, Glueck	
153		Externship in Neurology (6).....	Baker and staff	
208		Clinical Neurology (ar.).....	Baker and staff	
208x		Clinical Psychiatry (ar.).....	Schiele, Kiesler, Glueck, Schofield	
208y	Clinical Child Psychiatry (ar.).....	Jensen		

209	Research in Psychiatry and Neurology (ar.)	Schiele, Kiesler, Glueck
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 and staff
233	Applied Neuropathology (1)	Tichy
243	Prolonged Psychotherapy (1)	Schiele, Schofield, Kiesler, Glueck
245	Case Conference for Psychologists (1)	Schofield

RADIOLOGY

First Term	111	Medical Roentgenologic Conference (1)	Rigler
	121	Roentgen Diagnosis, Radium Therapy, 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 Related to Radiation Therapy (ar.)	Stenstrom
	206	Roentgenoscopy (3)	Rigler and staff
	207	Roentgen and Radium Therapy (ar.)	Stenstrom
	209	Roentgen Diagnosis (3)	Rigler, Nice
	210	Roentgen Technique (2)	Rigler, Nice
	238	Roentgen-Surgical Pathology Conference (1)	Rigler, Hebbel
	240	Conference in Radiation Therapy (1)	Stenstrom
Second Term	109	Externship in Roentgen Diagnosis and Radiation Therapy (4)	Rigler, Stenstrom, Nice, and staff
	111	Medical Roentgenologic Conference (1)	Rigler
	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 Related to Radiation Therapy (ar.)	Stenstrom
	206	Roentgenoscopy (3)	Rigler and staff
	207	Roentgen and Radium Therapy (ar.)	Stenstrom
	209	Roentgen Diagnosis (3)	Rigler, Nice
	210	Roentgen Technique (2)	Rigler, Nice
	238	Roentgen-Surgical Pathology Conference (1)	Rigler, Hebbel
	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, Bernstein
	135g	Applied Surgical Anatomy (3)	Lillehei
	152	Problems in Clinical Investigation (ar.)	Varco, Zimmermann
	167	Problems in Experimental Surgery (ar.)	Creevy, Varco
	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 NURSING**

First Term	Nurs.181	The Role of Nursing in Rehabilitation (3).....	Fallon and staff
	Nu.Ad.160	Ward Administration (5).....	Grainger
	Nu.Ad.172	Improving Patient Care Through In-Service Education (3)	Poole and staff
	Nu.Ad.193	Principles of Administration Applied to Nursing Service Administration (3)	Harris
	Nu.Ed.162	Personnel Work in Nursing (3).....	Johnston
	Nu.Ed.190	The Survey in Nursing Education (3).....	Harrington
Second Term	Nu.Ad.170	Foundations of Nursing Service Administration (3).....	Harris
	Nu.Ad.193	Principles of Administration Applied to Nursing Service Administration (3).....	Harris

SCHOOL OF PUBLIC HEALTH

First Term	50	Personal and Community Health (3).....	Thomson
	62	Public Health Nursing I (5).....	Sandve
	65	Field Work in Public Health Nursing (ar.).....	Murphy
	69	Nursing in Health Programs for School-Age Children (3).....	Murphy
	100	Elements of Preventive Medicine and Public Health (for medical students only) (6).....	Thomson
	133	Mental Hygiene (3).....	Cline
	148	Workshop on Rehabilitation and Public Health Nursing (3).....	Guest Instructor, Murphy, Cline

BIOSTATISTICS

Second Term	110	Biometric Principles (3)	Treloar
	111	Biostatistics Laboratory (2).....	Ar.
	59	Health of the School Child (3).....	Eichenlaub
	60	Tuberculosis and Its Control (2).....	Myers
	63	Public Health Nursing II (4).....	Murphy
	65	Field Work in Public Health Nursing (ar.).....	Murphy
	75	Introduction to Environmental Sanitation (3).....	Bond

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

95	Human Nutrition (3)	Stief
100	Elements of Preventive Medicine and Public Health (5)	Anderson
185	Workshop on Field Practice in Public Health Nursing (3)	Murphy, Cline, von Bergen

BIOSTATISTICS

120	Biostatistics II (3)	Elveback
121	Biostatistics Laboratory II (2)	Ar.

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

AMERICAN STUDIES

First Term	Hum.22	American Life II (3)	Taylor
	201	Introduction to American Studies (3)	Koch
	251	Readings in American Civilization (ar.)	Ar.
Second Term	Hum.23	American Life III (3)	Fisher
	252	Readings in American Civilization (ar.)	Ar.

ANTHROPOLOGY

First Term	1	Introduction to Anthropology (3)	Hoebel
	80	American Indians (3)	LaBarre
	122	Problems in Anthropology (ar.)	Hoebel
	140	Field Trip in Archaeology (1-6)	Wilford
	165	Psychological Phases of Culture (3)	Hoebel
Second Term	175	Aspects of American Culture (3)	LaBarre
	2	Introduction to World Ethnology (3)	Spencer
	118	Pre-Columbian Civilizations of Mexico and Central America (3)	Leslie
	123	Problems in Anthropology (ar.)	Leslie
	140	Field Trip in Archaeology (1-6)	Wilford

ART

First Term	HISTORY AND CRITICISM		
	1	Introduction to Art (3)	Torbert
	59	Traveling Summer Course in European Art (5)	Eitner
	68	Modern Art: Contemporary Art in Europe and America (3)	Torbert
	158A	European and American Painting (3)	Torbert
	DRAWING AND DESIGN		
	23-24-25	Drawing and Design I (3)	Downs
	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
	CINEMA		
	86	The Art of the Film I: Background and History (3)	Amberg
	123-124-125	Film Workshop (3)	Downs

186 The Art of the Film I (for grad. credit) (3)..... Amberg

During the first week of the first term, a Film Week will be available for students registered for the above cinema courses (see index).

SCULPTURE AND JEWELRY

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

Second Term HISTORY AND CRITICISM

1 Introduction to Art (3)..... Eitner
 78 Art of China (3)..... Mather
 108 Romanesque and Gothic Art (3)..... Eitner
 138 American Painting Since 1880 (3)..... Barker
 196 Studies in American Painting of the Colonial and
 Federal Periods (3)..... Barker

DRAWING AND DESIGN

23-24-25 Drawing and Design I (3)..... Collins
 73-74-75 Presentation Techniques (3)..... Collins

PAINTING AND PRINTMAKING

60-61-62 Drawing and Painting II (3)..... Myers
 70-71-72 Drawing and Painting III (3)..... Myers
 90-91-92 Printmaking (3)..... Myers
 150-151-152 Problems in Painting (ar.)..... Myers
 190-191-192 Problems in Printmaking (ar.)..... Myers

See also Department of Art Education, College of Education.

ASTRONOMY

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

BOTANY

First Term** 4 General Botany (5)..... Ar.
 194 Problems (1-5)..... Staff
Second Term 5 General Botany (5)..... Ar.
 195 Problems (1-5)..... Staff

CLASSICS

First Term 24 Technical Terms of Science, Medicine, and
 the Humanities (3)..... Swanson
 124 Technical Terminology (3)..... Swanson

COMMUNICATION

See index.

ECONOMICS

See index.

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

ENGLISH

First Term

COURSES IN LITERATURE

23	Introduction to Literature (6)	Buckley
55	Shakespeare (3)	del Plaine
56	Shakespeare (3)	Christie
73	American Literature (3)	Hayford
100	Old English (Anglo-Saxon) (6)	Clark
104	Emerson and Thoreau (3)	Hayford
105	Hawthorne and Melville (3)	Thompson
129	Modern Drama (3)	Hillhouse
137	Nineteenth-Century Literature (3)	Stange
143a	Frost and Faulkner (3)	Thompson
162	Milton (3)	Unger
189	Eighteenth-Century Literature (3)	Stange
197	Seventeenth-Century Literature (3)	Unger
297	Independent Reading (3)	Staff

COURSES IN COMPOSITION

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

Composition 4, 5, 6 open to students in the Institute of Technology.

Second Term

COURSES IN LITERATURE

22	Introduction to Literature (6)	Krieger
55	Shakespeare (3)	Steinmann
56	Shakespeare (3)	Ar.
74	American Literature (3)	Hornberger
75	Chaucer (3)	Allen
110	Romantic Poets of the Early Nineteenth Century (3)	Jackson
113	American Short Story (3)	West
126	Late Seventeenth-Century Drama (3)	Jackson
165	Introduction to Modern English (3)	Allen
181a	American Criticism Since 1900 (3)	O'Connor
182	The Far West in Literature (3)	West
189a	Dominant Ideas in Eighteenth-Century Literature (3)	Steinmann
213	Bibliography and Methods of Literary Research (3)	O'Connor
298	Independent Reading (3)	Staff

COURSES IN COMPOSITION

6	Freshman Composition (3)	Ar.
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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

COMMUNICATION

3	Communication (3)	Pulley
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FAMILY LIFE

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

FOREIGN STUDY

161	Seminar for Foreign Study I (6)	Eidt, Rife, Scanlon, Vasquez
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HUMANITIES

1	Humanities in the Modern World I (3)	Bryan
3	Humanities in the Modern World III (3)	Bryan
4	Humanities in the Modern World IV (3)	Ross
22	American Life II (3)	Taylor
52	Humanities in the Modern World (3)	Amberg
61	The Greek Heritage (3)	Ross

NATURAL SCIENCE

165	Science in World Affairs (3)	Graubard
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PERSONAL ORIENTATION

1	How to Study (2)	Farquhar
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SOCIAL SCIENCE

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

Second Term

FAMILY LIFE

1	Preparation for Marriage (3)	Luckey
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FOREIGN STUDY

162	Seminar for Foreign Study II (6)	Eidt, Rife, Scanlon, Vasquez
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HUMANITIES

2	Humanities in the Modern World II (3)	Blum
4	Humanities in the Modern World IV (3)	van den Haag
23	American Life III (3)	Fisher
53	Humanities in the Modern World (3)	Blum
131	Humanities Proseminar (3)	van den Haag

NATURAL SCIENCE

175	Survey of Science History (3)	Graubard
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PERSONAL ORIENTATION

1	How to Study (2)	Krumboltz
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SOCIAL SCIENCE

2	Introduction to Social Science (3)	Jost
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GEOGRAPHY

First Term

41	Geography of Commercial Production (5)	Lukermann
112	Western Anglo-America (3)	Mather
113	Eastern Anglo-America (3)	Mather

Second Term

67	Geography of Minnesota (3)	Belthuis
126	Australia and New Zealand (3)	Belthuis

GEOLOGY AND MINERALOGY

First Term	1	General Geology (5)	Thiel
	115	Field Work in Southeastern Minnesota (3)	Sloan
	150	Black Hills Field Course (6)	Allen
	170	Geologic Problems (3)	Thiel
Second Term	2	Historical Geology (5)	Swain
	170	Geologic Problems (3)	Swain

GERMAN

First Term	1	Beginning German (5)	Wood
	3	Beginning German (5)	Pfeiffer
	4	Intermediate German (5)	Pfeiffer
	65a	Modern Drama (3)	Ramras
	155e	Kafka (3)	Wood
	163d	Keller, Meyer, Spitteler (3)	Pfeiffer
	A Deutsches Haus is being planned. (See index)		
Second Term	2	Beginning German (5)	Menze
	259	Directed Readings (3)	Menze

HISTORY

First Term	1	Civilization of the Modern World, Part I (3)	Driscoll
	14	Ancient Civilization, Part I (3)	Jones
	20	American History, Part I (3)	Beatty
	21	American History, Part II (3)	Loehr
	50	Ancient Civilization, Part I (3)	Jones
	63	Chinese History, Part II (3)	Mather
	65	Medieval European History, Part I (3)	Jones
	88	American Colonies, Part III (3)	Tyler
	97	Minnesota and the Northwest, Part I (3)	Jordan
	103	Medieval European History, Part I (3)	Jones
	106a	Continental Europe, Part I (3)	Bowditch
	110	Europe in the Twentieth Century, Part II (3)	Driscoll
	146	American Economic and Social History, Part I (3)	Loehr
	150	Social and Intellectual History of the United States, Part II (3)	Tyler
	159	Latin-American History, Part III (3)	Beatty
	176c	Readings: Recent European History, Part I (3)	Bowditch
	185d	Readings: Nineteenth-Century American History, Part I (3)	Jordan
Second Term	2	Civilization of the Modern World, Part II (3)	Onion
	3	Civilization of the Modern World, Part III (3)	Onion
	22	American History, Part III (3)	Spence
	66a	Renaissance and Reformation, Part II (3)	Thompson
	81	United States in the Twentieth Century, Part III (3)	Rogers
	104a	Renaissance and Reformation, Part II (3)	Thompson
	107a	Continental Europe, Part II (3)	Wolf
	128	Modern England, Part I, Tudor Period (3)	Thompson
	147	American Economic and Social History, Part II (3)	Noble
	147a	History of the South, Part II (3)	Noble
	177c	Readings: Recent European History, Part II (3)	Wolf
185c	Readings: Twentieth-Century American History, Part I (3)	Rogers	

HOW TO STUDY

See General Studies, Personal Orientation.

HUMANITIES

See General Studies.

SCHOOL OF JOURNALISM

First Term	55	Advertising and Newspaper Typography (3)	Wilson
	73	Magazine Writing (3)	Charnley
	82	Supervision of School Publications (3)	Kildow
	103	Literary Aspects of Journalism (3)	Ford
	111	International Communications and Foreign Affairs (3)	Nixon
	115	Communication Media Analysis (3)	Jones
	290	Special Problems in Mass Communications (ar.)	Jones
Second Term	86	Advertising Copy Writing (3)	Perry
	110	History of Journalism (3)	Emery
	118C	Selected Readings in Journalism (3)	Staff
	121	The Press in a Dynamic Society (3)	Gerald
	212	Topics in the History of Communications (3)	Emery

LIBRARY SCHOOL

First Term	50	Libraries and Society (3)	Shove
	53	School Library Management (3)	Berrisford
	55	Library Administration (3)	Ar.
	70	Reading Guidance (3)	Fulmer
	74	Library Materials in the Classroom (2)	Berrisford
	131	Public Library Extension and Development (3)	Fulmer
	164	Reference III (3)	Ar.
	171	Reading Guidance for Children (3)	Ar.
	176	Communication Media and the Library (3)	Berninghausen
	185	Special Problems	Ar.
	261	Literature of the Humanities (3)	Shove
	272	Children's and Young People's Work (3)	Ar.
Second Term	62	Reference I (3)	Fulmer
	83	Cataloguing and Classification (3)	Jackson
	163	Reference II (3)	Jackson
	165	Advanced Bibliography (3)	Shove
	172	Reading Guidance for Adolescents (3)	Fulmer
	185	Special Problems	Ar.
	260	Literature of the Social Sciences (3)	Berninghausen
	262	Literature of the Natural Sciences (3)	Shove

MATHEMATICS**

First Term	1	Higher Algebra (5)	Rappoport
	6	Trigonometry (5)	Heuer
	15	Elementary Mathematical Analysis I (5)	Kalisch
	50	Differential Calculus (5)	Gibbens
	131	Advanced Algebraic Theory (3)	Nering
	138A	Multivariate Analysis (3)	Roy

** See also Mathematics, Institute of Technology.

	139A	Experimental Designs for Research Workers (3)	Roy
	140A	Analytic Projective Geometry (3)	Nering
	157-158A††	Methods of Applied Mathematics I (4½)	Loud
Second Term	6	Trigonometry (5)	Fantle
	7	College Algebra (5)	Orey
	16	Elementary Mathematical Analysis II (5)	Olmsted
	111	Development of the Number System (3)	Hatfield
	158B-159	Methods of Applied Mathematics II (4½)	Loud
	179	Special Functions (3)	Hatfield

MUSIC

First Term	1	Fundamentals of Music (2)	Ar.
	7A	Ear Training (3)	George
	8B	Harmony (3)	George
	A	Piano (0)	Rymer, Weiser
	D	Voice (0)	Stern, Schuessler
	11	Piano (2-4)	Rymer, Weiser
	12	Voice (2-4)	Stern, Schuessler
	13	Violin (2-4)	Cullen
	13B	Violin (2-4)	Druian
	14	Viola (2-4)	Ar.
	15	Violoncello (2-4)	Jamieson
	16	Double Bass (2-4)	Fitch
	17	Flute (2-4)	Arnegard
	18	Oboe (2-4)	Angelucci
	19	Clarinet or Saxophone (2-4)	Fitch, Handlon
	20	Bassoon (2-4)	Santucci
	21	Trumpet (2-4)	Ar.
	22	French Horn (2-4)	Linder
	23	Trombone (2-4)	Law
	24	Tuba (2-4)	Law
	25	Percussion (2-4)	Dahlgren
	26	Harp (2-4)	Miller
	27	Organ (2-4)	Ar.
	31A	Music Literature (3)	Downes
	43	Chorus (1)	Aliferis
	60B-61B-62B	Instrumental Ensemble (2)	Druian
	106A	American Music (3)	Ar.
	127-128-129	Composition (2-6)	George
	131	Symphonics of Beethoven (3)	Downes
	140	Realization and Interpretation of Choral Masterpieces (3)	Aliferis
	204	Graduate Applied Music (3)	Ar.
	212	Special Problems (3-9)	Ar.
	215	Advanced Conducting (3)	Aliferis
	227-228-229	Seminar in Composition and Orchestration (3)	George
Second Term	1	Fundamentals of Music (2)	Ar.
	7B	Ear Training (3)	Fetler
	8A	Harmony (3)	Fetler
	10	Introduction to Music (4)	Ricdel

†† This course, together with 158B-159 in the second term, in one summer provides the material of a substantial 9-credit sequence as taught in the regular school year.

A	Piano (0)	Rymer, Weiser
D	Voice (0)	Schuessler
11	Piano (2-4)	Rymer, Weiser
12	Voice (2-4)	Schuessler
13 thru 27	See first term	
60B-61B-62B	Instrumental Ensemble (2)	Druian
104A	American Music (3)	Riedel
108	Heinrich Schütz: His Life and Works (3)	Riedel
127-128-129	Composition (2-6)	Fetler
132	Symphonies of the Romantic Era (3)	Ar.
204	Graduate Applied Music (3)	Ar.
212	Special Problems (3-9)	Ar.
227-228-229	Seminar in Composition and Orchestration (3)	Fetler

See also Department of Music Education, College of Education.

PERSONAL ORIENTATION

See General Studies.

PHILOSOPHY

First Term	1	Problems of Philosophy (3)	Brodbeck
	2	Logic (3)	Shaw
	50	History of Philosophy (Ancient) (3)	Shaw
	106	American Philosophy from William James (3)	Koch
	137	Kierkegaard and Scandinavian Philosophy (3)	Holmer
	160	Philosophy of Science (3)	Brodbeck
	182	Philosophy of Religion (3)	Holmer
190	Seminar (ar.)	Staff	
Second Term	2	Logic (3)	Terrell
	3	Ethics (3)	Raab
	52	History of Philosophy (Modern) (3)	Hospers
	107	Philosophy in Modern Literature (3)	Terrell
	159	Aesthetics (3)	Hospers
191	Seminar (ar.)	Staff	

PHYSICS

First Term	1	Introduction to Physical Sciences (Mechanics) (3)	Wall
	1a	Introduction to Physical Sciences Laboratory (1)	Ar.
	13	General Physics for Engineers—Third Quarter, Part I (Sound and Light) (2½)	Valasek
	130	Light (3)	Valasek
150	Intermediate Electricity (3)	Wall	
Second Term	2	Introduction to Physical Sciences (Heat and Electricity) (3)	Ar.
	2a	Introduction to Physical Sciences Laboratory (1)	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)	McClosky
	1	American Government and Politics (3)	Roberts
	85	Problems of World Politics (3)	Mills
	128	Community Planning (3)	Ludwig

137	American Political Parties (3)	Flou
143	Government of the U.S.S.R. and Adjacent States (3)	McClosky
154	Chinese Government and Politics (3)	Turner
195	Colonial Government and the Problems of Imperialism (3)	Mills

Second Term	B	The State in the Modern World (3)	Sibley
	2	American Government and Politics (3)	McLaughlin
	114**	Institute on Minnesota Government and Politics (July 18-29) (3)	Warp
	115**	State Government (August 1-20) (3)	Christensen
	155	Government and International Relations in Latin America (3)	Christensen
	163	Ideal States (The Political Theory of Utopia) (3)	Sibley
	178	Foreign Affairs, Agencies and Methods (3)	McLaughlin
	222	Recent Political Thought (3)	Sibley

PSYCHOLOGY

First Term	1-2	General Psychology (6)	Clayton
	4-5	Introduction to Laboratory Psychology (4)	Jewell
	90	Readings in Psychology (ar.)	Russell
	125-126	Psychology of Individual Differences (6)	Jenkins
	138	Psychology of Motivation and Conflict (3)	Russell
	144-145	Abnormal Psychology (6)	Rosen
	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)
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.
	141	Eighteenth-Century Dramatic Literature: Marivaux and Beaumarchais (2)	Desgranges
	156	Realistic French Novel: Zola and the Goncourts (2)	Falk
	158	Modern French Novel: André Gide (2)	Falk
	259	Directed Readings (ar.)	Staff

A Maison Française is being planned. (See Index)

SPANISH

1	Beginning Spanish (5)	Ar.
3-4	Intermediate Spanish (5)	Ar.
111	Nineteenth-Century Spanish Literature: Novel (2)	Pattison
130	Cervantes: Don Quixote (2)	Pattison
146	Spanish-American Novel and Short Story (2)	Floripe
259	Directed Readings (ar.)	Staff

A Casa Hispánica is being planned. (See Index)

** For further information regarding the Institute, see index.

Second Term FRENCH

2	Beginning French (5).....	Cleifton
112	Nineteenth-Century French Literature: Poetry (2).....	Cleifton
259	Directed Readings (ar.).....	Cleifton

SPANISH

2	Beginning Spanish (5).....	Ar.
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SCANDINAVIAN AREA STUDIES

See index.

SOCIAL SCIENCE

See General Studies.

SCHOOL OF SOCIAL WORK

First Term	Soc.91	Case Method Applied to the Study of Human Problems (3).....	Yesner
	C.W.141	Behavior Problems in Older Children (3).....	Overlade
	201	Social and Emotional Problems of the Handicapped Child and Adult (3).....	Mueller
	285	Special Studies in Social Work (1-9).....	Mueller
Second Term	C.W.140	Behavior Problems in Younger Children (3).....	Cummings
	260	Principles of Administration in Social Work (3).....	Kidneigh
	285	Special Studies in Social Work (1-9).....	Kidneigh

SOCIOLOGY

First Term	1	Introduction to Sociology (3).....	Sirjamaki
	14	Rural Sociology (3).....	Francis
	53	Elements of Criminology (3).....	Vold
	91	Case Method Applied to the Study of Human Problems (3).....	Yesner
	122	Sociology of Conflict (3).....	Vold
	145	Urban Sociology (3).....	Sirjamaki
	171	Social Life and Cultural Change (3).....	Francis
Second Term	1	Introduction to Sociology (3).....	Taves
	49	Social Problems (3).....	Johnson
	141	The Family (3).....	Johnson
	144	Social Stratification (3).....	Reeder
	160	Rural Community Organization (3).....	Taves

SPEECH AND THEATER ARTS

First Term	1	Fundamentals of Speech (3).....	Gilkinson, Smith, and staff
	2	Fundamentals of Speech (3).....	Gilkinson, Smith, and staff
	3	Fundamentals of Speech (3).....	Gilkinson, Smith, and staff

34	Stagecraft (3)	Josal
51	Advanced Public Speaking (3)	Gilkinson
61	Personal Development Through Speech (3)	Bryngelson
93	Stage Costuming (3)	Moulton
106	Discussion (3)	Smith
110	British Rhetoric and Oratory (3)	Smith
112	Stage Direction (3)	Whiting
122	Introduction to Research (3)	Gilkinson
124	Experiments in General Speech (3)	Gilkinson
152	Hearing Disorders (3)	Lassman
157	Clinical Practice in Audiology (3)	Lassman
162	Speech Pathology (3)	Bryngelson
164-165-166	Clinical Methods and Practice in Speech Pathology (9)	Bryngelson, Henrikson, Ptacek
181-182-183	Readings in Speech (9)	Staff
193	Technical Stage Problems (3)	Josal
291-292-293	Research in Special Problems (9)	Staff
Second Term		
1	Fundamentals of Speech (3)	Howell and staff
2	Fundamentals of Speech (3)	Howell and staff
3	Fundamentals of Speech (3)	Howell and staff
67	Phonetics (3)	Fletcher
81	Interpretative Reading (3)	Thompson
102	Argumentation and Persuasion (3)	Howell
106	Discussion (3)	Howell
107	Platform Reading (3)	Thompson
119	Introduction to Speech Correction (3)	Fletcher
127	Language Training for the Deaf (3)	Ar.
131	Creative Dramatics (3)	Graham
132	Children's Theatre (3)	Graham
156	Auditory Training (3)	Ar.
164-165-166	Clinical Methods and Practice in Speech Pathology (9)	Bryngelson, Henrikson, Ptacek
181-182-183	Readings in Speech (9)	Staff
204	Debate Coaching (2)	Howell
207	Seminar in Persuasion (3)	Howell
291-292-293	Research in Special Problems (9)	Staff

For speech courses listed under the College of Education see: Ed.C.I. 123, Speech in the Elementary School (3), Henrikson; Ed.C.I. 140, Teaching of Speech (3), Smith; and Ed.C.I. 174-175-176, Clinical Methods and Practice in Speech Pathology (3), Bryngelson.

See also Speech and Drama Institute under Special Programs.

ZOOLOGY

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

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

INSTITUTE OF TECHNOLOGY

COLLEGE OF ENGINEERING

CIVIL ENGINEERING

First Term 23 Summer Camp (9)..... Kersten, Cornell, Fant

DRAWING AND DESCRIPTIVE GEOMETRY

First Term 4 Engineering Drawing (3)..... Bullen
 6 Engineering Drawing (3)..... Palmer
 34 Lettering (1) Palmer

Second Term 5 Descriptive Geometry (3)..... Williams
 10 Solid Geometry (3)..... Springer
 34 Lettering (1) Springer

ELECTRICAL ENGINEERING

First Term 36 Electrical Engineering Survey (3)..... Caverley

Second Term 37 Electrical Engineering Survey (3)..... Cartwright

ENGLISH (ENGINEERING)

First Term 85 Advanced Technical Communication (3)..... Haga

Second Term 86 Advanced Technical Communication (3)..... Guthrie

Composition 4, 5, and 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)..... Springer

INDUSTRIAL ENGINEERING

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

Second Term 90** Industrial Assignment (1½)..... Algren and Fingerson
 91** Industrial Assignment (1½)..... Algren and Fingerson

** 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.

92**	Industrial Assignment (1½)	Algren and Fingerson
93**	Industrial Assignment (1½)	Algren and Fingerson
94**	Industrial Assignment (1½)	Algren and Fingerson
95**	Industrial Assignment (1½)	Algren and Fingerson

MATHEMATICS††

First Term	12	College Algebra and Trigonometry II (5)	Culmer
	13	Analytic Geometry (5)	Love
	25	Integral Calculus (5)	Polansky
	80	Elementary Differential Equations (5)	Turriffin
	104	Variational Problems in Engineering (3)	Turriffin
	150	Calculus III: Intermediate Calculus (3)	Munro
	154	Vector Analysis (3)	Wilcox
Second Term	13	Analytic Geometry (5)	Braden
	25	Integral Calculus (5)	Lindgren
	80	Elementary Differential Equations (3)	Munro
	152§§	Calculus IV: Advanced Calculus (3)	Thompson
	153§§	Calculus V: Advanced Calculus (3)	Thompson

MECHANICAL ENGINEERING

First Term	22	Mechanisms of Automatic Machinery (3)	LaJoy
	90**	Industrial Assignment (1½)	Algren and Fingerson
	91**	Industrial Assignment (1½)	Algren and Fingerson
	92**	Industrial Assignment (1½)	Algren and Fingerson
	93**	Industrial Assignment (1½)	Algren and Fingerson
	94**	Industrial Assignment (1½)	Algren and Fingerson
	95**	Industrial Assignment (1½)	Algren and Fingerson
	131	Thermodynamics (3)	Lee
Second Term	13	Metal Processing (2)	Hughes
	14	Metal Cutting (2)	Crowder
	24	Elements of Machine Design (3)	LaJoy
	34	Mechanical Engineering Laboratory II (2)	Larsen
	90**	Industrial Assignment (1½)	Algren and Fingerson
	91**	Industrial Assignment (1½)	Algren and Fingerson
	92**	Industrial Assignment (1½)	Algren and Fingerson
	93**	Industrial Assignment (1½)	Algren and Fingerson
	94**	Industrial Assignment (1½)	Algren and Fingerson
	95**	Industrial Assignment (1½)	Algren and Fingerson
	160	Heating, Ventilation, and Air Conditioning (3)	Threlkeld

MECHANICS AND MATERIALS

First Term	26	Engineering Statics (5)	Anderson
	127	Engineering Dynamics (5)	James

** 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.

†† See also Mathematics in the College of Science, Literature, and Arts.

§§ Courses 152 and 153 may be taken simultaneously; 150, 152, 153 form a 9-credit sequence regularly taught during the academic year.

