

The Bulletin of the University of Minnesota

*The School of Agriculture
Courses in Agriculture and Home
Economics*

Part I

*Announcement of Courses for the Years
1930-1932*



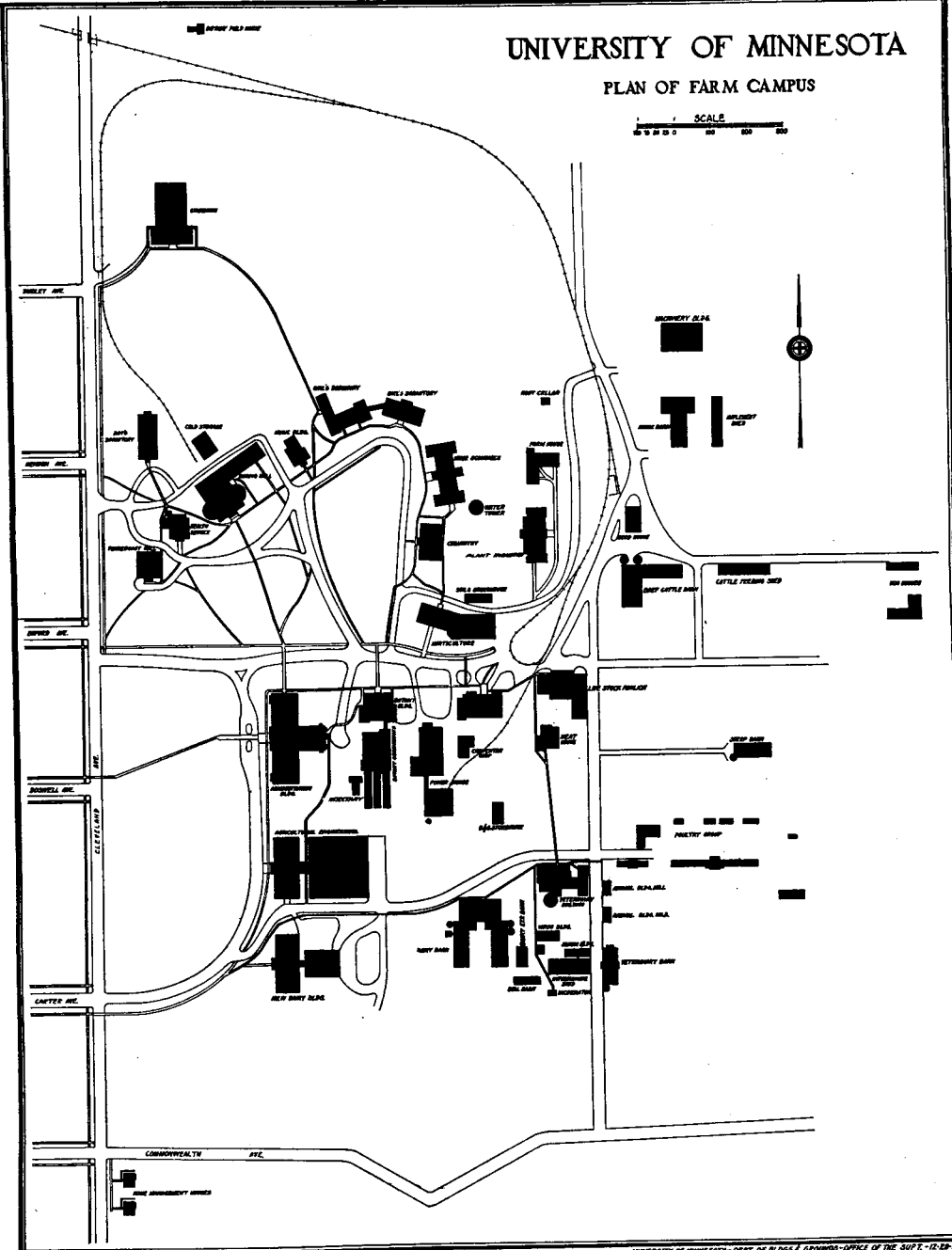
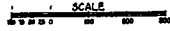
Vol. XXXIII No. 24 May 7 1930

*Entered at the post-office in Minneapolis as 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*

UNIVERSITY OF MINNESOTA

PLAN OF FARM CAMPUS



THE SCHOOL OF AGRICULTURE

FACULTY

ADMINISTRATION

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Walter C. Coffey, M.S., LL.D., Dean of the Department of Agriculture
John O. Christianson, B.A., Acting Principal
Rodney M. West, B.A., Registrar
Johanna Hognason, B.A., Matron Boys' Dormitories
Laura A. Matson, M.A., Matron Girls' Dormitories
Harriet W. Sewall, B.A., Librarian

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Ross A. Gortner, Ph.D., Chief; George S. Taylor, B.A.

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Herbert K. Hayes, D.Sc., Chief; Harvey E. Brewbaker, Ph.D., Iver J. Johnson, M.S., Stephen M. Raleigh, B.S.

ANIMAL HUSBANDRY

Walter H. Peters, M.Agr., Chief; Philip A. Anderson, B.S. in Agr., Alfred L. Harvey, M.S., Lawrence M. Winters, M.S.

DAIRY HUSBANDRY

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ENTOMOLOGY AND ECONOMIC ZOOLOGY

Royal N. Chapman, Ph.D., Chief; Erdman Braun, B.S., Heber C. Donohoe, M.S., Arthur G. Ruggles, M.A.

FARM MANAGEMENT AND AGRICULTURAL ECONOMICS

Oscar B. Jesness, Ph.D., Chief; Louis B. Bassett, Willard P. Ranney, M.S., George A. Sallee, M.S.

FORESTRY

Henry Schmitz, Ph.D., Chief; Edward G. Cheyney, B.S.

GYMNASIUM AND PHYSICAL TRAINING

Robert Thompsqn, Director; Gladys Kaercher

THE SCHOOL OF AGRICULTURE

HOME ECONOMICS

Wylle B. McNeal, M.A., Chief; Carlotta M. Brown, Hedda Kafka, B.S.,
Frances L. Keller, M.S., Gladys E. Nordeen, B.A., Iva I. Sell, M.S.,
Lucy A. Studley, M.A., Helen J. Topp, B.S.

HORTICULTURE

William H. Alderman, B.S., Chief; Troy M. Currence, Ph.D., Franc P.
Daniels, B.S. in Agr., Fred A. Krantz, Ph.D., Lewis E. Longley, M.S.,
Louis Sando

PLANT PATHOLOGY AND BOTANY

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Larson, B.S. in Agr., Matthew B. Moore, B.S.

POULTRY HUSBANDRY

Arthur C. Smith, B.S., Chief

PREVENTIVE MEDICINE AND PUBLIC HEALTH

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Hathaway, M.D.

RHETORIC

Robert C. Lansing, M.A., Chief; Elizabeth Hause, B.A., Marjorie Holbrook,
B.S., Monica Langtry, B.A.

SCHOOL (GENERAL)

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Bernice Dickerman, B.A., Carrie M. Heathcote, Johanna Hognason,
B.A., Peder L. Johnsrud, B.S. in Agr., Paul Leach, Marjorie Martyn,
B.A., Laura A. Matson, M.A., Ruth Pearson, Hazel L. Wade, B.S.,
Mabel Willson

SOILS

Frederick J. Alway, Ph.D., Chief; Paul R. McMiller, M.S., George H.
Nesom, B.A., B.S.

VETERINARY MEDICINE

Clifford P. Fitch, M.S., D.V.M., D.Sc., Chief; Willard L. Boyd, D.V.S.,
Howard C. H. Kernkamp, D.V.M., Reuel Fenstermacher, D.V.M.

GENERAL INFORMATION

LOCATION

The School of Agriculture is located at University Farm, St Paul, Minnesota, about midway between the business portions of the cities of St. Paul and Minneapolis. The school is a part of the Department of Agriculture of the University of Minnesota, and is governed by the Board of Regents.

HOW TO GET TO THE SCHOOL

Check all baggage to Minneapolis or St. Paul and bring checks to the school.

A charge of fifty cents is made by the school for transporting trunks at the opening of the school year. A charge of not more than fifty cents is made for the return of baggage at the close of school, provided it is ready to go on the days assigned.

Take the Como-Harriet or Como-Hopkins car from either St. Paul or Minneapolis, and get off at Doswell Avenue. University Farm is about a ten-minute walk from the car line. The dormitories are on the campus.

TIME OF OPENING AND CLOSING

The School of Agriculture opens late in September and closes late in March. For exact dates of opening and closing of each term see the calendar in Part II of the bulletin.

Instruction begins promptly at the opening of each term. Students should be present the first day and remain until the close of the term. No student will be allowed to register after the second week of the term except by permission of the Students' Work Committee.

PURPOSE

The School of Agriculture was organized in 1888. Its object is to give a practical education to young men and women. It offers a course of study designed to fit young men and young women for successful farm life, and aims to give its students the necessary preparation for useful citizenship. The school course does not aim to prepare students for college.

ADMISSION

Students should correspond with the registrar, University Farm, St. Paul, Minnesota, prior to coming to the institution, to make the necessary preliminary arrangements for registration.

Farm experience.—All male students are required to have had six months' farm practice before entrance.

Minimum age.—No student under seventeen years of age will be admitted. Exceptions to this rule may be made in the case of applicants who have completed one full year of high school work. Similar exception may be made when no high school is immediately available to the applicant.

Scholastic preparation.—Students who have completed eighth grade work, or its equivalent, in the common schools, are admitted without examination.

Each applicant for admission should send to the registrar for a certificate of admission which, when properly filled out by former teacher or superintendent and returned to the registrar, will be accepted in place of entrance examinations. Diplomas should not be sent.

Students from city or grade schools must present a dismissal card from the last school attended; they will not be admitted before finishing eighth grade work, or until their former school records have been passed upon. These records must be presented at least three weeks prior to the opening of the school.

Unclassed students.—Applicants of mature years who cannot meet the above entrance requirements will be admitted for special programs. Such students can graduate when the entrance requirements as well as the requirements of the prescribed course are fully met.

Credit for high school work.—Students will be accepted from approved high schools and be given credit toward graduation from the School of Agriculture as follows:

Minimum number of credit hours	
High school graduate.....	36
Non-graduate—per unit	2½
Agriculture—per unit (boys)	12½
Maximum number of credit hours.....	72

High school courses equivalent to courses offered in the School of Agriculture will receive the same credit as those offered in the school. The first year's work in sewing, cooking, and freehand drawing will be allowed the same credit as that offered in the school. Additional credit in these subjects will be allowed only on the approval of the Home Economics Division.

COURSES OF STUDY

Courses in both agriculture and home economics are offered. These cover a wide range of subjects and are largely vocational in character. Provision is also made for instruction in English, mathematics, and other academic subjects. The courses require three winters of six months each for completion. The character of instruction and environment tend to educate students toward the farm, and to develop in them a love for farm life by showing them its possibilities. In this respect the school has been very successful, as over eighty per cent of its graduates continue agricultural pursuits.

HOME PROJECTS

Science with practice is the aim of the School of Agriculture. The school is organized on a plan which provides for teaching agriculture through six months of study at the school and six months of supervised home project work on the farm. Home project work is advised for every pupil in the school. The purpose of the home project work is to give the pupils an opportunity to apply some phase of their classroom instruction to the operation of a farm or a farm home.

The students may have a free choice as to the nature of their projects but are advised to choose those connected with the class work being taken.

Freshmen should select projects connected with freshman subjects; juniors, those connected with junior subjects.

Registration blanks are provided instructors in classes for which summer projects will be accepted, and the registration should be completed before the student leaves the school in the spring. At the time of registration a project book with forms suitable for recording the necessary data will be provided.

Registration for home project work after the close of the spring term must be approved by the chairman of the Home Project Committee.

During the summer season the work of the students will be inspected by instructors from the school so far as possible. The project book must be submitted to the classroom instructors and be graded by them but must have final approval of the Home Project Committee.

Home project work cannot be accepted for credit from students who are not properly registered before starting upon the project.

Three credits of home project work is all that any student should attempt to earn in one season. These may be counted toward graduation from the school or, in the event that a student expects to enter the College of Agriculture, Forestry, and Home Economics, they may be used as one unit toward entrance to the college.

A special bulletin on home projects may be obtained from the principal's office.

RULES AND REGULATIONS

A pamphlet containing the rules and regulations of the school will be furnished each student at the time of registration or upon application to the registrar's office.

HOME LIFE ON THE CAMPUS

The life of the student while attending the School of Agriculture is subject to supervision. The home life of each student is carefully guarded, and everything is done to promote a healthful and moral atmosphere. The use of tobacco on the campus, and the use of intoxicating liquors of all kinds is strictly forbidden. Anyone not in accord with these restrictions and not willing to lend a hand toward promoting a strong moral growth should not come to the School of Agriculture.

STUDENTS IN DORMITORIES

The students' social and dormitory life is supervised and directed by two women instructors of the school faculty, one in charge of the girls' dormitories, the other in charge of the boys' dormitories. All regulations governing the campus life of the student are subject to the approval of the dean of the Department of Agriculture and the principal of the school. A feature in the social life of the boys in the dormitories has been contributed in the form of clubrooms in Pendergast Hall and the Boys' New Dormitory.

From 8:15 a.m. to 4:30 p.m. and also after 7:30 p.m. students not at recitation or assembly are expected to be in their rooms or in the library studying or reading. The rooms shall at all times be quiet, especially in the evening, so that no student will be disturbed.

ASSEMBLY

On each school day, at 12:10 p.m., except Monday and Thursday, the students meet in the assembly hall. After the opening exercises, brief talks are given by the principal, members of the faculty, or invited guests. During the year the list of speakers will include prominent state and national officials, business men, particularly those connected with the agricultural industries, professional men and women, prominent clergymen of all denominations, educators from other institutions, and successful farmers and homemakers. It has been found that this plan gives to the students an opportunity to hear men and women of prominence discuss a wide range of topics, many of which relate to rural and agricultural problems.

HOLIDAYS

On Thanksgiving Day no classes will be held, but school will continue as usual on the Friday and Saturday following.

Armistice Day, November 11; Lincoln's birthday, February 12; and Washington's birthday, February 22, will be observed as holidays.

REQUIREMENTS FOR GRADUATION

The diploma of the School of Agriculture is granted on the completion of

1. The prescribed course of study, including all of the required work and enough elective work to make 108 credit hours, at least 36 of which must be earned by class attendance in this school.

2. Gymnasium for the boys, or physical training for the girls, 2 credit hours for each term of residence.

3. Social problems for boys, 1 credit hour, or social training for girls, 2 credit hours.

4. An honorary standing in department.

5. An essay of not less than one thousand words upon a topic connected with agriculture or home economics, typewritten on paper of approved size for binding and filing in the library.

6. For boys, at least six months of practical farm experience in addition to the six months required for entrance. This experience may be gained either on the home farm or in the employment of a good farmer. Regularly approved and recorded home project work may be counted toward this requirement. The satisfaction of this requirement shall be certified by the Home Project Committee.

EXPENSES

Each student is required to pay for breakage of apparatus used in practical work.

The cost to the student for board is the actual cost of maintaining the table (including management). Each term board is paid in advance. No deduction in charge is made for any absence of less than five days. If students are compelled to be absent five or more days, they are allowed half rates, if they make arrangements before leaving.

The buildings are all lighted by electric lights and warmed by steam. The sleeping rooms are each furnished with a bedstead, mattress, dressing bureau, chairs, and table.

Each student provides four sheets, two blankets, or one blanket and one quilt, one bedspread, one pillow, three pillowcases, towels, comb and brushes, one glass tumbler, and one teaspoon.

For the boys' gymnasium work a track suit and gymnasium shoes are required.

Each girl is required to provide two smocks suitable for the protection of her clothing in the home economics classes. These should be planned for and purchased after attending her first classes.