	128	Mechanics of Materials (5).....	Miller
	141	Materials Testing Laboratory (1).....	Miller, James
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).....	O'Brien
	6	General Inorganic Chemistry (5).....	Pray
	9	General Inorganic Chemistry (5).....	O'Brien
	11	Semimicro Qualitative Analysis (4).....	Heisig
	12	Semimicro Qualitative Analysis (5).....	Heisig
	103	Atomic Structure and the Properties of the Elements Based Thereon (3).....	O'Brien
	108	Nonaqueous Systems (3).....	Pray
	120	Advanced Inorganic Chemistry Laboratory Methods (ar.).....	Heisig
	301	Research in Inorganic Chemistry (ar.).....	Heisig, O'Brien, Pray
Second Term	2	General Inorganic Chemistry (4).....	O'Connor
	5	General Inorganic Chemistry (4).....	Pervier
	7	General Inorganic Chemistry (5).....	O'Connor
	10	General Inorganic Chemistry (5).....	Pervier
	11	Semimicro Qualitative Analysis (4).....	Pervier
	12	Semimicro Qualitative Analysis (5).....	Pervier
	112	Radioactivity and Nuclear Chemistry (3).....	O'Connor
	302	Research in Inorganic Chemistry (ar.).....	O'Connor, 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).....	Lauer
Second Term	62	Elementary Organic Chemistry (4).....	Noland

PHYSICAL CHEMISTRY

First Term	104, 105	Physical Chemistry Laboratory (1 or 2).....	Livingston
	107**	Elementary Physical Chemistry (3).....	Livingston
	301	Research in Physical Chemistry (ar.).....	Livingston
Second Term	105, 106	Physical Chemistry Laboratory (1 or 2).....	Livingston
	108**	Elementary Physical Chemistry (3).....	Livingston
	301	Research in Physical Chemistry (ar.).....	Livingston

** 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.

DULUTH BRANCH

DIVISION OF EDUCATION AND PSYCHOLOGY

EDUCATION

First Term	Ed.61A-81A	School and Society (5).....	Jurkovich	
	Ed.Ad.115	Elementary School Organization and Administration (3).....	Wheat	
	Ed.C.I.61	Teaching the Social Studies in the Elementary		
		School (3).....	Staple	
	Ed.C.I.63	Children's Literature (3).....	Culkin	
	Ed.C.I.101	Driver Education (2).....	Rickert	
	Ed.C.I.105	Audio-Visual Materials in Education (3).....	Wells	
	Ed.C.I.113	The Curriculum of the Secondary School (3).....	Plumb	
	Ed.C.I.119	The Curriculum of the Elementary School (3).....	Johnson	
	Ed.C.I.145	Reading Difficulties (3).....	Davis	
	Ed.C.I.150	Supervision and Improvement of Instruction (3).....	Johnson	
	Ed.C.I.168	Current Developments in the Social Studies (3).....	M. Lindquist	
	Ed.C.I.271	Problems in Curriculum Construction (ar.).....	Johnson, Plumb	
	E.Psy.116	Statistical Methods in Education (3).....	Apostolakos	
	E.Psy.158	Psychology of Adolescence (3).....	Wheat	
	E.Psy.293	Psychology of Learning (3).....	Apostolakos	
	H.Ed.141	Critical Issues in Contemporary Education (3).....	Ehlers	
	II.Ed.179	Critical Thinking for Teachers (3).....	Ehlers	
	Second Term	Ag.Ed.154	Rural Education and Community Leadership (3).....	Swanson
		Ed.48	Orientation to Teaching (1).....	D. Smith
Ed.61B-81B		Educational Psychology (5).....	Loy	
Ed.C.I.64		Teaching the Language Arts in the Elementary		
		School (5).....	D. Smith	
Ed.C.I.67		Production of Audio-Visual Materials (3).....	Staff	
Ed.C.I.118		The Community School (3-6).....	M. Peterson	
Ed.C.I.132		Teaching the Basic Business Subjects (3).....	Dettmann	
Ed.C.I.144		The Teaching of Reading in Junior and Senior		
		High Schools (3).....	Frogner	
Ed.C.I.149		The Teaching and Supervision of Arithmetic in the		
		Elementary School (3).....	Johnson	
Ed.C.I.271		Problems in Curriculum Construction (ar.).....	Johnson, Plumb	
Ed.C.I.294		Advanced Course in Curriculum and Methods		
		in Secondary School English (3).....	Frogner	
E.Psy.120		Basic Principles of Measurement (3).....	Johnson	
E.Psy.133		Basic Procedures in Student Personnel Work (3).....	Plumb	
E.Psy.159	Personality Development and Mental Hygiene (3).....	Apostolakos		

HEALTH EDUCATION

First Term	3	Personal Health (2).....	L. Peterson
Second Term	3	Personal Health (2).....	Rickert

HOME ECONOMICS

First Term	31	Introduction to Nutrition (3).....	Palmer
	H.E.Ed.194A	Adult Education in Home Economics (3).....	Palmer

INDUSTRIAL EDUCATION

First Term	14	Crafts (2)	Voss
	20	Welding (2)	Voss
	107	Co-ordination (3)	Voss

PHYSICAL EDUCATION FOR MEN

First Term	M6C	Swimming (1)	Rickert	
	MW17A	Archery (1)	Gerlach	
	MW17B	Recreational Games (1)	Gerlach	
	M18A	Beginning Swimming (1)	Rickert	
	MW31A	Tennis (1)	L. Peterson	
	MW31B	Golf (1)	Rickert	
	MW32	Badminton (1)	Gerlach	
	40	Elementary and Leadup Games (1)	Wells	
	41	Body Mechanics, Stunts, and Tumbling (1)	Wells	
	54	Methods and Materials in Physical Education (3)	Wells	
	55	The Teaching of Physical Education Activities (2)	Rickert	
	60	Prevention and Care of Injuries (2)	Rickert	
	M66A-B	Officiating Football and Basketball (2)	Rickert	
	Second Term	M18A	Beginning Swimming (1)	Rickert
		MW31A	Tennis (1)	Rickert
		MW31B	Golf (1)	Rickert

PHYSICAL EDUCATION FOR WOMEN

First Term	W18A	Beginning Swimming (1)	Van Steinburg
	W33B	Advanced Swimming (1)	Van Steinburg

PSYCHOLOGY

First Term	P.O.1	How to Study (2)	Mohr
	1	General Psychology (3)	Mohr
	2	General Psychology (3)	Apostolakos
	80	Child Psychology (3)	Mohr
Second Term	2	General Psychology (3)	Apostolakos
	73	Elements of Vocational Psychology (3)	Falk
	74	Psychology in Personnel Work (3)	Wenzel

DIVISION OF HUMANITIES

ART

First Term	5	Introduction to Art (3)	A. Smith
	52	Art in Elementary Education (3)	A. Smith
	Ar.Ed.171	Implementing the Instructional Program in Art (3)	A. Smith
Second Term	177	Workshop in Advanced Painting (6)	Visiting Artist

ENGLISH

First Term	22	Introduction to Literature (5)	Rosenthal
	27	Advanced Writing (3)	Click

	59	Shakespeare (3)	Rosenthal
	73	American Literature (3)	Glick
	106	Whitman and Mark Twain (3)	Glick
	162	Milton (3)	Rosenthal
Second Term	53	World Literature (3)	Tezla
	57	The Interpretation of Poetry (3)	Tezla
	110	Romantic Prose and Poetry (3)	Tezla
HUMANITIES			
First Term	4	Appreciation of the Arts (3)	Miller
Second Term	5	Appreciation of the Arts (3)	Miller
	6	Arts in the Twentieth Century (3)	Miller
MUSIC			
First Term	21	Introduction to Music (3)	Miller
	31	Intermediate Piano (1)	van Appledorn
	32	Intermediate Strings (1)	J. Smith
	33	Intermediate Woodwinds (1)	Beverley
	34	Intermediate Brass (1)	Callahan
	141	Orchestration (2)	J. Smith
	204	Graduate Applied Music (2)	Beverley, Callahan, J. Smith, van Appledorn
	Mu.Ed.51	Teaching Music in the Elementary School (3)	L. Miller
	Mu.Ed.151	Supervision and Administration of Secondary Music Education (3)	Callahan
PHILOSOPHY			
First Term	2A	Logic (3)	Ehlers
SPEECH			
First Term	1	Fundamentals of Speech (3)	Hicks
	2	Fundamentals of Speech (3)	Hicks
	67	Phonetics (3)	Pierce
	91	Clinical Practice in Speech Correction (3)	Pierce
	106	Discussion (3)	Hicks
	119	Introduction to Speech Correction (3)	Pierce
Second Term	3	Fundamentals of Speech (3)	Hayes
	34	Stagecraft (3)	Hayes
	131	Creative Dramatics (3)	Hayes
DIVISION OF SCIENCE AND MATHEMATICS			
ASTRONOMY			
Second Term	1	Elementary Astronomy (3)	C. Lindquist
BOTANY			
Second Term	113	Flora of Minnesota (3)	Lakela

CHEMISTRY

First Term	3	General Inorganic Chemistry (5).....	Cowles
	6	General Inorganic Chemistry (5).....	Cowles
Second Term	4	General Inorganic Chemistry (5).....	Moore
	7	General Inorganic Chemistry (5).....	Moore

MATHEMATICS

First Term	A	Basic Mathematics (3).....	Hafstrom
	1	Higher Algebra (5).....	Hafstrom
	30	Analytic Geometry (5).....	McEwen
	100	Topics in Geometry (3).....	McEwen
Second Term	A	Basic Mathematics (3).....	McEwen
	6	Trigonometry (5).....	McEwen

NATURAL SCIENCE

First Term	4	The Physical World (3).....	Olson
	5	The Physical World (3).....	Cowles
	7	General Biology (3).....	Carlson
	8	General Biology (3).....	Odlaug
Second Term	6	The Physical World (4).....	C. Lindquist
	9	General Biology (3).....	Hofslund
	10	Conservation of Natural Resources (3).....	Carlson

PHYSICS

First Term	13	General Physics for Engineers (5).....	Olson
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ZOOLOGY

First Term	4M	Human Physiology (4).....	Odlaug
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DIVISION OF SOCIAL STUDIES

BUSINESS AND ECONOMICS

First Term	1	Principles of Economics (5).....	Davidson
	31	Principles of Accounting (3).....	Dettmann
	32	Principles of Accounting (3).....	Dettmann
	33	Principles of Accounting (3).....	Dettmann
	65	Business Organization and Finance (3).....	Meyers
	66	Insurance Principles (3).....	Meyers
	81	Labor Economics (3).....	Davidson
	82	Social and Labor Legislation (3).....	Meyers
	Second Term	1	Principles of Economics (5).....
18		Secretarial Procedures (3).....	Dettmann
19		Office Management and Machines (3).....	Dettmann
41,42,43		Elements of Statistics (6).....	Meyers
55		Market Organization (3).....	Friest
72		Intermediate Accounting (3).....	Dettmann

86	Public Finance (3).....	Meyers
189	Principles of Public Finance (3).....	Meyers

GEOGRAPHY

First Term	12	Principles of Geography (5).....	Belthuis
	126	Australia and New Zealand (3).....	Belthuis
Second Term	12	Principles of Geography (5).....	Witzig
	110	South America (3).....	Chamberlin

HISTORY

First Term	20	American History (3).....	Livingston
	21	American History (3).....	Livingston
	22	American History (3).....	M. Lindquist
	94	American Diplomatic History (3).....	Livingston
	97	Minnesota and the Northwest (3).....	M. Lindquist
	142D	American Diplomatic History (3).....	Livingston
185D	Minnesota and the Northwest (3).....	M. Lindquist	
Second Term	21	American History (3).....	Livingston
	22	American History (3).....	Livingston
	62	The Far East (3).....	Livingston

POLITICAL SCIENCE

First Term	1	American National Government (3).....	Wolff
	2	American State Government (3).....	von Glahn
	6	Contemporary Problems of American National Government (3).....	Wolff
	31	Nationalism in the Modern World (3).....	von Glahn
	67	Political Parties and Public Opinion (3).....	Wolff
	166	Development of Political Thought: Early Modern (3).....	von Glahn
Second Term	1	American National Government (3).....	Davidson
	2	American State Government (3).....	von Glahn
	3	American Municipal Government (3).....	Davidson
	41	Latin-American Government and Politics (3).....	Davidson
	84	The United Nations and World Organization (3).....	von Glahn
	162	Recent Political Thought (3).....	von Glahn

SOCIAL STUDIES

First Term	51-52	The Lake Superior Region (6).....	Sielaff
Second Term	53-54	The Lake Superior Region (6).....	Sielaff
	55	The New England Region (3).....	M. Lindquist
	56	The New England Region (3).....	M. Lindquist

SOCIOLOGY

First Term	1	Introduction to Sociology (5).....	Pearson
	49	Social Problems (3).....	Pearson
Second Term	2	Intermediate Sociology (5).....	Pearson
	81	Marriage and the Family (3).....	Pearson

INDEX

	Page		Page
Administration, Educational	62	Drama Institute, Speech and	7
Admission and Registration	22-26	Dramatics	7,84-85
Agricultural Education	62	Drawing and Descriptive Geometry	56
Agriculture, Forestry, and Home		Driver Education	12,63-64,UMD-89
Economics, College of	17,40-41,56-59	Duluth Branch	50-54,89-93
Agronomy and Plant Genetics	56	Economics	14,40,56,60-61,UMD-92-93
American Studies Program	9,75	Economic Zoology, Entomology and	57,60
Amount of Work	26	Education, College	
Analytical Chemistry	88	of	11-14,42,43,62-67,UMD-89
Anatomy	69	Educational Administration	62
Animal Husbandry	56	Efficient Reading	8,59
Anthropology	75	Electrical Engineering	86
Art	32,36,62,75-76,UMD-90	Engineering, College of	39,86-88
Art, Travel Course in European	4,75	English	36,77,86,UMD-90-91
Astronomy	76,UMD-91	Entomology and Economic Zoology	57,60
Audiology	9,85	Examinations	26
Audio-Visual		Faculty	19
Education	63,65,UMD-52,89	Family Life	12,58,65,78
Auditors	26	Fees	5,25-26,47
Bacteriology and Immunology	70	Film Week	10,75
Biochemistry, Agricultural	56	Films	10,29,75
Biological Station, Lake Itasca		Food Service	19,21
Forestry and	48,59-60	Foreign Study Seminar	75
Biology	48,59-60	Forestry	57
Biostatistics	10,74-75	French	4-5,83-84
Botany	58,59,60,76,UMD-91	French House	4-5
Business Administration,		Gallery, University	52
School of	40,60-61,UMD-92-93	General College	42,69
Candidacy for a Degree	22,UMD-50-51	General Engineering	86
Casa Hispanica	4-5	General Studies	37,77-78
Chemistry, Physiological	72	Geography	78,UMD-93
Chemistry, School of	34,88,UMD-92	Geology and Mineralogy	79
Child Welfare, Institute of	11,13,45,61,64	Geometry	81,86,87,UMD-92
Cinema	10,75	German	4-5,79
Civil Engineering	86	German House	4-5
Classics, Technical Terms	76	Government and Politics,	
Communication	5,77,80,86	Minnesota, Institute on	5,83
Composition	77	Graduate School	34-35
Crafts	12,67,UMD-90	Group Dynamics in Education	14
Credits (Amount of Work)	26,56	Gynecology, Obstetrics and	70
Curriculum and Instruction	62	Health Education	74,UMD-89
Dairy Husbandry	57	Health Service, Students'	19
Dates of Summer Session	16	Hearing Clinic, Speech and	19
Degree Candidacy	22,UMD-50-51	High School, University	13
Demonstration Elementary School,		History	37,79,UMD-93
Tuttle	13	History and Philosophy of	
Demonstration Facilities	7,13,45,UMD-53	Education	66
Dentistry	47	Home Economics	6-7,41,57-58,67, UMD-59
Deutsches Haus	4-5		
Dormitories	19-21		

	Page
Horticulture	55
Housing	19-21
How to Study (Personal Orientation)	78,UMD—90
Humanities	78,UMD—90-91
Immunology, Bacteriology and	70
Industrial Education	12,67,UMD—90
Industrial Engineering	86-87
Information, General	16,UMD—50
Inorganic Chemistry	88
Institute of Agriculture	17,40-41,56-59
Institute of Technology	39,86-88
Institutes (See also—Workshops):	
Audio-Visual Materials	UMD—53
Film Week	10
Minnesota Government and Politics	5
Modern Language	4-5
Problems of the Mentally Retarded Child	11
Speech and Drama	7
Jewelry, Sculpture and	76
Journalism, School of	5,80
Laboratory Experiences for Teachers	UMD—53
Language Arts	14,UMD—89
Language Institute, Modern	4-5
Law School	41,69
Libraries	18
Library School	37,80
Literature	77
Maison Française	4-5
Mathematics	10,80-81,87,UMD—92
Mechanical Engineering	87
Mechanics and Materials	87-88
Medical School	45-47,69-74
Medicine	70
Mentally Retarded Child, Problems of the	11
Methods and Student Teaching	67,UMD—89
Mineralogy, Geology and	79
Minnesota Government and Politics, Institute on	8,53
Modern Language Institute	4-5
Music	37,67,81-82,UMD—91
Natural History, Museum of	52
Natural Science	78,UMD—92
Neurology, Psychiatry and	72
New England Tour	UMD—52,93
Nursery School	13,45
Nursing, School of	8,46-47,67,74

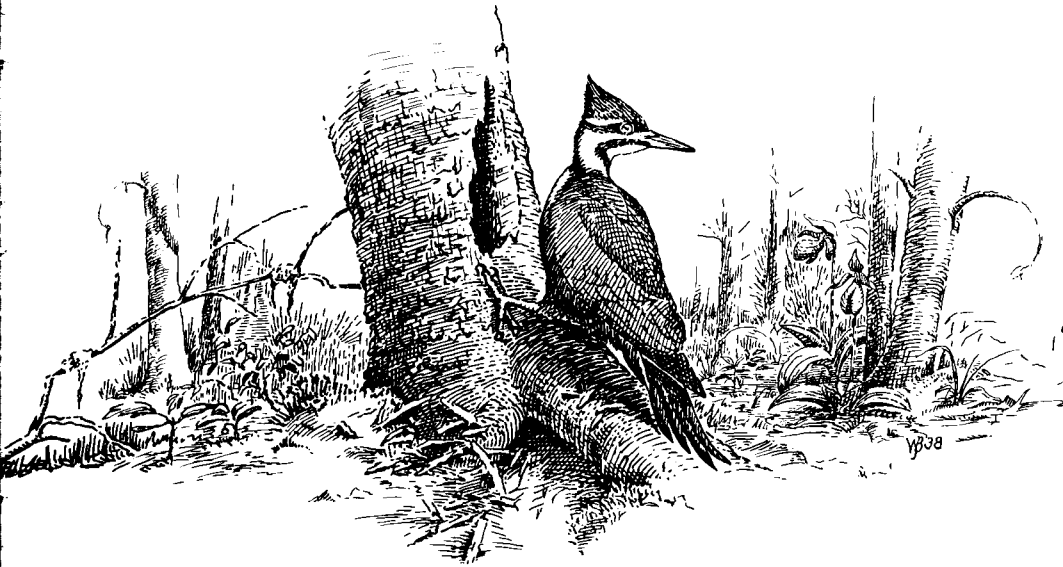
	Page
Observation Facilities	13,UMD—53
Obstetrics and Gynecology	70
Organic Chemistry	88
Ornithology	48,60
Pathology	70-71
Pediatrics	71
Personal Orientation	78,UMD—90
Pharmacology	71
Philosophy	39,82,UMD—91
Photography	10,75
Physical Chemistry	88
Physical Education for Men	43,68,UMD—90
Physical Education for Women	43-44,68-69,UMD—90
Physical Medicine and Rehabilitation	71-72
Physics	82,UMD—92
Physiological Chemistry	72
Physiology	72
Plant Genetics, Agronomy and	56
Plant Pathology and Botany	58,60
Political Science	8,82-83,UMD—93
Poultry Husbandry	59
Print Making, Painting and	76
Psychiatry and Neurology	72-73
Psycho-Educational Clinic	13
Psychology	39,65,83,UMD—89-90
Public Health, School of	10,47,74-75
Radiology	73
Reading: Difficulties, Remedial	63-64,UMD—59
Efficient	8,39
Recreation	28-32,44,UMD—54
Registration	22-26
Rehabilitation	8,47,71,74
Rhetoric	8,39
Romance Languages	4-5,83-84
Rural Education, Studies in	62,65,UMD—51,89
Scandinavian Area Studies	7
Science, Literature, and the Arts, College of	35-39,75-85
Sculpture	76
Slide Rule	86
Social Science	75
Social Studies	UMD—89-93
Social Work, School of	84
Sociology	39,84,UMD—93
Soils	59
Spanish	4-5,83-84
Spanish House	4-5
Speech and Drama Institute	7
Speech and Hearing Clinic	19

	<i>Page</i>
Speech and Theater	
Arts	7,9,63-64,84-85,UMD—91
Sports Program, Facilities	28,29,43
Statistics:	
Biostatistics	11,74-75
Interdisciplinary	10,80-81
Student Teaching, Methods and	67
Surgery	73-74
Technical Terms	76
Technology, Institute of	39,86-88
Theater Arts, Speech	
and	7,9,63-64,84-85,UMD—91
Theatre, University	31
Tour, New England	UMD—52,93
Travel Course in European Art	4,75
Tuttle Demonstration Elementary	
School	13
Union, Coffman Memorial	30
Union, St. Paul Campus	31
Veterinary Medicine, School of	59

	<i>Page</i>
Workshops (See also—Institutes):	
Workshop in Applied	
Nutrition	6,58
Workshop in Business	
Education	UMD—52
Workshop in Family Life	
Education	12,65
Workshop in Group Dynamics	
in Education	14,65
Workshop in Higher	
Education	11,64-65
Workshop in Household	
Equipment	6,58
Workshop for Industrial Art	
Teachers	12,67
Workshop in Painting	UMD—52
Workshop in Problems in	
Related Art	6,58
Workshop for School	
Administrators	13,62,64
Zoology	60,85,UMD—92

3/8/55
3/24/55

Bulletin of the
UNIVERSITY OF MINNESOTA



*Lake Itasca Forestry and
Biological Station*

Summer Session 1955

June 13 to July 16

FOREWORD

This is a cordial invitation from the Biological Station Summer Session at Lake Itasca to you to enroll and take advantage of a rare opportunity for

orientation in field biology

field and laboratory research

assistance in the collection of class materials and in the development of methods for the teaching of biology

collegiate training of a distinguished character

association with and research advice from outstanding scientists

These opportunities are available in the most inspiring surroundings, are handled informally, and bring the student into direct relationship with undergraduate, graduate, and special students, with high school and college teachers, and with the highly selected Station personnel.



Thorvald Schanz-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. Station transportation meets the bus at Douglas Lodge only at the beginning and at the end of the session. 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
560 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 affords 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 and within park boundaries, 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. If transportation to a hospital or doctor's office is needed, it must be provided by the student. Cost of dental work is not covered by the Health Service fee.

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 to attend the Summer Session only 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*.



*The center of many activities
is this combination assembly
and dining hall*

Collecting aquatic invertebrates in Lake Itasca



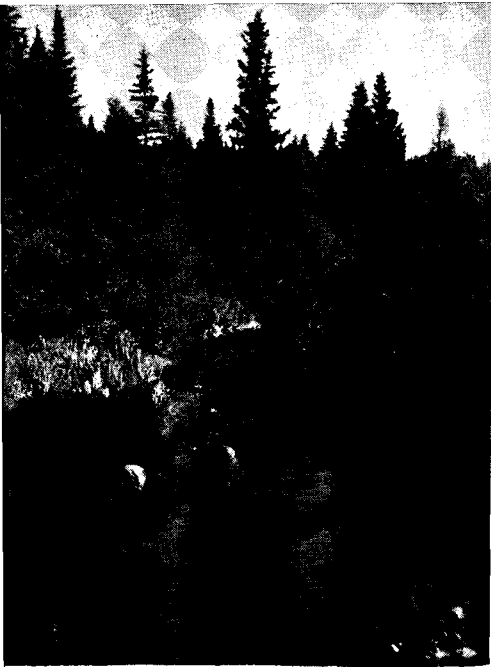
GRADUATE SCHOOL Applications for admission to the Graduate School must be sent directly to the Dean of the Graduate School, University of Minnesota, Minneapolis 14, not later than May 13. Students not seeking graduate credit may register as special students. Graduate work taken at the Lake Itasca Forestry 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*

**INSTITUTE FOR
COLLEGE TEACHERS**

An Institute for College Teachers of Biology will be conducted this summer under the auspices of the National Science Foundation. Members will enroll in one graduate course, carry out an individual research program, and participate in seminars on problems related to the teaching of biology. Ten stipends of \$350 each are available. Inquiries concerning this program should be addressed to the Dean of Summer Session, 560 Johnston Hall, University of Minnesota, Minneapolis 14.

**INSTITUTE FOR
HIGH SCHOOL
TEACHERS**

An Institute for High School Teachers of Biology, for which twenty stipends of \$300 are available, will be conducted during the session. These twenty teachers, under special leadership, will be introduced to many phases of field and laboratory biology by Station staff members and by visiting lecturers; will participate in field trips where conservation programs can be seen in action; and will engage in field studies or collecting of their own choosing. Inquiries concerning this program should be addressed to the Dean of Summer Session, 560 Johnston Hall, University of Minnesota, Minneapolis 14.

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.

Itasca's forests yield many ferns and mosses



ACADEMIC FEES

The following fees are payable by each registrant on or before June 14:

Tuition fee	\$55.00
Incidental fee	8.00
Laboratory fee	10.00
	<hr/>
	\$73.00

LATE FEES

Tuition and fees are payable at the time of registration on or before June 14. After June 15 late fees will be charged as follows:

Wednesday, June 15	\$2.00
Thursday, June 16	3.00
Friday, June 17	4.00
Monday, June 20	5.00

No registration will be accepted after June 20 without the approval of the director of the Station and the payment of the \$5 late fee.

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.

STAFF MEMBERS **Murray F. Buell**, professor of botany, Rutgers University, is the author of many articles on ecological subjects, and has done extensive research on forest and prairie communities in the Itasca region.

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.

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.

Richard I. Evans, associate professor of botany, University of Wisconsin, is co-author of a widely used textbook of general botany and is well known for his researches, including studies of the botanical composition of sediments in rivers.

S. Charles Kendeigh, professor of zoology, University of Illinois, is well known for his pioneering work in the physiology of birds, field census methods, and studies on the relations of birds to forest insects. He is the author of *Parental Care and Its Evolution in Birds*.

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.

Gerald B. Ownbey, associate professor of botany and curator of the herbarium, University of Minnesota, has specialized in the experimental approach to plant taxonomy, particularly with reference to the thistles and poppies.

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.

Thorvald 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) Ownbey

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) Buell

135. **Ecology of the Itasca Region.** 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. 4; MTh) Buell

136. **Organisms, Microclimate, and Weather.** (Not offered in 1955)

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) Evans

Pl. Path. 156. **Advanced Study of Fungi.** See Plant Pathology.

157. **Bryophytes and Pteridophytes.** Field and laboratory study of the mosses, liverworts, ferns, and fern allies of Minnesota. Texts: Conard, *How to Know the Mosses*; Tryon, *The Ferns and Fern Allies of Minnesota*. (4 cred.; prereq. 10 cred. in biology, or consent of instructor; MTh) Evans

196.* **Problems in Ecology, Taxonomy, Bryology, or Algology.** Advanced studies based on individual field work and research. (Cred. ar.; advanced students with proper qualifications) Buell, Evans, Ownbey

- 208.* **Research Problems in Taxonomy.** (Cred. ar.; grad. students with proper qualifications) Ownbey
- 224.* **Research Problems in Ecology.** (Cred. ar.; grad. students with proper qualifications) Buell
- 236.* **Research Problems in Cryptogams.** (Cred. ar.; grad. students with proper qualifications) Evans

**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: Berrer and Delong, *An Introduction to the Study of Entomology.* (4 cred.; jr., sr.; prereq. Zool. 1-2-3 or equiv.; TF) Peterson
68. **Natural History of the Higher Vertebrates.** (Not offered in 1955)
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: Peterson, *Larvae of Insects, Parts I and II.* (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. Text: Dice, *Natural Communities.* Field projects, analyses, and lectures. (4 cred.; prereq. Ent. 68 or Zool. 57-58 and Ent. 63, or equiv. and Bot. 50; 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 1955)
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. Texts: 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. **Advanced 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) Kendeigh
143. **Animal Parasites.** (Not offered in 1955)
- 197.* **Problems in Ornithology, 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) Eddy and Kendeigh

CONDENSED COURSE SCHEDULE

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Bot.135	Bot.116	Bot.112	Bot.135	Bot.116	Bot.112
Bot.157	Bot.155	Ent.124	Bot.157	Bot.155	Ent.124
Ent.162	Ent.59	Zool.55	Ent.162	Ent.59	Zool.55
Pl.Pa.56	Zool.135	Zool.115	Pl.Pa.56	Zool.135	Zool.115
Pl.Pa.156			Pl.Pa.156		
Zool.119			Zool.119		

GRADUATE STUDENT THESES

- GORDON, W. E. Ontogenetic xeromorphy in the wild grape (*Vitis vulpina* L.). Ph.D. Thesis. 1941.
- SKUDLARK, JOSEPH F. 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 *Monococcestus* Beddard, 1914 (Cestoda): Anoplcephalidae (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. Torreyia, 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 jacobicola* 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 *Helisoma 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.
- WARREN, BRUCE. A new type of metacercarial cyst of the genus *Apophallus*, from the perch, *flavescens*, in Minnesota. *Amer. Midl. Nat.*, 50(2):397-401. 1953.
- CHANDLER, A. C. A new nematode, *Chlamydopecta itascensis* n.gen., n.sp. (Spiruridae) from a skunk, *Mephitis mephitis* in Minnesota. *Amer. Midl. Nat.*, 51:313-15. 1954.
- . New strigoids from Minnesota birds and mammals. *Amer. Midl. Nat.* 52:133-41. 1954.
- MARSHALL, W. H. and M. F. BUELL. A study of the occurrence of amphibians in relation to a bog succession, Itasca State Park, Minnesota. Accepted for publication in *Ecology*.

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 13, breakfast. Buses will be met at Douglas Lodge.

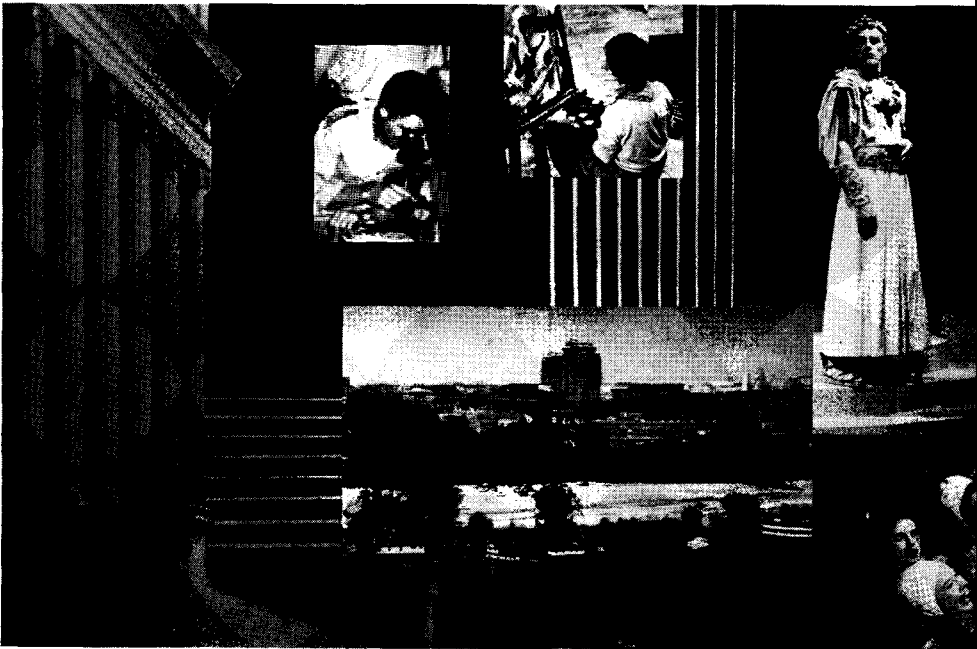
Please mail this form to Dean, Summer Session, 560 Johnston Hall, University
of Minnesota, Minneapolis 14, Minnesota



4837

6/27/55

Bulletin of the
UNIVERSITY OF MINNESOTA



Summer Session 1955

First term - June 13 to July 16

Second term - July 18 to August 20

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
CW, Child Welfare (formerly old University High School)
DCB(StP), Dairy Cattle Barn
E, Main Engineering
EdH, Eddy Hall
EE, Electrical Engineering
En(StP), Agricultural Engineering
Ex, Experimental Engineering
FieldHse, Fieldhouse
FolH, 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
J, Jones Hall
JacH, Jackson Hall (formerly Institute of Anatomy)
JohH, Johnston Hall
Lib, Library
LsPav(StP), Livestock Pavilion
LyonL, Lyon Laboratories
Mayo, Mayo Memorial
ME, Mechanical Engineering
MeH(StP), Meredith Hall
MEx, Mines Experiment Station
MH, Millard Hall
MMA, Mayo Memorial Auditorium
MNH, Museum of Natural History
MSh(StP), Meat Shop
MurH, Murphy Hall
NGW, Norris Gymnasium for Women
NH, Nicholson Hall
NMA, Northrop Memorial Auditorium
Owre, Owre Hall
P, Pillsbury Hall
PeikG, Peik Hall Gymnasium
PeikH, Peik Hall
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
TNCW, Temporary, North of Child Welfare
TNHS, Temporary, North of Health Service
TNM, Temporary, North of Mines (Appleby Hall)
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

UNIVERSITY OF MINNESOTA

Board of Regents

The Board of Regents is composed of The Honorable Ray J. Quinlivan, St. Cloud, First Vice President and Chairman; The Honorable George W. Lawson, St. Paul, Second Vice President; The Honorable James F. Bell, Minneapolis; The Honorable Edward B. Cosgrove, Le Sueur; The Honorable Daniel C. Gainey, Owatonna; The Honorable Richard L. Griggs, Duluth; The Honorable Marjorie J. Howard, Excelsior; The Honorable Lester A. Malkerson, Minneapolis; The Honorable Charles W. Mayo, Rochester; The Honorable Karl G. Neumeier, Stillwater; The Honorable A. J. Olson, Renville; and The Honorable Herman F. Skyberg, Fisher.

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William T. Middlebrook, Vice President, Business Administration
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Edwin L. Haislet, Director of Alumni Relations
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Atheletan F. Spilhaus, Dean of the Institute of Technology
Edward B. Stanford, Director of Libraries
Robert Edward Summers, Dean of Admissions and Records
William T. S. Thorp, Assistant Dean, Director of School of Veterinary Medicine
Edmund G. Williamson, Dean of Students

Volume LVIII, Number 4

February 15, 1955

Entered at the post office in Minneapolis as semi-monthly second-class matter, Minneapolis, Minnesota. Accepted for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 12, 1918.

Calendar

First Term

June	13	Monday	Orientation and registration
June	14	Tuesday	First term classes begin; fees due for students in all colleges
July	4	Monday	Independence Day; holiday
July	14	Thursday	Commencement, 8:00 p.m.
July	16	Saturday	First term closes

Second Term

July	18	Monday	Registration and payment of fees
July	19	Tuesday	Second term classes begin
August	18	Thursday	Commencement, 8:00 p.m.
August	20	Saturday	Second term closes

No application form need be filed by students with previous college work who plan to attend during the 1955 Summer Session only. See Admission and Registration for further details.

1955 SUMMER SESSION

The University of Minnesota is 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 seventh 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 sponsored by university departments in co-operation with the Summer Session. For additional information write to Dean of Summer Session, 590 Johnston Hall, University of Minnesota, Minneapolis 14.

A Summer Travel Course in European Art

The summer travel course in European art will be conducted by the Department of Art under the auspices of the Summer Session. It will cover the main phases of ancient, medieval, Renaissance, and modern art in a series of lectures, guided visits, and discussions held at important cultural centers, museums, and cathedrals. Among the cities to be visited are Paris, Avignon, Nimes, Genoa, Pisa, Rome, Florence, Siena, Venice, Salzburg, Munich, Rothenburg, Speyer, Wiesbaden, Cologne, and Amsterdam. Five credits will be given in Art 59 to students successfully completing the course.

The group will depart from New York by steamer on June 25, spend approximately six weeks in Europe, and disembark in New York on August 22. The total cost, including University fees, transatlantic passages, travel in Europe, hotel accommodations, breakfasts, and dinners (but not travel within the United States) will be about \$970.

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 Associate Professor Herman Ramras for the Deutsches Haus; Assistant Professor Rodolfo Floripe for the Casa Hispánica; and Associate Professor Guy Desgranges 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.

This year opportunity for observation of and participation in language instruction on the grade school level will also be provided.

The Institute 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 Maison Française and the Deutsches Haus.

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 colleges.

The School also offers four courses and two seminars in the area of mass communications. Communications in a democratic world will be studied in *The Press in a Dynamic Society* and in *International Communications and Foreign Affairs*, while the history of communications will be traced in both a lecture course and seminar. 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 a graduate seminar.

Home Economics

The Twin Cities will be host to the national meeting of the American Home Economics Association from June 28 to July 1.

For those who wish to combine academic work with attendance at this convention, the School of Home Economics has expanded its regular programs in both terms and in addition has planned certain courses for those who may wish to take work prior to or following the meetings.

Workshops—The following three workshops are planned for that purpose:

Applied Nutrition (Home Economics 174A) from June 13 to 24, will explore recent advances in nutrition and their application to the problems of schools and public agencies.

Household Equipment (Home Economics 49) from June 13 to 24, will cover the selection, operation, care, and arrangement of equipment in the home.

Problems in Related Art (Home Economics 295) will follow the meetings, from July 5 to 15. Problems will be selected in the related art field based on individual needs of students.

Concentrated Related Art Course—Recent trends in art with emphasis on new developments in home furnishings will be the content of this concentrated course, Recent Developments in Related Art (Home Economics 127), which will be given June 13 to 24.

Regular Courses—Subject matter courses will include both undergraduate and graduate work in related art, textiles and clothing, foods, nutrition, home management and family relationships, and institution management. Special problems courses will be available and also several courses in home economics education.

In the second term there will be classes in home management and family relationships.

Classes will make use of the especially fine community resources available in the Twin Cities area. These include the art galleries and museums, institution and commercial kitchens, clothing industries, foods and equipment companies, and social service organizations.

Opportunity will be provided for Summer Session students to attend the American Home Economics Association meetings.

Speech and Drama Institute

As a special feature of the University High School program (June 20 through July 22), a Speech and Drama Institute will be open to high school students. The Institute will have two sections, each section composed of thirty high school students. The first group will work on forensic activities, oral interpretation of literature, extemporaneous and other public speaking, discussion, and debate. The second group will work on dramatics for high school students.

High school speech teachers are urged to register for the regular graduate offerings of the Summer Session in order that they may take advantage of the observation opportunities offered by the Speech and Drama Institute in University High School. A more detailed announcement concerning the Institute will be sent on request.

Clinics for Physical Education Teachers and for Recreation Workers

Six special clinics designed for teachers of physical education and for recreation workers will be held in badminton, tennis, and golf. They will be conducted by well-known experts during the second, third, and fourth weeks of the first term. These clinics are available to all interested persons at a nominal fee. They are included as part of the course fee for Physical Education 37, Individual and Dual Games and Methods. The schedules will be announced in the Official Daily Bulletin of the *Minnesota Daily* issued during the summer.

Creative Dramatics Workshop

A noncredit Workshop in Creative Dramatics will be held at the Center for Continuation Study from 2:00 to 4:00 p.m. each day for nine days beginning July 5. Kenneth L. Graham, Associate Professor of Speech and Theater Arts, will present lectures on the philosophy and techniques of working with children (kindergarten through junior high school) in creative dramatics and will give daily demonstrations of these techniques with a group of children. For registration information, write the Center for Continuation Study, University of Minnesota, Minneapolis 14.

American Studies Program

The American Studies summer program is designed for candidates for the B.A., the M.A., and the Ph.D. degrees. 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.

This summer, in addition to the courses taught by the regular University of Minnesota professors, visiting professors in anthropology, art, English, humanities, geography, and philosophy will teach the following American courses:

- First term**
- Anthropology 80—American Indians, La Barre
 - Anthropology 175—Aspects of American Culture, La Barre
 - English 104—Emerson and Thoreau, Hayford
 - English 105—Hawthorne and Melville, Thompson
 - English 143a—Frost and Faulkner, Thompson
 - Geography 112—Western Anglo-America, Mather
 - Geography 113—Eastern Anglo-America, Mather
 - Philosophy 106—American Philosophy from William James, Koch
 - American Studies 201—Introduction to American Studies, Koch
- Second term**
- Art 128—American Painting Since 1880, Barker
 - Art 196—American Painting of the Colonial and Federal Periods, Barker
 - English 113—American Short Story, West
 - English 182—The Far West in Literature, West
 - Humanities 131—Humanities Proseminar, van den Haag

Scandinavian Area Studies

The Scandinavian Area Studies program, held alternate summers at the University of Wisconsin and the University of Minnesota, for the summer of 1955 is scheduled to be held at the University of Wisconsin. For particulars consult Professor Einar Haugen, Department of Scandinavian Area Studies, University of Wisconsin, Madison, Wisconsin, or Professor Alrik Gustafson, Department of Scandinavian, 13 Folwell Hall, University of Minnesota, Minneapolis 14.

Efficient Reading

Adult reading needs are a matter of real concern. The course Efficient Reading, Rhetoric 47 (see index), designed for the average and above-average adult reader, provides a unique combination of activities for improving reading speed, comprehension, and vocabulary.

Special Nursing Courses

Improving Patient Care—A first-term course, Improving Patient Care Through In-Service Education, will be of special interest to nurses. Captain Drusilla Poole of the Army Nurse Corps, who will be the visiting instructor, has been active in planning and carrying out in-service education programs in various areas of the country. (See Nurs.Ad. 172, School of Nursing.)

Nursing in Rehabilitation—The Role of Nursing in Rehabilitation is the title of another special course from June 13-24, in the first term. Problems encountered by the patient, techniques for helping the patient with these problems, the nurse's role in relation to the other professional personnel, and the need for instructing nursing personnel and students in present concepts of rehabilitation will be included. Opportunities for observation will be provided. A visiting instructor, Teresa Fallon, Director and Consultant for the Nursing Advisory Service for Orthopedics and Poliomyelitis of the National League for Nurses, and consultants will participate. (See Nurs. 181, School of Nursing.)

Institute on Minnesota Government and Politics

An Institute on Minnesota Government and Politics (Political Science 114, three credits) held the first two weeks of the second term, July 18-29 inclusive, is intended to introduce those who attend the sessions to some of the major problems of Minnesota's government. The issues will include a Constitutional Convention, the Presidential Preference Primary, Party Designation, Civil Rights, the Governor's Role in Administration, Veteran Preference, Sales Tax, Dedicated Funds, School District Reorganization, and Regulation of Public Utilities. The topics will be presented by panels of public officials, leaders of civic groups, journalists, and educators, with adequate opportunity for those who enroll to enter into the discussions.

Panel members for this summer have not been chosen. The Institute last summer featured sixty panel members composed of sixteen legislators, including the Speaker of the House of Representatives, the Governor and eight other executive and administrative officials; the Chief Justice and three judges; three members of the Board of Regents of the University; fifteen leaders of civic and political organizations; three journalists; and twelve educators.

A related course on State Government, Political Science 115, may be taken during the last three weeks of the second term for 3 additional credits.

Program in Audiology

The speech department in co-operation with the Audiology Clinic at the University Hospitals will offer work in four courses, and present a special institute for parents of deaf children.

The courses are Speech 127, Language Training for the Deaf, Speech 152, Hearing Disorders, Speech 156, Auditory Training, and Speech 157, Clinical Practice in Audiology.

The institute which will follow the close of the second term will be designed to help the parent of the deaf child deal with the special problems involved.

Film Week

A six-day program of lectures, discussions, workshops, and film screenings on the film as a creative medium, with particular emphasis on documentary film techniques and practices in factual and feature films, will be offered to educators, teachers, artists, designers, museum staff, film makers, and interested laymen during the first week of the first term, June 13-20, inclusive.

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

The first-term courses, Film Workshop and the Art of the Film, given in the Department of Art, are co-ordinated with this film festival.

Public Health

Two workshops for public health nurses will provide opportunities for short-time study in rehabilitation nursing and in field practice in public health nursing. For further information see the section on Schools and Colleges—Public Health.

Statistics

Interdisciplinary—Interdisciplinary work in statistics sponsored by the Graduate School Committee on Statistics will be given first term by a distinguished visiting statistician. These courses, 138A Multivariate Analysis, and 139A Experi-

mental Designs for Research Workers, will be offered in the Department of Mathematics in the College of Science, Literature, and the Arts, and will be of interest to all students of statistics.

Biostatistics—The School of Public Health has scheduled two special courses second term in biostatistics, 120 Biostatistics II and 121 Biostatistics Laboratory II.

Institute for Teachers of College Chemistry

A summer Institute for Teachers of College Chemistry (Inorganic Chemistry 160) is being conducted by the School of Chemistry during the first term. Recent advances in the major fields of chemistry are being presented by members of the chemistry department and by invited guest lecturers from other institutions. The material is to be offered in a form and at a level most suitable for incorporation into the undergraduate chemical curricula. There will be field trips to physics laboratories, industrial laboratories, and North Shore iron and taconite developments.

Applications for admission to the Institute and for National Science Foundation stipends may be made by writing Professor Robert C. Brasted, 211 Chemistry Building, University of Minnesota, Minneapolis 14.

Problems of the Mentally Retarded Child

This workshop, presented jointly by the Institute of Child Welfare and the Psycho-Educational Clinic, will be held from August 22 to 26. It is designed to acquaint teachers, counselors, professional caseworkers, graduate students, and senior undergraduate majors with recent trends and developments in diagnosis, care, and training of children with mental defects.

Prerequisites for enrollment are one course in psychology or educational psychology and two years of college training. The workshop may be taken for credit or by special students who fulfill the prerequisites, without credit.

The three-hour morning and afternoon sessions will consist of a lecture presentation by a specialist, a question-and-answer period, a short intermission, and a discussion section. The group will be broken down into smaller discussion groups for each of which there will be a qualified leader.

Because of the heavy daily schedule, evenings are left free for individual activities.

Language Arts

Several departments are co-operating in a special first-term program in the Language Arts . . . reading, speaking, writing, listening, children's literature. Supplementing the courses will be an Institute at the Center for Continuation Study, June 27 through June 30, emphasizing sound practices for elementary and secondary school instruction in the language arts.

Economic Education

A special overview of current national and international economic problems is embodied in a first-term course in Current Economic Issues (Econ. 129, School of Business Administration) 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.

Driver Education

The course in Driver Education (101 under Curriculum and Instruction) will provide the special background required for high school instructors in driver train-

ing. Sections will be available both terms on the Minneapolis Campus and first term at Duluth. Because registration is limited, interested summer students should apply in advance for this work.

Workshops in the College of Education

Information on workshops for teachers in a variety of fields is given in the College of Education section. (See index.)

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 bus line which gives regular service free to students enrolled for classes on both campuses. The Como-Harriet interurban bus line 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.

Intercampus Bus

For students who are registered for classes on both the Minneapolis Campus and the St. Paul Campus, free transportation on the intercampus bus 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 on the ground floor of Coffman Memorial Union, Minneapolis Campus.

Parking Facilities

For the summer, facilities for parking are available in four university underground garages—the Union, the Auditorium, the Mayo, 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. Among the finest university libraries in existence, the University of Minnesota Libraries contain more than a million and three-quarters volumes and a wide variety of periodicals and pamphlets. Large, comfortable reading rooms provide an excellent atmosphere for study.

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 Offices

The University post offices are located on the ground floor of the Coffman Memorial Union on the Minneapolis Campus and in Coffey Hall on the St. Paul Campus. All regular post office services are available at these stations.

All students registered on the St. Paul Campus are assigned a post-office box located in Coffey Hall in which they will receive all mail, announcements and University communications.

Post-office boxes are provided only for those students registered on the Minneapolis Campus who have no assigned address. Students desiring this U. S. mail service should apply in the Coffman Union post office.

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 (co-operative 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 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 to attend the Summer Session only 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 in the section on the Graduate School. (See index.)

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 *Bulletin of General Information* for detailed requirements governing admission and the granting of degrees. The *Bulletin of General Information* 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 and payment of fees as follows:

First Term

Registration	Monday, June 13, 8 a.m. to 4 p.m.
Fee Payment	Monday-Tuesday, June 13-14

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

Wednesday, June 15.....	\$2.00
Thursday, June 16.....	3.00
Friday, June 17.....	4.00
Monday, June 20.....	5.00

No registrations are allowed for the first term after Monday, June 20, without the special permission of the dean of the school or college concerned, and the payment of the late fee of \$5.

Second Term

Registration and Fee Payment.....Monday, July 18, 8 a.m. to 4 p.m.

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

Tuesday, July 19.....	\$2.00
Wednesday, July 20.....	3.00
Thursday, July 21.....	4.00
Friday, July 22.....	5.00

No registrations will be accepted for the second term later than Friday, July 22, 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.

Place of Registration

First Term

June 13: Main Ballroom, Coffman Memorial Union. (Minneapolis Campus Students)

220 Coffey Hall (St. Paul Campus Students)

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

Other students should report to the Main Ballroom, Coffman Memorial Union.

Students registering before or after the regular registration day, June 13, should begin registration at the Office of Admissions and Records, Minneapolis or St. Paul Campus as appropriate.

Second Term

July 18: Information Booth, Administration Building (Minneapolis Campus Students)

220 Coffey Hall (St. Paul Campus Students)

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

Other students should report to the Office of Admissions and Records Information Booth, first floor, Administration Building, Minneapolis Campus, for registration materials and instructions.

Registration Tally Procedure

As part of registration, all students, including graduate students, must tally for courses listed below. The student does this by obtaining an IBM 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 turned in to obtain statement of fees.

Agricultural Economics

176—CofH 220

Analytical Chemistry

7—JohH 210 ††

All other courses under 200—E 136

Art

All courses, **except** 59—JohH 210 ††

Art Education

17, 18, 84, 184—Bu 206††

Botany

All courses, **except** 4, 5, 194, 195—
CofH 220

Business Administration

All courses under 200, **except** 160—
VH 107 ††

Civil Engineering

23—E 136

Communication

3—JohH 210 ††

Composition

All courses—JohH 210 ††

Curriculum and Instruction

101, 103, 109, 119, 125, 135, 150, 212,
270—Bu 206 ††

Drawing and Descriptive Geometry

All courses—E 136

Economics

3, 5, 6, 7, 24, 25, 26—JohH 210††

All other courses under 200, **except**
160—VH 107†† for BA, and
JohH 210 †† for other students

Educational Administration

229—Bu 206

Educational Psychology

116A, 120, 125-126, 133, 134, 142,
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

34—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

†† These courses will be tallied in the Main Ballroom, Coffman Memorial Union, on the regular registration day, June 13.

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

Metallography

- All courses—E 136

Metallurgy

- 124—E 136

Methods and Student Teaching

- 52—Bu 206 ††

Mining Engineering

- All courses—E 136

Natural Science

- All courses—JohH 210 ††

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

Physical Education for Women

- 7, 8—JohH 210 ††

Physics

- 1a, 2a—JohH 210 ††
 13—E 136

Plant Pathology and Botany

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

Rhetoric

- 47—CofH 220 for IA, and JohH 210 †† for other students
 All other courses—CofH 220

Social Science

- All courses—JohH 210 ††

Soils

- 3A—CofH 220

Speech and Theater Arts

- 1, 2, 3, 61, 102, 106, 131, 132—JohH 210 ††

Veterinary Medicine

- All courses under 200—CofH 220

Zoology

- 55, 115, 119, 135—CofH 220
 197—CofH 220 for Itasca; not tallied 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.

†† These courses will be tallied in the Main Ballroom, Coffman Memorial Union, on the regular registration day, June 13.

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)	\$50.00
Incidental fee †† (per term)	8.00

Total fee (per term)	\$58.00

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)	\$39.00
Incidental fee †† (per term)	8.00

Total fee (per term)	\$47.00

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 at the summer rate or academic year rate, whichever is higher. Special tuition fees are collected at the Biological Station. All students pay the Summer Session incidental fee.

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 \$26.00 tuition per term and the incidental fee.

Eligible Summer Session staff members pay at the following rates: more than 3 credits, \$23.00 per term; 3 credits or less or thesis only, \$11.50 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
 - Law School
 - School of Nursing
 - School of Veterinary Medicine

Course Fees

All fees are per term unless otherwise indicated.

All course fees except the following have been abolished effective summer 1955. Students taking the following courses will pay course fees in addition to tuition as follows:

Civil Engineering
\$35.00—23 (summer camp)

Itasca Biological Station
\$10.00—Laboratory fee

Modern Language Institute (Summer Session)

\$20.00 per term—Russian (1a, 2a, or 51, 52, 53)

†† The incidental fee of \$8.00 per term is charged each student for which the student receives the privileges of the Coffman Memorial Union, the Health Service, and the recreation program.

40.00 per term—French (22, 58, 109) ;
or German (22, 66, 107) ; or Spanish
(22, 58, 109)

Music

\$15.00—Class lessons in 11C, 12C
25.00—60B, 61B, 62B

30.00 for one (no cr.) individual les-
son 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

Music Education

\$30.00 for one (2 cr.), \$60.00 for two
(4 cr.) lessons per week—225E

Physical Education (men)

Towel and locker fee for students using
PE facilities for activity, \$2.50 per
quarter payable at department.

Uniforms (optional for class or recrea-
tion activity) \$2.00 per quarter pay-
able at department.

Physical Education (women)

\$3.25 (maximum \$6.50 per quarter)—
All activity courses

Public Health

\$100.00—169, 190

Deposit Cards

Deposit cards may be purchased from the bursar (or from the cashier, Coffey Hall, for Agricultural Biochemistry). Chemistry and Agricultural Biochemistry cards are \$10; Pharmacy and Physiological Chemistry cards are \$5.

Laboratory material and breakage will be charged against your deposit card. Any unused balance will be refunded at the end of the course.

You must present your deposit card to be assigned a laboratory desk. Veterans (P. L. 346, 16, 894) will receive information from their instructor concerning deposit cards and laboratory assignments.

Special Fees

Music Practice Room

\$1.00 per term for one, \$2.00 for two,
50 cents for each additional hour per
week—all instruments except organ
.20 per hour—small organ
.40 per hour—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—special clinical treat-
ment

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 attendance 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 Attend- ance 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

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.

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 14, 8:00 p.m.
 Second term Thursday, August 18, 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 2, 1954; second term: Thursday, July 7, 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 *Bulletin of the Graduate School*. 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 in both terms. Courses leading to graduate degrees through Summer Session attendance will be offered in home economics education.

College of Agriculture, Forestry, and Home Economics

AGRICULTURAL BIOCHEMISTRY (Ag.Bi.)

First Term and Second Term

203. **Research Problems.** (Page 46 ††) (2 to 5 cred.; grad.; #; ar.) Staff

AGRICULTURAL ECONOMICS (Ag.Ec.)

First Term

176. **Economic Problems of Beginning Farmers.** Availability of farming opportunities, alternative methods of acquiring a farm, evaluation of various forms of operating agreements and inheritance arrangements, use of credit, comparative rates of capital accumulation, interrelations between the problems of beginning farmers and the structure of land ownership and tenure. Meets for first three weeks of term only. (3 cred.; jr., sr., grad.; prereq. 170 or #; III-IV MTWThF; HH 311) Raup
200. **General Seminar in Agricultural Economics.** Special problems for individual work by qualified students. (3 cred.; grad.; prereq. # in advance of registration; ar.) Staff

Second Term

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

AGRICULTURAL EDUCATION (Ag.Ed.)

See index

†† For description see *Bulletin of the Graduate School* for 1954-56.

AGRONOMY AND PLANT GENETICS (Agro.)

First Term and Second Term

AGRONOMY

- 201.* **Research in Farm Crops.** (Page 51 ††) (Cred. ar.; grad.; prereq. 121, 123; ar.) Dunham, Schmid

PLANT GENETICS

- 241.* **Research in Plant Genetics.** (Page 51 ††) (Cred. ar.; grad.; ar.) Myers, Burnham, Rinke, Lambert, Thomas
244. **Laboratory Methods in Plant Breeding.** (Page 51 ††) (1½ cred.; grad.; ar.) Staff

ANIMAL HUSBANDRY (An.Hu.)

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 (Dy.Hu.)

First Term and Second Term

- 208.* **Research in Dairy Production.** (Page 87 ††) (Cred. ar.; prereq. preliminary grad. work; ar.) Fitch, Gullickson, Petersen, Bayley
- 209.* **Research in Dairy Manufacturing.** (Page 87 ††) (Cred. ar.; prereq. preliminary grad. work; ar.) Combs, Coulter, E. Thomas, Morris
- 215.* **Research in Dairy Bacteriology.** (Page 87 ††) (Cred. ar.; prereq. preliminary grad. work; ar.) Olson, Jezeski

ENTOMOLOGY AND ECONOMIC ZOOLOGY (Ent.) ¶¶

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 1954-56.

¶¶ 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 (For.)

OFFERED ON THE ST. PAUL CAMPUS

First Term

200.* **Research Problems in Silviculture.** (Ar.) Hansen, Schantz-Hansen, Duncan

203.* **Research Problems in Forest Management.** (Ar.) Schantz-Hansen, Hall

205.* **Research Problems in Forest Economics.** (Ar.) Beazley, Hall, Kaufert

213.* **Research Problems in Forest Utilization.** (Ar.) Kaufert, Hossfeld, Rees

Second Term

201.* **Research Problems in Silviculture.** (Ar.) Hansen, Schantz-Hansen, Duncan

204.* **Research Problems in Forest Management.** (Ar.) Schantz-Hansen, Hall

206.* **Research Problems in Forest Economics.** (Ar.) Beazley, Hall, Kaufert

214.* **Research Problems in Forest Utilization.** (Ar.) Kaufert, Hossfeld, Rees

OFFERED AT LAKE ITASCA FORESTRY AND BIOLOGICAL STATION ¶¶

Second Term

(August 1 to September 9)

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

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

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

Soil.3A. Field Forest Soils. Field and laboratory studies in forest soils. (1 cred.; no prereq.) Arneman

HOME ECONOMICS (H.E.)

See Special Programs

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
- 28. Construction and Refinishing of Home Furnishings.** Laboratory problems in refinishing and reupholstering furniture and making of 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. #; IV-V 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.; §76, or 170 and 171; prereq. 31, 40, physiology, or human biology; lect. IV MTWThF; lab. V MWF; HE 125) Peterson
- 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; III-IV 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.) Jeary, Stephens
- 116. Family Clothing Problems.** The buying of clothing, governmental controls of production; the simplification of clothing, labeling and standardization, the sizing of garments and patterns, recent developments in the choice of clothing for specific uses such as work clothing and clothing for infants and children. (3 cred.; jr., sr., grad.; prereq. 3, 50; V MTWThF; HE 201) Morris
- 140. New Developments in Food Preparation.** Survey of recent trends in food preparation. (3 cred.; sr., grad.; prereq. 40, 70 advised; III MTWThF; HE 125) Trammell
- 150. Textile Problems.** Recent developments and findings in the field of textiles. Emphasis on needs of home economics teachers in secondary schools, colleges and adult classes. (3 cred.; prereq. 3 cred. in textiles or equiv.; III-IV MTWThF; HE 303) Knight
- 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 #; I-II MTWThF; HE 328) Knight
- 167. Problems in Lunchroom Management.** A study of some practical aspects of lunchroom operation. Special emphasis on sanitation, selection of equipment, and the establishment of cost and quality controls by means of purchasing

procedures and records, recipe standardization, menu making and costing methods. Opportunity for individual problems. Selected field trips based on group needs and interests. (3 cred.; prereq. jr. or #; VI-VII MTWThF and Wed. afternoon; Cafeteria) Streater, Claypoole

- 180. Home Planning and Furnishing.** Problems in planning and furnishing a home to meet family needs. Esthetic, economic, social and managerial aspects are considered. Each student develops a plan for a house and its furnishings. Field trips. (5 cred.; jr., sr.; prereq. 27, 49, 120 advised, or #; §24 or 57, G.C. 16, F.L. 15; VIII-IX MWF, VII-IX TTh; HE 360) Ludwig
- 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 201) Jeary
- 185. Family Relationships.** Factors that promote satisfaction in family living, and inter-relationships of the family and the community. (3 cred.; jr., sr., grad.; prereq. 17, 86, H.E.Ed. 90, or #; VII MTWThF; H.E. 222) Bellinger
- 295. Home Economics Problems.** Investigation of selected problems in Home Management and Family Relationships. Independent study and written reports. 1-5 cred.; prereq. #; HE 213) Bellinger

Concentrated Course

- 127. Recent Developments in Related Art.** A study of recent trends in art, with emphasis on new developments in home furnishings. Specific content of course to be determined by student needs and interests. Field trips to art galleries, homes and commercial establishments. (3 cred.; prereq. #; 9:00-4:00 MTWThF; HE 342; June 13-24) Esteros

Workshops

- 49. Household Equipment.** Discussion, laboratory experiences and field trips will be used to illustrate principles that should guide in the selection, operation, care and arrangement of equipment in the home. (3 cred.; soph.; prereq. Ag.En. 35 or #; limited to 16; 8:30-11:30 MTWThF, afternoons for laboratory work and field trips; HE 124-128; June 13-24) Bonnell
- 174A. Workshop in Applied Nutrition.** Recent advances in nutrition and their application to the problems of schools and public welfare agencies; use of new materials and techniques; recent publications and audio-visual materials; field trips. (3 cred.; prereq. 8 cred. in normal nutrition and #; 8:30-11:30 MTWThF, afternoons for conferences and field trips; HE 44; June 13-24) Leichsenring
- 295. Home Economics Problems.** Investigation of selected problems in Related Art. Independent study and written reports. (3 cred.; prereq. #; HE 354; July 5-15) Esteros

Second Term

- 86. Home Management Laboratory.** (Not restricted in the second term to University of Minnesota students registered in the regular year.) (See first term) Bellinger, Stephens
- 184. Home Management Principles.** (See first term) (III MTWThF; HE 201) Bellinger
- 295. Home Economics Problems.** (See first term) Bellinger

HOME ECONOMICS EDUCATION (H.E.Ed.)

See index

HORTICULTURE (Hort.)

First Term

- 190-191-192. **Special Problems.** (Page 148 ††) (2-4 cred.; prereq. #; ar.) Staff
- 247.* **Reports on Special Horticultural Topics.** (Page 148 ††) (Cred. ar., maximum 9 cred.) Staff
- 249.* **Research in Horticultural Crop Breeding.** (Page 148 ††) (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 (Pl.Pa.) ¶¶

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, Kernkamp, King, Kommedahl, French, DeVay
- 210.* **Special Problems in Mycology.** (Page 170 ††) (Cred. ar.; grad.; prereq. 105-106-107; PP) J. J. Christensen, C. M. Christensen, Dossdall
- 257.* **Research Problems in Applied Plant Physiology.** (Page 171 ††) (Cred. ar.; grad.; AgrBot) Landon, DeVay
- 263.* **Research Problems in Agricultural Botany.** (Page 171 ††) (Cred. ar.; grad.; AgrBot) J. J. Christensen, Kommedahl

POULTRY HUSBANDRY (Po.Hu.)

First Term and Second Term

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

RHETORIC (Rhet.)

First Term

47. **Efficient Reading.** Designed for students, teachers, business or professional people of average reading ability wishing to improve speed, comprehension,

†† For description see *Bulletin of the Graduate School* for 1954-56.

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

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.) Brown, Wright

Sec. 1, II MTWThF, ForH 85
Sec. 2, III MTWThF, ForH 85

Sec. 3, IV MTWThF, ForH 85

Second Term

22. **Public Speaking.** A practical course in the fundamentals of speech making. Particular emphasis upon organizing the speech and projecting it to the audience. (3 cred.; soph., jr., sr; prereq. satisfaction of freshman communication requirements; IV MTWThF; En 307) Nichols
47. **Efficient Reading.** (See first term) 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 requirement; III MTWThF; En 308) Nichols

SOILS (Soil.)

First Term and Second Term

- 202.* **Research Problems in Soils.** (Page 218 ††) (2-5 cred.; grad.; prereq. # in advance of registration; ar.) Martin, Burson, Caldwell, MacGregor, Schmidt, Arneman

Second Term

- 3A. **Field Forest Soils.** Soil texture, structure, consistence, reaction, and color. Field study and description of soil profiles. Use of soil maps in forestry. (1 cred.; no prereq.; given at Itasca) Arneman

SCHOOL OF VETERINARY MEDICINE (Vet.) ††

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 #) 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 #) Sautter, Kernkamp

†† For description of course see *Bulletin of the Graduate School* for 1954-56.

‡‡ Tuition fees per term in Veterinary Medicine are \$50 for resident and \$82.50 for non-resident students, and incidental fee per term is \$8. Students taking less than a full program will pay at the summer rate or academic year rate, whichever is higher.

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 #) Sautter, Kernkamp
201. **Advanced Animal and Poultry Pathology.** Studies of clinical material, collateral reading, and conferences. (Cred ar.; prereq. #) Kernkamp, Fenstermacher, Pomeroy, Sautter
205. **Advanced Animal Bacteriology.** Studies on clinical material, collateral reading, and conferences. (Cred. ar.; prereq #) Pomeroy, Fenstermacher
209. **Advanced Clinical Techniques.** A more detailed application of clinical techniques in the diagnosis and therapy of animal diseases. (Cred. ar.; prereq. #) Campbell, Hoyt, Mather
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. #) Staff
230. **Research.** (Cred. ar.) Staff

Lake Itasca Forestry and Biological Station

(June 13—July 16)

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 co-operatively 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 13, ending July 16.

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, 590 Johnston Hall, University of Minnesota, Minneapolis 14.

Institute for High School Teachers

An Institute for High School Teachers of Biology, for which twenty stipends of \$300 each are available, will be conducted during the session. These twenty teachers, under special leadership, will be introduced to many phases of field and laboratory biology by Station staff members and by visiting lecturers; will participate in field trips where conservation programs can be seen in action; and will engage in field studies or collecting of their own choosing. Inquiries concerning

this program should be addressed to the Dean of Summer Session, 590 Johnston Hall, University of Minnesota, Minneapolis 14.

Institute for College Teachers

An Institute for College Teachers of Biology will be conducted this summer under the auspices of the National Science Foundation. Members will enroll in one graduate course, carry out an individual research program, and participate in seminars on problems related to the teaching of biology. Ten stipends of \$350 each are available. Inquiries concerning this program should be addressed to the Dean of Summer Session, 590 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.

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 10. Off-campus students may register upon arrival at the Biological Station on June 13 if registration before arrival is impossible.

Fees and Expenses

Registrations will be accepted during May and June but not later than June 14.

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

Tuition fee	\$55.00
Incidental fee	8.00
Laboratory fee	10.00
	\$73.00
Total fees for the term	\$73.00

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 \$143 for the five-week session does not include traveling expenses, clothing, laundry, and minor incidental personal expenses.

†† See section on general admission and registration.

Tuition and fees are payable on or before June 14. After that date the late fee will be charged according to the following schedule:

Wednesday, June 15.....	\$2.00
Thursday, June 16.....	3.00
Friday, June 17.....	4.00
Monday, June 20.....	5.00

No registration will be accepted after June 20 without the approval of the director in charge and payment of the \$5 late fee.

For detailed description of courses write to Dean of the Summer Session, 590 Johnston Hall, University of Minnesota, Minneapolis 14, for special *Bulletin of the Lake Itasca Forestry and Biological Station*.

Courses of Instruction

First Term

BOTANY (Bot.)

- Pl.Pa.56. **Introduction to the Study of Fungi.** (See Plant Pathology)
112. **Aquatic Flowering Plants.** (4 cred.; prereq. 10 cred. in botany or zoology, or #; WS) Ownbey
116. **Summer Flora of Minnesota.** (4 cred.; prereq. 10 cred. in botany or zoology or #; TF) Buell
135. **Ecology of the Itasca Region.** (4 cred.; prereq. Bot. 50 or 130 or For. 4; MTh) Buell
136. **Organisms, Microclimate, and Weather.** (Not offered in 1955)
155. **Fresh-water Algae.** (4 cred.; prereq. 10 cred. in biology, or #; TF) Evans
- Pl.Pa.156. **Advanced Study of Fungi.** (See Plant Pathology)
157. **Bryophytes and Pteridophytes.** (4 cred.; prereq. 10 cred. in biology, or #; MTh) Evans
- 196.* **Problems in Ecology, Taxonomy, Bryology, or Algology.** (Cred. ar.; advanced students with proper qualifications) Buell, Evans, Ownbey
- 208.* **Research Problems in Taxonomy.** (Cred. ar.; grad. students with proper qualifications) Ownbey
- 224.* **Research Problems in Ecology.** (Cred. ar.; grad. students with proper qualifications) Buell
- 236.* **Research Problems in Cryptogams.** (Cred. ar.; grad. students with proper qualifications) Evans

ENTOMOLOGY AND ECONOMIC ZOOLOGY (Ent.)

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 1955)
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. 50; 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 (Pl.Pa.)

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

ZOOLOGY (Zool.)

55. **Natural History of Invertebrates and Fishes.** (4 cred.; prereq. Zool. 1-2-3 or equiv.; WS) Eddy
107. **Protozoology.** (Not offered in 1955)
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. **Advanced Ornithology.** (4 cred.; prereq. 15 cred. in zoology; TF) Kendeigh
143. **Animal Parasites.** (Not offered in 1955)
- 197.* **Problems in Ornithology, Ecology, and Limnology.** (Cred. ar.; prereq. Zool. 1-2-3 and special requirements) Eddy and Kendeigh

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 requirements 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 relations to the whole economic organization. (3 cred., §B.A. 57; 2nd and 3rd qtr. fr., soph.; no prereq.)