For the girls' gymnasium work a uniform suit is required. This should be obtained at the school. All freshmen and junior girls will be required to buy the regular gymnasium shoes sold at the bookstore.

Each girl should be provided with a kimono or bathrobe, a pair of bedroom slippers, at least four changes of undergarments, nightgowns, and hosiery. It is suggested that each girl be provided with two simple school dresses and a dress suitable for social occasions. Rubbers and umbrella are necessities.

TABLE OF CHARGES

Tuition fee, per term. Residents of the state.....	\$ 3.00
Non-residents	6.00
Deposit as guarantee for the return of books and other material.....	5.00
Gymnasium fee. Required of every student. Per term.....	1.00
Post-office box fee. Per term .....	.20
Textbook rental fee. For those not desiring to purchase their books. Per term	1.75
Health fee. Per term.....	2.00
Music fee. Per course.....	10.00
Room in dormitory. (Price subject to change) Per term.....	16.00
Board. First term. (Price subject to change).....	46.50
Second term (Price subject to change).....	43.00
Laundry. Per term. (Price subject to change) Required of all in dormitories	4.00
Gymnasium suits—boys. (Price subject to change).....	\$4.00-5.00
Girls. (Price subject to change).....	8.30
Average cost drawing instruments, notebooks, stationery, and supplies. Per year	\$10.00-12.00

The payments to be made to the school at time of registration are as follows:

	Fall Term	Winter Term
Student in dormitory (resident).....	\$79.25	\$66.75
Non-resident	82.25	69.75
Day student (resident).....	12.95	7.95
Non-resident	15.95	10.95

Not in attendance first term add \$5 to the winter term charges above.

DORMITORIES

Each student in attendance at the school who expects to return the following year and who desires to room in the dormitory will, before going home, make a deposit of \$2 with the cashier as evidence of good faith that he expects to return on the opening day of the following school year.

Dormitory rooms will be assigned to new students in the order in which their applications are received. Each prospective student who desires to room in the dormitory will be required to send a deposit of \$2, which will be returned in case the application is received after all dormitory rooms are spoken for.

In case of either a former student or a prospective student, this two-dollar deposit will be forfeited if the student does not appear for registration on the opening day of the school term, unless he has signified in writing to the registrar at least ten days before the opening that he does not intend to return. All money orders or checks should be made payable to University of Minnesota, Department of Agriculture.

STUDENTS' HEALTH SERVICE

A health fee of \$2 a term is paid by each student for the maintenance of the Students' Health Service. For this fee the student may receive physical examination and the professional services of the staff when needed.

For services which are specialized and individual in character, such as operations, board and laundry when in the hospital, drugs, X-rays, out-patient calls, dentistry, etc., special fees, calculated on a cost basis, are charged. No student, however, will be denied service because of inability to pay these fees.

The offices of the Health Service and the Students' Hospital and Dispensary on the University Farm campus are located in the Health Service Building. The services of the hospital and dispensary are available at all hours of the day and night. The telephone call is Nestor 2881. Physicians of the Health Service will be in attendance daily. Their office hours will be announced.

The Health Service has been established for the purpose of safeguarding the health of students. Its aims are: (1) To help each student entering the University of Minnesota to possess a healthy, vigorous, active, and harmoniously developed body, thereby contributing much to his success while in college and in later life. (2) To reduce to the very minimum that prodigious academic and economic loss due to indisposition and illness of students. Positive health is its goal.

There are four main lines to the activities of the University Health Service: (1) personal attention, (2) dental hygiene, (3) sanitation, and (4) education.

1. *Personal division.*—This division is concerned with the physical examination of students. Complete physical records of all students are kept. From each record can be determined in a large measure what procedure is essential to keep the student in the best physical condition during his academic life. The following are some of the phases of the work in the personal division:

(a) Provisions for maintaining the health of normal, physically sound students; co-operation with the Department of Physical Education regarding physical exercise; education along lines of right living; guarding environment.

(b) Protection of the physically sound student from communicable diseases that are continually creeping into the University; early detection and isolation of all cases of communicable diseases—tuberculosis, diphtheria, scarlet fever, measles, typhoid fever, smallpox, mumps, etc.

(c) Provisions for the care and treatment of such cases of communicable diseases; isolation hospital.

(d) Treatment and professional care of all students who are ill or in need of medical advice or treatment. For extended care by the Health Service, it is necessary that the student enter the Students' Hospital. To this hospital any student may be admitted upon the recommendation of a staff physician. To all patients in the hospital the staff will furnish medical and nursing services.

(e) Reconstruction and reclamation; corrections of defects, advice, and treatment of all subnormals.

2. *Dental hygiene.*—As a part of his entrance physical examination each student is given a complete dental examination by a member of the dental staff, and advised regarding the condition of his teeth. During the year, students at any time may receive dental consultation and, if they so desire, they may obtain expert dental treatment and care on a cost basis.

3. *Division of Sanitation.*—The student's environment should be made as hygienic as possible. Hence this division concerns itself with the sanitary conditions both on and off the campus. Rooming and boarding houses are both inspected and regulated.

4. *Education.*—Every student in the University is made familiar with the fundamentals of both personal and public hygiene. Through personal conferences on this subject, daily bulletins, exhibits, public lectures, etc., education in hygiene and right living is conducted.

CLASS TRUST FUNDS

The classes of 1902, 1916, 1924, and 1925 each left with the school funds "to assist by temporary loans, at a reasonable rate of interest, deserving students needing such help." Applications for loans should be made to the principal.

THE LUDDEN TRUST

The late Honorable John D. Ludden, of St. Paul, gave the University of Minnesota \$10,000, to be held, invested, and reinvested by the University through its Board of Regents, and the income thereof to be collected, received, and applied by said Board of Regents to the financial assistance of students of either sex in the School of Agriculture.

Mr. Ludden imposed the following conditions: "The beneficiaries must be youths who are residents of the State of Minnesota; they must be and continue of unblemished moral character, and of temperate and industrious habits; and they must be such as by examination and trial shall evince and maintain a taste, habit, and aptitude for study and improvement; and any student who shall fail to come, or shall cease to be, within the above conditions shall forfeit all claims to the benefits of such fund. Subject to these conditions the administration of such income is entrusted to the said

Board of Regents, which may make such rules therefor as they may deem judicious."

This fund produces \$400 a year. Those wishing to avail themselves of its benefits shall apply to the principal of the school. Application blanks may be obtained from the office of the dean of the Department of Agriculture.

THE DORR FUND

This fund was willed by the late Caleb Dorr, of Minneapolis, for the benefit of the Department of Agriculture of the University.

The income from \$20,000 of the fund is to be devoted to establishing and maintaining graduate research fellowships in agriculture; the income from the remainder to be used for scholarships, donations, and loans to worthy and needy students.

CALEB DORR CASH SCHOLARSHIP PRIZES

Cash prizes amounting to \$90 each year are offered to the students securing the highest standings in general scholarship. Of this amount \$35 will be offered each term in five prizes of \$10, \$8, \$7, \$5, and \$5. All students carrying the full work of 18 credit hours per term are eligible for these prizes. One prize of \$25 will be awarded at the close of the second term for the senior student graduating from the School of Agriculture with the highest scholarship and student activity record for the first five terms.

The awards will be made on (1) class standings as recorded by instructors for the term's work, and (2) on student activities and deportment. The class standings will count for 90 per cent and the student activities for 10 per cent. In determining the grades of scholarship the merit point system adopted by the registrar's office will be used. The rating for student activities will be based on the quality of leadership as indicated by a review of the activities participated in and the general deportment of the student during attendance at school. This rating will be determined by the scholarship committee in consultation with the preceptresses and the principal of the School of Agriculture.

Records made in gymnasium will not be counted in making the scholarship awards.

Besides the above, prizes are given for excellence in extemporaneous speaking, community betterment, essay writing, and declamation. The rules governing these scholarships may be found in the booklet of information supplied to each student at the time of his registration.

GIDEON MEMORIAL PRIZE IN HORTICULTURE

A fund of \$500 was established in memory of the late Peter Gideon, the originator of the Wealthy apple. The annual income is to be divided in three prizes for the best papers on some horticultural subject.

CADY MEMORIAL FUND

The Minnesota Garden Flower Society raised by popular subscription the LeRoy Cady scholarship fund of \$1,500, the interest from which is to be used to aid deserving students who are pursuing courses in horticulture.

ORGANIZATIONS

Students' debating societies.—Students are urged to unite with one of the eight literary societies of the school for both pleasure and profit. The work is under the supervision of one of the instructors in the rhetoric section. It affords training in parliamentary practice, public speaking, debating, and dramatic work.

Students' Christian associations.—The Young Men's and Young Women's Christian associations are voluntary organizations which have for their objects the maintenance of a positive moral and religious atmosphere and the development of a complete Christian manhood and womanhood, physical, intellectual, social, and spiritual. These associations carry on various lines of activity. Employment and housing bureaus are maintained for the use of students. A general reception is given at the beginning of each term. Each Sunday morning at 8:30 a song service is held, followed directly by meetings of Bible, mission, and rural study groups, while in the afternoon at 5:30 a vesper service is conducted. Each Thursday evening at 6:30 o'clock the men gather for a fellowship meeting, and the women for a meeting of the Student Girl Reserves Club. The work is under the direction of general secretaries and the supervision of a board of directors made up of professors, business men, and students. The associations are non-sectarian that all students may find in them an opportunity for Christian activity and mutual helpfulness.

PUBLICATIONS

Agrarian.—The *Agrarian* is an annual published by the senior class of the school. The book gives an outline of all school and class activities; is fully illustrated, and contains, in addition to brief articles and items of purely local interest, a number of contributions from students and faculty members, dealing with the various phases of agricultural education and with agricultural problems.

News of the School of Agriculture.—The *News of the School of Agriculture* is published monthly during the school year. It is managed by a student board elected by the various classes. It aims to give publicity of interest to students and alumni and to serve as a tie between the school and the alumni.

LIBRARY

The agricultural library is well equipped for supplying the needs of both undergraduate and graduate students. It contains over 20,000 volumes of general and technical literature, government reports, and 50,000 unbound pamphlets, bulletins, and reports. The general subject and author card index and the index of publications of the state experiment station are always at the disposal of students, to aid them in locating the various sources of information which the library affords. There are complete sets of all the standard encyclopedias and dictionaries, and files of over 225 popular and technical magazines and periodicals.

The librarian and her assistants are always ready and glad to give whatever assistance they can, both to those interested in special research

work and to those doing regular reference work in connection with their classes. All those wishing to read or study are made welcome and are given whatever privileges the library can provide.

ZOOLOGICAL MUSEUM

The zoological museum is on the third floor of the Administration Building, connecting with the entomology lecture room. It contains a collection of birds, a large series of mammals, shells, anatomical models, etc., all used in class instruction. One case is given up to models of injurious insects. Another case is devoted to a beautiful series of Minnesota fishes, reptiles, and amphibians, and on two sides of the large room devoted to museum purposes are cases containing thousands of pinned insects. Carefully arranged collections of typical insect groups, with explanatory text, are to be found in the demonstration cases in the hallway. Friends of the institution who are inclined to donate zoological specimens may rest assured that they will be promptly installed and given the best of care.

COURSES OF STUDY

For courses of study in agriculture, see pages 15 to 23.

For courses of study in home economics, see pages 24 to 25.

Figures following the names of courses indicate the number of credit hours. One credit hour is equivalent to one class period devoted to recitation or lecture or to two such periods devoted to laboratory work.

For description of the courses listed in the following outline see pages 26 to 37, and for schedule of classes, Part II.

See page 6 for statement with reference to home project work.

Courses which may be taken either term are indicated by (f,w), those which are offered in the fall term only are indicated by (f), and those offered only in the winter term by (w).

Every student in agriculture who plans to graduate is expected to select one of the following courses of study: (a) general farming, (b) farm mechanics, (c) grain elevator management, (d) horticultural and nursery training, or (e) livestock production.

Adults desiring a special course should consult the Enrolment Committee.

Special students of mature years, who do not desire a diploma but who wish to take special work, may, by action of the Enrolment Committee, be allowed to arrange a curriculum under the supervision of a faculty adviser. This adviser will be appointed by the Enrolment Committee after the student has consulted with the committee, and will be ordinarily a member of the division in which the student intends to take the larger part of his or her work. No special student will be eligible for a diploma until both the entrance requirements and the requirements of a prescribed course have been satisfied.

GENERAL FARMING

FRESHMAN YEAR

REQUIRED—FIRST TERM

English I, 3 (f,w)
Hygiene 1 (f,w)
Farm Arithmetic, 3 (f,w)
Judging Types and Market Classes of
Livestock, 3 (f,w)
Drawing and Farm Buildings, 3 (f,w)
Agricultural Botany, 3 (f,w)
Gymnasium, 2 (f,w)
Social Problems for Boys, 1 (f,w)
Electives, 2

REQUIRED—SECOND TERM

English II, 3 (f,w)
Soils, 3 (f,w)
Judging Breed Types of Livestock, 3 (f,w)
Animal Biology, 3 (f,w)
Gymnasium, 2 (f,w)
Electives, 6

ELECTIVES

Chemistry in Agriculture, 3(f,w)	Food Selection and Preparation, 2(f,w)
Advanced Farm Arithmetic, 3(f,w)	Landscape Gardening, 3(f)
Physiology, 3(f,w)	Elementary Beekeeping II, 3(f,w)
Farm Buildings I, 3(f,w)	Elements of Music I, 2(f,w)
Gas Engines, 3(f,w)	Elements of Music II, 2(f,w)
Mechanical Training I, 3(f,w)	Violin, $\frac{1}{2}$ (f,w) ¹
Mechanical Training II, 3(f,w)	Piano, $\frac{1}{2}$ (f,w) ¹
Food Selection and Preparation, 2(f,w)	Instrumental Music, $\frac{1}{2}$ (f,w) ²
Elementary Beekeeping I, 3(f,w)	Voice, $\frac{1}{2}$ (f,w) ²
Spelling, 1(f,w)	Orchestra, $\frac{1}{2}$ (f,w)
Penmanship, 1(f,w)	Chorus, $\frac{1}{2}$ (f,w)
Plant Propagation and Nursery Practice, 3(f)	Band, $\frac{1}{2}$ (f,w)
Floriculture, 3(w)	Harmony I, 2(f,w)
Dramatic Art, $\frac{1}{2}$ (f,w) ²	Harmony II, 2(f,w)
Debating, 1(w) ²	Appreciation of Music, 3(f,w)
Typewriting I, 3(f,w)	Instrumentation and Conducting, 3(f,w)
Bookkeeping I, 3(f,w)	Poultry Judging, 2(f,w)
Bookkeeping II, 3(f,w)	Dressed Poultry, 1(f)
	Commercial Law, 3(f,w)
	Home Projects, 1 to 3

JUNIOR YEAR

REQUIRED—FIRST TERM

English Classics, 3(f,w)
 Forage Crops and Potatoes, 3(f,w)
 Advanced Livestock Judging, 3(f) or
 Dairy Stock Judging, 2(f,w)
 Farm Horticulture, 3(f,w)
 Dairy Stock Feeding I, 3(f,w) or
 Livestock Feeding, 3(f,w)
 Gymnasium, 2(f,w)
 Electives, 3 or 4

REQUIRED—SECOND TERM

Business English, 3(f,w)
 Grain Crops, 3(f,w)
 Farm Dairying, 3(f,w)
 Poultry, 3(f,w)
 Gymnasium, 2(f,w)
 Electives, 6

ELECTIVES

Dairy Stock Feeding I, 3(f,w)
 Algebra I, 7(f,w)
 Geometry I, 7(f,w)
 Industrial History, 3(f,w)
 Insect Pests of Plants, 3(f)
 Chemistry of Plant and Animal Life I,
 3(f)
 Mechanics and Water Supply, 3(f,w)
 Parliamentary Law, 1(f,w)
 Management of Laying Flock, 1(f,w)
 Physiology and Hygiene of Breeding, 2(f)
 Orchard Fruit Growing, 3(f)
 Small Fruit Growing, 3(w)
 Elements of Bacteriology, 3(w)
 Co-operative Accounting, 3²
 Potato Production, 3(w)
 Veterinary Studies, 3(f,w)
 Advanced Beekeeping, 3(f,w)
 Dairy Stock Judging, 2(f,w)
 Land Clearing, 3(w)
 Test Association Methods, 3(w)

Livestock Feeding, 3(f,w)
 Livestock Management, 3(w)
 Greenhouse Construction and Management,
 3(w)
 Special Problems in Horticulture (w)
 Algebra II, 7(f,w)
 Geometry II, 7(f,w)
 Meats, 3(f,w)
 Advanced Livestock Judging, 3(f)
 Chemistry of Plant and Animal Life II,
 3(w)
 Heat and Electricity, 3(w)
 Incubating and Brooding, 3(w)
 Seed Testing, 2(w)
 Advanced Gas Engines, 3(f,w)
 Commercial Vegetable Gardening, 3(w)
 Weeds, 2(f)
 American History, 3(f,w)
 Forest Nursery Methods and Tree Planting,
 3(w)

¹ A special fee of \$10 is charged for this course.