Sec. 1, III MTWThF, VH 2, Coen

Sec. 2, IV MTWThF, VH 2, Williams

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.)

Sec. 1, I MTWThF, VH 113, Borak

Sec. 3, V MTWThF, VH 2, Ar.

Sec. 2, III MTWThF, VH 113,

Borak

Econ.24. Principles of Accounting. The balance sheet, profit and loss statement and the recording process; uses of accounting data and special methods of recording. (3 cred.; §B.A. 54; 3rd qtr. fr., soph.; no prereq.; II MTWThF; VH 306) Nightingale

- Econ.26. Principles of Accounting.** Long term liabilities, owners' equity, determination of income and analysis of financial statements. (3 cred.; §B.A. 55; soph.; prereq. 25; II MTWThF; VH 113) Boddy
- Econ.50. Insurance Principles.** Theory of risk and insurance; types of insurable risks; types of insurers; fundamentals of life and disability, property, and liability insurance contracts; sales, underwriting, actuarial, finance, and claims functions of insurers; internal and external regulation; social insurance. (3 cred.; jr., sr.; prereq. 7 or equiv.; II MTWThF; VH 1) Williams
- B.A.54. Elementary Accounting.** (This course and B.A. 55 form a combination of Econ. 24-25-26.) Accounting statements and the recording process; use of accounting data by management. (4 cred.; §Econ. 24; to be counted as Junior College course when transferred to the college of Science, Literature, and the Arts; soph. [summer only], jr., sr.; no prereq.; II MTWThF and 2 hr. ar.; VH 2) Lund
- B.A.58. Elements of Public Finance.** Survey of institutions, policy problems, and economic effects of public expenditures, budgeting, taxes, debts, and fiscal policy. This is a condensed course given especially for School of Business Administration students. (3 cred.; §Econ. 189, 191-192; jr., sr.; prereq. Econ. 7 or equiv.; IV MTWThF; VH 207) Heller
- 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., §142; jr., sr.; prereq. 3 and 80 or equiv.; II MTWThF; VH 6) Smith
- 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., §139, 151; jr., sr.; prereq. Econ. 26 or equiv.; III MTWThF; VH 306) Reighard
- B.A.71. Transportation: Services and Charges I.** Survey and economic aspects of national transportation policy; rail, highway, air, and water transportation facilities, services, rates, regulation, and current transportation problems. (3 cred., §Econ. 172; jr., sr.; prereq. Econ. 7 or equiv.; I MTWThF; VH 1) Nightingale
- 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; and (4) methods, procedures, and proposals for solving these problems. (3 cred., §161; jr., sr.; prereq. 7 or equiv.; I MTWThF; VH 6) Ar.
- B.A.77. Survey in Marketing.** Introductory analysis of (1) marketing institutions and their control; (2) market areas; (3) marketing costs; and (4) the operation of supply and demand in marketing. (3 cred., §Econ. 185; jr., sr.; prereq. Econ. 7 or equiv.; III MTWThF; VH 1) Lewis
- 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., §143; jr., sr.; prereq. 20 cred. in social science including 7 or equiv.; III MTWThF; VH 207) Papandreou
- Econ.85. Government Regulation of Business.** The economic aspects of legislation affecting the market processes. Topics studied include the economic origins of business limitations of 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., §175; jr., sr.; prereq. 81 for majors, suitable background in law or political science for others, or #; V MTWThF; VH 1) Papandreou

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., §187; jr., sr.; prereq. Econ. 7 or equiv.; V MTWThF; VH 301) Wickesberg

Econ.103. Advanced Price Theory. Theories of choice as applied to firms and resource owners, and the usefulness of such theories in predicting market behavior. (3 cred.; jr. and sr. with consent, grad.; prereq. 81 or 144; IV MTWThF; VH 113) Boddy

B.A.113. Sales Management. The management of selling activities 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. 77; IV MTWThF; VH 6) Lewis

Econ.129. Current Economic Issues. A special survey of current economic problems and their analysis, designed for the nonmajor, and of particular interest to teachers who wish to broaden their knowledge and to be brought up to date in their teaching of social studies courses. (3 cred.; jr., sr., grad.; V MTWThF; VH 6) Smith

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., §65, 151; jr. and sr. with consent, grad.; prereq. Econ. 26 or equiv.; III MTWThF; VH 306) Reighard

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., §64; jr. and sr. with consent, grad.; prereq. 3 and 80 or equiv.; II MTWThF; VH 6) Smith

Econ.143. Economic Analysis: Income and Employment. The determinants of national income, employment, and price level, with particular attention to aggregate consumption and investment. (3 cred., §80; jr. and sr. with consent, grad.; prereq. 7 or equiv.; III MTWThF; VH 207) Papandreou

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.; I MTWThF; VH 2) Lund

B.A.152. Cost Accounting. Basic principles of cost accounting; job order and process cost systems. (3 cred.; §66 or 130; jr., sr., grad.; prereq. Econ. 26 or equiv.; IV MTWThF; VH 306) Reighard

B.A.160. Readings in Business Administration. Special readings to be arranged with the student to cover areas in business administration especially useful to his individual program and objectives, but not available in the regular course offerings. (Cred. ar.; jr., sr., grad.; prereq. consent of adviser and instructor in field covered) Staff

Econ.160. Readings in Economics. Special readings to be arranged with the student to cover areas in economics especially useful to his individual program and objectives but not available in the regular course offerings. (Cred. ar.;

jr., sr., grad.; prereq. consent of adviser and instructor in the field covered
Staff

- 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; and (4) methods, procedures, and proposals for solving these problems. This course covers the basic materials of Econ. 73 plus advanced discussion and special assignments. (3 cred., §73; jr. and sr. with consent, grad.; prereq. 7 or equiv.; I MTWThF; VH 6) Ar.
- Econ.162. Labor Movements.** An analysis of the development of labor movements in Europe and the United States. An examination of the origins of labor movements, their growth, the problems faced under various forms of governments, and an analysis of the economic and social consequences of these developments. (3 cred.; jr., sr., grad.; prereq. 73 or 161; III MTWThF; VH 6) Seltzer
- Econ.164. Labor Legislation: Collective Bargaining.** An analysis of: (1) employer-employee-union relationships and their social control; emphasis is placed upon the actions of legislative, executive, and judicial branches of the government; and (2) the economic and social implications of issues arising in this area. (3 cred.; jr., sr., grad.; prereq. 73 or 161; I MTWThF; VH 306) Seltzer
- Econ.165. Current Trends in Industrial Relations.** Class 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 the Industrial Relations Center staff members who are actively engaged in research and consultation. (1 cred.; jr., sr., grad.; prereq. B.A. 167; ar.) Staff
- Econ.172. Economics of Transportation.** The economics of the agencies of modern transportation, including rail, water, highway, air, and pipe line. Relative advantage of each agency, national transportation policy, regulation, rate-making, taxation, co-ordination of services. (3 cred., §B.A. 71; jr., sr., grad.; prereq. 20 cred. in social science, including 7 or equiv.; I MTWThF; VH 1) Nightingale
- 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., §85; jr. and sr. with consent, grad.; prereq. 81 or 144 for majors, suitable background in law or political science for others, or #; V MTWThF; VH 1) Papandreou
- 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. 7 or equiv.; I MTWThF; VH 207) Coen
- 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 influ-

ence upon "rationalism" in industrial society. (3 cred.; sr., grad.; prereq. 89 or 187; II MTWThF; VH 301) Wickesberg

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; and (5) the role of the consumer in market distribution. (3 cred., §B.A. 77; jr., sr., grad.; prereq. 7 or equiv.; III MTWThF; VH 1) Lewis

B.A.187. Administration of Production. This nontechnical course develops the production function of business from the general management viewpoint. (3 cred., §89; jr. and sr. with consent, grad.; prereq. Econ. 7 or equiv.; V MTWThF; VH 301) Wickesberg

Econ.189. Economics of Public Finance. Survey of public expenditures, budgeting, taxes, debts, and fiscal policy, with special emphasis on economic effects. Special attention is given to tax principles, practices, and policies. (3 cred., §B.A. 58, Econ. 191-192; jr., sr., grad.; prereq. 7 or equiv.; IV MTWThF; VH 207) Heller

B.A.299. Graduate Research in Business Administration. (Cred. ar.; grad.) Staff

Econ.299. Graduate Research in Economics. (Cred. ar.; grad.) Staff

Second Term

Econ.5. Elements of Statistics. Elementary concepts in statistical method. Statistical description; sources of data, techniques of presentation (tabular, graphic); frequencies; averages, index numbers; dispersion. Collection of data; sampling; sampling error and reliability. Inference. (3 cred.; §5A, 5B, B.A. 70 or Soc. 45; 3rd qtr. fr., soph.; no prereq.; I MTWThF; VH 2) McKenna

Econ.7. Principles of Economics. (Continuation of Econ. 6) (3 cred.; soph., jr., sr.; prereq. 6)

Sec. 1, III MTWThF, VH 2,
Buttrick

Sec. 2, IV MTWThF, VH 6, Hollander

Econ.25. Principles of Accounting. Adjusting entries, work sheets, closing entries, cash inventories, depreciation, and an introduction to cost accounting. (3 cred., §B.A. 55; soph.; prereq. 24 or equiv.; II MTWThF; VH 6) Sutton

B.A.55. Elementary Accounting. (Combined course—continuation of B.A. 54) Accounting valuation of assets, liabilities and owners' equity; introduction to cost accounting; analysis of financial statements. (4 cred.; §Econ. 25-26; to be counted as Junior College course when transferred to the College of Science, Literature, and the Arts; soph. [summer only], jr., sr.; prereq. 54; II MTWThF and 2 hr. ar.; VH 306) Nelson

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., §130, 152; jr., sr.; prereq. Econ. 26 or equiv.; III MTWThF; VH 6) Meyers

Econ.73. Manpower Economics and Labor Problems. (See first term) (III MTWThF; VH 1) Turnbull

B.A.74. Business Statistics A. Explanation and criticism of statistical techniques for dealing with economic time series; trend, seasonals, cycles; index numbers. Basic concepts in acceptance sampling; statistical control of quality

in manufacturing operations. (3 cred., §112; jr., sr.; prereq. Econ. 5 or equiv.; IV MTWThF; VH 1) McKenna

- Econ.75. Corporation Finance.** The corporation in comparison with other types of business units. Attention is given to 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., §155; jr., sr.; prereq. 3 and 7 or equiv.; II MTWThF; VH 1) 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., §144; jr., sr.; prereq. 20 cred. in social science including 7 or equiv.; I MTWThF; VH 6) Buttrick
- Econ.104. Market Structure and Price Theory.** Application of price theory to industry behavior. Includes analysis of inter-industry competition; price and output policies under conditions of imperfect competition. (3 cred.; jr. and sr. with consent, grad.; prereq. 103; IV MTWThF; VH 113) Brownlee
- 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., §74; jr. and sr. with consent, grad.; prereq. Econ. 5 or equiv.; IV MTWThF; VH 1) McKenna
- B.A.114. Retail Store Management.** Comprehensive treatment of retailing principles and methods; relation of retailing to other parts of the economy; problems associated with the operation of stores of various types. (3 cred.; jr., sr., grad.; prereq. 77; II MTWThF; VH 2) Hollander
- Econ.124. Theory of Employment, National Income, and the Price Level I.** Determination of the equilibrium values for real output, employment, the price level and the rate of interest under specified assumptions regarding the demand for and supply of money, the demand for and supply of labor, technical conditions of production and the investment and consumption functions. (3 cred.; jr., sr., grad.; prereq. 80 or equiv.; II MTWThF; VH 113) Brownlee
- 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., §66, 152; jr. and sr. with consent, grad.; prereq. Econ. 26 or equiv.; III MTWThF; VH 6) Meyers
- Econ.144. 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., §81; jr. and sr. with consent, grad.; prereq. 7 or equiv.; I MTWThF; VH 6) Buttrick
- 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 155; IV MTWThF; VH 2) 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. 64 or equiv. or #; III MTWThF; VH 113) Sutton
- B.A.151. Intermediate Accounting II.** Principles and procedures involved in the valuation of liabilities and stockholders' interest, and in analysis of finan-

cial statements. (3 cred., §65, 139; jr., sr., grad.; prereq. 150; III MTWThF; VH 306) Nelson

B.A.153. Cost Accounting. (Continuation of B.A. 152) 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. 152; IV MTWThF; VH 306) Meyers

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., §75; jr. and sr. with consent, grad.; prereq. 3 and 7 or equiv.; II MTWThF; VH 1) Stehman

B.A.160. Readings in Business Administration. (See first term)

Econ.160. Readings in Economics. (See first term)

Econ.161. General Manpower Economics and Labor Problems. (See first term)
(III MTWThF; VH 1) Turnbull

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 1) Turnbull

B.A.299. Graduate Research in Business Administration. (See first term)

Econ.299. Graduate Research in Economics. (See first term)

INSTITUTE OF CHILD WELFARE (C.W.)

See *Problems of the Mentally Retarded Child* under Special Programs

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 15. 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 midmorning 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; III MTWThF; CW 218) Bassham
- 130. **Motor, Linguistic, and Intellectual Development of the Child.** (3 cred.; sr., grad.; prereq. 12 cred. in psychology or equiv.; I MTWThF; CW 222) Bassham
- 132. **Later Childhood and Adolescence.** (3 cred.; sr., grad.; prereq. 12 cred. in psychology or equiv.; II MTWThF; CW 218) Overlade
- 141. **Behavior Problems in Older Children.** (3 cred.; sr., grad.; prereq. 12 cred. in psychology, educational psychology, or sociology; IV MTWThF; CW 222) Overlade
- 150. **Childhood Education.** Survey of early childhood education. (3 cred.; sr., grad.; prereq. 12 cred. in education; II MTWThF; CW 222) Fuller
- 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. 164, Play Materials, Rhythms and Nature Study for Young Children, listed under Curriculum and Instruction, in the College of Education, are also offered by the Institute of Child Welfare.

Second Term

- 131. **Personality, Emotional, and Social Development of the Child.** (3 cred.; sr., grad.; prereq. 12 cred. in psychology or equiv.; I MTWThF; CW 222) Gollin
- 140. **Behavior Problems in Younger Children.** (3 cred.; sr., grad.; prereq. 12 cred. in psychology, educational psychology, or sociology; II MTWThF; CW 222) Cummings

142. **Psychology of Atypical Children.** (3 cred.; sr., grad.; prereq. 12 cred. in psychology or equiv.; III MTWThF; CW 222) Gollin
170. **Parent Education.** (3 cred.; sr., grad.; prereq. 15 cred. in psychology, education, home economics, or sociology; IV MTWThF; CW 222) Cummings
- 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—Delton, Hillmann, Wittich, Hall, Clark, Speidel, Zander, Yock, Mitchell, Jensen, Holland, Tam, Serr

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

Dentistry fees during the summer quarter are: full-time tuition, resident \$100, nonresident \$175; less than a full program may be paid for at the summer rate or academic year rate, whichever is higher. There will be an incidental fee of \$16.

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 Asso-

ciation of Colleges and Secondary Schools. In the first term, the workshop will be scheduled from June 13 to July 8 for the study of problems in the liberal arts related to teacher education. In the second term, the workshop, scheduled from July 25 to August 19, 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 270, Improvement of Instruction in the Secondary School, June 13 to June 29, and Educational Administration, course 229, Problems in Planning School Buildings, June 30 to July 15. 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 Group Dynamics in Education—In the first term, a workshop on the educational implications of group dynamics will provide an opportunity for improving understanding of group membership and leadership. The workshop, designed for classroom teachers and administrators, will explore the social and emotional dimensions of school problems, as well as providing special interest groups through which the participants may work together on these problems. The workshop is scheduled for four weeks, June 20 through July 15. A more detailed announcement will be sent on request to the Dean's office, College of Education. (See Educational Psychology, course 125-126.)

Workshop in Family Life Education—In the second term, the College of Education, in co-operation with the American Social Hygiene Association, will sponsor a Workshop in Family Life Education. An outstanding group of resident and visiting staff will be on campus during the four weeks of the workshop, July 25 through August 19. Staff members from teacher education institutions in Minnesota, Iowa, North Dakota, and South Dakota, as well as representatives from the fields of social work, public health, teaching, the ministry, and other areas concerned with family life problems, are urged to apply for this workshop. More detailed information and application forms may be requested from the Dean's office, College of Education. (See Curriculum and Instruction, course 212.)

Workshop and Special Courses in Industrial Education—See index, Industrial Education.

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, social studies, speech, science, and typing. Individual and group work in remedial reading and arithmetic 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 co-operative 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 Eighteenth 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.

Offerings in Statistics

Graduate students interested in statistics will find basic courses listed under Educational Psychology. Those planning to major in statistics should refer to courses offered under the Mathematics Department, College of Science, Literature, and the Arts: Mathematics 138a, Multivariate Analysis, and Mathematics 139a, Experimental Designs for Research Workers.

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 \$26.00 per term plus incidental fee.

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 (Ag.Ed.)

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; VI-VII MTWThF; Hr 302) Kitts
- 105. FFA Program of Work.** Developing a program of instruction organized within the framework of the FFA program of work. Determining objectives, developing instructional guides, preparing units of instruction, and evaluating outcomes. (3 cred.; prereq. 81, 82; I-II MTWThF first 3 weeks; ar. last 2 weeks; Hr 301) Swanson
- 123. Teaching Units in Livestock Management.** Development of teaching units based on recent research in the science of livestock management. Construction of resource units, demonstrations, and materials of instruction for adult, young farmer, and high school classes. (3 cred.; prereq. An.Hu. 56, 57 or Dy.Hu. 103, or #; VI-VII MTWThF first 3 weeks; ar. last 2 weeks; Hr 301) Swanson
- 154.* Rural Education and Community Leadership.** An appraisal of community educational agencies; the process of and responsibilities for community leadership; the role of the school in the rural community; coordination of the school with nonschool educational agencies. (3 cred.; III-IV MTWThF; 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. #; I-II MTWThF first 3 weeks; ar. last 2 weeks; Hr 302) Kitts
- 166. Techniques of Instruction in Rural Electrification.** Developing a program of instruction in electricity and rural electrification. Teaching aids, units of instruction, job sheets and demonstrations-facilities and materials for adult, young farmer, and high school classes. (3 cred.; prereq. grad. or #, 165 or ¶165; III-IV MTWThF first 3 weeks; ar. last 2 weeks; Hr 302) Kitts
- 172. Teaching Units in Farm Credit.** Development of resource units and teaching materials in the needs, sources, availability, and uses of short term and production credit, long term and mortgage credit for established farmers and those making a beginning in a farm business. (3 cred.; prereq. Ag.Ec. 2 or #; I-II MTWThF first 3 weeks; ar. last 2 weeks; Hr 301) Peterson, Granger

- 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, Swanson
- 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, Swanson

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

ART EDUCATION (Ar.Ed.)

The Department of Art Education offers professional training and guidance for teaching and supervisory positions in the field of art. Art education provides opportunities to combine a creative art career with a teaching position, a combination popular with many outstanding contemporary artists.

During Summer Sessions the department places a strong emphasis on non-specialist courses for elementary and secondary teachers who plan to integrate art with other subjects. For art education majors the summer program emphasizes graduate work towards advanced degrees.

See also Department of Art, College of Science, Literature, and the Arts.

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.; VI-VII MTWThF; TSF 259) Bratlee
- 18. Design Activities for Elementary Education.** (See 17) Relationships between art and nature. Problems in invention, arrangement and decoration, color, lettering, posters, bulletin board displays, etc. (3 cred.; I-II MTWThF; J 109) Hastie
- 151. 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.; VI MTWThF; J 109) Hastie
- 156. Intercultural Education Through Art.** Approaches to international understanding and co-operation through recognition of aesthetic contributions of diverse peoples to American life. (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 co-operation between classroom teachers and art education specialists. (3 cred.; sr., grad.; IV MTWThF; J 109) Gayne

- 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. (1 cred.; VII Th; J 105) Staff

Second Term

- 18. Design Activities for Elementary Education.** (See first term) (I-II MTWThF; J 109) Hastie
- 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 (Ed.Ad.)

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; FolH 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) Prentis
- 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; FolH 5) 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; ar.; ar.) Prentis
- 229. Problems in Planning School Buildings.** Superintendents may work in this course on specific plans for buildings in their own districts. Standards and space facilities for elementary, junior high, and senior high school buildings with respect to classrooms, laboratories, physical and health education, industrial education shops, music, home economics. (Limited to 35) (4 cred.; grad.; June 30 to July 15; prereq. 226 or equiv.; I-IV MTWThF; JohH 309, 307) Williams and ar.

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; JohH 306) Davidson
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) Domian
236. **Field Study in Educational Administration.** This course is a part of the requirements for the certificate, Specialist in Education. The 10 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. #; ar.) Domian

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 45) Cramer
118. **The Community School.** Community school concepts, social forces, distinctive features, community study techniques, problems of people and communities, community resources, school-community co-operation, community change, organization of the community school, group work methods and techniques, roles of teachers and administrators, building community strength, the community as a unit in a democratic society, school as a service center, community co-ordinating councils, community agencies, study of functioning community centers in the United States and in other countries, appraisal of community school. (3 cred.; sr., grad.; II MTWThF; JohH 122) Archer

SECONDARY EDUCATION

218. **Recent Literature in Secondary Education.** (Cred. ar.; VI-VII W; Bu 103) R. Keller
263. **Organization of the Secondary School.** (3 cred.; IV MTWThF; NH 207) Ringo
264. **Administration of Instructional Activities in the Secondary School.** (3 cred.; II MTWThF; FolH 301) Fisher
- 270.* **Special Problems in Secondary Education.** (Cred. ar.; prereq. #; VI-VII W; Bu 103) Bossing, R. Keller

Second Term

GENERAL COURSES

124. **Public School Administration.** (See first term) (I MTWThF; FolH 102) Williams
210. **Financial Aspects of Public School Business Administration.** (See first term) (II MTWThF; JohH 306) Reeder
225. **Pupil Personnel Administration.** (See first term) (III MTWThF; JohH 115) Cramer
226. **School Plant Planning and Management.** (See first term) (II MTWThF; FolH 102) Williams

227. **Teacher and Employee Administration.** (See first term) (I MTWThF; FolH 2) Kearney
- 228.* **Special Problems in Educational Administration.** (See first term) (Ar.; ar.) Prentis
235. **Seminar in Educational Administration.** (See first term) (II T; FolH 208) Domian
236. **Field Study in Educational Administration.** (See first term) Domian

ELEMENTARY EDUCATION

115. **Organization of the Elementary School.** (See first term) (I MTWThF; JohH 113) Cramer
118. **The Community School.** (See first term) (IV MTWThF; JohH 310) Archer

SECONDARY EDUCATION

218. **Recent Literature in Secondary Education.** (See first term) (VII-VIII W; Bu 103) R. Keller
264. **Administration of Instructional Activities in the Secondary School.** (See first term) (II MTWThF; PeikH 175) Mitchell
265. **Administration of the Noninstructional Activities in the Secondary School.** (3 cred.; IV MTWThF; PeikH 175) Abel
- 270.* **Special Problems in Secondary Education.** (See first term) (VII-VIII W; Bu 103) Bossing, R. Keller, Mitchell

CURRICULUM AND INSTRUCTION (Ed.C.I.)

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.; VI-IX June 20 to July 1; 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
109. **Audio-Visual Materials and Equipment Laboratory.** (Limited to 30) (3 cred.; prereq. 105 or concurrent registration or #; III and IV MTWThF; WeH 206) Pearson
133. **Consumer Education in the Schools.** (3 cred.; I MTWThF; Bu 103) Price
145. **Reading Difficulties.** (3 cred.; prereq. course in reading or basic training in counseling or school psychological work; IV MTWThF; P 110) Bond
151. **Diagnosis and Treatment of Learning Difficulties.** Evaluation of the results of teaching; diagnosis of pupil difficulty; development and prevention; tests as aids in teaching; following up a testing program. (3 cred.; I MTWThF; NH 209) Clymer
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, #; ar.) Bossing

- 174-175-176. **Clinical Methods and Practice in Speech Pathology.** (3 cred. each; prereq. Speech 61, 67, 119, 162, and 163 or ¶; ar.) Bryngelson
- 205.* **Problems in Audio-Visual Education.** (Cred. ar.; prereq. #; ar.) Pearson
- 227.* **Problems in Rural Education.** (Cred. ar.; prereq. 117; ar.) Archer
- 271.* **Problems in Curriculum Construction.** (Cred. ar.; prereq. #; ar.) Archer, Bossing, Boeck, Goossen, D. Johnson
- 273.* **Problems in Reading.** (Cred. ar.; prereq. 143 or 144 or #; V T; Bu 103) Bond, Clymer

ELEMENTARY EDUCATION

60. **The Teaching of Reading in the Elementary School.** (3 cred.; prereq. Ed. 71B or equiv.; IV MTWThF; P 210) Odland
61. **The Teaching of the Social Studies in the Elementary School.** (3 cred.; prereq. Ed. 71C or equiv.; IV MTWThF; CW 218) Schwab
102. **Teaching the Social Studies in the Elementary School.** (3 cred.; prereq. Ed. 71C or equiv.; III MTWThF; FolH 301) Chase
103. **Teaching of Science in the Elementary School.** Emphasis on resources and materials, and their application to the elementary grades. (Limited to 96) (3 cred.; sr., grad.; prereq. Ed. 71A-B or teaching experience; III MTWThF; P 210) Boeck
119. **Elementary School Curriculum.** (3 cred.; prereq. Ed. 71C or equiv.)
 Sec. 1, I MTWThF, CW 218, Jarolimek
 Sec. 2, III MTWThF, CW 222, Jarolimek
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; FolH 2) Henrikson
143. **Teaching and Supervision of Reading in the Elementary School.** (3 cred.; prereq. 9 cred. in education; II MTWThF; NH 211) Odland
149. **Teaching and Supervision of Arithmetic in the Elementary School.** (3 cred., §62A or B; prereq. Ed. 71C or equiv.; II MTWThF; Ph 133) D. Johnson
150. **Supervision and Improvement of Instruction.** (3 cred.; prereq. Ed. 71C or equiv.)
 Sec. 1, II MTWThF, Pt 202, Goossen
 Sec. 2, IV MTWThF, NH209, Goossen
153. **Supervision and Teaching of English in the Elementary Schools.** (3 cred.; prereq. Ed. 71C or equiv.; IV MTWThF; FolH 204) Chase
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.; JohH 106) Fuller
164. **Play Materials, Rhythms, and Nature Study for Young Children.** Open to experienced teachers; other professional workers admitted by special permission. (3 cred.; VI MWF and hrs. ar.; CW 218) Helgerson
181. **Foundations of Elementary School Methods.** (3 cred.; prereq. 9 cred. in education; IV MTWThF; JohH 313) Archer
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) Jensen

- 261.* **Special Problems in the Improvement of Instruction.** (Cred. ar.; pre-req. #; ar.) Goossen

SECONDARY EDUCATION

113. **High School Curriculum.** (3 cred.; prereq. Ed. 55A-B or equiv.; II MTWThF; Ph 170) Bossing
114. **Development of the Core Curriculum.** Consideration will be given to the development of the core curriculum idea; its philosophical, psychological and educational bases; problems involved in the function and the preparation of the core teacher. (3 cred.; I MTWThF; JohH 126) Bossing
122. **Literature for Adolescents.** (3 cred.; prereq. Ed. 55B or junior-senior high school teaching experience; I MTWThF; JohH 115) Petitt
125. **Occupational Information Laboratory.** (Limited to 25) (3 cred.; pre-req. #; IV MTWThF; Bu 111) White
135. **Group Procedures in Guidance.** (Limited to 35) (3 cred.; prereq. 9 cred. in education, Ed.Psy. 133 or #; III MTWThF; NH 216) Borow
136. **Organization and Administration of Distributive Education.** (3 cred.; II MTWThF; Bu 103) Meyer
140. **Teaching of Speech.** (3 cred.; jr., sr., grad.; prereq. Spch. 1-2-3 or Spch. 5-6 or equiv. or #; II MTWThF; FolH 307) D. K. Smith
141. **Co-operative Part-Time Work Experience Programs.** (3 cred.; IV MTWThF; Bu 103) Meyer
142. **Business and Distributive Programs for Adults.** (3 cred.; I MTWThF; NH 107) Latterell
144. **Teaching of Reading in Secondary Schools.** (3 cred.; prereq. 9 cred. in education; II MTWThF; NH 209) Clymer
161. **Curriculum Construction in Business Education.** (3 cred.; prereq. 113; III MTWThF; Bu 103) Price
168. **Current Developments in the Social Studies.** (3 cred.; grad.; IV MTWThF; JohH 115) McCune
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, 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 #; ar.) McCune
- 225.* **Special Problems in Supervision of Instruction in Secondary Schools.** (Cred. ar.; prereq. #; VI-VII W; Bu 103) R. Keller
- 238.* **Problems in Distributive Education.** (Cred. ar.; prereq. #; ar.) Meyer
- 239.* **Problems in Business Education.** (Cred. ar.; prereq. #; ar.) Price
266. **Supervision of High School Instruction.** (3 cred.; prereq. E.Psy. 293 or #; III MTWThF; FolH 204) Fisher

270. **Improvement of Instruction in the Secondary School.** A graduate practicum intended for those who have a Master's degree in School Administration. Study of current programs for the improvement of instruction in secondary schools; examination of current research on instructional methods in the major instructional fields of the secondary school; planning programs for the improvement of instruction; instructional materials. (Limited to 35) (4 cred.; grad.; June 13 to June 29; I-IV MTWThF; JohH 307, 309) R. Keller, Varner
- 287.* **Advanced Course in the Teaching of Science.** (3 cred.; grad.; IV MTWThF; PeiKH 375) Boeck

HIGHER EDUCATION

- 228.*§§ **Workshop: Problems of Higher Education and Teacher Education.** (6 cred.; grad. June 13 to July 8; ar. MTWThF; CCS) Cooper, Eckert, Mork, Morris, Oppenheimer, 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; I MTWThF; JohH 105) Eckert
252. **Effective College Teaching.** (3 cred.; prereq. a year of graduate study in any field or 18 cred. in education; III MTWThF; JohH 105) McCune

Second Term

GENERAL COURSES

101. **Driver Education.** (Limited to 32) (See first term) (VI-IX August 1 to 12; ForH 20, 30) Neal and ar.
105. **Audio-Visual Materials in Education.** (See first term) (I MTWTh and 1 hr. ar.; WeH 206) Pearson
106. **Co-ordinating an Audio-Visual Education Program.** (3 cred.; prereq. 105 or #; III MTWThF; WeH 206) Pearson
145. **Reading Difficulties.** (See first term) (IV MTWThF; NH 207) Tinker
171. **Curriculum Laboratory Practice.** (See first term) Bossing
- 205.* **Problems in Audio-Visual Education.** (See first term) Pearson
212. §§ **Family Life Workshop.** A four-week workshop focused on the improvement of family life education, special emphasis on the problems of teacher educators in this area, as well as on the contribution of other professional workers. (Limited to 60) (6 cred.; admission by advance application to dean's office, College of Education; July 25 to August 19; II-VIII MTWThF; Pioneer Hall) Dyer, Flanders, Gamelin, M. Hansen, Bowman, Morgan, and consultants
- 227.* **Problems in Rural Education.** (See first term) Archer
- 271.* **Problems in Curriculum Construction.** (See first term) Archer, Bossing, Boeck, Goossen, D. Johnson
- 273.* **Problems in Reading.** (See first term) (V T; Bu 103) Tinker, Reynolds, Clymer

ELEMENTARY EDUCATION

102. **Teaching the Social Studies in the Elementary School.** (See first term) (IV MTWThF; P 210) Jarolimek

§§ 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.

103. **Teaching of Science in the Elementary School.** (See first term) (I MTWThF; PeikH 375) Boeck
119. **Elementary School Curriculum.** (See first term) (II MTWThF; FolH 3) Jarolimek
143. **Teaching and Supervision of Reading in the Elementary School.** (See first term) (III MTWThF; NH 209) Clymer
150. **Supervision and Improvement of Instruction.** (See first term) (IV MTWThF; FolH 308) Goossen
153. **Supervision and Teaching of English in the Elementary Schools.** (See first term) (II MTWThF; Bu 112) Archer
- 261.* **Special Problems in the Improvement of Instruction.** (See first term) Goossen

* SECONDARY EDUCATION

113. **High School Curriculum.** (See first term) (II MTWThF; JohH 114) Bossing
125. **Occupational Information Laboratory.** (See first term) (IV MTWThF; Bu 111) White
132. **Teaching the Basic Business Subjects.** (3 cred.; IV MTWThF; Bu 103) Price
134. **Materials and Methods in Consumer Education.** (3 cred.; prereq. #; II MTWThF; Bu 103) Price
135. **Group Procedures in Guidance.** (See first term) (III MTWThF; NH 216) Borow
- 137A. **Materials and Methods in Co-operative Part-Time Classes.** (3 cred.; I MTWThF; Bu 103) Meyer
139. **Co-ordination Techniques.** (3 cred.; III MTWThF; Bu 103) Meyer
144. **Teaching of Reading in Secondary Schools.** (See first term) (II MTWThF; NH 107) Tinker
- 170B. **Curriculum and Course of Study Construction.** (3 cred.; prereq. 113 or 119 or #; I MTWThF; JohH 105) Bossing
- 225.* **Special Problems in Supervision of Instruction in Secondary Schools.** (See first term) (VII-VIII W; Bu 103) R. Keller
- 238.* **Problems in Distributive Education.** (See first term) Meyer
- 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 25 to August 19; ar. MTWThF; CCS) Boeck, Mork, 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 (E.Psy.)