² Credit for this course is allowed only under the conditions specified in the booklet of Faculty Regulations.

³ Not offered in 1930-31.

COURSES OF STUDY

17

SENIOR YEAR

REQUIRED—FIRST TERM

Public Speaking, 3(f,w)
 American Government, 3(f,w)
 Livestock Breeding, 3(f,w)
 Farm Management I, 3(f,w)
 Gymnasium, 2(f,w)
 Electives, 6

REQUIRED—SECOND TERM

English VI, 3(f,w)
 Rural Sociology, 3(f,w)
 Farm Management II, 3(f,w)
 Crop Breeding, 3(w)
 Gymnasium, 2(f,w)
 Electives, 6

ELECTIVES

Dairy Stock Feeding II, 3(w)
 Drainage and Roads, 3(f)
 Farm Implements 3(f,w)
 Economics, 3(f,w)
 English Literature I, 5(f,w)
 Grain Marketing I, 3²
 Cereal Technology, 3²
 Advanced Public Speaking, 3(w)

Plant Diseases, 3(f)
 Farm Buildings II, 3(f)
 Milk Production, 5(w)
 English Literature II, 5(w)
 Dairy Stock Selection, 3(f)
 Judging and Grading Farm Crops, 3(w)
 Grain Marketing II, 3²

FARM MECHANICS

FRESHMAN YEAR

REQUIRED—FIRST TERM

English I, 3(f,w)
 Hygiene, 1(f,w)
 Farm Arithmetic, 3(f,w)
 Judging Types and Market Classes of Livestock, 3(f,w)
 Drawing and Farm Buildings, 3(f,w)
 Agricultural Botany, 3(f,w) or Animal Biology, 3(f,w)
 Gymnasium, 2(f,w)
 Social Problems for Boys, 1(f,w)
 Electives, 2

REQUIRED—SECOND TERM

English II, 3(f,w)
 Soils, 3(f,w)
 Mechanical Training I, 3(f,w)
 Farm Buildings I, 3(f,w)
 Gymnasium, 2(f,w)
 Electives, 6

ELECTIVES

Chemistry in Agriculture, 3(f,w)
 Advanced Farm Arithmetic, 3(f,w)
 Agricultural Botany, 3(f,w)
 Animal Biology, 3(f,w)
 Poultry, 3(f,w)
 Elements of Music I, 2(f,w)
 Elements of Music II, 2(f,w)
 Penmanship, 1(f,w)
 Spelling, 1(f,w)
 Elementary Beekeeping I, 3(f,w)
 Elementary Beekeeping II, 3(f,w)
 Physiology, 3(f,w)
 Judging Breed Types of Livestock, 3(f,w)
 Food Selection and Preparation, 2(f,w)
 Dramatic Art, $\frac{1}{2}$ (f,w)²
 Debating, 1(w)²
 Typewriting I, 3(f,w)
 Bookkeeping I, 3(f,w)
 Bookkeeping II, 3(f,w)
 Violin, $\frac{1}{2}$ (f,w)²

Piano, $\frac{1}{2}$ (f,w)¹
 Instrumental Music, $\frac{1}{2}$ (f,w)¹
 Voice, $\frac{1}{2}$ (f,w)¹
 Orchestra, $\frac{1}{2}$ (f,w)
 Chorus, $\frac{1}{2}$ (f,w)
 Band, $\frac{1}{2}$ (f,w)
 Harmony I, 2(f,w)
 Harmony II, 2(f,w)
 Appreciation of Music, 3(f,w)
 Instrumentation and Conducting, 3(f,w)
 Mechanical Training II, 3(f,w)
 Poultry Judging, 2(f)
 Dressed Poultry, 1(f)
 Plant Propagation and Nursery Practice, 3(f)
 Floriculture, 3(w)
 Landscape Gardening, 3(f)
 Commercial Law, 3(f,w)
 Home Projects, 1 to 3

¹ A special fee of \$10 is charged for this course.

² Credit for this course is allowed only under the conditions specified in the booklet of Faculty Regulations.

³ Not offered in 1930-31.

JUNIOR YEAR

REQUIRED—FIRST TERM

English Classics, 3(f,w)
 Forage Crops and Potatoes, 3(f,w)
 Farm Horticulture, 3(f,w) or
 Advanced Livestock Judging, 3(f)
 Gas Engines, 3(f,w)
 Mechanics and Water Supply, 3(f,w)
 Gymnasium, 2(f,w)
 Electives, 3

REQUIRED—SECOND TERM

Business English, 3(f,w)
 Grain Crops, 3(f,w) or
 Farm Horticulture, 3(f,w)
 Farm Dairying, 3(f,w)
 Heat and Electricity, 3(w)
 Gymnasium, 2(f,w)
 Electives, 6

ELECTIVES

Dairy Stock Feeding I, 3(f,w)
 Algebra I, 7(f,w)
 Insect Pests of Plants, 3(f)
 Parliamentary Law, 1(f,w)
 Veterinary Studies, 3(f,w)
 Chemistry of Plant and Animal Life I,
 3(f)
 Geometry I, 7(f,w)
 Farm Horticulture, 3(f,w)
 Test Association Methods, 3(w)
 Dairy Stock Judging, 2(f,w)
 Industrial History, 3(f,w)
 Physiology and Hygiene of Breeding,
 2(f)
 Management of Laying Flock, 1(f,w)
 Orchard Fruit Growing, 3(f)
 Small Fruit Growing, 3(w)
 Commercial Vegetable Gardening, 3(w)
 Co-operative Accounting, 3^a
 Weeds, 2(f)
 Special Problems in Horticulture, (w)

Greenhouse Construction and Management,
 3(w)
 Livestock Feeding, 3(f,w)
 Livestock Management, 3(w)
 Algebra II, 7(f,w)
 Meats, 3(f,w)
 Geometry II, 7(f,w)
 Advanced Livestock Judging, 3(f)
 Elements of Bacteriology, 3(w)
 Chemistry of Plant and Animal Life II,
 3(w)
 Cereal Crops, 3(f,w)
 Seed Testing, 2(w)
 Incubating and Brooding, 3(w)
 Forest Nursery Methods and Tree Planting,
 3(w)
 American History, 3(f,w)
 Advanced Beekeeping, 3(f,w)
 Potato Production, 3(w)
 Land Clearing, 3(w)

SENIOR YEAR

REQUIRED—FIRST TERM

Public Speaking, 3(f,w)
 Farm Buildings II, 3(f) or
 Drainage and Roads, 3(f)
 Rural Sociology, 3(f,w)
 Farm Implements, 1(f,w)
 Farm Management I, 3(f,w)
 Gymnasium, 2(f,w)
 Electives, 3

REQUIRED—SECOND TERM

English VI, 3(f,w)
 American Government, 3(f,w)
 Farm Management II, 3(f,w)
 Advanced Gas Engines, 3(f,w)
 Gymnasium, 2(f,w)
 Electives, 6

ELECTIVES

Drainage and Roads, 3(f)
 Farm Buildings II, 3(f)
 Economics, 3(f,w)
 Dairy Stock Feeding II, 3(w)
 Plant Diseases, 3(f)
 Livestock Breeding, 3(f,w)
 English Literature I, 5(f,w)
 Grain Marketing I, 3^a

Dairy Stock Selection, 3(f)
 Advanced Public Speaking, 3(w)
 Milk Production, 5(w)
 Crop Breeding, 3(w)
 English Literature II, 5(w)
 Judging and Grading Farm Crops, 3(w)
 Cereal Technology, 3^a
 Grain Marketing II, 3^a

^a Not offered in 1930-31.

GRAIN ELEVATOR MANAGEMENT³

FRESHMAN YEAR

REQUIRED—FIRST TERM

English I, 3(f,w)
 Hygiene, 1(f,w)
 Farm Arithmetic, 3(f,w)
 Grain Crops, 3(f,w)
 Gas Engines, 3(f,w)
 Gymnasium, 2(f,w)
 Social Problems for Boys, 1(f,w)
 At least 3 credits chosen from:
 Agricultural Botany, 3(f,w)
 Chemistry of Plant and Animal
 Life I, 3(f,w)
 Judging Types and Market Classes
 of Livestock, 3(f,w)
 Penmanship, 1(f,w)
 Electives, 2

REQUIRED—SECOND TERM

English II, 3(f,w)
 Advanced Farm Arithmetic, 3(f,w)
 Forage Crops and Potatoes, 3(f,w)
 Soils, 3(f,w)
 Mechanical Training I, 3(f,w)
 Gymnasium, 2(f,w)
 Electives, 3

ELECTIVES

Chemistry in Agriculture, 3(f,w)	Dressed Poultry, 1(f)
Food Selection and Preparation, 2(f,w)	Judging Breed Types of Livestock, 3(f,w)
Judging Types and Market Classes of Livestock, 3(f,w)	Animal Biology, 3(f,w)
Drawing and Farm Buildings, 3(f,w)	Landscape Gardening, 3(f)
Agricultural Botany, 3(f,w)	Elementary Beekeeping II, 3(f,w)
Physiology, 3(f,w)	Elements of Music I, 2(f,w)
Farm Buildings I, 3(f,w)	Elements of Music II, 2(f,w)
Elementary Beekeeping I, 3(f,w)	Violin, $\frac{1}{2}$ (f,w) ¹
Spelling, 1(f,w)	Piano, $\frac{1}{2}$ (f,w) ¹
Penmanship, 1(f,w)	Instrumental Music, $\frac{1}{2}$ (f,w) ¹
Plant Propagation and Nursery Practice, 3(f)	Voice, $\frac{1}{2}$ (f,w) ¹
Floriculture, 3(w)	Orchestra, $\frac{1}{2}$ (f,w)
Dramatic Art, $\frac{1}{2}$ (f,w) ²	Chorus, $\frac{1}{2}$ (f,w)
Debating, 1(w) ²	Band, $\frac{1}{2}$ (f,w)
Typewriting I, 3(f,w)	Harmony I, 2(f,w)
Mechanical Training II, 3(f,w)	Harmony II, 2(f,w)
Poultry Judging, 2(f)	Appreciation of Music, 3(f,w)
	Instrumentation and Conducting, 3(f,w)
	Home Projects, 1 to 3

JUNIOR YEAR

REQUIRED—FIRST TERM

English Classics, 3(f,w)
 Dairy Stock Feeding I, 3(f,w)
 Bookkeeping I, 3(f,w)
 Insect Pests of Plants, 3(f)
 Gymnasium, 2(f,w)
 At least 3 credits chosen from:
 Farm Buildings I, 3(f,w)
 Mechanics and Water Supply, 3(f,w)
 Typewriting I, 3(f,w)
 Electives, 3

REQUIRED—SECOND TERM

Business English, 3(f,w)
 Co-operative Accounting, 3²
 Commercial Law, 3(f,w)
 Economics, 3(f,w)
 Parliamentary Law, 1(f,w)
 Seed Testing, 2(w)
 Gymnasium, 2(f,w)
 Electives, 3

¹ A special fee of \$10 is charged for this course.

² Credit for this course is allowed only under the conditions specified in the booklet of Faculty Regulations.

³ Not offered in 1930-31.

ELECTIVES

Bookkeeping II, 3(f,w)	Poultry, 3(f,w)
Advanced Livestock Judging, 3(f)	Greenhouse Construction and Management, 3(w)
Dairy Stock Judging, 2(f,w)	Special Problems in Horticulture, (w)
Farm Horticulture, 3(f,w)	Algebra II, 7(f,w)
Algebra I, 7(f,w)	Geometry II, 7(f,w)
Geometry I, 7(f,w)	Meats, 3(f,w)
Industrial History, 3(f,w)	Chemistry of Plant and Animal Life II, 3(w)
Chemistry of Plant and Animal Life I, 3(f)	Heat and Electricity, 3(w)
Mechanics and Water Supply, 3(f,w)	Incubating and Brooding, 3(w)
Management of Laying Flock, 1(f,w)	Advanced Gas Engines, 3(f,w)
Physiology and Hygiene of Breeding, 2(f)	Commercial Vegetable Gardening, 3(w)
Orchard Fruit Growing, 3(f)	Livestock Feeding, 3(f,w)
Small Fruit Growing, 3(w)	Livestock Management, 3(w)
Elements of Bacteriology, 3(w)	Weeds, 2(f)
Potato Production, 3(w)	American History, 3(f,w)
Advanced Beekeeping, 3(f,w)	Forest Nursery Methods and Tree Planting, 3(w)
Land Clearing, 3(w)	Test Association Methods, 3(w)
Veterinary Studies, 3(f,w)	
Farm Dairying, 3(f,w)	

SENIOR YEAR

REQUIRED—FIRST TERM

Public Speaking, 3(f,w)
 American Government, 3(f,w)
 Farm Management I, 3(f,w)
 Grain Marketing I, 3^a
 Gymnasium, 2(f,w)
 Electives, 6

REQUIRED—SECOND TERM

English VI, 3(f,w)
 Cereal Technology, 3^a
 Crop Breeding, 3(w)
 Grain Marketing II, 3^a
 Judging and Grading Farm Crops, 3(w)
 Farm Management II, 3(f,w)
 Gymnasium, 2(f,w)

ELECTIVES

Livestock Breeding, 3(f,w)	Advanced Public Speaking, 3(w)
Rural Sociology, 3(f,w)	Plant Diseases, 3(f)
Dairy Stock Feeding II, 3(w)	Farm Buildings II, 3(f)
Drainage and Roads, 3(f)	Milk Production, 5(w)
Farm Implements, 3(f,w)	English Literature II, 5(w)
English Literature I, 5(f,w)	Dairy Stock Selection, 3(f)

HORTICULTURAL AND NURSERY TRAINING

FRESHMAN YEAR

REQUIRED—FIRST TERM

English I, 3(f,w)
 Hygiene, 1(f,w)
 Farm Arithmetic, 3(f,w)
 Agricultural Botany, 3(f,w)
 Farm Horticulture, 3(f,w)
 Plant Propagation and Nursery Practice, 3(f)
 Social Problems for Boys, 1(f,w)
 Gymnasium, 2(f,w)
 Electives, 2

REQUIRED—SECOND TERM

English II, 3(f,w)
 Soils, 3(f,w)
 Drawing and Farm Buildings, 3(f,w)
 Floriculture, 3(w)
 Commercial Vegetable Gardening, 3(w)
 Gymnasium, 2(f,w)
 Judging Types and Market Classes of Livestock, 3(f,w)

^a Not offered in 1930-31.

COURSES OF STUDY

21

ELECTIVES

Chemistry in Agriculture, 3(f,w)	Gas Engines, 3(f,w)
Judging Breed Types of Livestock, 3(f,w)	Farm Buildings I, 3(f,w)
Elementary Beekeeping I, 3(f,w)	Poultry, 3(f,w)
Advanced Farm Arithmetic, 3(f,w)	Poultry Judging, 2(f)
Elements of Music I, 2(f,w)	Dressed Poultry, 1(f)
Elements of Music II, 2(f,w)	Chorus, $\frac{1}{2}$ (f,w)
Spelling, 1(f,w)	Violin, $\frac{1}{2}$ (f,w) ¹
Pennmanship, 1(f,w)	Piano, $\frac{1}{2}$ (f,w) ¹
Physiology, 3(f,w)	Instrumental Music, $\frac{1}{2}$ (f,w) ¹
Dramatic Art, $\frac{1}{2}$ (f,w) ²	Orchestra, $\frac{1}{2}$ (f,w)
Debating, 1(w) ²	Voice, $\frac{1}{2}$ (f,w) ¹
Typewriting I, 3(f,w)	Band, $\frac{1}{2}$ (f,w)
Food Selection and Preparation, 2(f,w)	Harmony I, 2(f,w)
Appreciation of Music, 3(f,w)	Harmony II, 2(f,w)
Instrumentation and Conducting, 3(f,w)	Commercial Law, 3(f,w)
Elementary Beekeeping II, 3(f,w)	Home Project, 1 to 3

JUNIOR YEAR

REQUIRED—FIRST TERM

English Classics, 3(f,w)
 Chemistry of Plant and Animal Life I, 3(f)
 Gas Engines, 3(f,w) or
 Mechanical Training I, 3(f,w)
 Animal Biology, 3(f,w)
 Landscape Gardening, 3(f)
 Gymnasium, 2(f,w)
 Electives, 3

REQUIRED—SECOND TERM

Business English, 3(f,w)
 Chemistry of Plant and Animal Life II, 3(w)
 Seed Testing, 2(w)
 Forest Nursery Methods and Tree Planting, 3(w)
 Greenhouse Construction and Management, 3(w)
 Gymnasium, 2(f,w)
 Electives, 4

ELECTIVES

Grain Crops, 3(f,w)	Meats, 3(f,w)
Forage Crops and Potatoes, 3(f,w)	Mechanical Training II, 3(f,w)
Dairy Stock Feeding I, 3(f,w)	Mechanics and Water Supply, 3(f,w)
Advanced Gas Engines, 3(f,w)	Heat and Electricity, 3(w)
Orchard Fruit Growing, 3(f)	Potato Production, 3(w)
Special Problems in Horticulture (w)	Weeds, 2(f)
Management of Laying Flock, 1(f,w)	Incubating and Brooding, 3(w)
Algebra I, 7(f,w)	Algebra II, 7(f,w)
Geometry I, 7(f,w)	Geometry II, 7(f,w)
Industrial History, 3(f,w)	American History, 3(f,w)
Elements of Bacteriology, 3(w)	Physiology and Hygiene of Breeding, 2(f)
Veterinary Studies, 3(f,w)	Livestock Feeding, 3(f,w)
Advanced Beekeeping, 3(f,w)	Livestock Management, 3(w)
Parliamentary Law, 1(f,w)	Farm Dairying, 3(f,w)
Land Clearing, 3(w)	Co-operative Accounting, 3*
Dairy Stock Judging, 2(f,w)	Test Association Methods, 3(w)
Advanced Livestock Judging, 3(f)	

¹ A special fee of \$10 is charged for this course.

² Credit for this course is allowed only under the conditions specified in the booklet of Faculty Regulations.

* Not offered in 1930-31.

THE SCHOOL OF AGRICULTURE

SENIOR YEAR

REQUIRED—FIRST TERM

Public Speaking, 3(f,w)
 American Government, 3(f,w)
 Plant Diseases, 3(f,w)
 Insect Pests of Plants, 3(f)
 Gymnasium, 2(f,w)
 Electives, 6

REQUIRED—SECOND TERM

English VI, 3(f,w)
 Rural Sociology, 3(f,w)
 Crop Breeding, 3(w)
 Bookkeeping I, 3(f,w)
 Small Fruit Growing, 3(w)
 Gymnasium, 2(f,w)
 Electives, 3

ELECTIVES

Judging and Grading Farm Crops, 3(w)
 Farm Implements, 3(f,w)
 Farm Management I, 3(f,w)
 Dairy Stock Feeding II, 3(w)
 Drainage and Roads, 3(f)
 English Literature I, 5(f,w)
 Economics, 3(f,w)
 Cereal Technology, 3²
 Farm Management II, 3(f,w)

Livestock Breeding, 3(f,w)
 Milk Production, 5(w)
 Dairy Stock Selection, 3(f)
 Farm Buildings II, 3(f)
 English Literature II, 5(w)
 Advanced Public Speaking, 3(w)
 Grain Marketing I, 3²
 Grain Marketing II, 3²

LIVESTOCK PRODUCTION

FRESHMAN YEAR

REQUIRED—FIRST TERM

English I, 3(f,w)
 Hygiene, 1(f,w)
 Farm Arithmetic, 3(f,w)
 Judging Types and Market Classes of Livestock, 3(f,w)
 Drawing and Farm Buildings, 3(f,w)
 Agricultural Botany, 3(f,w)
 Gymnasium, 2(f,w)
 Social Problems for Boys, 1(f,w)
 Electives, 2

REQUIRED—SECOND TERM

English II, 3(f,w)
 Soils, 3(f,w)
 Judging Breed Types of Livestock, 3(f,w)
 Animal Biology, 3(f,w)
 Gymnasium, 2(f,w)
 Electives, 6

ELECTIVES

Chemistry in Agriculture, 3(f,w)
 Advanced Farm Arithmetic, 3(f,w)
 Physiology, 3(f,w)
 Mechanical Training II, 3(f,w)
 Farm Buildings I, 3(f,w)
 Gas Engines, 3(f,w)
 Elementary Beekeeping I, 3(f,w)
 Elementary Beekeeping II, 3(f,w)
 Mechanical Training I, 3(f,w)
 Spelling, 1(f,w)
 Penmanship, 1(f,w)
 Poultry, 3(f,w)
 Poultry Judging, 2(f)
 Dressed Poultry, 1(f)
 Farm Horticulture, 3(f,w)
 Dramatic Art, $\frac{1}{2}$ (f,w)²
 Debating, 1(w)²
 Typewriting I, 3(f,w)
 Bookkeeping I, 3(f,w)
 Elements of Music I, 2(f,w)

Food Selection and Preparation, 2(f,w)
 Elements of Music II, 2(f,w)
 Violin, $\frac{1}{2}$ (f,w)¹
 Piano, $\frac{1}{2}$ (f,w)¹
 Instrumental Music, $\frac{1}{2}$ (f,w)¹
 Voice, $\frac{1}{2}$ (f,w)¹
 Orchestra, $\frac{1}{2}$ (f,w)
 Chorus, $\frac{1}{2}$ (f,w)
 Band, $\frac{1}{2}$ (f,w)
 Harmony I, 2(f,w)
 Harmony II, 2(f,w)
 Appreciation of Music, 3(f,w)
 Instrumentation and Conducting, 3(f,w)
 Plant Propagation and Nursery Practice, 3(f)
 Floriculture, 3(w)
 Landscape Gardening, 3(f)
 Bookkeeping II, 3(f,w)
 Commercial Law, 3(f,w)
 Home Project, 1 to 3

¹ A special fee of \$10 is charged for this course.

² Credit for this course is allowed only under the conditions specified in the booklet of Faculty Regulations.

³ Not offered in 1930-31.

COURSES OF STUDY

23

JUNIOR YEAR

REQUIRED—FIRST TERM

English Classics, 3(f,w)
 Forage Crops and Potatoes, 3(f,w)
 Advanced Livestock Judging, 3(f) or
 Dairy Stock Judging, 2(f,w)
 Physiology and Hygiene of Breeding, 2(f)
 Livestock Feeding, 3(f,w) or
 Dairy Stock Feeding I, 3(f,w)
 Veterinary Studies, 3(f,w)
 Gymnasium, 2(f,w)
 Electives, 1 or 2

REQUIRED—SECOND TERM

Business English, 3(f,w)
 Meats, 3(f,w)
 Farm Dairying, 3(f,w)
 Gymnasium, 2(f,w)
 Electives, 9

ELECTIVES

Insect Pests of Plants, 3(f)
 Chemistry of Plant and Animal Life I,
 3(f)
 Mechanics and Water Supply, 3(f,w)
 Algebra I, 7(f,w)
 Industrial History, 3(f,w)
 Parliamentary Law, 1(f,w)
 Geometry I, 7(f,w)
 Management of Laying Flock, 1(f,w)
 Orchard Fruit Growing, 3(f)
 Small Fruit Growing, 3(w)
 Algebra II, 7(f,w)
 Geometry II, 7(f,w)
 Co-operative Accounting, 3^a
 Potato Production, 3(w)
 Special Problems in Horticulture (w)
 Advanced Livestock Judging, 3(f)
 Land Clearing, 3(w)
 Livestock Feeding, 3(f,w)

Dairy Stock Feeding I, 3(f,w)
 Greenhouse Construction and Management,
 3(w)
 Heat and Electricity, 3(w)
 Grain Crops, 3(f,w)
 Test Association Methods, 3(w)
 Incubating and Brooding, 3(w)
 Advanced Gas Engines, 3(f,w)
 Commercial Vegetable Gardening, 3(w)
 Elements of Bacteriology, 3(w)
 Seed Testing, 2(w)
 Chemistry of Plant and Animal Life II,
 3(w)
 Weeds, 2(f)
 American History, 3(f,w)
 Advanced Beekeeping, 3(f,w)
 Dairy Stock Judging, 2(f,w)
 Forest Nursery Methods and Tree Planting,
 3(w)

SENIOR YEAR

REQUIRED—FIRST TERM

Public Speaking, 3(f,w)
 American Government, 3(f,w)
 Dairy Stock Feeding II, 3(w) or
 Livestock Management, 3(w)
 or Milk Production, 5(w)
 Livestock Breeding, 3(f,w) for men or
 Problems in Livestock Improvement,
 3(w) for women
 Farm Management I, 3(f,w)
 Gymnasium, 2(f,w)
 Electives, 0 or 1

REQUIRED—SECOND TERM

English VI, 3(f,w)
 Rural Sociology, 3(f,w)
 Farm Management II, 3(f,w)
 Gymnasium, 2(f,w)
 Electives, 9

ELECTIVES

Plant Diseases, 3(f)
 Crop Breeding, 3(w)
 Farm Buildings II, 3(f)
 Drainage and Roads, 3(f)
 Farm Implements, 3(f,w)
 Economics, 3(f,w)
 English Literature I, 5(f,w)
 Livestock Management, 3(w)
 Grain Marketing I, 3^a

Milk Production, 5(w)
 Dairy Stock Feeding II, 3(w)
 Dairy Stock Selection, 3(f)
 English Literature II, 5(w)
 Advanced Public Speaking, 3(w)
 Judging and Grading Farm Crops, 3(w)
 Cereal Technology, 3^a
 Grain Marketing II, 3^a

^a Not offered in 1930-31.

THE SCHOOL OF AGRICULTURE

HOME ECONOMICS

The Home Economics Course is planned primarily to train girls for home making, but in addition it is possible for them to elect work along several different lines in preparation for wage earning. The elective work in millinery and in dressmaking would be sufficiently comprehensive to enable them to utilize their training for wage earning in these occupations. Certain hospitals will accept graduates of the School of Agriculture as probationers for the nurses' training. Courses in music give, to those who have special ability along that line, an opportunity to learn to conduct community singing, orchestras, and to give elementary instruction in music. Each girl makes her program under the direction of one of the members of the Home Economics faculty.

FRESHMAN YEAR

REQUIRED—FIRST TERM

Related Science I, 3(f,w)
 English I, 3(f,w)
 Selection and Preparation of Food, 3(f,w)
 Clothing I, 3(f,w)
 Design, 2(f,w)
 Physical Training, 2(f,w)
 Electives, 2
 Social Training, 2(f,w)

REQUIRED—SECOND TERM

Related Science II, 3(f,w)
 English II, 3(f,w)
 Meal Preparation, 3(f,w)
 Clothing II, 3(f,w)
 Electives, 6
 Physical Training, 2(f,w)

ELECTIVES

Chemistry in Agriculture, 3(f,w)
 Elements of Music I, 2(f,w)
 Elements of Music II, 2(f,w)
 Chorus, $\frac{1}{2}$ (f,w)
 Violin, $\frac{1}{2}$ (f,w)¹
 Piano, $\frac{1}{2}$ (f,w)¹
 Voice, $\frac{1}{2}$ (f,w)¹
 Instrumental Music, $\frac{1}{2}$ (f,w)¹
 Orchestra, $\frac{1}{2}$ (f,w)
 Dramatic Art, $\frac{1}{2}$ (f,w)²
 Debating, 1(w)²
 Harmony I, 2(f,w)
 Harmony II, 2(f,w)
 Appreciation of Music, 3(f,w)
 Instrumentation and Conducting, 3(f,w)
 Poultry Judging, 2(f)
 Dressed Poultry, 1(f)
 Physiology, 3(f,w)
 Typewriting I, 3(f,w)

Stenography I, 3(f,w)
 Bookkeeping I, 3(f,w)
 Bookkeeping II, 3(f,w)
 Spelling, 1(f,w)
 Penmanship, 1(f,w)
 Poultry, 3(f,w)
 Elementary Beekeeping I, 3(f,w)
 Elementary Beekeeping II, 3(f,w)
 Farm Horticulture, 3(f,w)
 Landscape Gardening, 3(f)
 Plant Propagation and Nursery Practice,
 3(f)
 Floriculture, 3(w)
 Farm Arithmetic, 3(f,w)
 Advanced Farm Arithmetic, 3(f,w)
 Agricultural Botany, 3(w)
 Commercial Law, 3(f,w)
 Home Project, 1 to 3

JUNIOR YEAR

REQUIRED—FIRST TERM

English Classics, 3(f,w)
 Food and Nutrition, 2(f,w)
 Textiles and Dressmaking I, 3(f)
 Home Nursing and Hygiene I, 2(f,w)
 Electives, 8
 Physical Training, 2(f,w)

REQUIRED—SECOND TERM

Business English, 3(f,w)
 Biology, 3(w)
 House Planning and Furnishing, 3(f,w)
 American History, 3(f,w)
 Electives, 6
 Physical Training, 2(f,w)

¹ A special fee of \$10 is charged for this course.

² Credit for this course is allowed only under the conditions specified in the booklet of Faculty Regulations.

ELECTIVES

Millinery, 3(f,w)	Algebra I, 7(f,w)
Advanced Millinery, 3(w)	Algebra II, 7(f,w)
Decorative Needlework, 3(w)	Geometry I, 7(f,w)
Chemistry of Plant and Animal Life I, 3(f) ²	Geometry II, 7(f,w)
Elements of Bacteriology, 3(w) ²	Industrial History, 3(f,w)
Household Physics, 3(f)	Parliamentary Law, 1(f,w)
Utilization of Meats, 3(w)	Chemistry of Plant and Animal Life II, 3(w) ²
Advanced Beekeeping, 3(f,w)	Insect Pests of Plants, 3(f)
Farm Dairying, 3(f,w)	Orchard Fruit Growing, 3(f)
Stenography II, 3(f,w) ²	Small Fruit Growing, 3(w)
Stenography III, 3(f,w)	Incubation and Brooding, 3(w)
Typewriting II, 3(f,w)	Management of Laying Flock, 1(f,w)
Typewriting III, 3(f,w)	

SENIOR YEAR

REQUIRED—FIRST TERM

Public Speaking, 3(f,w)
 American Government, 3(f,w)
 Home Management, 3(f,w)
 Electives, 9
 Physical Training, 2(f,w)

REQUIRED—SECOND TERM

English VI, 3(f,w)
 Rural Sociology, 3(f,w)
 Home Nursing and Hygiene II, 2(w)
 Textiles and Dressmaking II, 3(w)
 Child Care and Training, 2(w)
 Electives, 5
 Physical Training, 2(f,w)

ELECTIVES

Trade Dressmaking, 5 ³	English Literature I, 5(f,w)
Trade Millinery, 5 ³	English Literature II, 5(w)
Economics, 3(f,w)	Plant Diseases, 3(f)
Advanced Public Speaking, 3(w)	

ADMISSION TO THE COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

Graduates of the School of Agriculture of the University of Minnesota who have completed the two summers of supervised farm work offered in the school course, one additional school year, and one additional summer's work, or the equivalent thereof, will be admitted to the College of Agriculture, Forestry, and Home Economics.