First Term

GENERAL COURSES

60. **Introduction to Measurement and Statistics.** (3 cred.; prereq. 6 cred. in psychology; VI MTWThF; NH 213) Hoyt
120. **Basic Principles of Measurement.** (3 cred.; VII MTWThF; NH 213) Hoyt
- 125-126. **Group Dynamics in Education.** A workshop for teachers and administrators; emphasis on improving understanding of group membership and leadership in relation to school problems. (Limited to 30) (6 cred.; admission by advance application to dean's office, College of Education; June 20 to July 15; II-IV, VII-VIII MTWThF; FoIH 107) Flanders, Havumaki, and consultants
140. **Instruments and Techniques of Measurement.** (3 cred.; sr., grad.; prereq. 120 or equiv.; III MTWThF, IV ThF; Bu 112) Edson
148. **Clinical Diagnosis of Reading Difficulties.** (3 cred.; prereq. Ed.C.I. 145 and 9 cred. in psychology or educational psychology; IV MTWThF; Pt 202) Reynolds
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 #; II-III MTWThF and 1 hr. ar.; Pt 108) Reynolds, Clymer
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 #; VI-VIII MTWThF; Pt 108) Reynolds
159. **Personality Development and Mental Hygiene.** (3 cred.; III MTWThF; NH 213) Wrenn
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, Collier
- 216a. **Statistical Methods in Education—Laboratory.** (Limited to 15) (2 cred.; VII-VIII MWF; Bu 221) Collier
225. **Diagnosis as a Phase of Counseling.** (3 cred.; prereq. 140 or # and 133 or 250 or Psy. 130; IV MTWThF; NH 107) Borow
- 233.* **Problems in Guidance and Personnel Work.** (Cred. ar.; ar.) Dugan, Wrenn, Edson
- 253.* **Research Problems.** (Cred. ar.; prereq. #; ar.) Dugan, P. O. Johnson, Wrenn, Edson, Flanders, Hoyt, Mork, Reynolds

280. **Practicum in Group Leadership.** (3 cred.; prereq. #; ar.) 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.** (3 cred.; prereq. 9 cred. in education; I MTWThF)
 Sec. 1, Bu 111, White Sec. 2, NH 213, Swan
134. **School Counseling Procedures.** (Limited to 30) (3 cred.; prereq. 120, 133 and #; II MTWThF; JohH 115) Dugan
282. **Practice in High School Personnel Work.** (3 cred.; prereq. #; III MTWThF; JohH 126) Dugan

Second Term

GENERAL COURSES

116. **Introduction to Statistical Methods in Education.** (3 cred.; III MTWThF; NH 207) Stecklein
- 116a. **Introduction to Statistical Methods in Education—Laboratory.** (Limited to 15) (2 cred.; prereq. ¶116; V-VI MWF; Bu 221) Collier
120. **Basic Principles of Measurement.** (See first term)
 Sec. 1, III MTWThF, CW 218, Sec. 2, IV MTWThF, CW 218,
 D. Johnson D. Johnson
142. **Individual Mental Testing.** (Limited to 30) (3 cred.; sr., grad.; prereq. 120 or equiv.; IV MTWThF; Pt 202) Reynolds
150. **Clinical Practice in Remedial Teaching.** (See first term) (II-III MTWThF and 1 hr. ar.; Pt 108) Reynolds, Clymer
151. **Clinical Practice in Educational Diagnosis.** (See first term) (VI-VIII MTWThF; Pt 108) Reynolds
159. **Personality Development and Mental Hygiene.** (See first term) (I MTWThF; CW 218) Swan
217. **Statistical Methods in Education.** (3 cred.; grad.; I MTWThF; Bu 111) Collier
- 217a. **Statistical Methods in Education—Laboratory.** (Limited to 15) (2 cred.; VII-VIII MWF; Bu 221) Collier
- 226.* **Interviewing Procedures in Counseling.** (3 cred.; prereq. 140, 133 or 250, or Psychology 130 and 225 or equiv.; IV MTWThF; NH 107) Borow
- 233.* **Problems in Guidance and Personnel Work.** (See first term) Dugan, Borow
- 253.* **Research Problems.** (See first term) Dugan, Flanders, Mork, Reynolds
290. **Individual Differences.** (3 cred.; I MTWThF; ForH 130) Flanders
- 293.* **Psychology of Learning.** (See first term) (VI MTWThF; NH 211) Mork

SECONDARY EDUCATION

133. **Basic Procedures in Student Personnel Work.** (See first term) (II MTWThF; Bu 111) White
134. **School Counseling Procedures.** (See first term) (II MTWThF; JohH 115) Dugan

GENERAL EDUCATION (Ed.)

First Term

Ed.81. Introduction to Education for Public Health Nurses. (3 cred.; not open to candidates for a degree in the College of Education; IV MTWThF; Mayo 1210) Grout

HISTORY AND PHILOSOPHY OF EDUCATION (H.Ed.)

First Term

141. Critical Issues in Contemporary Education. (3 cred.; II MTWThF; P 110) 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.; I MTWThF; P 110) Beck

180. The School and Society. (Limited to 60 in each section) (3 cred.; sr.; prereq. Ed. 55A-B or 71A-B-C)

Sec. 1, III MTWThF, NH 209,
Dupuis

Sec. 2, VI MTWThF, JohH 122,
Dupuis

241.* Problems in the History and Philosophy of Education. (Cred. ar.; prereq. #; ar.) Beck

Second Term

131. Comparative Education. (3 cred.; II MTWThF; ForH 55) Beck

180. The School and Society. (See first term)

Sec. 1, III MTWThF, ForH 55,
Beck

Sec. 2, IV MTWThF, JohH 122,
Dupuis

241.* Problems in the History and Philosophy of Education. (See first term) Beck

HOME ECONOMICS EDUCATION (H.E.Ed.)

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 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 #; IV MTWThF; HE 103) Ford

194B. Adult Education in Home Economics. Planning a community program; teaching procedures; special problems. Planned for teachers and supervisors of adult education. (3 cred.; sr., grad.; prereq. 91, 93, 194A; VI MTWThF; HE 103) Ford

293.* Problems in Home Economics Education. Designed to meet the needs of advanced students for independent study of current educational problems. (1-9 cred.; prereq. 294 recommended, #; ar.; HE 117) Rose

295. Seminar in Home Economics Education. Discussion and reports on current problems in home economics education. Special emphasis on the philosophy, principles and procedures in supervision of student teachers and teachers in service. (3 cred.; grad.; prereq. #; II MTWThF; HE 129) Rose

INDUSTRIAL EDUCATION (Ind.)

First Term

- 106. Industrial Education Workshop—Electricity and Electronics for Secondary Schools.** A laboratory course for experienced teachers who wish to prepare or upgrade themselves for teaching electricity and elementary electronics in an industrial arts program. Workshop members will work on individual problems and will also pool their efforts in producing a kit of instructional materials for each participant. (3-6 cred.; prereq. teaching experience or #; III-IV and VI-VII MTWThF; TNCW 15) Kavanaugh
- 107. Co-ordination.** Province and duties of co-ordinators in trade schools, part-time programs, and cosmopolitan high schools. Information, guidance and training for those having interest in this new type of school work. (3 cred.; prereq. 60 and 61, or 125 or #; I MTWThF; TNCW 115) Widdowson
- 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. #; III MTWThF; TNCW 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 #; III-IV MTWThF; TNCW 1) Nelson
- 135. Industrial Course Construction.** Principles and techniques of course construction and unit development; experience in planning, organizing and building a course of study. (3 cred.; grad. or #; II MTWThF; TNCW 116) Micheels, Nelson
- 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, crafts, and graphic arts. Each participant will plan and develop individual instructional materials growing out of the laboratory experiences (instructional sheets, teaching aids, tests, etc.). (3-6-9 cred.; prereq. teaching experience or #) Micheels, Nelson, and staff

Sec. 1 (Metal Work), I-II MTW-
ThF, TNCW
Sec. 2 (Crafts), III-IV MTWThF,
TNCW

Sec. 3 (Graphic Arts), VI-VII MTW-
ThF, TNCW

- 200.* Research Problems.** (See first term) Micheels, Nelson

METHODS AND STUDENT TEACHING (Ed.T.)

First Term

NURSING EDUCATION

- 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; ForH 175) Norris, Dunning

ELEMENTARY EDUCATION

- 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 #; ar.) Helgerson
- 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 #; ar.) Helgerson

SECONDARY EDUCATION

- 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
- 84A-B-C. **Practice and Field Work in Recreation Leadership.** (2 cred.; prereq. recreation major; ar.; ar.) Fitzgerald
- 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

- 51A. **The Teaching of Nursing.** (See first term) (VI MWF; ForH 175) Norris, Dunning

MUSIC EDUCATION (Mu.Ed.)

See also Department of Music, College of Science, Literature, and the Arts

First Term

51. **Teaching of Music.** For nonmusic majors. Appreciation, music history, methods, materials. (3 cred.; prereq. Mu. 1; IV MTWThF; ScH 104) Caswell
- 60††-61-62. **Supervision and Teaching of Music.** (3 cred. each; sr.; prereq. 50B, 53, Ed. 55B, #; VIII W; ScH 4) Ivory
124. **Selection and Conducting of Choral Materials.** Review of fundamentals of choral conducting: student conducting with class serving as performing ensemble; criteria for selection of choral and combined choral and instrumental materials; rehearsal techniques. (3 cred.; sr., grad.; III MTWThF; ScH 4) Caswell
125. **Selection of Instrumental Music Materials.** Sources of instrumental materials, criteria for their selection; orchestra, band and ensemble music, and choral accompaniments; instrumental class teaching methods books; individual projects, group activities. (3 cred.; sr., grad.; II MTWThF; ScH 4) Ivory
- 224.* **Research Problems.** (3-9 cred.; grad.; prereq. #; VIII T; ScH 104) Ivory, Caswell
- 225E.** **Advanced Applied Music.** (2-4 cred.; prereq. entrance exam.; ar.; ScH 107) 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.

Second Term

52. **Teaching of Music.** For nonmusic majors. Appreciation, music history, methods, materials. (3 cred.; prereq. 51; IV MTWThF; ScH 4) Caswell
105. **Advanced Topics in Instrumental Music Education.** Designed for experienced teachers and qualified students. (3 cred.; prereq. sr., #; III MTWThF; ScH 4) Ivory
150. **Organization and Supervision of Vocal-Instrumental Music in Elementary Schools.** (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.** (See first term) (VIII T; ScH 4) Ivory, Caswell
- 225E.** **Advanced Applied Music.** (See first term) Ar.

PHYSICAL EDUCATION FOR MEN (P.E.M.)**First Term**

- 1A. **Beginning Golf.** (1 cred.; no prereq.; V-VI MWF; Golf Course) Bolstad
- 1B. **Advanced Golf.** (1 cred.; no prereq.; V-VI TThF; Golf Course) Bolstad
- 1C. **Beginning Swimming.** (1 cred.; no prereq.; VI MTWThF; CH) Piper
- 6A. **Soccer, Speedball, Volleyball.** (1 cred.; no prereq.; III MTWThF; CH) Shawbold
- 7A. **Low-Organized Games, Social Games, Relays.** (1 cred.; no prereq.; IV MTWThF; CH) Shawbold
- 7C. **Recreational Games and Sports.** (1 cred.; no prereq.; VI MTWThF; CH) Shawbold
- 9A. **Folk Dancing.** (1 cred.; no prereq.; V MTWThF; NGW) Piper
51. **Mechanics of Movement.** A study of the structure of the body and the principles and mechanics of bodily movements. (3 cred.; prereq. 50 or Anat. 57; II MTWThF; CH) Osell
- 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) Piper
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
- 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. #; CH) Keller, Nordly, Piper, Fitzgerald
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.; III MTWThF; CH) Nordly

†† 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.

- 238. Administration of Physical Education in Colleges and Universities.** Problems connected with the administration of the facilities and programs in physical education and athletics in institutions of higher education. Field trips and surveys of neighboring colleges. (3 cred.; prereq. 63 or #; II MTWThF; CH) Keller
- 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.; IV MTWThF; CH) Fitzgerald
- 261A. Seminar in Contemporary Problems in Physical Education.** Presentation of problems by class members; readings, discussions, problems selected for individual study. (3 cred.; grad.; IV MTWThF; CH) Nordly

Second Term

- 2A. Beginning and Intermediate Swimming.** (1 cred.; no prereq.; VIII MTWThF; CH) Piper
- 8. Tennis and Golf.** (1 cred.; no prereq.; V-VI MWF; CH) Piper, Bolstad
- 9B. Square and Social Dancing.** (1 cred.; no prereq.; VII MTW; VIII-IX Th; NGW) Piper
- 60A. Prevention and Care of Injuries.** Policies for conditioning of athletes in interscholastic and intercollegiate sports, safety controls, and care and prevention of injuries in physical education activities. (3 cred.; prereq. 50 or Anat. 57, 51; V MTWThF; CH) Stein
- 67. Football Coaching.** Theory, strategy, generalship, styles of offense and defense, methods of organizing practices, and handling of men. (2 cred.; prereq. 4A or one year's experience on squad; VI MTWThF; CH) Warmath, staff
- 73††-74-75. Directed Teaching in Physical Education.** (See first term) Piper
- 110. Recreation Surveys.** Methods and techniques of conducting recreation surveys. (3 cred.; sr., grad.; II MTWThF; CH) Fitzgerald
- 155. Instructional Aids in Health, Physical Education, and Recreation.** Evaluation, construction, and use of instructional materials stressing audio-visual aids. (3 cred.; no prereq.; III-IV MTWThF first four weeks; CH) Piper
- 224.* Research Problems in Health Education, Physical Education and Recreation.** (See first term) Nordly, Piper, Fitzgerald
- 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.; I-II MTWThF; CH) Nordly

PHYSICAL EDUCATION FOR WOMEN (P.E.W.)

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

†† 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.

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 2:00 to 3:30 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.

Clinics for Physical Education Teachers and for Recreation Workers

See section on Special Programs

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 minor in physical education are: Phys.Ed. 18, 32, 37, 84, 85, 114.
2. Courses applying this summer to the undergraduate major in physical education are: Phys.Ed. 18, 37, 84, 85, 114, 135.
3. Courses applying to advanced and graduate degrees with a major in physical education are: Phys.Ed. 113, 114, 118, 125, 135, 224.

Required Physical Education

Those interested in meeting a college requirement in physical education may register for Phys.Ed. 7, 8, 32.

First Term

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. (1 cred.; no prereq.; V MTWTh; NGW 151) Ar.
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. (1 cred.; no prereq.; I MTWTh; NGW 60) Ar.
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) Lampe
- 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.
37. **Individual and Dual Games and Methods.** Deals with various methods and techniques for the teaching of individual sports at the junior and senior high school levels. The activities emphasized: badminton, golf, and tennis. Attention is called to a special series of six clinics held in conjunction with the course—free of charge to those registered. (2 cred.; no prereq.; II MTWTh and six afternoon clinics, 3:00 p.m.; NGW 153) Jaeger
84. **The Physical Education Program in the Elementary and Secondary School.** Deals with philosophy, objectives, trends, content, and evaluation in relation to the physical education curriculum at the elementary and secondary level. (3 cred.; prereq. #; IV MTWThF; NGW 201) Jaeger
85. **Remedial Activities in Physical Education.** Adapting the physical education program to needs of the atypical child. Principles and techniques in correction of postural defects. (3 cred.; prereq. #; III MTWThF; NGW 201) Wilson
113. **Physical Education in the Elementary School.** The elementary school child, curriculum, adaptations of instructional procedures, classification, evaluation, and the influence of modern educational thinking upon problems commonly met at this level. (3 cred.; prereq. #; II MTWThF; NGW 3) Baker
- 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 field 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
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 #; III MTWThF; NGW 3) Jaeger
135. **Tests and Measurements in Physical Education.** Critical analysis of existing tests and testing methods in physical education including all curricular levels. Special emphasis given to needs of women's physical education and elementary education. Use of tests in physical activity programs. Application of principles of test construction to specific problems. (3 cred.; prereq. #; I MTWThF; NGW 3) Wilson
- 224.* **Research Problems in School Health Education, Physical Education, and Recreation.** Individual problems and conferences. (Cred. ar.; consent of graduate advisers)

Second Term

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.

†† Health Service approval must be secured for participation in this course.

§§ Courses marked "E" carry credit toward the degree of master of education.

- 114. Administration of the School Health Education Program.** Co-ordination of total program; health supervision and guidance; relationships between the public schools and governmental health organizations and agencies; and evaluation. Guidance in the solution of individual professional problems. (3 cred.; IV MTWThF; NGW 201) Slocum
- 118E.§§ Problems in Teacher Education in Health, Physical Education, and Recreation.** (See first term)
- 224.* Research Problems in School Health Education, Physical Education, and Recreation.** (See first term)

§§ Courses marked "E" carry credit toward the degree of master of education.

GENERAL COLLEGE (G.C.)

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. The college offers a program of broad general education rather than courses which are introductory to more advanced ones in a given field. A general education is planned to help a student make adjustment to living in modern society, to conditions of employment, and to home and civic responsibilities. Students who wish to demonstrate their ability to handle work of college caliber may do so 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.; II MTWThF; NH 213) W. J. 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.; III MTWThF; NH 207) Cieslak
- 19A. Problems of Business Transactions.** In this course, using only arithmetic skills, practical methods are developed for solving many basic money problems connected with taxation, commissions, pricing, loans, notes, and risk insurance. The student should acquire a basis for sound financial judgments as well as techniques of business calculations. (3 cred.; all; no prereq.; II MTWThF plus one hour ar.; NH 207) Rassweiler
- 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.; III-IV MTWThF; NH 102) Safer
- 30E. Literature Today: An Introduction to World Literature.** The readings in world literature have been selected not simply because their authors are ancient or foreign but because they show how peoples from the earliest days have

sought to understand problems that are essentially those of today. (3 cred.; all; no prereq.; I MTWThF; NH 207) Appel

- 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.; I-II MTWTh; NH 216) Stockdale
- 37. Social Trends and Problems.** A study of the major trends and areas of conflict in our social order designed to increase the student's understanding of his society and to develop skills necessary to analyze social situations and evaluate proposed courses of action in the light of democratic values. (3 cred.; all; no prereq.; IV MTWThF; NH 213) Stovall

Second Term

- 8A. Applied Mathematics: Mathematical Procedures with Empirical Data.** This course treats errors inherent in measured data, significant digits, scientific notation, the slide rule, manipulation of formulas and their application to real problems. These topics and a systematic method of changing from one system of units to another combine to make this course very helpful to students of elementary science. (3 cred.; all; no prereq.; II MTWThF plus one hour ar.; NH 207) J. M. Harris
- 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; III 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; I-II MTWTh; NH 216) Draxten
- 32A. Oral Communication: 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) Olson
- 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.; IV MTWThF; NH 213) McCoy

LAW SCHOOL

First and Second Term

The following courses may be taken by a student who has completed at least one year of Law School work in this School or in another accredited law school. Beginning students are admitted to the regular courses only in the fall quarter.

The course in Modern Social Legislation listed below will meet the requirements of the School with respect to this subject. Registration for a single term is not possible because all courses listed will continue through both terms without interruption.

Income Taxation. (3 cred.; II MW, IV Th; FraH 101) Anderson

Conflicts. (3 cred.; I MWF; FraH 101) Paulsen

Estate and Gift Taxation. (3 cred.; II TThF; FraH 101) Anderson

Modern Social Legislation. (3 cred.; IV MWF; FraH 101) McClure

Local Government Law. (3 cred.; III WF, IV T; FraH 101) McClure

Wills. (3 cred.; III MTTh; FraH 101) Dukeminier

Law School tuition during the summer quarter is: 3 cred., \$39; 6 cred., \$78; 9 cred., \$100; 12 or more cred., \$100 (residents), \$125 (nonresidents). In addition each student will pay the incidental fee of \$16.

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 1955. 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 1955 will begin on June 14.

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, Minneapolis Veterans' 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.

Fees

Medical Students Desiring Time Credit—The Medical School tuition fee for the full summer quarter is \$100 for residents of Minnesota, and \$185 for non-residents. Less than a full program may be paid for at the summer rate or academic year rate, whichever is higher. In addition each student will pay the incidental fee of \$16. 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:

	<i>Summer Quarter</i>	<i>Summer Term</i>
Tuition fee.....	\$100.00 (\$185.00)	\$50.00 (\$92.50)
Incidental fee.....	16.00	8.00

Medical Students or Physicians Registering for Externships—A tuition fee of \$50 *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 \$8 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 per term.

ANATOMY (Anat.)

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

156. **Advanced Anatomy.** Individual problems in gross anatomy, histology, hematology, or neurology. (Cred. ar.; #; ar.; ar.) Wells, Campbell, Sundberg, Williams
204. **Research in Anatomy.** (Gross anatomy, histology, hematology, or neurology) (Cred. ar.; #; ar.; ar.) Wells, Campbell, Sundberg, Williams

Second Term

ELECTIVE COURSES

156. **Advanced Anatomy.** (See first term) Sundberg
204. **Research in Anatomy.** (See first term) Sundberg

BACTERIOLOGY AND IMMUNOLOGY (Bact.)

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 ‡; lect. II MTWThF, MMA 100; lab. III-IV MTWThF, Mayo A205) Johansson
- 102.‡‡ **Medical Bacteriology.** The pathogenic bacteria, especially in their relationship to disease; principles of infection and immunity; microbiological techniques for laboratory diagnosis and antibiotic determinations. (4 cred.; for students other than medical students; prereq. 116; lect. II MTWThF, MH 129; lab. III-IV MTWTh, Mayo A205) Watson
152. **Special Problems.** (Cred. and hrs. ar.) Watson

Second Term

112. **General Mycology.** A survey of the fungi with emphasis on life cycles, physiology, morphology, ecology, and economic significance (formerly Bact. 113). (3 cred.; jr., sr., grad.; prereq. 53 and 15 cred. chem.; lect. II MTThF, MMA 100; lab III-IV MTThF, Mayo A205) Roth
152. **Special Problems.** (Cred. and hrs. ar.) Watson

MEDICAL TECHNOLOGY (Med.T.)

First Term and Second Term

Courses listed below are open only to students with consent of department. Consult advisers in Medical Technology Office, C205 Mayo Building.

70. **Laboratory Techniques in Chemistry.** Lectures, discussions, and laboratory practice in chemical procedures as used in clinical medicine. (6 cred.; hrs. ar.) Heinemann
71. **Advanced Techniques in Clinical Chemistry.** Lectures, demonstrations, and laboratory practice in special chemical methods, including flame photometry and gas analyses. (5 cred.; hrs. ar.) Freier
73. **Electrocardiography.** Lectures, demonstrations, and laboratory practice in taking electrocardiograms. (2 cred.; hrs. ar.) Page
74. **Basal Metabolism.** A course providing for guided study and practice in doing basal metabolism tests. (2 cred.; hrs. ar.) Halstad
75. **Hematology.** Lectures, demonstrations, and laboratory practice in hematologic methods and morphology as applied to clinical medicine. (6 cred.; hrs. ar.) Gonyea
76. **Applied Hematologic Methods.** A laboratory practice course designed to give the student additional experience in the out-patient laboratory in hematologic methods. (2 cred.; hrs. ar.) Weisel

‡‡ Microscope required. Students may obtain use of microscope by purchasing \$3 microscope cards from the bursar.

78. **Urinalysis and Parasitology.** Lectures and practice in laboratory techniques used in routine and special examinations of body fluids and feces. (4 cred.; hrs. ar.) Pierce
80. **Medical Bacteriology.** A course designed to give guided supervision and practice in microbiologic techniques in identification of bacteria. (5 cred.; hrs. ar.) Ness
82. **Blood Bank Techniques and Serology.** Lectures, demonstrations, and laboratory practice in methods of blood grouping, cross matching, and sero-diagnostic methods. (5 cred.; hrs. ar.) Hansen
85. **Histologic Techniques.** Lectures and laboratory practice in the preparation of tissue specimens for diagnosis. (4 cred.; hrs. ar.) Duerr
90. **Advanced Laboratory Techniques.** Additional experience in all phases of clinical laboratory procedures designed to emphasize independent work including special night duty. (3 cred.; hrs. ar.) Ederer
95. **Clinical Diagnosis by Laboratory Methods.** Advanced lectures in clinical diagnosis by laboratory methods. Lectures and case presentations illustrating relation and use of laboratory tests in clinical medicine. Term paper required. (1 cred.; hrs. ar.) Ederer

MEDICINE (Med.)

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
203. **Research in Medicine.** Watson, Spink, Frantz, Flink, Hoffbauer, Nesbitt, Schwartz, Tobian, 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.) Frantz, Tobian, 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) Fisher
- 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) Fisher
- 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) Fisher and staff
227. **Histopathology of the Skin.** Michelson and staff
228. **Research in Dermatology and Syphilology.** Michelson, Fisher 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 (Obst.)*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.

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. Obstetric 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; JacH 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 112 and 113 are not repetitions of the first term but rather continuations.

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; JacH 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
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 (Ped.)**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 Summer Session. Not open to students from other medical schools.

First Term and Second Term**ELECTIVE COURSES**

- 152.‡‡ **Fundamental Principles of Nutrition and Metabolism as Applied to Children.** Seminar course. (1 cred.; hrs. ar.; Mayo 1460) J. Anderson, McQuarrie, Ziegler, Raile
- 154.‡‡ **Endocrinology as Applied to Pediatrics.** Seminar course. (1 cred.; hrs. ar.; Mayo 1460) J. Anderson, 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) Dwan, Good, R. Anderson, P. 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) J. Anderson, 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

†† Second term 112 and 113 are not repetitions of the first term but rather continuations.

‡‡ Not offered to fewer than 10 students.

consulting staff members. (4½ cred. per term; 9:00-12:00 and 1:00-5:00 MTWThF, 8:00-12:00 S) J. Anderson, McQuarrie, Jensen, Good, Raile and junior staff members

COURSES FOR GRADUATE STUDENTS

200. **Graduate Seminar in Pediatrics.** (1½ cred.; 3:30-5:30 T; Ped.Conf.Rm.) J. Anderson, McQuarrie, Ziegler, and senior staff
202. **Pediatric Clinic.** (5 cred.; 9:00-12:00 MTWThF; Out-Patient Departments, Minneapolis General and University Hospitals) J. Anderson, 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) J. Anderson, McQuarrie, Jensen, 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.) J. Anderson, McQuarrie, Good, Jensen, Raile, Ziegler
210. **Special Clinics in Pediatrics.** (1 cred.; Out-Patient Departments, Minneapolis General Hospital or University Hospitals) Jensen, Dwan, Stoesser

PHARMACOLOGY (Phcl.)

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 (P.Med.)

First Term and Second Term

ELECTIVE COURSES FOR MEDICAL STUDENTS

103. **Physical Medicine and Rehabilitation Clinic.** Externship in diagnosis and treatment in physical medicine and rehabilitation. Applicants must have passed satisfactorily the first two years of medicine in a Class A medical school. (Cred. and hrs. ar.) Kottke, Kubicek

COURSES FOR GRADUATE MEDICAL STUDENTS

200. **Physical Medicine and Rehabilitation Service.** (Cred. and hrs. ar.) Kottke, Kubicek, Gullickson
203. **Poliomyelitis Clinic.** Evaluation of problems and treatment of acute and residual anterior poliomyelitis. (1 cred.; II-IV Th) Kottke, Knapp, Gullickson
210. **Research in Physical Medicine.** (Cred. and hrs. ar.) Kottke, Kubicek

Occupational Therapy

Consult Occupational Therapy Office, 860 Mayo Memorial, University of Minnesota, Minneapolis 14, Minnesota.

PHYSIOLOGICAL CHEMISTRY (Ph.Ch.)

First Term

REQUIRED COURSES

100. **Physiological Chemistry.** (7 cred.; jr., sr.; prereq. organic and physical chemistry and physics; lect. IV MTWThF, VI MTWThF, Owre 12; lab. I-III MTThF, MH 310) Barnum, Carr, Van Pilsun

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) Barnum, Carr, Van Pilsun
205. **Research in Physiological Chemistry.** (Cred. and hrs. ar.) Barnum, Carr, Van Pilsun

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) Armstrong, Barnum, Carr

ELECTIVE COURSES

153. **Problems in Physiological Chemistry.** (See first term) Armstrong, Barnum, Carr
205. **Research in Physiological Chemistry.** (See first term) Armstrong, Barnum, Carr

PHYSIOLOGY (Phsl.)

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) King, Johnson

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 (N.Psy.)

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 (Rad.)

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.

ELECTIVE COURSES

- 185. Interpretation of Roentgenograms.** (1 cred.; junior year; limited to 6 students; VII, VIII TTh; Mayo B236) Rigler, Nice
- 187. Roentgen Anatomy of Bones, Joints and Viscera.** Continued from spring quarter through first term of Summer Session. Fink

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; University Hospitals, Todd Amphitheater) 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; University Hospitals, Eustis Amphitheater) 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; University Hospitals, Todd Amphitheater) 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; University Hospitals, Todd Amphitheater) 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. (3 cred.; 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. (3 cred.; 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. (2 cred.; 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.; VI M; University Hospitals, Todd Amphitheater) Rigler and 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. (1 cred.; IX W; University Hospitals, Cobalt Room) Stenstrom and staff

SURGERY (Surg.)*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) Wangenstein and staff
- 214. Surgical Ward Conference.** (Externs) Wangenstein 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. Wangensteen 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 (UNDERGRADUATE STUDENTS)

127. **Surgical Diseases of the Nervous System.** Lectures on the surgical diseases of the brain, spinal cord, meninges, peripheral nerves, and sympathetic nervous system. These lectures are continued from the spring quarter through the first term of the Summer Session as required work for junior medical students. (1 cred.; 11 hrs.) Peyton and associates
162. **Out-patient Clinic in Neurosurgery.** Examination and observation of patients with surgical diseases of the nervous system before and after operation.
163. **Clinical Clerkship in Neurosurgery.** Case studies and ward rounds, surgical assistant in operating room, also neurosurgical conference (see course 318).

REQUIRED COURSES FOR GRADUATE STUDENTS

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, Reiser
251. **Cystoscopy and Urological Diagnosis.** Creevy, Smith, Reiser
252. **Urological Conference.** Creevy, Smith, Reiser
253. **Research in Urology.** Creevy, Smith, Reiser

School of Public Health (P.H.)

First Term

- 50.§§ Personal and Community Health.** Fundamental principles of health conservation and disease prevention. (3 cred., §3, 4, 51, 52, 100 or G.C. 10C; no prereq.; III MTWThF; MH 129) Thomson
- 62. Public Health Nursing I.** Significance of nurse-family relationships; implication of interviewing techniques; analysis of family health needs with emphasis on public health problems from birth until school age; consideration of home, clinic, and community as areas of operation. (5 cred.; public health nurses, others by permission; prereq. 100 or ¶100; II-III MTWThF; Owre 111) Sandve
- 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
- 69. Nursing in Health Programs for School-Age Children.** Health needs; organization and administration of school health programs; nursing functions. (3 cred.; prereq. 62, 63 or ¶63, 100 or ‡; VI MTWThF; MMA 125) Murphy
- 100. Elements of Preventive Medicine and Public Health.** Occurrence and prevention of communicable, degenerative, and industrial diseases; protection of food, water, and milk; maternal and child health. (6 cred.; medical students only; ar.) Thomson
- 133. Mental Hygiene.** Emotional factors underlying wholesome family relations; problems interfering with successful adjustment in family and community. (3 cred.; prereq. 62 or experience in public health nursing; I MTWThF; ForH 170) Cline
- 148. Workshop on Rehabilitation and Public Health Nursing.** (July 5 to July 15) Rehabilitation as a part of total nursing care and its application to general public health nursing practice. (Limited to 25) (3 cred.; Mayo 1250) Guest instructor, Murphy, Cline

BIOSTATISTICS

- 110. Biometric Principles.** Univariate distributions, normal correlation, simple tests of significance. (3 cred.; sr., grad.; prereq. ¶111; I MWF Mayo 1220, IV MWF Mayo 1220) Treloar
- 111. Biostatistics Laboratory.** Practical training in techniques discussed in 110. (2 cred.; prereq. ¶110; lab. 12 hrs. ar.; Mayo 1220) Ar.