² Courses should be elected by those who contemplate taking the nurses' training upon graduation.

³ Not offered in 1930-31.

DESCRIPTION OF COURSES

AGRICULTURAL BIOCHEMISTRY

- A1-2. Chemistry of Plant and Animal Life. The fundamental principles of chemistry necessary for an understanding of common daily phenomena. The scope of agricultural chemistry and the help which the farmer may expect from the chemical laboratories of the state are outlined. (Equivalent of high school chemistry.)
- A3. Cereal Technology. Lecture, laboratory and demonstration course dealing with the fundamental bases of grain grading, the merchandising, storage, and utilization of grain crops.
- A4. Chemistry in Agriculture. A survey discussion—lecture course indicating the important part that chemistry plays in agriculture and modern civilization. (Not equivalent of high school chemistry.)

AGRICULTURAL ENGINEERING

- A10. Farm Implements. Studies and discussions of the selection, operation, and care of farm machinery, also the cost, depreciation, deficiency, and adaptability of the various machines to the work to be accomplished.
- A11. Gas Engines. Theory and practice work in gasoline and kerosene engines.
- A12. Advanced Gas Engines. An advanced course in gasoline and kerosene engines and tractors, giving attention to adjustments, care, and operation.
- A16. Mechanical Training I. General. Instruction and laboratory practice in rope splicing, knots, belt lacing, pulleys and shafting, soldering, electric wiring, and cement work.
- A17. Mechanical Training II. Iron Work. Instruction and laboratory practice in pipe fitting, valves, babbiting, roller and ball bearings, forge work and cold metal work.
- A18. Mechanics and Water Supply. The mechanics of solids, liquids, and gases. Special emphasis is given to water supplies, water systems, sewage disposals, weather conditions, and forecasts. Laboratory work will be a part of this course.
- A19. Heat and Electricity. Heat and electricity as applied to home heating and lighting, with a study of electric batteries, motors, and other appliances. Laboratory work will be given.
- A21. Farm Buildings I. Each student is required to sharpen tools and is given instruction in painting, estimating building materials, and farm building construction.
- A31. Drawing and Farm Buildings. Sketching, practice in pictorial drawing, and drawing farm building plans. Set of instruments not required.
- A32. Farm Buildings II. Location, planning, construction and maintenance of farm buildings.

- A41. Household Physics. Household mechanics, air, and water pressure, heat, and electricity. The economics of power, heat, light, and electricity in the home are considered.
- A51. Drainage and Roads. Conditions requiring, purposes of, benefits from drainage. Legal organization for extensive drainage. Kinds of drainage; essential features of a drainage system; practice ditching and tile laying to grade. Soil erosion control. Country road administration; earth road construction and maintenance.
- A52. Land Clearing. Systematized development of timber land farms; brushing; burning; timber salvage for fences, buildings, and fuel; stump and stone removal; blasting temporary ditches; breaking and management of virgin timber soils.

AGRONOMY AND PLANT GENETICS

- A1. Grain Crops. Including the history, culture, judging, and uses of the important grain crops including corn.
- A2. Forage Crops and Potatoes. A study of the characteristics, growing, harvesting, and storing of the important forage and silage crops followed by a brief study of potatoes as a field crop.
- A3. Judging and Grading Farm Crops. Factors which influence the value of crops for seed, feed, and market, with practice in comparative judging and the application of federal grades.
- A5. Crop Breeding. Modern methods of propagating and breeding the various farm and horticultural crops with plans for growing and certifying pedigreed seed.

ANIMAL HUSBANDRY

- A1. Judging Types and Market Classes of Livestock. The livestock industry; demonstration of types and market classes of cattle, horses, sheep, and swine, and their relation to production; score card practice and the fundamentals of livestock judging.
- A2. Judging Breed Types of Livestock. The origin, present day characteristics and adaptability of the breeds of cattle, horses, sheep, and swine. Practice in judging purebred animals.
- A3. Advanced Livestock Judging. Practice in judging livestock from both the market type and breed standpoint.
- A4. Meats. Lectures, demonstrations, and practice work in dressing animals, cutting and curing meats.
- A5. Livestock Breeding. Livestock improvement and variation, heredity, environment and selection as factors therein; line breeding, inbreeding, crossbreeding and grading up; the purebred sire; pedigree registration; practical breeders' problems.
- A7. Utilization of Meats. Lectures on methods of utilizing cuts from the beef, pork, and mutton carcass; curing and storing of meats for summer use; laboratory practice in preparing cuts of meat for cooking;

sausage making and lard rendering. (This course is intended primarily for women students.)

- A8. Problems in Livestock Improvement. Methods used in improving the various types of livestock. The problems of heredity, variation, environment, and selection as affecting livestock improvement. Herd record keeping and the registration of purebred livestock.
- A9. Livestock Feeding. The important principles involved in the selection of feeds, preparation of feeds, and methods of feeding beef cattle, swine, sheep, and horses.
- A10. Livestock Management. The business side of livestock production, buying and selling animals, housing, care, and sanitary measures necessary to success.

DAIRY HUSBANDRY

- A1. Dairy Stock Feeding I. The principles of feeding. A study of feed-stuffs, formulation of rations, feeding the dairy cow.
- A2. Farm Dairying. Milk, its composition, properties, clean production, and care. Principles of, and practice in, separating, testing, and farm butter making. Forms and methods of marketing.
- A3. Dairy Stock Judging. Practice in judging dairy cattle both from the standpoint of the farmer who is interested in the production of dairy products for market and the breeder of purebred cattle.
- A5. Milk Production. Characteristics of the dairy breeds, selection, care and management of the dairy herd, selection of the sire, calf-raising; dairy barns.
- A6. Dairy Stock Feeding II. An advanced course dealing with rations and special feeding problems.
- A7. Dairy Stock Selection. A study of type, comparative judging, a study of pedigrees in relation to values. Visits to noted herds near the Twin Cities.
- A8. Test Association Methods. A study of methods, organization, and procedure in cow testing associations; designed to fit the student to serve as a tester.

ENTOMOLOGY AND ECONOMIC ZOOLOGY

- A1. Animal Biology. Fundamental principles of animal life such as metabolism, respiration, digestion, growth, and reproduction. The more important groups of the animal kingdom and their relation to man.
- A3. Biology. Such topics as inheritance, reproduction, natural selection, nervous activity, and metamorphosis are dealt with.
- A4. Elementary Beekeeping I. Fundamentals of bee behavior and of beekeeping practice during spring and early summer; spring management. Swarming, swarm control, and increase.
- A5. Elementary Beekeeping II. Fundamentals of bee behavior and of beekeeping practice during late summer, fall, and winter. Production of extracted honey, comb honey, and wax. Feeding, requeening. Wintering of bees. Bee diseases.

- A6. Advanced Beekeeping. Commercial and out-apiaries. Migratory beekeeping. Package bees and nuclei. Home queen rearing. Marketing of honey.
- A16. Insect Pests of Plants. Life cycles of insect pests injurious to cultivated plants and methods of combating them.

FARM MANAGEMENT AND AGRICULTURAL ECONOMICS

- A1. Co-operative Accounting. Nature and kind of accounts for co-operative business. Practice in properly recording business transactions, preparation and interpretation of balance sheets and income statements for various types of co-operative organizations.
- A21. Farm Management I (Records). Practice in taking farm inventories and in keeping labor, crop, field, and feed records. Studies of cost of production. The use of farm capital; mortgages; farm loans; contracts; deeds; taxes; insurance; general farm business methods.
- A22. Farm Management II (Organization). Farm organization as related to types of farming, combinations of enterprises, crop rotation, soil management, field and farmstead arrangement, and the efficient use of labor and equipment.
- A40. Grain Marketing I. Management problems of the grain business in local markets. Financial and business organization of local grain elevators. Analysis of buying, selling, hedging, and sideline problems.
- A41. Grain Marketing II. Organization of terminal grain markets and their relation to country grain business; function of grain exchanges, future trading, commission firms, terminal elevators, and central co-operative organizations.

FORESTRY

- A1w. Forest Nursery Methods and Tree Planting. Seed collecting, storing, sowing, raising seedlings, transplanting, packing for shipment; woodlot and windbreak plans, kinds of trees used, planting and care.

GYMNASIUM AND PHYSICAL TRAINING

MEN

The gymnasium with its facilities is kept open every afternoon and evening for the use of students.

The primary aim of the gymnasium work is to provide exercise and recreation for all the students of the school. Interclass basket-ball, volley ball, indoor baseball, track meets, and handball tournaments are organized, and interscholastic competition in track and basket-ball is provided for.

Special attention is given to teaching such games as tennis, handball, volley ball, baseball, boxing and wrestling, with the thought that such games can be continued at home, thereby helping in making the home and community life more interesting.

- A1. Gymnasium. Proper use of gymnasium facilities, swimming, various athletic games and how to play them. Emphasis placed on athletic games as a means of recreation as well as physical development.

WOMEN

The aim of this department is to maintain the health of the student; to give gymnastic exercises and deep breathing; to stimulate functional activity, and to give co-ordination and poise. The department offers opportunities for swimming in the gymnasium swimming pool, organized games, cross-country tramps, and skating.

All girls entering the school for the first time are required to take a physical examination. This examination is conducted by the director of health and physical education for women, and a corps of doctors and nurses. It consists of an examination of the heart and lungs, nose and throat, spine and feet. Height and weight are measured, eyes and ears tested. Medical advice is given and recommendations for special exercises are made for students who would be benefited by them.

A1. Freshman Physical Training. Formal gymnastics, games, beginning apparatus work, folk dancing, remedial gymnastics, and swimming.

HOME ECONOMICS

- A1. Clothing I. Study of materials used for construction of simple undergarments and children's clothes; comparison with ready-made garments; use and care of sewing machines; use of commercial patterns.
- A2. Clothing II. Study of cotton and linen fabrics; selection and construction of a simple wash dress; comparison with ready-made dresses. Care of clothing, repair, storage, and cleaning.
- A4. Textiles and Dressmaking I. Study of wool fabrics; selection and construction of a wool dress; comparison with ready-made dresses. Problems of buying coats, hats, shoes, hosiery, and dress accessories.
- A5. Textiles and Dressmaking II. Study of silk fabrics; selection and construction of a silk dress; comparison with ready-made dresses. Problems in buying household textile furnishings.
- A6. Decorative Needlework. Applied design in needlework, adapted to decoration of clothing, hats, and household furnishings; emphasis on attaining sufficient skill and speed to have work of commercial value.
- A7. Millinery. Design and construction of different types of hats. Care and renovation of hat materials and trimmings.
- A8. Advanced Millinery. Continuation of Millinery I with more advanced work in designing and construction of all types of hats. Emphasis on commercial problems. Work planned on a shop basis.
- A12. Trade Dressmaking. To be offered in co-operation with city dress-making shops, giving students actual trade experience. (Not offered in 1930-31.)
- A13. Trade Millinery. To be offered in co-operation with city millinery shops, giving students actual trade experience. (Not offered in 1930-31.)
- A21. Design. Principles of design and color harmony with special reference to suitable clothing; furnishing and arrangement of rooms; craft problems.

- A26. House Planning and Furnishing. A consideration of the house in regard to location, convenient arrangement of floor space, and heating and plumbing equipment; selection and cost of interior finish, wall and floor coverings, furniture, curtains, and pictures.
- A31. Selection and Preparation of Food. Food combinations, planning of menus, and serving simple breakfasts and luncheons.
- A32. Meal Preparation. Continuation of A31 with emphasis on dinner menus.
- A33. Food and Nutrition. Adequate diet for members of class, based on height-weight record and food requirements. Planning and preparing meals for all members of the family considering health and economy.
- A34. Home Management. The homemaker's responsibilities; distribution of the family income, household accounts, scheduling and dispatching of work in connection with meal preparation; care of the house, and its equipment. Family and community relationships.
- A35. Child Care and Training. Physical care of infants and small children. Habit formation and methods of control; games and reading suitable for the pre-school child.
- A50. Related Science I. Interesting phenomena of everyday life, especially those relating to the home and scientific principles which explain them.
- A51. Related Science II. A continuation of Course A50.
- A73. Food Selection and Preparation. A study of food combinations suitable for meals at home or in camp. Practical work in the fundamental cookery processes.

HORTICULTURE

- A1. Farm Horticulture. Growing fruits, vegetables, and ornamentals for use on the farm. Location and planting of the orchard and garden and the culture of the important crops. Propagation of common plants. Culture and use of ornamentals.
- A2. Orchard Fruit Growing. Commercial orcharding with a special consideration of the profitable management of an orchard on the Minnesota farm. Location; planting; selection of varieties; cultural systems; pruning; pest control; harvesting and marketing of fruit.
- A3. Commercial Vegetable Gardening. Growing of vegetable crops for market. Locating, planting, and care of the commercial garden; consideration of the important crops; marketing methods; types of glass structures, their uses, and the production of vegetables under glass.
- A4. Small Fruit Growing. A practical study of berry growing as a commercial enterprise in Minnesota and the Northwest, covering the establishing and management of plantations of strawberries, raspberries, blackberries, gooseberries, currants, and grapes.
- A5. Plant Propagation and Nursery Practice. Methods of propagation of plants by seeds, cuttings, layers, grafting, and budding are studied. The principles of greenhouse management, transplanting, watering, and ventilation are studied.

- A7. Floriculture. A working knowledge of the culture and use of house plants, annuals, and perennials.
- A8. Landscape Gardening. Practice and principles of ornamental plantings as applied to the home and community, with a brief study of plant materials.
- A10. Greenhouse Construction, Management, and Practice. Construction and management of the greenhouse from the standpoint of the fruit, vegetable, or flower grower. Various crops in relation to types of glass construction. Practice work in crops in the greenhouse.
- A14. Potato Production. Growth, climatic requirements, regional distribution, standardization of varieties according to soil, climate, and markets. Identification, exhibiting, judging, handling of seed plots, certification, cultural methods, storage, and marketing.
- A15. Special Problems. Individual instruction in the various phases of horticulture adjusted to meet the needs of the student. Credit may be earned in one or more quarters.

PLANT PATHOLOGY AND BOTANY

- A1. Agricultural Botany. The parts of economic flowering plants, emphasizing their significance in relation to agricultural practice. Seeds, fungi causing diseases of plants, and decay organisms.
- A2. Seed Testing. The seeds of the common farm weeds, with special attention to those of noxious weeds. A set of seed cases is made and practice is given in testing seeds for purity and germination.
- A4. Agricultural Botany. Economic flowering plants. The course also contains a brief study of molds, mushrooms, rots or decays, and yeast.
- A11. Plant Diseases. Important diseases of Minnesota crop plants, with special emphasis on methods of control.
- A12. Weeds. Farm weeds with special emphasis on their identification, control, and eradication.