Second Term

- 59.§§ Health of the School Child.** Disease control; health appraisal; emotional problems; school environment; accident prevention and emergency care. (3 cred.; prereq. 3 and 4, or 3 and 51, or G.C. 10C and 4, or G.C. 10C and 51, or 50, or 52, or 100; exemption from P.H. 3 on basis of military service not acceptable as substitute for personal health course; III MTWThF; MH 214) Eichenlaub
- 60. Tuberculosis and Its Control.** Current concepts of tuberculosis and its problems; development and operation of control programs. (2 cred.; nurses,

§§ No credit is granted for this course in the major sequence in public health nursing.

others by permission; prereq. 4, or 50, or 51, or 52 or 62 and 100; IV MTWF; MMA 100) Myers

63. **Public Health Nursing II.** (Continuation of 62) Analysis of family health needs and public health problems of significance from the school period through old age; consideration of home, clinic, school, industry, and community as areas of operation; organization and administration of public health nursing services in a changing society. (4 cred.; public health nurses, others by permission; prereq. 62 and 100; VI MTWThF, VII MTW; MMA 100) 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; MMA 125) Bond
95. **Human Nutrition.** Particular reference to public health. Nutritional values of foods, food utilization and requirements, food management, nutrition education. (3 cred.; prereq. courses in chemistry and biology or #; III MTWThF; MMA 100) Stief
100. **Elements of Preventive Medicine and Public Health.** Occurrence and prevention of communicable, degenerative, and industrial diseases; protection of food, water, and milk; maternal and child health. (5 cred.; prereq. 3 or 50, and course in bacteriology; lect. I MTWThF, MMA 125, rec. II MTWF, MMA 125) Anderson
185. **Workshop on Field Practice in Public Health Nursing.** (July 18 to July 29) An opportunity for public health nursing supervisors and staff who work with students to review principles and methods applicable to the field practice course. (Limited to 25) (3 cred.; Mayo 1250) Murphy, vonBergen, Cline

BIOSTATISTICS

120. **Biostatistics II.** The nature of estimation and hypothesis testing as techniques in experimental science; small sample tests and their power; (t , χ^2 , F and analysis of variance). (3 cred.; prereq. 110 with grade not lower than C, ¶121; I MWF, Mayo 1220, IV MWF, Mayo 1220) Elveback
121. **Biostatistics Laboratory II.** Practical exercises in theory discussed in 120, which must be taken concurrently. (2 cred.; prereq. ¶120; lab. 12 hrs. ar.; Mayo 1220) Ar.

School of Nursing ††

Courses and Fees

The program of courses in the 1955 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 been admitted as candidates for the bachelor of science degree in nursing education or nursing service administration register in the College of Education and the School of Nursing respectively, 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. The Summer Session may be used to supplement deficient basic nursing experience.

†† For courses in Public Health Nursing, see index.

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 1955-56 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 1955-56 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 and nursing service administration majors may register for courses during Summer Session.

College graduates who have completed a basic professional program in nursing may begin the nursing education or the nursing service administration 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. (See *Bulletin of the School of Nursing*, 1953-55, pages 17-19.) 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 \$41, nonresidents \$60. Students admitted spring quarter, 1955, pay in addition an incidental fee of \$16.

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 beginning of the fall quarter only. Students register in the School of Nursing and pay regular practical nursing fees: Residents \$41, nonresidents \$60 plus \$16 incidental fee for the summer quarter.

For additional information see *Bulletin of the School of Nursing*, 1953-55, pages 28-29.

For program in Practical Nursing and Home Management see *Bulletin of the School of Agriculture*, 1954-56, pages 19-21.

See section on Special Programs for specific information on courses *Improving Patient Care* and *Nursing in Rehabilitation*.

First Term

Nurs.181. The Role of Nursing in Rehabilitation. (See Special Programs) (3 cred.; grad. professional nurses; no prereq.; VII-IX MW, VIII-IX F, and ar., June 13-24; MH 116) Fallon and staff

Nu.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

Nu.Ad.170. Foundations of 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. (Cannot be taken for credit by students in Master of Nursing Administration Program.) (3 cred.; jr., sr., grad., grad. nurse; no prereq.; III-IV TTh; III F; MH 116) Harris

Nu.Ad.172. Improving Patient Care Through In-Service Education. (See Special Programs) (3 cred.; grad. professional nurses; no prereq.; VII-VIII TTh; VII F; MH 116) Poole and staff

Nu.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; III-IV MW; IV F; MH 116) Harris

Nu.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; MH 116) Johnston

Nu.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. #; IV MTWThF and ar.; ForH 175) Harrington

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

Second Term

Nu.Ad.175. Elements of Nursing Service Administration. (5 cred.; prereq. 170; open only to majors in nursing administration; VI-VII MTWThF; MH 116) Harris

Nu.Ad.193. Principles of Administration Applied to Nursing Service Administration. (Continuation of Nu.Ad. 193. See first term) (3 cred.; III-IV MW; IV F; MH 116) Harris

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

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 curriculums offered by the college, students should consult one of the administrative officers or the *Bulletin of General Information* and the complete *Bulletin of the College of Science, Literature, and the Arts*. (For Summer Session see Admission and Registration in this bulletin.)

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 *Bulletin of the Summer Session* 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.

AMERICAN STUDIES (Am.St.)

First Term

Hum.22. American Life II. The place in American civilization of the land, the city and the good life; their implications and interrelations. (3 cred.; all; no prereq.; I MTWThF; FolH 9) Taylor

201.* Introduction to American Studies. Interdisciplinary study of aspects of American civilization. (3 cred.; graduate candidates for advanced degrees in American Studies or consent of chairman; II MTWThF; TSF 109) Koch

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.23. American Life III. The growth and interrelation of nationalism, regionalism and internationalism in American culture and thought. (3 cred.; no prereq.; I MTWThF; FolH 9) Fisher

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 *Program in American Studies*.

ANTHROPOLOGY (Anth.)

First Term

1. **Introduction to Anthropology.** The origin of man and the development of prehistoric cultures from the Dawn Stone Age to the Dawn of Civilization. The races of mankind. The comparative study of primitive societies and primitive cultures. (3 cred.; all; no prereq.; III MTWThF; ForH 115) Hoebel
80. **The American Indian.** A survey of the native peoples and cultures of North and South America. (3 cred.; no prereq.; II MTWThF; ForH 55) LaBarre
122. **Problems in Anthropology.** Individually directed readings. (Cred. ar.; sr., grad.; prereq. #; ar.; ar.) Hoebel
140. **Field Trip in Archaeology.** Excavations of prehistoric village and mound sites in the state of Minnesota. Training in archaeological methods. (1 to 6 cred.; jr., sr., grad.; prereq. male students only, #; ar.; ar.) Wilford
165. **Personality and Culture.** The role of cultures in the formation of personality. Problems of individual adjustment to the demands of various cultures. Integration of anthropology and psychology. (3 cred.; sr., grad.; no prereq.; IV MTWThF; ForH 185) Hoebel
175. **Aspects of American Culture.** An analysis of selected aspects of American culture in terms of anthropological theory and method. (3 cred.; jr., sr., grad.; no prereq.; III MTWThF; ForH 120) LaBarre

Second Term

2. **Introduction to World Ethnology.** A study of the peoples and cultures of the world with particular emphasis on the native populations and cultures of Asia, Africa, North and South America, and the South Seas. (3 cred.; all; no prereq.; I MTWThF; ForH 185) Leslie
118. **Pre-Columbian Civilizations of Mexico and Central America.** The high cultures of the ancient Mayas, Aztecs, Incas and their neighbors from their primitive beginnings to the time of the Spanish conquest. (3 cred.; jr., sr., grad.; no prereq.; III MTWThF; ForH 115) Leslie
123. **Problems in Anthropology.** (See 122, first term) (Cred. ar.; ar.; ar.) Leslie
140. **Field Trip in Archaeology.** (See first term) (1 to 6 cred.; jr., sr., grad.; prereq. male students only, #; ar.; ar.) Wilford

ART (Art)

See also Art Education

First Term

HISTORY OF ART

1. **Introduction to Art.** A lecture course introducing the student to basic principles of art. Examples from the painting, sculpture, and architecture of various periods will be used to illustrate general cultural factors that influence the production of art as well as basic problems of design and of technique. (3 cred.; no prereq.; V MTWThF; J 207b) Torbert
59. **Traveling Summer Course in European Art.** (See section on Special Programs) 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, Germany, and Holland. 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 pre-req.; leave New York June 25, return August 22) Eitner

- 68. Modern Art: Contemporary Art in Europe and America.** Development of painting, sculpture, and architecture in Europe and the United States during the twentieth century. (3 cred.; jr., sr.; prereq. 1 or 64 or #; III MTWThF; J 207b) Torbert
- 158A.* European and American Painting.** Studies in the growth of modern painting and of the Postimpressionist inheritance; French Fauves and German expressionists; the impact of primitive art and its assimilation in cubism; the puristic defections and rise of Dada and surrealism; the new objectivity, the new romanticism, and the new eclecticism; special attention will be given to peculiarly American assimilation of the European phases of painting. (3 cred.; sr., grad.; prereq. 9 cred. in history of art or 9 cred. in history or literature with #; III MTWThF; J 207b) Torbert

STUDIO COURSES

- 23-24-25. Drawing and Design I.** Basic problems of drawing and design. (3 cred.; prereq. 1 or #; I-II MTWThF; J 104) Downs
- 40-41-42. Sculpture I.** Beginning course. An intensive study of structure in nature. Life drawing prepares the student for each sculpture problem. The sculpture medium is clay. Some instruction in plaster casting. (3 cred.; pre-req. 1 or #; III-IV MTWThF; FolH 24) Morton
- 60-61-62. Drawing and Painting II.** A continuation of Art 23-24-25, placing particular emphasis upon life drawing and the use of the human figure in pictorial design. (3 cred.; jr., sr.; prereq. 25 or #)
- Sec. 1, I-II MTWThF, J 200a, Arnest Sec. 2, III-IV MTWThF, J 200a, Quirt
- 70-71-72. Drawing and Painting III.** A course of advanced level offering the student opportunity to work upon individual painting projects. Subject matter and media unrestricted. (3 cred.; jr., sr.; prereq. 61)
- Sec. 1, I-II MTWThF, J 200b, Quirt Sec. 2, III-IV MTWThF, J 200b, Arnest
- 140-141-142. Metal Sculpture and Jewelry.** In the creation of contemporary jewelry, the student learns the basic processes of soldering, forming, forging, engraving, chasing, and repoussé. (3 cred.; jr., sr., grad.; I-II MTWThF; J 11) Morton
- 150-151-152.* Problems in Painting.** (Cred. ar.; jr., sr., grad.; prereq. 72 and #)
- Sec. 1, I-II MTWThF, J 200b, Quirt Sec. 2, III-IV MTWThF, J 200b, Arnest
- 200-201-202.* Advanced Problems in Studio Work.** (Cred. ar.; prereq. #; ar.; ar.) Arnest, Quirt, Morton

CINEMA

See *Film Week* under Special Programs

- 10. Photography.** Fundamental principles of photography. The use of cameras, developing, printing, and other elementary techniques. (3 cred.; no prereq.; III-IV MTWThF; MurH 20) Liebling

11. **Photography.** A course designed for students who have had previous instruction in photography or have worked in photography and know the principles of developing and printing. It attempts to develop a personal photographic perception in the student through lectures in photographic history and contemporary trends in photography. There is intensive field work. (3 cred.; prereq. 10 or practical experience and #; VI-VII MTWThF; J 4) Liebling
12. **Photography.** History and criticism of photography; introduction to motion picture techniques; field project in creative photography. (3 cred.; prereq. 11 or #; VI-VII MTWThF; J 4) Liebling
83. **Photography II.** (3 cred.; jr., sr.; prereq. #; VI-VII MTWThF; J 4) Liebling
86. **The Art of the Film.** 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 207a) Amberg
- 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 #; III-IV MTWThF; J 207a) Downs
186. **The Art of the Film.** (3 cred.; sr., grad.; prereq. #; I-II MWF; J 207a) Amberg

Second Term

HISTORY OF ART

1. **Principles of Art.** (See first term) (II MTWThF; J 207b) Eitner
78. **Art of China.** Development of painting, sculpture, and minor arts in China from earliest times to the present. (3 cred.; jr., sr.; prereq. 1 or 9 cred. in history or literature with #; IV MTWThF; J 207a) Mather
108. **Romanesque and Gothic Art.** The development of architecture, sculpture, and painting in western Europe and Italy from the tenth until the fifteenth century. The art of the cathedrals. Romanesque and Gothic monumental and manuscript painting. The development of Gothic art as manifestation of currents in medieval culture. (3 cred.; prereq. 9 cred. in history of art or 9 cred. in history or literature with #; VI MTWThF; J 207b) Eitner
138. **American Painting Since 1880.** Homer, Ryder, and Eakins. The "8," the Armory Show and the development of modern realism, expressionism and abstraction. (3 cred.; jr., sr., grad.; prereq. 9 cred. in history of art or 9 cred. in history or literature with permission of department; III MTWThF; J 207b) Barker
- 196.* **Studies in American Painting of the Colonial and Federal Periods.** The development of the art of painting in the social context of the time. The limners, Smibert, Blackburn, Feke, Copley, West, Peale, Trumbull, Earl, Stuart, Allston, Morse, and others. (3 cred.; sr., grad.; prereq. permission of department; V MTWThF; J 207b) Barker

STUDIO COURSES

- 23-24-25. **Drawing and Design I.** (See first term) (III-IV MTWThF; J 4) Collins

- 60-61-62. **Drawing and Painting II.** (See first term) (III-IV MTWThF; J 200a) Myers
- 70-71-72. **Drawing and Painting III.** (See first term) (III-IV MTWThF; J 200a) Myers
- 73-74-75. **Presentation Techniques.** A study of the visual means of communicating ideas in the field of exhibition techniques, illustration, and advertising. An investigation of the characteristics and the creative use of various media. (3 cred.; prereq. 25, no prereq. for architects; I-II MTWThF; J 4) Collins
- 90-91-92. **Printmaking.** Problems in engraving, etching, and the other techniques employed in working on metal plate, as well as lithography, woodcuts, and combined processes. (3 cred.; jr., sr.; prereq. 32; I-II MTWThF; J 203) Myers
- 150-151-152.* **Problems in Painting.** (See first term) (III-IV MTWThF; J 200a) Myers
- 190-191-192. **Problems in Printmaking.** For advanced students. Will include work in black and white and color in metal, lithographs, and wood blocks. (Cred. ar.; jr., sr., grad.; prereq. 92 or #; I-II MTWThF; J 203) Myers
- 193-194-195.* **Advanced Problems in Design.** A course offering the advanced student an opportunity to carry out a creative problem in design with guidance in practice and research methods. (3 cred.; jr., sr., grad.; prereq. 9 Senior College credits in design and consent of major adviser; ar.; ar.) Collins
- 200-201-202.* **Advanced Problems in Studio Work.** (See first term) (Ar.; ar.) Collins, Myers

ASTRONOMY (Ast.)

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

BOTANY (Bot.) §§

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. #; 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.

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

CLASSICS (Clas.)

First Term

- 24.†† **Technical Terms of Science, Medicine, and the Humanities.** A course in vocabulary building through an intensive study of the derivation of modern technical vocabularies, with presentation in English of Greek and Latin word elements: suffixes, prefixes, and root words, with attention to the development of meaning and usage. (3 cred.; soph., jr., sr.; no prereq.; I MTWThF; FolH 110) Swanson
124. **Technical Terminology.** Involving the same class work as Classics 24 but with special independent work, preferably in the vocabulary of a technical field related to the student's major interest. (3 cred.; soph., jr., sr., grad., §24; no prereq.; I MTWThF; FolH 110) Swanson

COMMUNICATION

See Index

ECONOMICS

See School of Business Administration and Agricultural Economics

EFFICIENT READING

See Index

ENGLISH ¶¶

First Term

LITERATURE (Engl.)

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; FolH 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.§§; IV MTWThF; FolH 109) del Plaine
- 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.§§; I MTWThF; FolH 207) Christie
73. **American Literature.** Notable authors from Edwards to Holmes. (3 cred.; jr., sr.; prereq.§§; I MTWThF; FolH 206) Hayford

†† Credit will be allowed in either English or Classics.

‡‡ English A-B-C, or Composition 4-5-6, or Communication 1-2-3, or exemption from requirement.

§§ 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.

Students may take 56 before 55 if necessary.

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; FolH 303) Clark
104. **Emerson and Thoreau.** (3 cred.; jr., sr., grad.; prereq.††; III MTWThF; FolH 304) Hayford
- 105.* **Hawthorne and Melville.** (3 cred.; jr., sr., grad.; prereq.††; IV MTWThF; FolH 207) Thompson
- 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; FolH 206) Hillhouse
- 137.* **The Nineteenth Century in English Literature.** Poetry and prose of the early Victorian period. (3 cred.; jr., sr., grad.; prereq.††; IV MTWThF; FolH 303) Stange
- 143a.* **Frost and Faulkner.** (3 cred.; jr., sr., grad.; prereq.††; II MTWThF; FolH 206) Thompson
- 162.* **Milton.** The minor poems, *Areopagitica*, *Paradise Lost*, and *Samson Agonistes*. (3 cred.; jr., sr., grad.; prereq.††; II MTWThF; FolH 304) Unger
- 189.* **Eighteenth-Century Literature.** Survey of the literature of the late eighteenth century. (3 cred.; jr., sr., grad.; prereq.††; III MTWThF; FolH 209½) Stange
- 197.* **Seventeenth-Century Literature.** Prose and poetry of the early seventeenth century. (3 cred.; jr., sr., grad.; prereq.††; IV MTWThF; FolH 305) Unger
297. **Independent Reading.** (3 cred.; prereq. M.A. degree or equiv.) Ar.

COMPOSITION (Comp.)

4. **Freshman Composition.** Practical training in reading and writing. (3 cred.; all; prereq. placement test; III MTWThF; FolH 303) Christie
5. **Freshman Composition.** A continuation of Comp. 4. (3 cred.; all; prereq. 4 or Communication 1; I MTWThF; FolH 205) Ar.
6. **Freshman Composition.** A continuation of Comp. 5. (3 cred.; all; prereq. 5 or Communication 2; II MTWThF; FolH 109) Ar.
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; FolH 109) del Plaine

Second Term

LITERATURE (Engl.)

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; FolH 204) Krieger
55. **Shakespeare.** (See first term) (III MTWThF; FolH 205) Steinmann

†† Six credits in English literature, exclusive of A-B-C.

‡‡ English A-B-C, or Composition 4-5-6, or Communication 1-2-3, or exemption from requirement.

- 56.## **Shakespeare.** (See first term) (I MTWThF; FolH 303) Ar.
- 74.¶¶ **American Literature.** Notable authors from Whitman to Hemingway. (3 cred.; jr., sr.; prereq.§§; II MTWThF; FolH 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; FolH 305) Allen
- 110.* **Romantic Poets of the Early Nineteenth Century.** Byron, Shelley, Keats, etc. (3 cred.; jr., sr., grad.; prereq.††; IV MTWThF; FolH 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.††; II MTWThF; FolH 109) West
- 126.* **Drama, 1660-1730.** The history of English drama from the opening of the theaters in 1660. The Restoration and early eighteenth century. The heroic play, tragedy, comedy of manners, beginnings of sentimental comedy. (3 cred.; jr., sr., grad.; prereq.††; III MTWThF; FolH 109) Jackson
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; FolH 303) Allen
- 181a.* **American Criticism Since 1900.** Examination of critical terms and major critical movements. (3 cred.; jr., sr., grad.; prereq.††; IV MTWThF; FolH 205) O'Connor
- 182.* **The Far West in Literature.** Expansion beyond the Mississippi as a force in American thought and letters: the literature of exploration and travel; the Pacific Coast regional movement; Mark Twain. (3 cred.; jr., sr., grad.; prereq.††; III MTWThF; FolH 206) West
- 189a.* **Dominant Ideas in Eighteenth-Century Literature.** A study of the dominant ideas and how they are embodied in a representative selection of poetry and prose. (3 cred.; jr., sr., grad.; prereq.††; IV MTWThF; FolH 206) Steinmann
213. **Bibliography and Methods of Literary Research.** Examination of basic library reference works, scholarly and critical journals, bibliographies of periods and prominent literary figures; exercises and problems in methods and exposition of research. (3 cred.; grad.; 1:30-3:30 TTh; FolH 108) O'Connor
298. **Independent Reading.** (3 cred.; prereq. M.A. degree or equiv.) Ar.

COMPOSITION (Comp.)

6. **Freshman Composition.** (See first term) (II MTWThF; FolH 303) Ar.

FAMILY LIFE

See index

†† 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.

¶¶ Students may take 74 before 73 if necessary.

Students may take 56 before 55 if necessary.

FOREIGN STUDY SEMINAR

See General Studies

GENERAL STUDIES

First Term

COMMUNICATION (Comm.)

3. **Communication.** A continuation of Comm. 1-2. (3 cred.; all; prereq. Comm. 1-2; II MTWThF; TNM 107) Pulleyn

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, I MTWThF, JohH 306,
Neubeck

Sec. 2, IV MTWThF, JohH 306, Luckey

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.) Eidt, Rife, Scanlon, Vasquez

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, Goethe, and the poets. One historical novel, Tolstoy's *War and Peace*. (3 cred.; all; no prereq.; I MTWThF; JohH 122) Bryan
3. **Humanities in the Modern World III.** (See description of Humanities 53, second term) (3 cred.; all; no prereq.; II MTWThF; JohH 114) Bryan
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.; III MTWThF; JohH 122) R. Ross
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; FolH 9) Taylor
52. **Humanities in the Modern World.** 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, Dostoyev-

sky, and the poets. (3 cred.; jr., sr., §Hum. 2; no prereq.; III MTWThF; JohH 114) Amberg

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. (3 cred.; jr., sr., §11; no prereq.; IV MTWThF; JohH 122) R. Ross

NATURAL SCIENCE (N.Sci.)

165. **Science in World Affairs.** Consideration of the social and intellectual problems raised by the advances of contemporary science with attention to proposed solutions. The discussions will deal with such matters as atomic energy, eugenics, nutrition, behaviorism, and treatment of science in totalitarian countries. (3 cred.; jr., sr., grad.; prereq. one year of biological and of physical science in high school or college or #; IV MTWThF; Ph 145) Graubard

PERSONAL ORIENTATION (P.O.)

1. **How to Study.** Practical assistance to the student in developing efficient study habits, organizing materials, preparing for examinations, and improving the speed and comprehension of reading. (Limited to 30) (2 cred.; all; no prereq.; IV MTWThF; JohH 105) Farquhar

SOCIAL SCIENCE (S.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.; I MTWThF; JohH 114) Potter
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.; III MTWThF; JohH 113) Mouratides
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.; IV MTWThF; JohH 113) Turner

Second Term

FAMILY LIFE (F.L.)

1. **Preparation for Marriage.** (See first term) (IV MTWThF; JohH 306) Lucky

FOREIGN STUDY (F.S.)

162. **Seminar for Foreign Study II.** (Continuation of 161, see first term) (6 cred.) Eidt, Rife, Scanlon, Vasquez

HUMANITIES (Hum.)

2. **Humanities in the Modern World II.** (See description of Hum. 52, first term) (3 cred.; all; no prereq.; III MTWThF; JohH 122) Blum

4. **Humanities in the Modern World IV.** (See first term) (II MTWThF; JohH 106) van den Haag
23. **American Life III.** The growth and interrelation of nationalism, regionalism, and internationalism in American culture and thought. (See American Studies) (3 cred.; all; no prereq.; I MTWThF; FoH 9) Fisher
53. **Humanities in the Modern World.** Period from about 1840 to about 1914. Authors: Chekhov, Darwin (Evolution and Its Influence), Joyce, Kierkegaard, Mann, and the poets. (3 cred.; jr., sr. §3; no prereq.; II MTWThF; JohH 122) Blum
131. **Humanities Proseminar.** Topic for courses: Theories of civilization, European and American. (3 cred.; sr., grad.; IV MTWThF; JohH 106) van den Haag

NATURAL SCIENCE (N.Sci.)

175. **Survey of Science History.** Examination of the monumental achievements of science during recent centuries with particular emphasis upon the culture, equipment, and beliefs which surrounded each development. A one-term summary of the longer course 171-172-173 and therefore not open to those who have taken any portion of that course. (3 cred.; jr., sr., grad.; prereq. one year of biological and of physical science in high school or college or #; IV MTWThF; Ph 145) Graubard

PERSONAL ORIENTATION (P.O.)

1. **How to Study.** (See first term) (Limited to 30) (IV MTWThF; JohH 307) Krumboltz

SOCIAL SCIENCE (S.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.; III MTWThF; JohH 114) Jost

GEOGRAPHY (Geog.)

First Term

41. **Geography of Commercial Production.** An introductory course in economic geography with special emphasis on commodities of commercial significance. Particular attention is given to the world patterns of raw material occurrence and production, as well as to the associated centers of industrial fabrication. (5 cred.; no prereq.; I, III MTWThF; ForH 285) Lukermann
112. **Western Anglo-America.** A regional examination of the physical and human geographic patterns of the western portions of the United States and Canada. (3 cred.; jr., sr., grad., §71; prereq 5 cred. in geography or #; II MTWThF; ForH 285) Mather
113. **Eastern Anglo-America.** A regional examination of the physical and human geographic patterns of southeastern Canada and the eastern, southeastern, and middlewestern United States. (3 cred.; jr., sr., grad., §71; prereq. 5 cred. in geography or #; IV MTWThF; ForH 285) Mather

Second Term

67. **Geography of Minnesota.** A geographical survey of the physical resources, population, and commercial production of Minnesota. (3 cred.; jr., sr., §47; prereq. 5 cred. in geography or #; II MTWThF; ForH 285) Belthuis

126. **Australia and New Zealand.** A geographic survey of the physical and human resources of Australia and New Zealand. (3 cred.; jr., sr., grad., §104; prereq. 5 cred. in geography or #; IV MTWThF; ForH 285) Belthuis

GEOLOGY AND MINERALOGY (Geol.)

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
115. **Field Work in Southeastern Minnesota.** (July 15 to 30 approximately). Stratigraphic methods and principles as illustrated by study of Cambrian and Ordovician rocks. (3 cred.; prereq. 25) Sloan
150. **Field Geology (Black Hills).** (June 15 to July 15, approximately) (Maximum 6 credits; jr., sr., grad.; prereq. 125) Allen
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) Swain
170. **Geologic Problems.** (See first term) Swain

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 (Ger.)

First Term

1. **Beginning German.** (5 cred.; all; no prereq.; I-II MTWThF; FolH 209½) Wood
3. **Beginning German.** (5 cred.; all; prereq. 2 or two years of high school German; I-II MTWThF; FolH 209) Pfeiffer
4. **Intermediate German.** (5 cred.; all; prereq. 3 or 3a or 3b or three years of high school German; I-II MTWThF; FolH 209) Pfeiffer
- 65a. **Modern Drama.** Reading and discussion of selected dramas representing the more recent movements in German literature, naturalism, impressionism, expressionism. (3 cred.; jr., sr.; prereq. 3 cred. above 59 or #; III MTWThF; FolH 208) Ramras
- 155e.* **Franz Kafka.** An evaluation of his works and his influence on recent German literature. (3 cred.; sr., grad.; prereq. 72 or equiv. and 11 cred. above 59; VI-VII TF; FolH 208) Wood

- 163d.* **Gottfried Keller, C. F. Meyer, and C. Spitteler.** A comparative study of three great literary figures. Of the genres discussed, special stress will be laid on the developmental novel ("Grüner Heinrich"), the Renaissance story ("Pescara"), and the lyrical epic ("Olympischer Frühling"). (3 cred.; sr., grad.; prereq. 72 and 11 cred. above 59 or equiv.; VI-VII MTh; FolH 208) Pfeiffer

Offered only in Deutsches Haus!¶¶

22. **Intermediate Conversation and Oral Practice.** This course is intended for students who understand German fairly well but who need assurance in self-expression and a basic active vocabulary. 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.** 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.** 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. #) Staff

Second Term

2. **Beginning German.** (5 cred.; all; prereq. 1 or one year of high school German; I-II MTWThF; FolH 209½) Menze
- 259.* **Directed Readings.** (3 cred.; sr., grad.; prereq. #; ar.; ar.) Menze

HISTORY (Hist.)

First Term

1. **Civilization of the Modern World, Part I.** (3 cred.; all; no prereq.; I MTWThF; ForH 130) Driscoll
14. **Ancient Civilization, Part I.** (3 cred.; no prereq.; IV MTWThF; ForH 115) Jones
20. **American History, Part I.** (3 cred.; all; no prereq.; I MTWThF; ForH 155) Beatty
21. **American History, Part II.** (3 cred.; all; no prereq.; II MTWThF; ForH 120) Chrislock
50. **Ancient Civilization, Part I.** (3 cred.; jr., sr., §14, §majors in history; IV MTWThF; ForH 115) Jones
63. **Cultural History of China, Part II.** (3 cred.; jr., sr.; II MTWThF; FolH 208) Mather

¶¶ See Modern Language Institute under Special Programs.

65. **Medieval European History, Part I.** (3 cred.; jr., sr.; I MTWThF; ForH 115) Jones
88. **American Colonies, Part III.** (3 cred.; jr., sr.; II MTWThF; ForH 115) Tyler
97. **Minnesota and the Northwest, Part I.** (3 cred.; jr., sr.; I MTWThF; ForH 175) Chrislock
103. **Medieval European History, Part I.** (3 cred.; jr., sr., grad.; I MTWThF; ForH 115) Jones
- 106a. **Continental Europe, Part I.** (3 cred.; jr., sr., grad.; II MTWThF; ForH 175) Bowditch
110. **Europe in the Twentieth Century, Part II.** (3 cred.; jr., sr., grad.; IV MTWThF; ForH 150) Driscoll
146. **American Economic and Social History, Part I.** (3 cred.; jr., sr., grad.; III MTWThF; ForH 130) Loehr
150. **American Social and Intellectual History, Part II.** (3 cred.; jr., sr., grad.; III MTWThF; ForH 150) Tyler
159. **Latin-American History, Part III.** (3 cred.; jr., sr., grad.; IV MTWThF; ForH 160) Beatty
- 176c. **Readings: Recent European History, Part I.** (3 cred.; grad.; III MTWThF; ForH 244) Bowditch
- 185d. **Readings: Nineteenth-Century American History, Part I.** (3 cred.; grad.; IV MTWThF; ForH 244) Loehr

Second Term

2. **Civilization of the Modern World, Part II.** (3 cred.; all; no prereq.; I MTWThF; ForH 115) Onion
3. **Civilization of the Modern World, Part III.** (3 cred.; all; no prereq.; II MTWThF; ForH 185) Onion
22. **American History, Part III.** (3 cred.; all; no prereq.; I MTWThF; ForH 120) Spence
- 66a. **Renaissance and Reformation, Part II.** (3 cred.; jr., sr.; III MTWThF; ForH 175) Thompson
81. **United States in the Twentieth Century, Part III.** (3 cred.; jr., sr.; III MTWThF; ForH 120) Rogers
- 104a. **Renaissance and Reformation, Part II.** (3 cred.; jr., sr., grad.; III MTWThF; ForH 175) Thompson
- 107a. **Continental Europe, Part II.** (3 cred.; jr., sr., grad.; II MTWThF; ForH 150) Wolf
128. **Modern England, Part I.** (3 cred.; jr., sr., grad.; II MTWThF; ForH 175) Thompson
147. **American Economic and Social History, Part II.** (3 cred.; jr., sr., grad.; III MTWThF; ForH 150) Noble
- 147a. **History of the South, Part II.** (3 cred.; jr., sr., grad.; I MTWThF; ForH 150) Noble
- 177c. **Readings: Recent European History, Part II.** (3 cred.; grad.; IV MTWThF; ForH 244) Wolf

- 185c. Readings: Twentieth-Century American History, Part I. (3 cred.; grad.; IV MTWThF; ForH 175) Rogers

HOW TO STUDY

See General Studies, Personal Orientation

HUMANITIES

See General Studies

SCHOOL OF JOURNALISM (Jour.)

First Term

55. **Advertising and Newspaper Typography.** The course is planned for supervisors of school publications as well as for undergraduate majors and minors who meet prerequisites. Instruction is given in typography in relation to layout, makeup and format. Practical laboratory work in hand composition. Lectures discuss general principles of graphic presentation. (3 cred.; prereq. for journalism majors, Senior College standing; for minors, 11 and 41; for publication advisers, #)
- | | |
|-------------------------------|---------------------------------------|
| Lect. VI MW, MurH 105, Wilson | Lab. 1, VI-VII TTh, MurH 315, Wilson |
| | Lab. 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 #; 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, yearbooks. (3 cred.; jr., sr.; prereq. #; I MTWThF; MurH 302) Kildow
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 reports. (3 cred.; jr., sr., grad.; prereq. #; III MTWThF; MurH 311) Ford
111. **International Communications and Foreign Affairs.** The channels of international communications and the news gathering agencies. Factors affecting flow of news throughout the world. The role of the foreign correspondent. The relation of communications to foreign affairs and international understanding. (3 cred.; jr., sr., grad.; prereq. 15 cred. in the social sciences, with inclusion of a Senior College history or political science course in international relations recommended; III MTWThF; MurH 302) Nixon
- 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 #, or Economics 5 or Psychology 70 or equiv. and #; IV MTWThF; MurH 311) Jones
- 290.* **Special Problems in Mass Communications.** An individual problems course for graduate students with major or minor programs in journalism and who have consent of instructor. (Cr. ar.; grad.; ar.) Jones

Second Term

- 86. Advertising Copy Writing.** Advertising media; advertising appeals; techniques of writing advertising copy for newspapers, magazines, direct mail, posters, brochures; planning advertising campaigns. (3 cred.; jr., sr.; prereq. 51 or 41, and 55 and 65; IV MTWThF; MurH 311) Perry
- 110.* History of Journalism.** The course begins with the post-Civil War period 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, including magazines, radio, and press associations. Contributions of leading publishers and editors are discussed. (3 cred.; jr., sr., grad.; III MTWThF; MurH 311) Emery
- 118C. Selected Readings in Journalism.** (3 cred.; sr., grad.; prereq. journalism majors with B average and consent of advisers; ar.; ar.) Staff
- 121.* The Press in a Dynamic Society.** Economic, political, and social determinants of the character and content of mass communications. Patterns of operations, their effect on content, and their relative social utility. Government and mass communications. (3 cred.; jr., sr., grad.; prereq. for journalism majors, 15 or 18; for others, #; I MTWThF; MurH 302) Gerald
- 212.* Topics in the History of Communications.** Research in the history and development of the mass media. (3 cred.; grad.; prereq. 109-110 and #; ar.; ar.) Emery

LIBRARY SCHOOL (Lib.)

The Library School offers in co-operation 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 program 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 before September, 1955.

Students who expect to enroll in the fall of 1955 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 83 this summer.

First Term

- 50. Libraries and Society.** Social trends affecting libraries and their functions in modern society; librarianship as a profession. (3 cred.; no prereq.; I MTWThF; Lib 4a) Shove
- 53. School Library Management.** Primarily for students without previous experience in a school library. (3 cred.; no prereq.; II MTWThF; Lib 4a) Berrisford
- 55. Library Administration.** Introduction to principles of library administration, organization, and management. (3 cred.; no prereq.; III MTWThF; Lib 4a) Wezeman
- 70. Reading Guidance.** The library user, his personality and background, the matching of book and user. (3 cred.; no prereq.; IV MTWThF; Lib 4a) Fulmer
- 74. Library Materials in the Classroom.** (2 cred.; no prereq.; III MTWThF; Lib 4b) Berrisford

- 131. Public Library Extension and Development.** Larger units of service, laws, finance, promotion; the state library agency. (3 cred.; prereq. 55; VII MTWThF; Lib 4a) Fulmer
- 164. Reference III.** Specialized reference tools; government publications; administration of the reference department; special problems in large libraries. (3 cred.; prereq. 62, 163; II MTWThF; Lib 4b) Wezeman
- 171. Reading Guidance for Children.** (3 cred.; no prereq.; VI MTWThF; Lib 4a)
- 176. Communication Media and the Library.** (3 cred.; no prereq.; I MTWThF; Lib 4b) Berninghausen
- 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.)
- 261. Literature of the Humanities.** (3 cred.; ar.) Shove
- 272. Children's and Young People's Work.** (3 cred.; ar.)

Second Term

- 62. Reference I.** General reference tools and other sources of information. Theory and practice of reference work. (3 cred.; no prereq.; I MTWThF; Lib 4a) Fulmer
- 83. Cataloguing and Classification.** (3 cred.; no prereq.; II MTWThF; Lib 4a) Jackson
- 163. Reference II.** Reference material in subject fields, subject bibliography. (3 cred.; prereq. 62; I MTWThF; Lib 4b) Jackson
- 165. Advanced Bibliography.** Specialized trade and national bibliographies, domestic and foreign. (3 cred.; no prereq.; IV MTWThF; Lib 4b) Shove
- 172. Reading Guidance for Adolescents.** (3 cred.; no prereq.; III MTWThF; Lib 4a) Fulmer
- 185. Special Problems.** (See first term) (ar.)
- 260. Literature of the Social Sciences.** Bibliographies and landmark books in the social sciences. (3 cred.; ar.) Berninghausen
- 262. Literature of the Natural Sciences.** (3 cred.; ar.) Shove

MATHEMATICS (Math.)

See also Mathematics, Institute of Technology

First Term

- 1. Higher Algebra.** A collegiate treatment of the topics of high school 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; FolH 105) Rappoport
- 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; FolH 104) Heuer

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; FolH 105) Kalisch
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; FolH 104) Gibbens
131. **Advanced Algebraic Theory.** Linear dependence and independence of vectors of n -tuples; dimension; matrices and linear transformations; determinants; systems of linear equations; characteristic values and vectors; diagonalization of special matrices, such as symmetric, orthogonal, hermitian, normal, etc. (3 cred.; jr., sr., grad.; prereq. 51; IV MTWThF; FolH 101) Nering
- 138A. **Multivariate Analysis.** (3 cred.; jr., sr., grad.; prereq. advanced calculus and matrix algebra, or equiv., or #; II MTWThF; FolH 102) Roy
- 139A. **Experimental Designs for Research Workers.** (3 cred.; jr., sr., grad.; prereq. advanced calculus and matrix algebra, or equiv., or #; III MTWThF; FolH 102) Roy
140. **Projective Geometry.** A study of geometric properties invariant under projective transformations; theorems of Desargues, Pascal, and Brianchon and applications. The methods used are mainly analytic. (3 cred.; jr., sr., grad.; prereq. 51; II MTWThF; FolH 101) Nering
- 157-158A. **Methods of Applied Mathematics.** This course, together with 158B-159 (Second Term) provides the material of a year's sequence. Integrated study of analytic tools commonly used in applications of mathematics with many problems and emphasis on developing technique. Material will include topics from complex variables, matrices, ordinary and partial differential equations, asymptotic expansions, etc. ($4\frac{1}{2}$ cred.; jr., sr., grad.; prereq. intermediate calculus or #; I, III MTWThF; FolH 101) Loud

Second Term

6. **Trigonometry.** (See first term) (I-II MTWThF; FolH 105) Fantle
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; FolH 104) Orey
16. **Elementary Mathematical Analysis II.** (See 15, first term) (5 cred.; all; prereq. 15; III-IV MTWThF; FolH 105) Olmsted
111. **Development of the Number System.** A systematic construction of the real number system by extension from the natural numbers via rational numbers to irrational numbers; negative numbers; properties of the system; operations with numbers and laws governing the operations. (3 cred.; jr., sr., grad.; prereq. 51; IV MTWThF; FolH 101) Hatfield
- 158B-159. **Methods of Applied Mathematics.** (See first term) ($4\frac{1}{2}$ cred.; jr., sr., grad.; prereq. 158A; I, III MTWThF; FolH 101) Loud
179. **Special Functions.** Gamma, Beta and Bessel functions, spherical harmonics, Laguerre, Legendre, Tchebycheff and Hermite polynomials. Emphasis

on the properties and formal developments of these functions, with an attempt to unify and motivate their treatment. (3 cred.; jr., sr., grad.; prereq. 51; II MTWThF; FolH 101) Hatfield

MUSIC (Mus.)

See also Music Education

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) Schuessler, Stern
- 1. Fundamentals of Music.** (2 cred.; nonmusic majors—primarily child welfare students and elementary teachers; no prereq.; IV MTWThF; ScH 4) Riedel
- 7A. Ear Training.** Résumé of aural work included in Music Theory 1T-3T, with concentration on its application. (3 cred.; prereq. #; no credit allowed if comparable course taken in regular academic year; I, IV MTWThF; ScH 103) George
- 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. #; no credit allowed if comparable course taken in regular academic year; II, VI MTWThF; ScH 103) George
- 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) Schuessler, 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) Druian
- 14.** Viola.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Ar.
- 15.** Violoncello.** 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
- 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) Adelstein
- 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) Law
- 24.** Tuba.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Law
- 25.** Percussion.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Dahlgren
- 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) Manz
- 31A. 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

43. **University Chorus.** (1 cred.; prereq. #; VII MTWThF; ScH 4) Aliferis
- 60B, 61B, 62B.** **Instrumental Ensemble.** (2 cred. each; jr., sr.; prereq. #; ar.; ScH 107) Druian
- 106A. **American Music.** A study of music in America from early colonial times to the present through reading and record listening. (3 cred.; jr., sr., grad.; prereq. 36, or 9 cred. in American history or American studies; I MTWThF; ScH 104) Riedel
- 127-128-129. **Composition.** (2 cred. each; jr., sr., grad.; prereq. 97-98-99 and 121-122-123; VII MTWThF; ScH 103) George
131. **Symphonies of Beethoven.** The evolution of Beethoven's symphonic form and style as a reflection of intellectual, political, and artistic currents of the Napoleonic era. (3 cred.; jr., sr., grad.; prereq. 6 cred. in music history, art or political history since 1750, English or German literature since 1750, or #; III MTWThF; ScH 104) Downes
143. **Realization and Interpretation of Choral Masterpieces.** A study of the musical and vocal techniques necessary for the presentation of great choral compositions from Renaissance to twentieth century. (3 cred.; sr., grad., must also register for 43; prereq. 6T or #; VI MTWThF; ScH 4) Aliferis
- 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; VI TTh; ScH 104) Ar.
215. **Advanced Conducting.** The study and application of conducting techniques to music from the sixteenth century to contemporary times by the analysis of stylistic and technical characteristics of each historical period. (3 cred.; grad.; prereq. #; II MTWThF; ScH 3) Aliferis
- 227-228-229. **Seminar in Composition and Orchestration.** (3 cred. each; grad.; prereq. #; VII MTWThF; ScH 103) George

Second Term

- A.** **Piano.** (See first term) Rymer, Weiser
- D.** **Voice.** (See first term) Schuessler
1. **Fundamentals of Music.** (See first term) (I MTWThF; ScH 4) Ar.
- 7B. **Ear Training.** Résumé of aural work included in Music Theory 4T-6T, with concentration on its application. (3 cred.; prereq. #; no credit allowed if comparable course taken in regular academic year; II, VI MTWThF; ScH 103) Fetler
- 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. #; no credit allowed if comparable course taken in regular academic year; I, IV MTWThF; ScH 103) Fetler
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 MTWThF; ScH 3) Riedel
- 11.** **Piano.** (See first term) Rymer, Weiser

- 12.** **Voice.** (See first term) Schuessler
- 13 through 26.** (See first term)
- 27.** **Organ.** Two lessons a week. (2-4 cred.; ar.; ScH 107) Westenburg
- 60B, 61B, 62B.** **Instrumental Ensemble.** (See first term) Druian
- 104A. **American Music.** (See 106A, first term) (III MTWThF; ScH 104) Riedel
108. **Heinrich Schütz: His Life and Works.** Schütz's life as influenced by the political events in central Europe in the first half of the seventeenth century; Protestant hymn and psalm literature, its musical elaborations in the works of Schütz; Schütz's importance in the fields of the madrigal and monody, sacred concerto and cantata, and passion; Schütz compared to Bach. (3 cred.; jr., sr., grad.; prereq. 6 cred. in music history, history of art, German literature, political history to 1700, or #; VI MTWThF; ScH 104) Riedel
- 127-128-129. **Composition.** (See first term) Fetler
132. **Symphonies of the Romantic Era.** Selected works of Schubert, Schumann, Mendelssohn, Berlioz, Liszt, Brahms, Franck, Dvorak, Tchaikowsky, Bruckner, Richard Strauss; their relation to the dominant romantic trends of the nineteenth century. (3 cred.; jr., sr., grad.; prereq. 6 cred. in music history, art or political history since 1750, English or German literature since 1750, or #; IV MTWThF; ScH 104) Ar.
- 204.** **Graduate Applied Music.** (See first term) Ar.
- 212.* **Special Problems.** (See first term) (V TTh; ScH 104) Ar.
- 227-228-229. **Seminar in Composition and Orchestration.** (See first term) Fetler

PERSONAL ORIENTATION

See General Studies

PHILOSOPHY (Phil.)

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) Shaw
50. **History of Philosophy (ancient).** A survey of Greek philosophy from Thales to (and including) Aristotle. (3 cred.; soph., jr., sr.; no prereq.; III MTWThF; JohH 310) Shaw
106. **American Philosophy (from William James).** A study of the major trends in American philosophy since the close of the nineteenth century. (3 cred.; jr., sr., grad.; no prereq.; IV MTWThF; WeH 202) Koch
137. **Kierkegaard and Scandinavian Philosophy.** 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 #; II MTWThF; JohH 113) Holmer

160. **Philosophy of Science.** 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 #; III MTWThF; JohH 115) Brodbeck
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; WeH 202) Holmer
190. **Seminar in Philosophy.** Topics to be arranged according to students' interests. (3 cred.; sr., grad.; prereq. 9 credits in philosophy or permission; ar.; ar.) Staff

Second Term

2. **Logic.** (See first term) (I MTWThF; WeH 202) Terrell
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.; IV MTWThF; WeH 202) Raab
52. **History of Philosophy (modern).** (3 cred.; jr., sr.; no prereq.; II MTWThF; JohH 113) Hospers
107. **Philosophy in Modern Literature.** 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.; II MTWThF; WeH 202) Terrell
151. **Aesthetics.** The nature of the aesthetic experience; standards of aesthetic evaluation; beauty in art and beauty in nature; the status of subject matter in the arts; the relation of form and content; the concepts of representation, expression, style, meaning, and truth in the arts; the use of symbols in art; the relation of the arts to knowledge, and to society; the relation of aesthetics to ethics. (3 cred.; jr., sr.; no prereq.; III MTWThF; WeH 202) Hospers
191. **Seminar in Philosophy.** Topics to be arranged according to students' interests. (3 cred.; sr., grad.; prereq. 9 credits in philosophy or permission; ar.; ar.) Staff

PHYSICAL EDUCATION FOR WOMEN (P.E.W.)

The following courses may be taken for elective credit in the College of Science, Literature, and the Arts:

First term: P.E.W. 7, 8, 32.

Second term: P.E.W. 12.

PHYSICS (Phys.)

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) Wall
- 1a. **Physical Science Laboratory.** Laboratory course given in conjunction with Physics 1. The combination of 1 and 1a may be applied toward group requirements in SLA. (1 cred.; all; prereq. ¶1) Ar.

Lab. 1, III-IV TTh, ar.

Lab. 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 §analytical geometry) Valasek
- | | |
|-----------------------------------|-----------------------|
| Lect. and quiz III MTWThF, Ph 166 | |
| Lab. 1, I-II T, ar. | Lab. 3, VI-VII W, ar. |
| Lab. 2, I-II W, ar. | Lab. 4, VI-VII T, ar. |
- 130. Light.** A survey of the fundamentals of optics and their application toward an understanding of natural optical phenomena and various optical instruments. A study of the properties of visible and invisible radiation. Course intended primarily for high school science teachers. Only those majoring in education may receive graduate credit. (3 cred.; jr., sr., grad.; prereq. 15 cred. in physics, calculus or §; lectures and experimental demonstrations, I MTWThF; Ph 170) Valasek
- 150. Intermediate Electricity.** The principles of electricity and magnetism covering electric currents, electric and magnetic fields, and electro-magnetic induction. Emphasis is placed on the experimental content of the principles by the use of lecture demonstrations. Designed for students and teachers who desire a more thorough understanding of electricity than can be acquired in a general physics course. Only those majoring in education may receive graduate credit. (3 cred.; jr., sr., grad.; prereq. 15 cred. in physics, calculus or §; III MTWThF; Ph 170) Wall

Second Term

- 2. Introduction to Physical Science.** Electricity and magnetism. (See 1, first term) (3 cred.; lect. I MTWThF; Ph 133) Ar.
- 2a. Physical Science Laboratory.** (See 1a, first term) (1 cred.; all; prereq. §2) Ar.
- | | |
|-------------------------|------------------------|
| Lab. 1, III-IV TTh, ar. | Lab. 2, VI-VII MW, ar. |
|-------------------------|------------------------|
- 13. General Physics for Engineers, Part II.** (See first term)
- | | |
|-----------------------------------|-----------------------|
| Lect. and quiz III MTWThF, Ph 166 | |
| Lab. 1, I-II T, ar. | Lab. 3, VI-VII W, ar. |
| Lab. 2, I-II W, ar. | Lab. 4, VI-VII T, ar. |

POLITICAL SCIENCE (Pol.)

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) McClosky
- 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) Roberts
- 85. Problems of World Politics.** The prewar and postwar political and economic problems of Southeast Asia; nationalism and communism; interests and policies of the Western and Asiatic powers. (3 cred.; jr., sr.; no prereq.; II MTWThF; ForH 155) Mills
- 128. Community Planning.** Community development; population problems; economic base of the community; use areas; circulation; housing; community facilities and services; public finance; planning procedures and aids; organization for planning. (3 cred.; jr., sr., grad.; no prereq.; II MTWThF; ForH 170) 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 #; I MTWThF; ForH 185) Flom
- 143. Government of the U.S.S.R. and Adjacent States.** An analysis of the government and politics of Soviet Russia that seeks to explain the rise of Bolshevism; the sources and nature of its ideology; the history of the Communist regime; institutional character; the organization of power; the role of the party; foreign, economic, and cultural policies; significance for Western Civilization. (3 cred.; jr., sr., grad.; prereq. 6 cred.; II MTWThF; ForH 150) McClosky
- 154. Chinese Government and Politics.** Constitutional and political development in China; political ideas, government, political parties, and problems. (3 cred.; jr., sr., grad.; prereq. 6 cred. or #; IV MTWThF; ForH 130) Turner
- 195. Colonial Government and the Problems of Imperialism.** Motives of American and European colonization; ancient and modern imperialism. (3 cred.; jr., sr., grad.; prereq. 6 cred. or #; III MTWThF; ForH 160) 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) Christoph
- 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 180) McLaughlin
- 114. Institute on Minnesota Government and Politics.** (See Special Programs) Panels of public officials, civic leaders, journalists, and educators will discuss vital issues of Minnesota government and politics under the chairmanship of University of Minnesota professors. The issues will include a Constitutional Convention, the Presidential Preference Primary, Party Designation, Civil Rights, the Governor's Role in Administration, Veteran Preference, Sales Tax, Dedicated Funds, School District Reorganization, and Regulation of Public Utilities. In addition, the Institute will feature group discussions on the various issues, special lectures on trends and functions, and a dinner meeting which will be addressed by principal state officers. (3 cred.; jr., sr., grad.; no prereq.; III-IV, VI MTWThF, July 18-29 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 1 to 20; ForH 155) Christensen
- 155. Government and International Relations in Latin America.** An analysis of the factors that have conditioned the constitutional and political organization in Latin-America; the structure and operation of government in Argentina, Brazil, Chile, and Mexico. (3 cred.; jr., sr., grad.; prereq. 6 cred. or #; I MTWThF; JohH 114) 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 ideology; utopia and democratic ideology. (3 cred.; jr., sr., grad.; prereq. 6 cred. or #; III MTWThF; ForH 130) Sibley

178. **Foreign Affairs, Agencies and Methods.** A rapid survey of the organization, functions, and problems of principal agencies in the United States concerned with formulation of foreign policy and administration of foreign relations; the Department of State, the Foreign Service, presidential and congressional functions. (3 cred.; jr., sr., grad.; ¶175 or 176; no prereq.; IV MTWThF; ForH 160) McLaughlin

PSYCHOLOGY (Psy.)

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.; III-IV MTWThF; NH 211) Clayton
- 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; II-IV MTWThF; Psy 211) Jewell
90. **Readings in Psychology.** (Cred. ar.; jr., sr.; prereq. 1-2 and 3 additional cred. and written #; 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
138. **Psychology of Motivation and Conflict.** A study of the drives and motives which underlie normal human behavior and the forms of adjustment which arise when motives conflict or encounter external frustration. Parallel observations in the field of animal behavior will be considered. (3 cred.; jr., sr., grad.; prereq. gen. psy.; IV MTWThF; Psy. 115) Russell
- 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; WuH 202) Rosen
- 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

†† 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.

250. **Topics in Psychology.** (Cred. ar.; grad. students only, with #; hrs. ar.)
Russell

Second Term

- 1-2.†† **General Psychology.** (See first term) (III-IV MTWThF; WuH 202)
Gray
- 4-5.†† **Introductory Laboratory Psychology.** (See first term) (II-IV MTW-
ThF; 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 wants are considered in detail. (3 cred.; jr., sr., grad.; prereq. 1-2 and principles of economics; II MTWThF; Psy 115) 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 #; III MTW-
ThF; Psy 115) Longstaff

ROMANCE LANGUAGES

First Term

FRENCH (Fren.)

1. **Beginning French.** (5 cred.; all; no prereq.; I-II MTWThF; FolH 202) Ar.
- 3-4. **Intermediate French.** (Students receive credit either for 3 or 4) (5 cred.; all; prereq. 2 or 3 or two or three years of high school French; I-II MTW-
ThF; FolH 201) Ar.
- 141.* **Eighteenth-Century Dramatic Literature: Marivaux and Beaumarchais.** (Course conducted in French) (2 cred.; jr., sr., grad.; prereq. Survey of French Literature or equiv.; III TWThF; FolH 203) Desgranges
- 156.* **Realistic French Novel: Zola and the Goncourts.** (2 cred.; jr., sr., grad.; prereq. Survey of French Literature or equiv.; II TWThF; FolH 302) Falk
- 158.* **Modern French Novel: André Gide.** (2 cred.; jr., sr., grad.; prereq. Survey of French Literature or equiv.; IV TWThF; FolH 307) Falk
- 259.* **Directed Readings in French.** (Cred. ar.; grad.; prereq. #; ar.; ar.) Staff

Offered only in Maison Française ¶¶

22. **Practical French Conversation.** 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.) Desgranges and staff
58. **Advanced Practical French Conversation.** 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.) Desgranges and staff
- 109a. **Oral Diction.** 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

†† To receive credit for any part of this course a student must complete the parts preceding the dagger.

¶¶ See Modern Language Institute.

knowledge of specialized and technical vocabulary and a complete mastery of certain grammatical and idiomatic difficulties. (4 cred.; prereq. #) Desgranges and staff

SPANISH (Span.)

1. **Beginning Spanish.** (5 cred.; all; no prereq.; III-IV MTWThF; FolH 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; FolH 201) Ar.
- 111.* **Nineteenth-Century Spanish Literature: Pereda and Valera.** (2 cred.; jr., sr., grad.; prereq. Survey of the Literature of Spain or #; II TWThF; FolH 203) Pattison
- 130.* **Cervantes: Don Quixote.** (2 cred.; jr., sr., grad.; prereq. Survey of the Literature of Spain or #; IV TWThF; FolH 203) Pattison
- 146.* **Spanish-American Novel and Short Story.** (Course conducted in Spanish) (2 cred.; jr., sr., grad.; prereq. Survey of the Literature of Spain or Spanish America or #; III TWThF; FolH 302) Floripe
- 259.* **Directed Readings in Spanish.** (Cred. ar.; grad.; prereq. #; ar.; ar.) Staff

Offered only in Casa Hispanica¶¶

22. **Practical Spanish Conversation.** 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.) Floripe and staff
58. **Advanced Practical Spanish Conversation.** 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.) Floripe and staff
- 109a. **Oral Diction.** 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. #) Floripe and staff

Second Term

FRENCH (Fren.)

2. **Beginning French.** (5 cred.; all; prereq. 1 or one year of high school French: I-II MTWThF; FolH 202) Clefton
- 112.* **Nineteenth-Century French Literature: Poetry.** (2 cred.; jr., sr., grad.; prereq. Survey of French Literature or equiv.; IV TWThF; FolH 203) Clefton
- 259.* **Directed Readings in French.** (Cred. ar.; prereq. #; ar.; ar.) Clefton

¶¶ See Modern Language Institute.

SPANISH (Span.)

2. **Beginning Spanish.** (5 cred.; all; prereq. 1 or one year of high school Spanish; III-IV MTWThF; ForH 202) Ar.

SCANDINAVIAN AREA STUDIES

See index

SCHOOL OF SOCIAL WORK (S.W.)

First Term

- Soc.91. **Case Method Applied to the Study of Human Problems.** (See Sociology) Quello
- C.W.141. **Behavior Problems in Older Children.** (See Institute of Child Welfare) Overlade
201. **Social and Emotional Problems of the Handicapped Child and Adult.** A consideration of the problems in adjustment to home, school, job and community of persons who are disabled by blindness, deafness, cerebral palsy, amputation and other crippling conditions. This course is designed particularly for social workers, teachers, vocational counselors, and others working with handicapped persons. (3 cred.; grad.; no prereq.; II MTWThF; ForH 244) Mueller
- 285.* **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) Mueller

Second Term

- C.W.140. **Behavior Problems in Younger Children.** (See Institute of Child Welfare) Cummings
260. **Principles of Administration in Social Work.** A study of the process of transforming social policy in social services. (3 cred.; I MTWThF; ForH 175) Kidneigh
- 285.* **Special Studies in Social Work.** (See first term) Kidneigh

SOCIAL SCIENCE

See General Studies

SOCIOLOGY (Soc.)

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 185) Sirjamaki

- 14. Rural Sociology.** A presentation of factual data necessary to an understanding of the problems of rural social life. (3 cred.; no prereq.; III MTWThF; ForH 155) Francis
- 53. Elements of Criminology.** A general survey of the field of criminology. (3 cred.; jr., sr.; prereq. 1 or 1A or #; I MTWThF; ForH 120) Vold
- 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 180) Quello
- 122. Sociology of Conflict.** Manifest forms of antagonism among groups of persons; causes of conflict; methods of resolving through accommodation; the role of conflict and social change. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social sciences, child welfare, education, philosophy, or psychology, or #; III MTWThF; ForH 185) Vold
- 145. Urban Sociology.** An introduction to the study of the city as a social organization. Emphasis is given to the analysis of urbanism as a way of life, and to the relationship between spatial and social configurations. (3 cred.; jr., sr., grad., §7 and 118; prereq. 1 and 15 cred. in social sciences, or #; IV MTWThF; ForH 120) Sirjamaki
- 171. Social Life and Cultural Change.** Examination of theories of social change with particular attention to their methodological problems. Materials drawn from the comparative social thought and structure of antiquity utilized as basic data for analysis. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social sciences, child welfare, education, philosophy, or psychology, or #; I MTWThF; VH 301) Francis

Second Term

- 1. Introduction to Sociology.** (See first term) (II MTWThF; ForH 155) Taves
- 49. Social Problems.** A survey course in contemporary social problems with especial emphasis on personal demoralization and social disorganization. (3 cred.; no prereq.; I MTWThF; ForH 155) Johnson
- 141. The Family.** The evolution of the family: development of family unity or disunity, the roles of the several members of the family, methods of investigation of the family. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social sciences, child welfare, education, philosophy, or psychology, or #; III MTWThF; ForH 185) Johnson
- 144. Social Stratification.** Social stratification as a phase of social organization. Analysis of caste, estates, and social classes. Analysis of social stratification in contemporary societies with special reference to the United States. Socio-economic status and social stratification. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social sciences, child welfare, education, philosophy, or psychology, or #; II MTWThF; ForH 115) Reeder
- 160. Rural Community Organization.** A study of the historical evolution, ecological characteristics, and demography of the rural community; the social processes, assimilation, conflict, and co-operation as manifested in rural society. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social sciences, child welfare, education, philosophy, or psychology, or #; IV MTWThF; ForH 115) Taves

SPEECH AND THEATER ARTS (Spch.)

See *Speech and Drama Institute and Program in Audiology*
under Special Programs

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.) Gilkinson, Smith, and staff
- Sec. 1, I MTWThF, FolH 305 Sec. 3, IV MTWThF, FolH 306
Sec. 2, II MTWThF, FolH 305
2. **Fundamentals of Speech.** (Second quarter of 1-2) (3 cred.; fr., soph., jr., sr.; prereq. 1; III MTWThF; FolH 305) Gilkinson, Smith, and staff
3. **Fundamentals of Speech.** (Continuation of 1-2) (3 cred.; fr., soph., jr., sr.; prereq. 1-2 or 5; III MTWThF; FolH 305) Gilkinson, Smith, and staff
34. **Stagecraft—Construction and Painting.** Theory and practice in construction, painting, and shifting of stage scenery. (3 cred.; prereq. 31; II MTWThF; NH 302) Josal
51. **Advanced Public Speaking.** Preparation and delivery of speeches on current public issues. (3 cred.; jr., sr.; prereq. 1-2 or 5; III MTWThF; FolH 308) Gilkinson
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-consciousness, stage fright; speech as a means of self-control as applied to teacher and pupil. (3 cred.; jr., sr.; prereq. 1-2 or 5, Psy. 1-2; II MTWThF; FolH 308) Bryngelson
93. **Stage Costuming.** (3 cred.; jr., sr.; prereq. 1-2 or 5, 31; III MTWThF; NH 302) Moulton
- 106.* **Discussion.** Co-operative thinking; recognition and definition of problems, critical analysis, examination of possible solutions. Planning, preparing for, participating in, and leading classroom, public, radio and television discussions. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5; I MTWThF; FolH 306) Smith
- 110.* **British Rhetoric and Oratory.** Critical study of British orators, their works, the historical setting. British rhetorical theory. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, 109 or #; ar.) Smith
- 112.* **Stage Direction.** Rehearsal problems and the direction of two one-act plays. (3 cred.; sr., grad.; prereq. 1-2 or 5, 31, 32, 33, 34, 91, 92, 93, and #; IV MTWThF; ShH 115) Whiting
- 122.* **Introduction to Research.** Graduate research in speech: selections of topics and methods of investigation. Required of all graduate majors in speech. (3 cred.; sr., grad.; prereq. 1-2 or 5, Psy. 1-2; II MTWThF; FolH 306) Gilkinson

†† Credit for Speech 1 without Speech 2 by petition only.

- 124.* **Experiments in General Speech.** An examination of studies of the correlates of speech skills, audience reactions, and speech improvement. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, Psy. 1-2; II MTWThF; FolH 306) Gilkinson
- 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, Psy. 1-2, or #; IV MTWThF; Hosp. N300) Lassman
- 157.* **Clinical Practice in Audiology.** Supervised practice with communication problems of deaf and hard-of-hearing persons, including lipreading, auditory training, language development, speech conservation, etc. (3 cred.; jr., sr., grad.; prereq. 152, 153, 155, or #; ar.; Hosp. W306) Lassman
- 162.* **Speech Pathology.** Neurology of speech. Stuttering and its associated symptoms. Relation of sidedness and speech disorders, heredity, current theories of stuttering, types of treatment. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, 61, 67, 119; III MTWThF; FolH 306) Bryngelson
- 164-165-166.* **Clinical Methods and Practice in Speech Pathology.** (9 cred.; sr., grad.; prereq. 1-2 or 5, 61, 67, 119, 162, 163; ar.) Bryngelson, Henrikson, Ptacek
- 181-182-183.* **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 #; ar.) Staff
- 193.* **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
- 291-292-293.* **Research in Special Problems.** (Cred. ar.; jr., sr., grad.; prereq. 1-2 or 5 and #; ar.) Staff

First term speech courses listed under the College of Education:

Ed.C.I.123. **Speech in the Elementary School.** Henrikson

Ed.C.I.140. **Teaching of Speech.** Smith

Second Term

1. **Fundamentals of Speech.** (See first term) (I MTWThF; FolH 206) Howell and staff
2. **Fundamentals of Speech.** (See first term) (II MTWThF; FolH 305) Howell and staff
3. **Fundamentals of Speech.** (See first term) (II MTWThF; FolH 305) Howell and staff
67. **Phonetics.** The study of the sounds of American English as they occur separately and in connected speech. Strong and weak forms, stress, assimilation. Practice in ear training. (3 cred.; jr., sr.; prereq. 1-2 or 5; II MTWThF; FolH 306) Fletcher
81. **Interpretative Reading.** Aesthetic theory of literature and of oral reading. Practice in reading for interpretation and master of technique. 81 deals with

prose fiction. (3 cred.; jr., sr.; prereq. 1-2 or 5; II MTWThF; WeH 302) Goodman

- 102.* 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; Psy. 1-2; 10 cred. in social science; IV MTWThF; FolH 306) Howell
- 106.* Discussion.** (See first term) (I MTWThF; FolH 306) Howell
- 107.* Platform Reading.** An advanced course in the oral interpretation of selected poems and plays. Speech melody, rhythm, platform technique. Problems in aesthetic analysis. Lecture recitals. (3 cred.; jr., sr., grad.; prereq. 81, 82, 83 with a grade of B in 83; III MTWThF; WeH 302) Goodman
- 119.* Introduction to Speech Correction.** Basic orientation in speech correction. Analysis of common disorders of speech, their characteristics, prevention, and correction. 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, or #; III MTWThF; FolH 306) Fletcher
- 127.* Language Training for the Deaf.** Language problems resulting from marked and/or early deafness. Methods of developing and teaching language to the deaf. Underlying theory and supervised practice with deaf individuals. (3 cred.; jr., sr., grad.; prereq. 152 or #; IV MTWThF; ForH 170) Simmons
- 131.* Creative Dramatics.** 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 #; Ed.C.I. 63 recommended; IV MTWThF; NH 209) Graham
- 132.* Children's Theater.** Theory and practice of selection, direction, and production of plays for children's audiences, co-ordinated with current productions of the Young People's University Theatre. (3 cred.; prereq. 1-2 or 5, 31 or #; II MTWThF; NH 209) Graham
- 156.* Auditory Training.** Problems of auditory discrimination and of hearing aid usage in persons with hearing deficiencies. Methods of developing skills in listening with and without acoustic amplification. Supervised practice with acoustically handicapped children and adults. (3 cred.; jr., sr., grad.; prereq. 152 or #; I MTWThF; ForH 170) Simmons
- 164-165-166.* Clinical Methods and Practice in Speech Pathology.** (See first term) (Ar.) Bryngelson, Henrikson, Ptacek
- 181-182-183.* Readings in Speech.** (See first term) (Ar.) Staff
- 204.* 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, Psy. 1-2, 10 credits in social science; ar.) Howell
- 207.* Seminar in Persuasion.** (3 cred.; grad.; prereq. 1-2 or 5, 101, 102, 103, Psy. 1-2, 140, 10 cred. in social science; ar.) Howell
- 291-292-293.* Research in Special Problems.** (See first term) (Ar.) Staff

Second term speech course listed under the College of Education:

Ed.C.I.174,175,176. Clinical Methods and Practice in Speech Pathology.
Bryngelson

ZOOLOGY (Zool.)