POULTRY HUSBANDRY

- A1. Poultry. Importance of the industry, market products, best methods of house construction, feeding for egg production.
- A2. Management of Laying Flock. Practice in feeding and management, feeds, a study of laying rations, selection for laying qualities, selection for breeding qualities, keeping accounts.
- A3. Incubation and Brooding. The best methods of incubation and brooding, natural and artificial, includes selection of breeders, eggs for incubation, feeding and care of chicks, how to avoid losses.
- A7. Poultry Judging. Practice in the selection of the most profitable fowls; a study of standard requirements of the commercially important breeds.
- A10. Dressed Poultry. Modern methods of killing, picking, and dressing for home and trade use.

PREVENTIVE MEDICINE AND PUBLIC HEALTH

- A1. Home Nursing and Hygiene I. Personal and community hygiene. Prevention and care of illness in the home; methods of improving nursing equipment.
- A2. Home Nursing and Hygiene II. Hygiene requirements during infancy, childhood, womanhood. Preparation for maternity, care of infant, household emergencies.
- A8. Hygiene. Methods for promotion of health and prevention of disease will be considered with a view to acquainting the student with the fundamentals of right living and the individual and community activities against the spread of disease.

RHETORIC

- A1. English I. The sentence, parts of speech, punctuation, spelling, supplementary reading.
- A2. English II. Paragraphs and themes in narration, description, and exposition. Supplementary reading.
- A3. English Classics. American and English authors.
- A4. Business English. Practice in various forms of correspondence and business forms.
- A5. Public Speaking. Voice exercise, platform deportment. Practice in delivery of memorized and extemporaneous speeches.
- A6.* English VI. Exposition and argument. Gathering and outlining material. Instruction in the writing of senior thesis. Debating.
- A14. Advanced Public Speaking. A continuation of Course A5. Selecting and organizing material for speeches and the presentation of speeches effectively before a given audience.
- A21-22. English Literature I-II. The history of English literature, with a study of selections. For students planning to enter the College of Agriculture, Forestry, and Home Economics.
- A32. Debating. Students participating in inter-society debates under the supervision of a teacher of debating will receive a one point credit upon completing a required amount of work. Debaters should report to the coach as soon as they are chosen.

SCHOOL (GENERAL)

- A1. Farm Arithmetic. Training in simple mathematical processes, applications of principles to problems requiring measurements of material, extension, capacity. Practical applications to farm and home life. Assists in the mathematics of the technical school courses.
- A2. Advanced Farm Arithmetic. Similar in outline to Course A1. Special emphasis on farming as a business.

* Students who substitute credits in English gained in other schools for the credits in this course must register for the course to receive instructions in writing the senior thesis.

- A4. Algebra I. Fundamental operations: properties of algebraic numbers, addition, subtraction, multiplication, division, factoring, simple equations, fractions.
- A5. Algebra II. Fractional equations, literal numbers, proportions, simultaneous equations, radicals, quadratics. Emphasis upon the development and use of formulae. Problems taken from fields allied to agriculture.
- A6. Geometry I. Parallel and perpendicular lines, triangles, loci, polygons, proportion, similar polygons. Theorems developed both inductively and deductively. In this term's work emphasis is placed upon geometry as a reasoning process.
- A7. Geometry II. Inequalities, circles, numerical relations, areas, regular polygons. Special emphasis on those problems relating to farm life such as the calculation of areas, surveying, and problems taken from mechanics.
- A21. Elements of Music I. Fundamental principles of musical notation, pitch, rhythm, musical terms, formation of major scales, sight reading, singing, and ear training.
- A22. Elements of Music II. Formation of minor scales, intervals, chord construction, ear training in rhythm and intervals. Musical terms. Chords applied to piano.
- A23. Chorus. Sight reading and ear training. From this chorus, students with unusual ability and experience will be chosen for the school chorus, which is divided into men's glee club, girls' chorus, mixed chorus and quartet.
- A24. Violin. Elementary: Hofmann, *Kayser Etudes*, *Schradieck Scales*, *Solos in Comparison*. Intermediate: scales in all positions, Seveik, Mazas, Dont, compositions of medium difficulty. Advanced: Kreutzer, Fiorillo, Rode, Gavinie, sonatas of Handel, Gade, David, concertos of Viotti, DeBeriot, Mendelssohn. Ten thirty-minute lessons, \$10 per term.
- A25.* Piano. Elementary and advanced technical training, scales, arpeggios, octaves, chords, selected technical studies. Bach: Inventions, Well-Tempered Clavicorn. Sonatinas: Clementi, Kuhlman. Sonatas: Haydn, Mozart, Beethoven. Solos for all grades; classics and best modern material. Ten thirty-minute lessons, \$10 per term.
- A26. Instrumental Music. Band and orchestral instruments, such as cornet, clarinet, saxophone, trombone, baritone, alto, horn, tuba, etc., using standard textbook containing latest methods. Ten thirty-minute lessons, \$10 per term.
- A27.* Orchestra. Standard works in orchestral music. Special attention is given to interpretation, rhythm, phrasing, intonation, and sight reading.
- A28. Voice. Voice placing, breath development, enunciation, diction, illustrated by elementary studies and exercises by Sieber, Clippinger, Con

* Piano students may register for orchestra and receive training through piano quartet (two pianos), subject to the approval of the instructor.

- Cone; songs of medium difficulty. Ten thirty-minute lessons, \$10 per term.
- A29. Harmony I. Formation and progression of triads, seventh and ninth chords, harmonizing a given bass.
- A30. Harmony II. Harmonizing simple melodies, cadences, modulations, transposition, accompaniment writing, and melody building.
- A32. Appreciation of Music. Appreciation of music; brief history; biographies of well-known composers; and a knowledge of standard musical literature for the orchestra, band, chorus, solo work, and any combination or group of instruments or voices.
- A33. Instrumentation and Conducting. A knowledge of instruments of the band and orchestra, their origin and development, construction, part they play, and how played. Combinations of instruments. Essentials of conducting and actual practice in directing band and orchestra.
- A34. Band. Ensemble playing, sight reading, breathing, scales, intonation, phrasing, rhythm, and a practical band experience is given. Best standard musical literature. Advanced methods in non-pressure tone production and attack, etc.
- A35. Dramatic Art. Students who are selected by the coach of dramatics to take major parts in a play will receive one half credit upon recommendation of the coach.
- A41. Parliamentary Law. Principles of parliamentary law, how to organize a society, duties of officers, how to record proceedings, and how to conduct meetings. Students will be given practice under the direction of the instructor.
- A42. American Government. Origin, necessity, nature, and various forms of government. Functions of the legislative, executive, and judicial departments in each division of government. Local, state, national, and international government as it operates today. Current problems.
- A43. Economics. Fundamental laws governing production, consumption, distribution, and exchange. Principles of economics as applied to the farmer's relationships, as a producer and as a consumer. Special attention devoted to taxation, co-operation and co-operative societies, rural credit, international trade, marketing of farm products, farm labor and tendency.
- A45. Industrial History. The general industrial development in the United States with special emphasis upon the development of agriculture. The yearbooks of the Department of Agriculture are used in connection with assigned readings.
- A46. Rural Sociology. A practical course including a study of rural conditions, how to make a survey, the cause of present conditions and how they may be improved. Study of rural organizations, religions, and educational institutions.
- A47. American History. Causes and effects of great movements are emphasized. History of the westward migration, immigration, foreign relations, and special emphasis on our history since 1900.

- A55. Social Training. Fundamental principles governing the individual in social contacts; attention to the rights and the responsibilities of the individual in institutional life; the home as the social center; discussion of problems arising in current social activities.
- A56. Social Problems for Boys. An open forum for the discussion of social conventions of home, school, and public life.
- A61. Spelling. Students poor in spelling should elect this course and continue until able to spell words in ordinary conversation and correspondence. A spelling text is used and drills on lists of commonly misspelled words are given.
- A62. Penmanship. A standard muscular movement system is taught. Students who are poor in penmanship should elect this course.

BUSINESS COURSES

The object of these courses is to prepare students, whose services are not immediately required at home, for office work on the farm, in the village, or subordinate positions in regular business offices.

The subject-matter of these courses, combined with the courses in home-making and agriculture, gives the students a training which well qualifies them to take positions as office assistants in farm bureaus, co-operative creameries, and local elevators.

- A80. Typewriting I. The touch method of typewriting is taught. Following the memorization and fingering of the keyboard, drills for acceleration, concentration, and rhythm are given.
- A81. Typewriting II. A continuation of carefully planned drills for the development of accuracy and speed. Work in tabulating, letter writing, and practice on different makes of typewriters, with their care.
- A82. Typewriting III. Business correspondence from the typist's viewpoint. Business letters and documents which help in gaining correct first impressions are studied and copied. Construction work requiring judgement in arrangement, and the exercising of initiative in solving original problems. Drills for the development of speed and accuracy are stressed.
- A83. Stenography I. The principles of phonography are taught by the Gregg system. Thoro drill is given on word forms, and in the combining of them in phrases.
- A84. Stenography II. A continuation of Stenography I. Drills on words and phrases. Dictation and the reading of Gregg exercises. Short paragraphs dictated and read back.
- A85. Stenography III. Students review carefully the principles of stenography, and take short letters from dictation. Letters transcribed on the typewriter. Accuracy of transcription is the aim, rather than speed.
- A86. Bookkeeping I. Principles of double entry illustrated by keeping a set of books for a firm, making out the forms necessary for the various transactions, and closing the books.

- A87. Bookkeeping II. Takes up the partnership form of business organization and continues accounting principles. An advanced set of books is kept.
- A88. Commercial Law. Elementary principles governing contracts, business papers, partnerships and corporations, insurance, wills, deeds, mortgages, stocks and bonds. Safe investments and the proper use of credit and special laws governing co-operative associations.

SOILS

- A1. Soils. Minnesota soils, their formation, properties, and characteristics. Treatment of lime-deficient, alkali, and peat soils. Farm manures, green manures, and commercial fertilizers. Laboratory demonstrations, examination of soils, and discussion of soil problems.

VETERINARY MEDICINE

- A1. Physiology. The purpose of the course is to give an intelligent conception of the various organs and systems of the body; how they function and how managed for continued health and efficiency.
- A4. Elements of Bacteriology. Lectures and demonstrations of the fundamental principles underlying the science of bacteriology, with special reference to organisms which cause disease. The preparation and use of vaccines, bacterines, antitoxins, immune sera.
- A5. Physiology and Hygiene of Breeding. Gross anatomy of the reproductive organs; physiology of reproduction; the breeding season; gestation and care of the female during parturition and lactation.
- A7. Veterinary Studies. The animal body in health and disease; causes, prevention, and management of disease including common parasitic diseases.

NOTICE TO PROSPECTIVE STUDENTS

Please read the bulletin carefully, noting the paragraphs headed How to Get to the School, Admission, Home Life on the Campus, and Expenses. If you plan to enter the school, send to the registrar, University Farm, St. Paul, for an admission blank. Please do NOT send DIPLOMAS. In case you have had any work of HIGH SCHOOL grade, be sure to have it recorded on the blank or send certificates covering the work done.

If you desire a room in the dormitory, send with your admission blank to the registrar a money order or draft for \$2 made payable to University of Minnesota, Department of Agriculture. In case your application is received after all space in the dormitories is spoken for, your money will be returned to you. In case you decide after making application that you cannot enter the school, you should notify the registrar as soon as possible. If this is done prior to ten days before the opening of school, the money which you sent to reserve a room will be returned to you, otherwise it will not. ROOMS WILL NOT BE HELD AFTER THE OPENING DAY OF THE TERM FOR THOSE WHO ARE NOT PRESENT TO CLAIM THEM.

New students should not depend upon obtaining work at the institution to pay expenses. The regular work of the course takes so much time that a student should not do any outside work unless compelled to by necessity. Practically all the work at the institution for which pay is given is spoken for a year ahead, so none is left for new students. Any able-bodied student ought to be able to earn enough during the six months of vacation to pay his way through the school year.

Students who for any reason cannot enter the school on the opening day or very soon thereafter should wait until the opening of the next term before coming.

The Bulletin *of the University of* **Minnesota**

The School of Agriculture
Courses in Agriculture and Home
Economics
Part II
Announcement of Program for the Year
1930-1931



Vol. XXXIII No. 24 May 7 1930

Entered at the post-office in Minneapolis as 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

1930							1931													
JULY							JANUARY							JULY						
Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa
..	..	1	2	3	4	5	..	..	..	..	1	2	3	..	..	..	1	2	3	4
6	7	8	9	10	11	12	4	5	6	7	8	9	10	5	6	7	8	9	10	11
13	14	15	16	17	18	19	11	12	13	14	15	16	17	12	13	14	15	16	17	18
20	21	22	23	24	25	26	18	19	20	21	22	23	24	19	20	21	22	23	24	25
27	28	29	30	31	..	..	25	26	27	28	29	30	31	26	27	28	29	30	31	..
..
AUGUST							FEBRUARY							AUGUST						
..	..	..	..	..	1	2	1	2	3	4	5	6	7	..	..	..	..	..	..	1
3	4	5	6	7	8	9	8	9	10	11	12	13	14	2	3	4	5	6	7	8
10	11	12	13	14	15	16	15	16	17	18	19	20	21	9	10	11	12	13	14	15
17	18	19	20	21	22	23	22	23	24	25	26	27	28	16	17	18	19	20	21	22
24	25	26	27	28	29	30	..	..	..	..	..	..	..	23	24	25	26	27	28	29
31	..	..	..	..	..	..	..	..	..	..	..	..	..	30	31	..	..	..	..	..
..
SEPTEMBER							MARCH							SEPTEMBER						
..	1	2	3	4	5	6	1	2	3	4	5	6	7	..	..	1	2	3	4	5
7	8	9	10	11	12	13	8	9	10	11	12	13	14	6	7	8	9	10	11	12
14	15	16	17	18	19	20	15	16	17	18	19	20	21	13	14	15	16	17	18	19
21	22	23	24	25	26	27	22	23	24	25	26	27	28	20	21	22	23	24	25	26
28	29	30	..	..	..	..	29	30	31	..	..	..	..	27	28	29	30	..	..	..
..
OCTOBER							APRIL							OCTOBER						
..	1	2	3	4	..	..	..	..	..	1	2	3	4	..	..	..	..	1	2	3
5	6	7	8	9	10	11	5	6	7	8	9	10	11	4	5	6	7	8	9	10
12	13	14	15	16	17	18	12	13	14	15	16	17	18	11	12	13	14	15	16	17
19	20	21	22	23	24	25	19	20	21	22	23	24	25	18	19	20	21	22	23	24
26	27	28	29	30	31	..	26	27	28	29	30	..	..	25	26	27	28	29	30	31
..
NOVEMBER							MAY							NOVEMBER						
..	..	..	..	..	1	2	..	..	..	..	1	2	1	2	3	4	5	6	7	
3	4	5	6	7	8	9	3	4	5	6	7	8	9	8	9	10	11	12	13	14
10	11	12	13	14	15	16	10	11	12	13	14	15	16	15	16	17	18	19	20	21
16	17	18	19	20	21	22	17	18	19	20	21	22	23	22	23	24	25	26	27	28
23	24	25	26	27	28	29	24	25	26	27	28	29	30	29	30	..	..	..	..	..
30	..	..	..	..	..	..	31	..	..	..	..	..	..	..	..	..	..	..	..	..
..
DECEMBER							JUNE							DECEMBER						
..	1	2	3	4	5	6	..	1	2	3	4	5	6	..	..	1	2	3	4	5
7	8	9	10	11	12	13	7	8	9	10	11	12	13	6	7	8	9	10	11	12
14	15	16	17	18	19	20	14	15	16	17	18	19	20	13	14	15	16	17	18	19
21	22	23	24	25	26	27	21	22	23	24	25	26	27	20	21	22	23	24	25	26
28	29	30	31	28	29	30	27	28	29	30	31
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CALENDAR

SCHOOL OF AGRICULTURE

1930-31

1930			
September	29	Monday	First term begins; entrance examinations, registration, payment of fees
September	30	Tuesday	Regular class work begins
November	4	Tuesday	General Election Day; a holiday
November	11	Tuesday	Armistice Day; a holiday
November	27	Thursday	Thanksgiving Day; a holiday
December	19	Friday	First term closes; Christmas vacation begins, 12:00 m.
1931			
January	5	Monday	Second term begins; entrance examinations, registration, payment of fees
January	6	Tuesday	Regular class work begins
February	12	Thursday	Lincoln's Birthday; a holiday
March	21	Saturday	Second term closes
March	24	Tuesday	Alumni Day
March	25	Wednesday	Forty-second annual commencement

COURSES OF STUDY

The following summary of required work in the various courses of study is for convenience in registration. For the full outline see Part I of the bulletin.