First Term ††

- 1.¶¶ **General Zoology.** Structure, physiology, embryology, classification, and evolution of animals. (5 cred.; no prereq.; lect. V MTWTh, V-VI F, Bo B6; lab. VI-VIII MTWTh, Z101, 107) Merrell
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) Merrell
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) Ar.

†† 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 ††

CIVIL ENGINEERING (C.E.)

First Term

23. **Surveying Camp.** (Page 86) (9 cred.; prereq. 20; ar.) Kersten, Cornell, Fant

DRAWING AND DESCRIPTIVE GEOMETRY (Draw.)

First Term

4. **Engineering Drawing.** (Page 89) (3 cred.; prereq. solid geometry; 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) Palmer
34. **Lettering.** (Page 90) (1 cred.; prereq. 4; V MW; E 18) Palmer

Second Term

5. **Engineering Drawing.** (Page 90) (3 cred.; prereq. 4; VI-VIII MWThF, VI-IX T; E 18) Williams
10. **Solid Geometry.** (Page 90) (No cred.; prereq. plane geometry; VI MTWThF; E 201) Springer
34. **Lettering.** (See first term) (V MW; E 18) Springer

ELECTRICAL ENGINEERING (E.E.)

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. IV MTWTh, EE 237

Lab. 1, VI-IX M, EE 207c

Lab. 2, VI-IX T, EE 207c

Lab. 3, VI-IX W, EE 207c

Second Term

37. **Electrical Engineering Survey.** (Page 92) (3 cred.; for M.E. and Chem.E.; prereq. 36) Cartwright

Lect. IV MTWTh, EE 237

Lab. 1, VI-IX M, EE 207a

Lab. 2, VI-IX T, EE 207 a

Lab. 3, VI-IX W, 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.

ENGINEERING ENGLISH (Engl.) ‡‡*First Term*

85. **Advanced Technical Communication.** (See page 95) (3 cred.; prereq. 6) Haga

Sec. 1, I MTWThF, E 215

Sec. 2, II MTWThF, E 215

Second Term

86. **Advanced Technical Communication.** (See page 95) (3 cred.; prereq. 85) Guthrie

Sec. 1, I MTWThF, E 215

Sec. 2, II MTWThF, E 215

GENERAL ENGINEERING (G.E.)*First Term*

70. **The Slide Rule.** (Page 95) (1 cred.; prereq. Institute of Technology Mathematics 11 or ¶11; V TTh; E 106) Bullen

Second Term

70. **The Slide Rule.** (See first term) (V TTh; E 106) Springer

INDUSTRIAL ENGINEERING (I.E.)*First Term*

- 90.†† **Industrial Assignment, Part I.** (Page 100) (1½ cred.; prereq. registration in work-study program; ar.) Algren and Fingerson
- 91.†† **Industrial Assignment, Part I.** (Page 100) (1½ cred.; prereq. registration in work-study program; ar.) Algren and Fingerson
- 92.†† **Industrial Assignment, Part I.** (Page 100) (1½ cred.; prereq. registration in work-study program; ar.) Algren and Fingerson
- 93.†† **Industrial Assignment, Part I.** (Page 100) (1½ cred.; prereq. registration in work-study program; ar.) Algren and Fingerson
- 94.†† **Industrial Assignment, Part I.** (Page 100) (1½ cred.; prereq. registration in work-study program; ar.) Algren and Fingerson
- 95.†† **Industrial Assignment, Part I.** (Page 100) (1½ cred.; prereq. registration in work-study program; ar.) Algren and Fingerson
150. **Elements of Industrial Engineering and Management.** (Page 100) (3 cred.; prereq. Mechanical Engineering 14; II MTWThF, IV F; ME 102) Block

Second Term

- 90.†† **Industrial Assignment, Part II.** (See first term) Algren and Fingerson
- 91.†† **Industrial Assignment, Part II.** (See first term) Algren and Fingerson

†† 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.

- 92.†† **Industrial Assignment, Part II.** (See first term) Algren and Fingerson
 93.†† **Industrial Assignment, Part II.** (See first term) Algren and Fingerson
 94.†† **Industrial Assignment, Part II.** (See first term) Algren and Fingerson
 95.†† **Industrial Assignment, Part II.** (See first term) Algren and Fingerson

MATHEMATICS (I.T.M.)

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, 12 and Draw. 10 or equiv.; I-II MTWThF; E 106) Loye
 25. **Calculus II: Integral.** Integration, definite integral, geometric applications, liquid pressure, work, centroids, moments of inertia, multiple integrals, infinite series, expansion of functions. (5 cred.; prereq. 24; I-II MTWThF; E 104) Polansky
 80. **Elementary Differential Equations.** Equations of first order, singular solutions; linear equations with constant coefficients, simultaneous equations, integration in series, numerical solutions. (3 cred.; prereq. 25; III MTWThF; E 205) Turrittin
 104.* **Variational Problems in Engineering.** Euler-Lagrange equations, isoperimetric problems, geodesics, Fermat's and Hamilton's principle, vibration and stresses in elastic bodies, methods of Rayleigh-Ritz Galerkin, Kantorovitch, etc., eigen-values and eigen functions. (3 cred.; prereq. 80, 153 or #; I MTWThF; E 205) Turrittin
 150.†† **Calculus III: Intermediate Calculus.** Limit concept, derivative, Riemann integral, numerical integration, partial differentiation, multiple integrals. (3 cred.; prereq. 25; II MTWThF; E 205) Munro
 154.* **Vector Analysis.** (3 cred.; prereq. 25; IV MTWThF; E 205) Wilcox

Second Term

13. **Analytic Geometry.** (See first term) (I-II MTWThF; E 106) Braden
 25. **Calculus II: Integral.** (See first term) (III-IV MTWThF; E 106) Lindgren
 80. **Elementary Differential Equations.** (See first term) (IV MTWThF; E 205) Munro
 152.§§ **Calculus IV: Advanced Calculus.** Maxima and minima in several variables, vector algebra and calculus, Green's and Stokes' theorems, integrals depending upon a parameter. (3 cred.; prereq. 150; II MTWThF; E 205) Thompson

†† 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.

‡‡ 152 and 153 in the second term may be taken simultaneously; 150, 152, and 153 form a 9-credit sequence regularly taught during the academic year.

§§ 152 and 153 may be taken simultaneously; 150, 152, and 153 form a 9-credit sequence regularly taught during the academic year.

- 153.§§ **Calculus V: Advanced Calculus.** Infinite series, computation with series, series with variable terms, uniform convergence, power series. Fourier series and orthogonal functions, special functions. (3 cred.; prereq. 150; I MTWThF; E 205) Thompson

MECHANICAL ENGINEERING (M.E.)

First Term

22. **Mechanisms of Automatic Machinery.** (Page 105) (3 cred.; prereq. 21) LaJoy
Lect. IV MTWTh, ME 302
Lab. 1, VI-VIII MTh, ME 325
Lab. 2, VI-VIII TF, ME 325
- 90.†† **Industrial Assignment, Part I.** (Page 105) (1½ cred.; prereq. registration in work-study program; ar.) Algren and Fingerson
- 91.†† **Industrial Assignment, Part I.** (Page 105) (1½ cred.; prereq. registration in work-study program; ar.) Algren and Fingerson
- 92.†† **Industrial Assignment, Part I.** (Page 105) (1½ cred.; prereq. registration in work-study program; ar.) Algren and Fingerson
- 93.†† **Industrial Assignment, Part I.** (Page 105) (1½ cred.; prereq. registration in work-study program; ar.) Algren and Fingerson
- 94.†† **Industrial Assignment, Part I.** (Page 105) (1½ cred.; prereq. registration in work-study program; ar.) Algren and Fingerson
- 95.†† **Industrial Assignment, Part I.** (Page 105) (1½ cred.; prereq. registration in work-study program; ar.) Algren and Fingerson
131. **Thermodynamics.** (Page 106) (3 cred.; prereq. Institute of Technology Mathematics 25, Physics 14) Lee
Lect. I MTWThF, VI F, ME 208
Lab. 1, VI-VII MW, ME 208
Lab. 2, VI-VII TTh, ME 208

Second Term

13. **Metal Processing.** (Page 104) (2 cred.; prereq. Inorganic Chemistry 15, Drawing 6) Hughes
Lect. I-II TTh, ME 18
Lab. 1, VI-VIII TTh, ME 70
Lab. 2, VI-VIII MW, ME 70
14. **Metal Cutting.** (Page 104) (2 cred.; prereq. Draw. 6) Crowder
Lect. I-II MW, ME 102
Lab. 1, VI-VIII MW, ME 171
Lab. 2, VI-VIII TTh, ME 171
24. **Elements of Machine Design.** (Page 105) (3 cred.; prereq. Mechanics and Materials 128) LaJoy
Lect. II MTWTh, ME 302
Lab. VI-VIII TTh, ME 325
34. **Mechanical Engineering Laboratory II.** (Page 105) (2 cred.; prereq. 33) Larsen
Lect. III MW, ME 302
Lab. 1, III-IV T, V-VI MWF, ME 370
Lab. 2, III-IV Th, VII-VIII MWF, ME 370

†† 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.

§§ 152 and 153 may be taken simultaneously; 150, 152, and 153 form a 9-credit sequence regularly taught during the academic year.

- 90.†† **Industrial Assignment, Part II.** (See first term) Algren and Fingerson
 91.†† **Industrial Assignment, Part II.** (See first term) Algren and Fingerson
 92.†† **Industrial Assignment, Part II.** (See first term) Algren and Fingerson
 93.†† **Industrial Assignment, Part II.** (See first term) Algren and Fingerson
 94.†† **Industrial Assignment, Part II.** (See first term) Algren and Fingerson
 95.†† **Industrial Assignment, Part II.** (See first term) Algren and Fingerson
 160. **Heating, Ventilation, and Air Conditioning.** (Page 107) (3 cred.; prereq. 132; I MTWThF, II F; ME 208) Threlkeld

MECHANICS AND MATERIALS (M.M.)

First Term

26. **Engineering Statics.** (Page 109) (5 cred.; prereq. Institute of Technology Mathematics 25; I-II MTWThF; E 203) Anderson
 127. **Engineering Dynamics.** (Page 109) (5 cred.; prereq. 26; I-II MTWThF; Ex 193) 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 §128; Sec. 1, VI-VII MW; Ex 130; Sec. 2, VI-VII TTh; Ex 130) Miller, James

Second Term

127. **Engineering Dynamics.** (See first term) (III-IV MTWThF; Ex 193) Doeringsfeld
 128. **Mechanics of Materials.** (See first term) (I-II MTWThF; Ex 193) Chapin

School of Chemistry

ANALYTICAL CHEMISTRY (An.Ch.)

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 325; lab. VI-VIII MWF, V-VIII TTh, C 310) Herr

†† 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.

- 123.* **Advanced Analytical Chemistry.** Analysis of complex materials by modern methods. (3 cred.; prereq. 1, 2, or #; ar.; ar.) Herr
- 301.* **Research in Quantitative Analysis.** (Cred. and hrs. ar.) Herr

INORGANIC CHEMISTRY (In.Ch.)

First Term

1. **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 225; rec. V T, C 225; lab. V-VII MW, C ar.) Pray
4. **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 410; rec. V Th, C 225; lab. V-VII MW, C ar.) O'Brien
6. **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 225; rec. V T, C 225; lab. V-VIII MWF, C ar.) Pray
9. **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 410; rec. V Th, C 225; lab. V-VIII MWF, C ar.) O'Brien
11. **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. (4 cred.; prereq. 2, 5, 7, 10, or 15; lect. III MTWThF, C 225; rec. V M, C 225; lab. V-VIII MW, C ar.) Heisig
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, 10, or 15; lect. III MTWThF, C 225; rec. V M, C 225; lab. V-VIII MWF, C ar.) Heisig
- 103.* **Atomic Structure and the Properties of the Elements Based Thereon.** (3 cred.; prereq. Anal.Chem. 1, 2, Org.Chem. 62; lect. III MTWThF; C 215; rec. V T, C 215) O'Brien
- 108.* **Nonaqueous Systems.** (3 cred.; prereq. Phys.Chem. 103 or #; lect. IV MTWThF, C 215; rec. II Th, C 215) Pray
- 120.* **Advanced Inorganic Chemistry Laboratory Methods.** Synthetic inorganic chemistry. (Cred. ar.; prereq. #; hrs. ar.; ar.) Heisig
160. **Summer Institute (College)—Recent Advances.** (See Special Programs) (Cred. ar., maximum 6 cred.; credit applicable to M.A. and Ph.D. degrees in education where physical science is specified as major or minor or related field; C 100) Staff and invited lecturers
- 301.* **Research in Inorganic Chemistry.** (Cred. and hrs. ar.) Heisig, O'Brien, 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'Connor
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'Connor
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
- 112.* **Radioactivity and Nuclear Chemistry.** (3 cred.; prereq. Phys.Chem. 103; lect. IV MTWThF, C 215; rec. V W, C 215) O'Connor
- 302.* **Research in Inorganic Chemistry.** (Cred. and hrs. ar.) O'Connor, Pervier

ORGANIC CHEMISTRY (Or.Ch.)

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 325; lab. II-IV MWF, C 390; lab. conf. III TTh, C 325) Fenton

Second Term

- 62.†† **Elementary Organic Chemistry.** (See 61, first term) (4 cred.; prereq. 61; lect. I MTWThF, C 325; rec. II TTh, C 325; lab. II-IV MWF, C 390; lab. conf. III TTh, C 325) Noland

PHYSICAL CHEMISTRY (P.Ch.)

First Term

- 104,105. **Physical Chemistry Laboratory.** (1 or 2 cred.; prereq. 101 for 104, 102 for 105; VI-VIII MW; C 190) Livingston
- 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 225; rec. I F, C 225; lab. VI-VIII MW, C 190) Livingston
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; VI-VIII MW; C 190) Livingston
- 108.§§ **Elementary Physical Chemistry.** (3 cred.; primarily for premed. students; prereq. 107; lect. I MTWTh, C 225; rec. I F, C 225; lab. VI-VIII MW, C 190) Livingston
301. **Research in Physical Chemistry.** (See first term) Staff

†† 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.

School of Mines and Metallurgy ††

METALLOGRAPHY (Meto.) ††

First Term

170-171.* **Special Problems in Metallography.** (Page 111) (1, 2, or 3 cred.; prereq. 5th yr. Met.E. or grad.; hrs. ar.) Staff

Second Term

170-171.* **Special Problems in Metallography.** (See first term)

METALLURGY (Metu.) ††

First Term

124.* **Special Problems in Mineral Dressing.** (Page 112) Detailed study of mineral dressing problems. (Cred. and hrs. ar.; prereq. 112) Cooke

221.* **Special Problems in Advanced Metallurgy.** (Page 112) Intended primarily for research work. (Cred. and hrs. ar.) Staff

Second Term

124.* **Special Problems in Mineral Dressing.** (See first term)

221.* **Special Problems in Advanced Metallurgy.** (See first term)

MINING ENGINEERING (Min.) ††

First Term

151-152-153.* **Special Mining Engineering Problems.** (Page 114) Literature survey or research work on mining problems. (Cred. and hrs. ar.; prereq. 113) Staff

Second Term

151-152-153.* **Special Problems in Mining.** (See first term)

PETROLEUM ENGINEERING (Pet.E.) ††

First Term

155-156-157.*‡ **Special Problems in Petroleum Engineering.** (Page 115) Seminar in petroleum problems. (Cred. and hrs. ar.; prereq. ¶144-145 or #) Lacabanne

Second Term

155-156-157.*‡ **Special Problems in Petroleum Engineering.** (See first term)

†† Open only to students previously registered at the University of Minnesota. Advance arrangement necessary.

INDEX

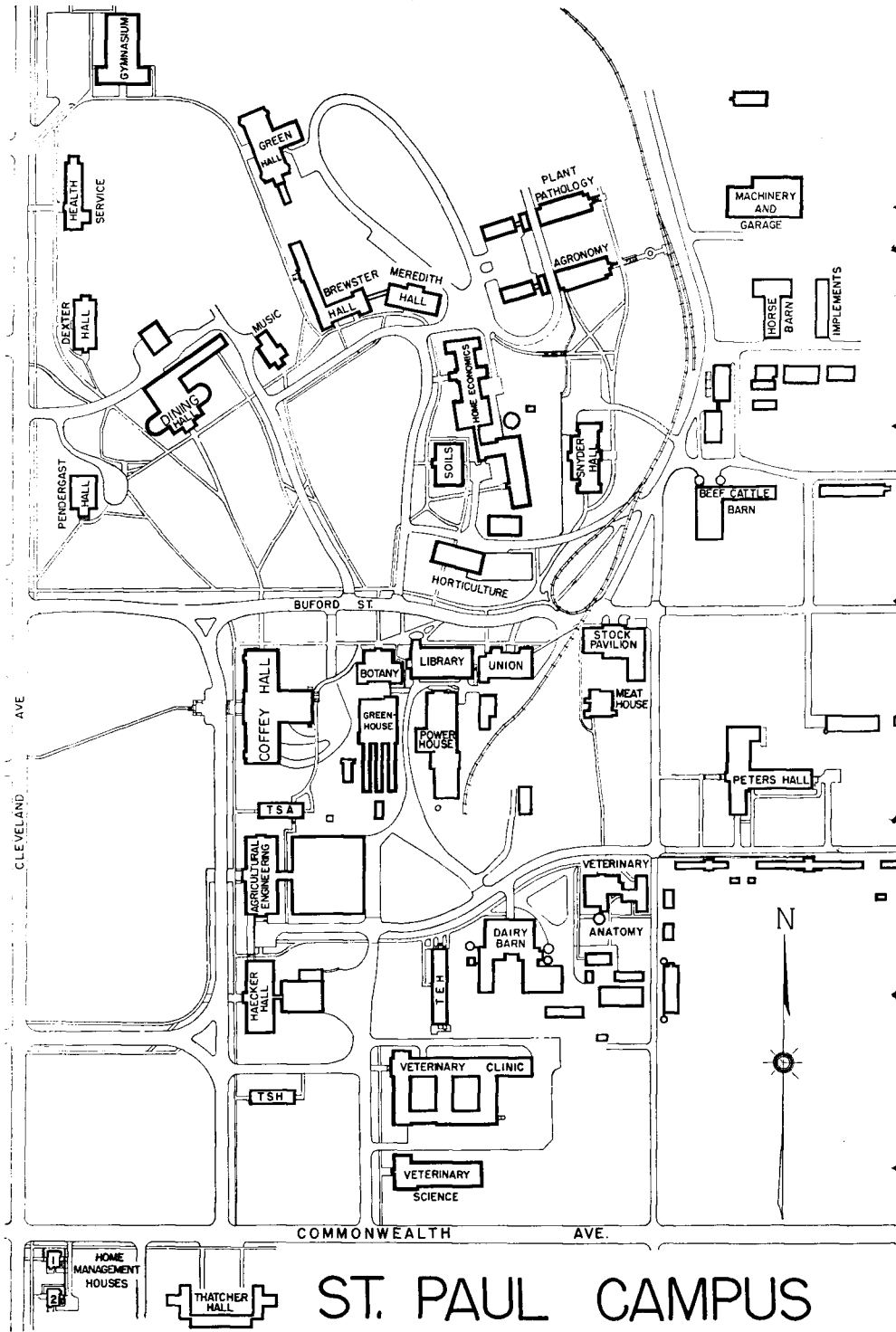
	Page		Page
Admission and Registration	13, 19	Deutsches Haus	5-6, 98
Agricultural Biochemistry	22	Dormitories (Housing and Food Service)	13
Agricultural Economics	22	Drama Institute, Speech and	7
Agricultural Education	46-47	Dramatics	7, 115-117
Agriculture, Forestry, and Home Economics, College of	22	Dramatics Workshop, Creative	7
Agriculture, Institute of	22-32	Drawing and Descriptive Geometry	119
Agronomy and Plant Genetics	23	Driver Education	10
American Studies	7-8, 86	Duluth Branch	5
Amount of Work	19	Economic Zoology, Entomology and	23-24, 31-32
Analytical Chemistry	123-124	Economics	10, 22, 33-39
Anatomy	69	Education, College of	43-64
Animal Husbandry	23	Educational Administration	48-50
Anthropology	87	Educational Psychology	55-56
Application Form, When Unnecessary	3, 13	Efficient Reading	8, 27-28
Art	5, 87-90	Electrical Engineering	119
Art Education	47-48	Elementary School, Summer Demonstration	45
Art, Travel Course in European	5, 87	Engineering, College of	119-123
Astronomy	90	English	91-93, 120
Audiology, Programs in	9, 116, 117	Entomology and Economic Zoology	23-24, 31-32
Auditors	19	Examinations	19
Bacteriology and Immunology	70	Externship, Medical	69
Biochemistry, Agricultural	22	Family Life	44, 53, 94, 95
Biological Station, Lake Itasca Forestry and	29-32	Fees:	
Biostatistics	82, 83	Auditors	19
Board of Regents	3	Biological Station, Itasca Forestry and	30-31
Botany	27, 31, 32, 90	Course	17-18
Building Abbreviations	2	Dentistry	42
Bus, Intercampus	11	Deposit Cards	18
Business Administration, School of	33-39	Graduation	19
Calendar	4	Incidental	17
Casa Hispánica	5-6, 112	Late	14
Chemistry, Institute for Teachers of College	10	Law School	67
Chemistry, School of	123-125	Medical School	69
Child Welfare, Institute of	9, 40-41	Modern Language Institute	17
Cinema (Photography)	88-89	Nursing	84
Civil Engineering	119	Placement Service	19
Class Hour Schedule	back cover	Refund	18
Classics	91	Registration	14
Commencement	4	Special	18
Communication	6, 94, 120	Staff Member, Eligible	17
Communications, Journalism and	6, 100	Thesis Work	17
Composition	92, 93	Tuition	17
Credit (Amount of Work)	19	Veterinary Medicine	28
Curriculum and Instruction	50-54	Film Week	9
Dairy Husbandry	23	Food Service, Housing and	13
Degree Candidates	13	Foreign Study Seminar	94, 95
Degrees, Regulations Governing Granting of	19	Forestry	24-25
Demonstration Facilities	7, 44-45	French	111-112
Dentistry, School of	42	French House	5-6, 111-112
Dermatology	72	General College	65-66
Descriptive Geometry, Drawing and	119	General Education	57

	Page		Page
General Engineering	120	Maison Française	5-6, 111-112
General Information	11-13	Map, Minneapolis Campus	131
General Studies	94-96	Map, St. Paul Campus	130
Geography	96-97	Mathematics	9, 102-104, 121-122
Geology and Mineralogy	97	Mechanical Engineering	122-123
Geometry, Drawing and Descriptive German	119	Mechanics and Materials	123
German	97-98	Medical Practitioners, Opportunities for	68
German House	5-6, 98	Medical Sciences, College of	68-85
Government and Politics, Institute on Minnesota	9	Medical Technology	70
Graduate School	20-21	Medicine	71-72
Gynecology, Obstetrics and	73	Mentally Retarded Child, Problems of the	10
Health Service, Students'	12	Metallography	126
Hearing Clinic, Speech and	115	Metallurgy	126
High School, Summer Demonstra- tion	44-45	Methods and Student Teaching	58-59
History	98-100	Mineralogy, Geology and	97
History and Philosophy of Educa- tion	57	Mines and Metallurgy, School of	126
Home Economics	6-7, 25-26, 57	Mining Engineering	126
Home Economics Education	57	Minnesota Government and Politics, Institute on	9
Horticulture	27	Modern Language Institute 5-6, 98, 111-112	104-106
Housing and Food Service	13	Music	59-60
How to Study (Personal Orienta- tion)	95, 96	Music Education	59-60
Humanities	94-96	Natural Science	95, 96
Immunology, Bacteriology and	70	Neurology, Psychiatry and	77-78
Industrial Education	58	Neurosurgery	81
Industrial Engineering	120-121	Nursery School and Kindergarten	45
Inorganic Chemistry	124-125	Nursing Education	58, 59
Institute of Agriculture	22-32	Nursing, Public Health	9, 82-83
Institute of Technology	119-126	Nursing, School of	8, 83-85
Institutes (see also Workshops):		Obstetrics and Gynecology	73
Biology		Offices, Summer Session and Gen- eral	12
For College Teachers of Biology	30	Organic Chemistry	125
For High School Teachers of Biology	29	Ornithology	32
Chemistry		Parking Facilities	11
For Teachers of College Chem- istry	10	Pathology	73-74
Film Week	9	Pediatrics	74-75
On Minnesota Government and Politics	9	Personal Orientation (How to Study)	95, 96
Modern Language	5-6	Petroleum Engineering	126
Problems of the Mentally Re- tarded Child	10	Pharmacology	75
Speech and Drama	7	Philosophy	106-107
Itasca Forestry and Biological Sta- tion	29-32	Photography (Cinema)	88-89
Journalism, School of	6, 100-101	Physical Chemistry	125
Kindergarten, Nursery School and	40, 45	Physical Education for Men	60-61
Language Arts	10	Physical Education for Women	61-64
Language Institute, Modern 5-6, 98, 111-112		Physical Education Teachers and Recreation Workers, Clinics for	7
Law School	67	Physical Medicine and Rehabilita- tion	75-76
Libraries:		Physics	107-108
Off-Campus	12	Physiological Chemistry	76
University	12	Physiology	76-77
Library School	101-102	Plant Genetics, Agronomy and	23
Literature	91-93	Plant Pathology and Botany	27, 32
Living Expenses	13	Political Science	9, 108-110
		Post Offices, University	12
		Poultry Husbandry	27
		Psychiatry and Neurology	77-78

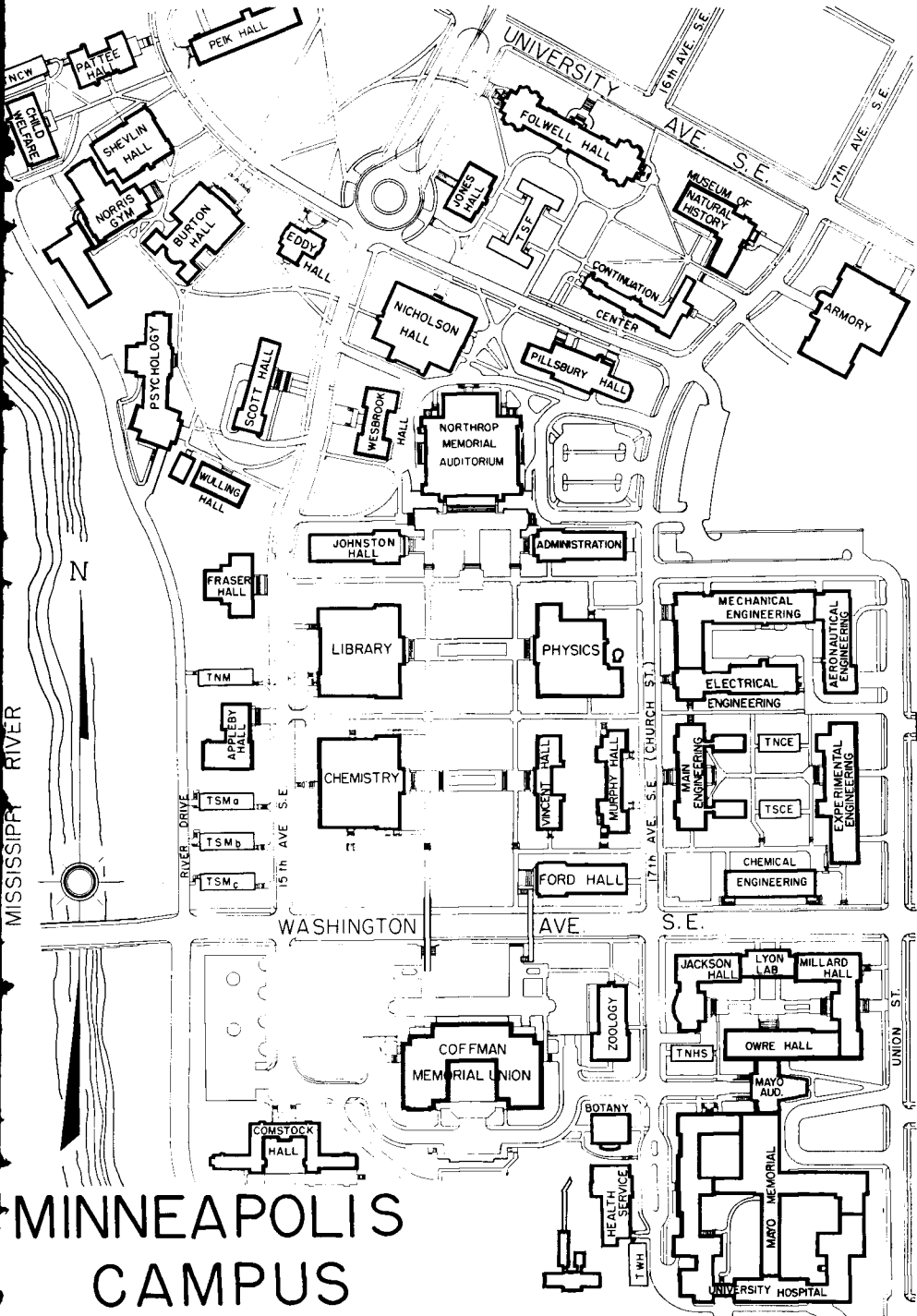
INDEX

129

	Page		Page
Psycho-Educational Clinic	45	Student Teaching, Methods and	58-59
Psychology	55-57, 110-111	Students' Health Service	12
Public Health, School of	9, 82-83	Surgery	80-81
Radiology	78-79	Symbols	back cover
Reading:		Tally Procedure	15
Difficulties, Remedial	45, 53	Technology, Institute of	119-126
Efficient	8	Theater Arts, Speech and	115-117
Recreation Facilities, Physical Edu- cation, Women	62	Travel Course in European Art	5, 87
Recreation Workers, Clinics for Physical Education Teachers and	7	Urology	81
Registration	13-19	Veterinary Medicine, School of	28-29
Registration, Place of	14	Workshops (see also Institutes):	
Rehabilitation, Physical Medicine and	75-76	Education:	
Rhetoric	8, 27-28	In Family Life Education	44, 53
Romance Languages	111-113	In Group Dynamics in Edu- cation	44, 55
Scandinavian Area Studies	8	In Higher Education	43-44, 53, 54
Scheduling Code	back cover	For School Administrators	44, 48, 53
Science, Literature, and the Arts, College of	86-118	Home Economics:	
Slide Rule (General Engineering) ..	120	In Applied Nutrition	6, 26
Social Science	95, 96	In Household Equipment	6, 26
Social Work, School of	113	In Problems in Related Art	6, 26
Sociology	113-114	Industrial Education:	
Soils	28	In Electricity and Electronics for Secondary Schools	58
Spanish	5-6, 112, 113	Instructional Materials Labora- tory	58
Spanish House	5-6, 112	Public Health Nursing:	
Special Features	5-11	On Field Practices in Public Health Nursing	83
Speech and Drama Institute	7	On Rehabilitation and Public Health Nursing	82
Speech and Hearing Clinic	115	Zoology	32, 118
Speech and Theater Arts	115-117		
Statistics:			
Biostatistics	10, 82, 83		
Interdisciplinary	9-10, 103		



ST. PAUL CAMPUS



MINNEAPOLIS CAMPUS

Symbols

The following symbols are used in course descriptions without footnotes:

- * An asterisk after the course number indicates courses through which it is possible for graduate students to prepare required Plan B papers.
- † A dagger after a course number indicates that all courses preceding the dagger must be completed before credit will be granted for any of the courses.
- ‡ A double dagger following a sequence course number indicates that the course parts may be taken out of sequence.
- § A section mark in the parenthetical statement which follows each course description means that credit will not be given for the course if the equivalent course listed after the section mark has been taken for credit.
- ¶ A paragraph mark preceding a course number in the parenthetical statement which follows each course description means "concurrent registration," or that the course so indicated may be taken simultaneously.
- # A sharp mark appearing in the parenthetical statement which follows each course description means that students desiring to take it must obtain the consent of the instructor before attempting to register for that course.
- △ Two asterisks after a course number indicates that a special fee is charged for that course. See section on Course Fees.

Scheduling Code and Course Descriptions

This bulletin contains announcements of the courses offered in the several colleges 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 students eligible, prerequisites, class hours, days of the week, and location of the class. Thus: (3 cred.; jr., sr., grad.; prereq. 12, 13; II MTWThF; FolH 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. For building abbreviations see page 2.

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

Campus Maps—see pages 130 and 131.

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, 8:00 p.m., Thursday

(See Official Daily Bulletin for announcement)