In addition to the courses listed, Gymnasium is required each term for all boys and Physical Training for all girls.

GENERAL FARMING

Freshman year.—English I and II, Hygiene, Farm Arithmetic, Judging Types and Market Classes of Livestock, Drawing and Farm Buildings, Agricultural Botany, Social Problems for Boys, Soils, Judging Breed Types of Livestock, Animal Biology.

Junior year.—English Classics, Forage Crops and Potatoes, Advanced Livestock Judging or Dairy Stock Judging, Farm Horticulture, Dairy Stock or Livestock Feeding, Business English, Grain Crops, Farm Dairying, Poultry.

Senior year.—Public Speaking, American Government, Livestock Breeding, Farm Management I and II, English VI, Rural Sociology, Crop Breeding.

FARM MECHANICS

Freshman year.—English I and II, Hygiene, Farm Arithmetic, Judging Types and Market Classes of Livestock, Drawing and Farm Buildings, Agricultural Botany or Animal Biology, Social Problems for Boys, Soils, Mechanical Training I, Farm Building I.

Junior year.—English Classics, Forage Crops and Potatoes, Farm Horticulture or Advanced Livestock Judging, Gas Engines, Mechanics and Water Supply, Business English, Grain Crops or Farm Horticulture, Farm Dairying, Heat and Electricity.

Senior year.—Public Speaking, Farm Buildings II or Drainage and Roads, Rural Sociology, Farm Implements, Farm Management I and II, English VI, American Government, Advanced Gas Engines.

GRAIN ELEVATOR MANAGEMENT

Not offered 1930-31.

HORTICULTURAL AND NURSERY TRAINING

Freshman year.—English I and II, Hygiene, Farm Arithmetic, Agricultural Botany, Farm Horticulture, Plant Propagation and Nursery Practice, Judging Types and Market Classes of Livestock, Social Problems for Boys, Soils, Drawing and Farm Buildings, Floriculture, Commercial Vegetable Gardening.

Junior year.—English Classics, Chemistry of Plant and Animal Life I and II, Animal Biology, Greenhouse Construction and Management, Landscape Gardening, Business English, Seed Testing, Gas Engines or Mechanical Training I, Forest Nursery Methods and Tree Planting.

Senior year.—Public Speaking, American Government, Plant Diseases, Insect Pests of Plants, English VI, Rural Sociology, Crop Breeding, Bookkeeping I, Small Fruit Growing.

LIVESTOCK PRODUCTION

Freshman year.—Same as for General Farming, see above.

Junior year.—English Classics, Forage Crops and Potatoes, Advanced Livestock Judging or Dairy Stock Judging, Physiology and Hygiene of Breeding, Dairy Stock or Livestock Feeding, Business English, Meats, Farm Dairying, Veterinary Studies.

Senior year.—Public Speaking, American Government, Dairy Stock Feeding II or Livestock Management or Milk Production, Livestock Breeding (men) or Problems in Livestock Improvement (women), Farm Management I and II, English VI, Rural Sociology.

HOME ECONOMICS

Freshman year.—Related Science I and II, English I and II, Selection and Preparation of Food, Clothing I and II, Design, Social Training, Meal Preparation.

Junior year.—English Classics, Foods and Nutrition, Textiles and Dressmaking I, Home Nursing and Hygiene I, Business English, Biology, House Planning and Furnishing, American History.

Senior year.—Public Speaking, American Government, Home Management, English VI, Rural Sociology, Home Nursing and Hygiene II, Textiles and Dressmaking II, Child Care and Training.

TABULAR STATEMENT AND PROGRAM OF COURSES

EXPLANATION OF TABULAR STATEMENT

Course numbers.—All courses in the School of Agriculture are designated by the capital letter A preceding the course number to distinguish them from collegiate courses of the same number. The letter f indicates a fall term course, and the letter w, a winter term course. For example: A5f,w indicates that Course A5 is offered both fall and winter terms. A5f-6w would indicate a year course continuing through two terms.

Credits and prerequisites.—The number of credits which each course counts toward graduation, the classes of students to which the course is offered, and the prerequisite courses are indicated in parentheses, immediately below the descriptive name of the course. For example: (2 cred.; sr. agr.; prereq., A1, A2) means that the course counts two credits; that it is offered to senior students in agriculture (not home economics); and that before registering for the course, Courses A1 and A2, offered by the same division, must have been satisfactorily completed. If neither agriculture nor home economics students are designated the course may be taken by both.

ABBREVIATION OF BUILDINGS

Ad	Administration	HH	Haecker Hall
Ag	Agronomy	Hr	Horticulture
BB	Beef Barn	MS	Meat Shop
BCh	Biochemistry	MuH	Music Hall
Da	Old Dairy Hall	PP	Plant Pathology
DB	Dairy Barn	So	Soils
En	Agricultural Engineering	St	Stock Pavilion
Gy	Gymnasium	Ve	Veterinary
HE	Home Economics	WH	Women's Hall

CLASS HOURS

I	8:15-9:05	VI	1:30-2:20
II	9:15-10:05	VII	2:30-3:20
III	10:15-11:05	VIII	3:30-4:20
IV	11:15-12:05	IX	4:30-5:20

No classes are scheduled for the V hour, which is reserved for assembly (12:10-12:45) and dinner hour.

PROGRAM

AGRICULTURAL BIOCHEMISTRY

No.	Title	Hour	Day	Bldg.	Instructor	
A1f-2w	Chemistry of Plant and Animal Life	I, II	MWF	102BCh	Mr. Taylor	
	(6 cred.; * jr., sr.; no prereq.)					
A3	Cereal Technology	Not offered	1930-31			
	(3 cred.; sr. agr.; prereq. A1-2 advised)					
A4f	Chemistry in Agriculture.....	IV	MWF	113BCh	Mr. Taylor	
	(3 cred.; all; no prereq.)					
A4w	Chemistry in Agriculture.....					
	(Same as A4f)					
		Sec. 1	IV	MWF	113BCh	Mr. Taylor
		2	IV	TThS	113BCh	Mr. Taylor

AGRICULTURAL ENGINEERING

No.	Title	Hour	Day	Bldg.	Instructor	
A10f,w	Farm Implements					
	(3 cred.; sr. agr.; no prereq.)					
	Lect.	VI	M	105En	Mr. Schwantes	
	Lab. Sec. 1	VI, VII	WF	49En		
	2	VI, VII	TTh	49En		
A11f	Gas Engines	VI, VII,				
	(3 cred.; all agr.; no prereq.)	VIII	WF	216,37En	Mr. Torrance	
A11w	Gas Engines					
	(Same as A11f)					
		Sec. 1	VI, VII,			
		2	VIII	TTh	216,37En	Mr. Torrance
			VI, VII,			
			VIII	WF	216,37En	Mr. Torrance
A12f,w	Advanced Gas Engines.....	III, IV	TThS	216,37En	Mr. Torrance	
	(3 cred.; jr., sr. agr.; prereq., C grade in A11)					
A16f,w	Mechanical Training I.....	VI, VII,				
	(3 cred.; all agr.; no prereq.)	VIII	TTh	20,106En	Mr. Dent	
A17f,w	Mechanical Training II.....	VI, VII,				
	(3 cred.; all agr.; no prereq.)	VIII	WF	20,106En	Mr. Dent	
A18f	Mechanics and Water Supply					
	(3 cred.; jr., sr. agr.; no prereq.)					
	Lect.	I	MW	101En	Mr. Tyler	
	Lab. Sec. 1	I, II	F	102En	Mr. Tyler	
	2	VI, VII	M	103En	Mr. Tyler	
A18w	Mechanics and Water Supply..	II	ThS	101En	Mr. Tyler	
	(3 cred.; jr., sr. agr.; no prereq.)	I, II	T	102En	Mr. Tyler	

* Both Course A1 and A2 must be completed in order to receive credit. Not offered for less than 8 students.

No.	Title	Hour	Day	Bldg.	Instructor	
A19w	Heat and Electricity..... (3 cred.; jr., sr. agr.; no prereq.)	Sec. 1	I	MW	101En	Mr. Tyler
			I, II	F	102En	Mr. Tyler
		2	III	TTh	101En	Mr. Tyler
			III, IV	S	102En	Mr. Tyler
A21f,w	Farm Buildings I..... (3 cred.; all agr.; no prereq.)	Sec. 1	VI, VII, VIII	TTh	48En	Mr. Berggren
		2	VI, VII, VIII	WF	48En	Mr. Berggren
		Sec. 1	VI, VII, VIII	TTh	303En	Mr. Neubauer
A31f,w	Drawing and Farm Buildings.. (3 cred.; all agr.; no prereq.)	2	VI, VII, VIII	WF	303En	Mr. Neubauer
		A32f	Farm Buildings II..... (3 cred.; sr. agr.; prereq., A31)	I	M	305En	Mr. White
A41f	Household Physics (3 cred.; jr., sr. H.E.; no prereq.)	IV	TTh	101En	Mr. Tyler	
			W	102En	Mr. Tyler	
A51f	Drainage and Roads..... (3 cred.; sr. agr.; no prereq.)	I, II	MWF	105En	Mr. Neal.	
A52w	Land Clearing (3 cred.; jr., sr. agr.; no prereq.)	III	TThS	217En	Mr. Schoen- leber	

AGRONOMY AND PLANT GENETICS

No.	Title	Hour	Day	Bldg.	Instructor	
A1f,w	Grain Crops (3 cred.; jr., sr. agr.; no prereq.)	Lect. Sec. 1	I	TS	112Ag	Mr. Raleigh
		Lab.	I, II	Th	112Ag	
		Lect. 2	IV	ThS	112Ag	
		Lab.	III, IV	T	112Ag	
A2f,w	Forage Crops and Potatoes... (3 cred.; jr., sr. agr.; no prereq.)	Sec. 1	I, II	T	100Ad	Mr. Johnson
			II	ThS	100Ad	
		2	III, IV	Th	100Ad	
			III	TS	100Ad	
A3w	Judging and Grading Farm Crops (3 cred.; sr. agr.; prereq., A1, A2)	VI, VII	MWF	100Ad	Mr. Raleigh	
A5w	Crop Breeding (3 cred.; sr. agr.; no prereq.)	Sec. 1	I	MWF	102Ad	Mr. Brew- baker
		2	II	MWF	102Ad	

ANIMAL HUSBANDRY

No.	Title	Hour	Day	Bldg.	Instructor
A1f,w	Judging Types and Market Classes of Livestock..... (3 cred.; all agr.; no prereq.)				
	Sec. 1	I, II	MWF	ESt	Mr. Winters
	2	III, IV	TThS	ESt	
	3	III, IV	MWF	ESt	Mr. Harvey
A2f,w	Judging Breed Types of Live- stock (3 cred.; all agr.; prereq., A1)				
	Sec. 1	I, II	TThS	WSt	Mr. Harvey
	2	III, IV	TThS	WSt	
A3f	Advanced Livestock Judging.. (3 cred.; jr., sr. agr.; prereq., A2)	VI, VII	MWF	ESt	
A4f	Meats (3 cred.; jr., sr. agr.; prereq., A2)	VI, VII, VIII	WF	MS	Mr. Anderson
A4w	Meats (Same as A4f)	VI, VII, VIII	TTh	MS	Mr. Anderson
A5f,w	Livestock Breeding (3 cred.; sr. agr.; prereq., A2)	III	MWF(f) (w)	3St WSt	Mr. Winters
A7w	Utilization of Meats..... (3 cred.; jr., sr. H.E.; no prereq.)	II	MWF	MS	Mr. Anderson
A8w	Problems in Livestock Im- provement (3 cred.; sr. women spec. in livestock production; prereq., A2)	I	TThS	3St	Mr. Peters
A9f,w	Livestock Feeding (3 cred.; jr., sr. agr.; prereq., A1)	IV	TThS	3St	Mr. Winters
A10w	Livestock Management (3 cred.; jr., sr. agr.; prereq., A9)	IV	MWF	WSt	Mr. Peters

DAIRY HUSBANDRY

No.	Title	Hour	Day	Bldg.	Instructor	
A1f,w	Dairy Stock Feeding I..... (3 cred.; jr., sr. agr.; no prereq.)					
	Sec. 1	II	MWF	100HH	Mr. Gullick- son	
	2	II	MWF	109HH	Mr. Allen	
A2f,w	Farm Dairying (3 cred.; jr., sr.; no prereq.) (Limited to 25 students each)	Sec. 1(f,w) 2(f,w)	I, II VI, VII	TThS MWF	109HH 109HH	Mr. Morrison Mr. Gullick- son
	3(w)	VI, VII	MWF	100HH	Mr. Allen	
A3f	Dairy Stock Judging (2 cred.; jr., sr. agr.; no prereq.) (Limited to 25 students each)	Sec. 1 2	III, IV VI, VII	MW MW	DB DB	Mr. Allen Mr. Petersen

THE SCHOOL OF AGRICULTURE

No.	Title	Hour	Day	Bldg.	Instructor
A3w	Dairy Stock Judging..... (Same as A3f) (Limited to 25 students each)	Sec. 1 (f,w) 2 (f,w) 3 (w)	III, IV VI, VII I, II	MW TTh DB DB	Mr. Petersen Mr. Allen Mr. Gullickson
A5w	Milk Production	I	MTWThF	100HH	Mr. Petersen
A6w	Dairy Stock Feeding II..... (3 cred.; sr. agr.; prereq. A1)	II	MWF	210HH	Mr. Petersen
A7f	Dairy Stock Selection..... (3 cred.; sr. agr.; prereq., A3, A5)	VI, VII, VIII	TTh	100HH	Mr. Petersen
A8w	Test Association Methods..... (3 cred.; jr., sr. agr.; prereq., A1, A2, and approval of instructor)	Ar	Ar	Ar	Mr. Leighton

ENTOMOLOGY AND ECONOMIC ZOOLOGY

No.	Title	Hour	Day	Bldg.	Instructor
A1f,w	Animal Biology				
	(3 cred.; all agr.; no prereq.)				
	Sec. 1	I	TThS	301Ad	Mr. Donohoe
	2	II	MWF	301Ad	Mr. Donohoe
	3	III	MWF	301Ad	Mr. Donohoe
A3w	Biology	II	TThS	301Ad	Mr. Donohoe
	(3 cred.; jr., sr. H.E.; no prereq.)				
A4f,w	Elementary Beekeeping I..... (3 cred.; all; no prereq.)				
	Sec. 1	VII	MWF	307Ad	Mr. Braun
	2	IV	MWF	301Ad	Mr. Braun
A5f,w	Elementary Beekeeping II..... (3 cred.; all; prereq., A4)	VIII, IX	MWF	307Ad	Mr. Braun
A6f,w	Advanced Beekeeping	Ar	Ar	Ar	Mr. Braun
	(3 cred.; jr., sr.; prereq., A5, and one summer experience)				
A16f	Insect Pests of Plants..... (3 cred.; jr., sr.; no prereq.)	VI, VII, VIII	TTh	302Ad	Mr. Ruggles

FARM MANAGEMENT AND AGRICULTURAL ECONOMICS

No.	Title	Hour	Day	Bldg.	Instructor
A1	Co-operative Accounting	Not offered	1930-31		
	(3 cred.; jr., sr. agr.; prereq., Sch. A87)				
A21f,w	Farm Management I..... (3 cred.; sr. agr.; no prereq.)				
	Sec. 1	III, IV	MWF	311HH	Mr. Ranney
	2	VI, VII	MWF	311HH	Mr. Sallee
A22f,w	Farm Management II..... (3 cred.; sr. agr.; no prereq.)				
	Sec. 1	III, IV	MWF	102Ad	Mr. Bassett
	2	VI, VII	MWF	302HH	Mr. Bassett

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
A40	Grain Marketing I..... (3 cred.; sr. agr.; prereq., Sch. A43)	Not offered	1930-31		
A41	Grain Marketing II..... (3 cred.; sr. agr.; prereq., A40)	Not offered	1930-31		

FORESTRY

No.	Title	Hour	Day	Bldg.	Instructor
A1w	Forest Nursery Methods and Tree Planting	II	TThS	102Hr	Mr. Cheyney
	(3 cred.; jr., sr. agr.; no pre- req.)				

GYMNASIUM AND PHYSICAL TRAINING

No.	Title	Hour	Day	Bldg.	Instructor
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Men

A1f,w	Gymnasium				
	(2 cred. per term; all agr.; no prereq.)				
	Sec. 1	VII	MW	Gy	Mr. Thompson
	2	IX	MW	Gy	
	3	VII	TTh	Gy	
	4	IX	TTh	Gy	
	5	6:30 p.m.	MW	Gy	

Women

A1f,w	Physical Training				
	(2 cred. per term; all H.E.; no prereq.)				
	Sec. 1	III	MW	Gy	Miss Kaercher
	2	III	TTh	Gy	
	3	IV	TTh	Gy	
	4	VIII	MW	Gy	
	5	VIII	TTh	Gy	

HOME ECONOMICS

No.	Title	Hour	Day	Bldg.	Instructor
A1f	Clothing I				
	(3 cred.; all H.E.; no prereq.)				
	Sec. 1	II	MTWThF	114HE	Miss Sell
	2	VI, VII	MWF	114HE	Miss Sell
A1w	Clothing I	II	MTWThF	114HE	Miss Sell
	(Same as A1f)				
A2f,w	Clothing II	I	MTWThS	114HE	Miss Sell, Miss Keller
	(3 cred.; all H.E.; prereq., A1)				
A4f	Textiles and Dressmaking I...	III, IV	MWF	114HE	Miss Sell
	(3 cred.; jr., sr. H.E.; prereq., A2)				
A5w	Textiles and Dressmaking II..	VI, VII	MWF	114HE	Miss Sell
	(3 cred.; jr., sr. H.E.; pre- req., A4)				

THE SCHOOL OF AGRICULTURE

No.	Title	Hour	Day	Bldg.	Instructor
A6w	Decorative Needlework (3 cred.; jr., sr. H.E.; prereq., A1, A21)	VI, VII	MWF	112HE	Miss Topp
A7f,w	Millinery (3 cred.; jr., sr. H.E.; prereq., A2, A21)	VI, VII, VIII	TTh	112HE	Miss Brown
A8w	Advanced Millinery (3 cred.; jr., sr. H.E.; prereq., A7)	VI, VII, VIII	TTh	112HE	Miss Brown
A12	Trade Dressmaking (5 cred.; sr. H.E.; prereq., A5, A6)	Not offered 1930-31			
A13	Trade Millinery (5 cred.; sr. H.E.; prereq., A8)	Not offered 1930-31			
A21f,w	Design (2 cred.; all H.E.; no prereq.)	III, IV	TTh	112HE	Miss Topp
A26f,w	House Planning and Furnish- ing (3 cred.; all H.E.; prereq., A21)	VI, VII, VIII	TTh	114HE	Miss Topp
A31f	Selection and Preparation of Food (3 cred.; all H.E.; no prereq.)				
	Sec. 1	I	MTWThF	105HE	Miss Nordecker
	2	VI	MTWThF	105HE	Miss Keller
A31w	Selection and Preparation of Food (Same as A31f)	I	MTWThF	105HE	Miss Nordecker
A32f	Meal Preparation (3 cred.; all H.E.; prereq., A31)	III, IV	TThS	105HE	Miss Kafka
A32w	Meal Preparation (Same as A32f)				
	Sec. 1	III, IV	TThS	105HE	Miss Kafka
	2	VI, VII	MWF	105HE	
A33f,w	Foods and Nutrition (2 cred.; jr., sr. H.E.; prereq., A32)	II	MTWTh	105HE	Miss Keller
A34f,w	Home Management (3 cred.; sr. H.E.; prereq., A33)	III, IV	MWF	105HE	Miss Studley
A35w	Child Care and Training..... (2 cred.; sr. H.E.; prereq., A33, Prev. Med. A1)	II	MW	106HE	Miss Studley
A50f,w	Related Science I..... (3 cred.; all H.E.; no prereq.)	IV	MW	202So	Miss Kafka
		III, IV	F	202So	
A51f,w	Related Science II..... (3 cred.; all H.E.; prereq., A50)	II	MW	202So	Miss Kafka
		I, II	F	202So	
A73f,w	Food Selection and Preparation (2 cred.; all agr.; no prereq.)	VIII, IX	TTh	105HE	Miss Keller

HORTICULTURE

No.	Title	Hour	Day	Bldg.	Instructor
A1f,w	Farm Horticulture				
	(3 cred.; all; no prereq.)				
	Sec. 1	III	MWF	102Hr	Mr. Daniels
	2	IV	MWF	102Hr	Mr. Daniels
A2f	Orchard Fruit Growing.....	11	MWF	8aHr	Mr. Daniels
	(3 cred.; jr., sr.; no prereq.)				
A3w	Commercial Vegetable Garden- ing	11	TThS	8aHr	Mr. Currence
	(3 cred.; jr., sr. agr.; no prereq.)				
A4w	Small Fruit Growing.....	II	MWF	102Hr	Mr. Daniels
	(3 cred.; jr., sr.; no prereq.)				
A5f	Plant Propagation and Nursery Practice	I	MW	8aHr	Mr. Sando
	(3 cred.; all; prereq., Pl. Path. 1 or 4)	VIII, IX	T	8aHr	
A7w	Floriculture	IV	MWF	8aHr	Mr. Sando
	(3 cred.; all; no prereq.)				
A8f	Landscape Gardening	III	MWF	8aHr	Mr. Longley
	(3 cred.; all; no prereq.)				
A10w	Greenhouse Construction, Man- agement and Practice.....	VI, VII	MW	102Hr	Mr. Sando
	(3 cred.; jr., sr. agr.; prereq., A5)				
A14w	Potato Production	II	MWF	8aHr	Mr. Krantz
	(3 cred.; jr., sr. agr.; prereq., Agron. A2)				
A15w	Special Problems	Ar	Ar	Ar	Mr. Alder- man and staff
	(Variable credit; prereq., in- structor's permission)				

PLANT PATHOLOGY AND BOTANY

No.	Title	Hour	Day	Bldg.	Instructor
A1f,w	Agricultural Botany				
	(3 cred.; all agr.; no prereq.)				
	Lect. Sec. 1	VI	M	100PP	Mr. Holton
	Rec.	VI	F	100PP	
	Lab.	VI, VII	W	100PP	
	Lect. 2	VII	W	100PP	Mr. Moore
	Rec.	VII	F	100PP	
	Lab.	VI, VII	M	100PP	
A2w	Seed Testing	VI, VII	TTh	100PP	Mr. Larson
	(2 cred.; jr., sr. agr.; prereq., A1)				
A4w	Agricultural Botany				
	(3 cred.; all H.E.; no prereq.)				
	Lect.	I	T	100PP	Mr. Holton
	Rec.	I	S	100PP	
	Lab.	I, II	Th	100PP	
A11f	Plant Diseases	IV	MWF	107PP	Mr. Moore
	(3 cred.; sr.; prereq., A1 or A4)				
A12f	Weeds	VI, VII	TTh	100PP	Mr. Larson
	(2 cred.; jr., sr. agr.; prereq., A1)				

THE SCHOOL OF AGRICULTURE

POULTRY HUSBANDRY

No.	Title	Hour	Day	Bldg.	Instructor
A1f.w	Poultry				
	(3 cred.; all; no prereq.)				
	Sec. 1	II	TThS	102Ve	Mr. Smith
	2	IV	TThS	201Ve	Mr. Smith
	(w only) 3	VII	MWF	102Ve	Mr. Smith
A2f.w	Management of Laying Flock	Ar	Ar	Ar	
	(1 cred.; jr., sr.; prereq., A1 or parallel)				
A3w	Incubating and Brooding.....				
	(3 cred.; jr., sr.; prereq., A1)				
	Lect.	III	MF	102Ve	Mr. Smith
	Lab.	Ar	Ar	Ar	
A7f	Poultry Judging	VI, VII	TTh	102Ve	
	(2 cred.; all; no prereq.)				
A10f	Dressed Poultry	Ar	Ar	Ar	
	(1 cred.; all; no prereq.)				

PREVENTIVE MEDICINE AND PUBLIC HEALTH

No.	Title	Hour	Day	Bldg.	Instructor
A1f	Home Nursing and Hygiene I				
	(2 cred.; jr., sr. H.E.; no prereq.)				
	(Limited to 20)				
	Lect.	I	W	11WH	Miss Fisher
	Lab.	I, II	F	11WH	
A1w	Home Nursing and Hygiene I				
	(Same as A1f)				
	(Limited to 20)				
	Lect.	Ar	Ar	11WH	Miss Fisher
	Lab.	Ar	Ar	11WH	
A2w	Home Nursing and Hygiene II				
	(2 cred.; sr. H.E.; prereq., A1)				
	Lect.	I	W	11WH	Miss Fisher
	Lab.	I, II	F	11WH	
A8f.w	Hygiene				
	(1 cred.; all agr.; no prereq.)				
	Sec. 1	II	S	108Da	Dr. Hathaway
	2	III	S	108Da	Dr. Hathaway

RHETORIC

No.	Title	Hour	Day	Bldg.	Instructor
A1f	English I				
	(3 cred.; all; no prereq.)				
	Sec. 1	I	MWF	306En	Mrs. Hause
	2	I	TThS	312En	Miss Holbrook
	3	II	MWF	312En	Miss Holbrook
	4	II	TThS	312En	Miss Holbrook
A1w	English I				
	(Same as A1f)				
	Sec. 1	II	MWF	215En	
	2	VI	MWF	306En	
	3	I	MWF	215En	

PROGRAM

15

No.	Title	Hour	Day	Bldg.	Instructor
A2f	English II (3 cred.; all; prereq., A1)	IV	MWF	312En	Miss Holbrook
A2w	English II (Same as A2f)				
	Sec. 1	I	MWF	312En	Miss Holbrook
	2	III	MWF	312En	Miss Holbrook
	3	II	TThS	306En	Mrs. Hause
A3f	English Classics (3 cred.; jr., sr.; prereq., A2)				
	Sec. 1	I	TThS	306En	Mrs. Hause
	2	III	MWF	312En	Miss Holbrook
A3w	English Classics (Same as A3f)				
	Sec. 1	II	MWF	306En	Mrs. Hause
	2	IV	TThS	307En	Miss Langtry
A4f	Business English (3 cred.; jr., sr.; prereq., A3)				
	Sec. 1	III	MWF	306En	Mrs. Hause
	2	III	TThS	306En	Mrs. Hause
A4w	Business English (Same as A4f)				
	Sec. 1	I	TThS	306En	Mrs. Hause
	2	III	MWF	306En	Mrs. Hause
	3	IV	MWF	306En	Mrs. Hause
A5f	Public Speaking (3 cred.; sr.; prereq., A4)				
	Sec. 1	I	TThS	307En	Miss Langtry
	2	II	MWF	307En	Miss Langtry
A5w	Public Speaking (Same as A5f)				
	Sec. 1	I	MWF	307En	Miss Langtry
	2	III	TThS	307En	Miss Langtry
A6f	English VI (3 cred.; sr.; prereq., A4)	II	TThS	307En	Miss Langtry
A6w	English VI (Same as A6f)				
	Sec. 1	II	MWF	307En	Miss Langtry
	2	III	TThS	312En	Miss Holbrook
	3	IV	MWF	307En	Miss Langtry
A14w	Advanced Public Speaking... (3 cred.; sr.; prereq., A5)	III	MWF	311En	Miss Langtry
A21f.w	English Literature I..... (5 cred.; sr; prereq., A1)	IV	MTWThF(f)	311En	Miss Langtry
A22w	English Literature II..... (5 cred.; sr.; prereq., A21)	II	MTWThF(w)	312En	Miss Holbrook
A12w	Debating (1 cred.† under special conditions. See Faculty Regulations)	Ar	Ar	Ar	Miss Langtry

† No credit allowed until course is completed.

SCHOOL (GENERAL)

No.	Title	Hour	Day	Bldg.	Instructor	
A1f,w	Farm Arithmetic					
	(3 cred.; all; no prereq.)					
	Sec. 1	I	TThS	203Da	Mr. Johnsrud	
		2	I	MWF	203Da	Mr. Johnsrud
		3	II	MWF	203Da	Mr. Johnsrud
A2f,w	Advanced Farm Arithmetic...	IV	MWF	203Da	Mr. Johnsrud	
	(3 cred.; all; prereq., 1 or high school cred. in arith.)					
A4f	Algebra I	III	MTWThFS	217En	Miss Martyn	
	(7 cred.; all; no prereq.)					
A4w	Algebra I	IV	MTWThFS	217En	Miss Martyn	
	(Same as A4f)					
A5f	Algebra II	IV	MTWThFS	217En	Miss Martyn	
	(7 cred.; all; no prereq.)					
A5w	Algebra II	III	MTWThFS	107En	Miss Martyn	
	(Same as A5f)					
A6f,w	Geometry I	I	MTWThFS	217En	Miss Martyn	
	(7 cred.; all; no prereq.)					
A7f,w	Geometry II	II	MTWThFS	217En	Miss Martyn	
	(7 cred.; all; prereq., algebra or parallel advised)					
A21f,w	Elements of Music I.....					
	(2 cred.; all; no prereq.)					
	Sec. 1	III	TTh	201MuH	Miss Dickerman	
		2	VII	TTh	201MuH	Miss Dickerman
A22f,w	Elements of Music II.....	VII	TTh	301MuH	Miss Willson	
	(2 cred.; all; prereq., A21)...					
A23f,w	Chorus					
	($\frac{1}{2}$ -3* cred.; all; no prereq.)					
	Mixed Chorus	6:15	W	201MuH	Mr. Leach	
	Girls' Glee Club	4:30	Th	201MuH		
	Boys' Glee Club	4:30	T	201MuH		
A24f,w	Violin	Ar	TF	302MuH	Miss Pearson	
	($\frac{1}{2}$ -3* cred.; all; no prereq.)					
A25f,w	Piano	Ar	Ar	301MuH	Miss Willson	
	($\frac{1}{2}$ -3* cred.; all; no prereq.)					
A26f,w	Instrumental Music	Ar	Ar	103MuH	Mr. Boland	
	($\frac{1}{2}$ -3* cred.; all; no prereq.)					
A27f,w	Orchestra	4:00	TTh	201MuH	Mr. Boland	
	($\frac{1}{2}$ -3* cred.; all; no prereq.)					
A28f,w	Voice	Ar	Ar	202,	Mr. Birder,	
	($\frac{1}{2}$ -3* cred.; all; no prereq.)			203MuH	Mr. Leach	
A29f,w	Harmony I	II	TTh	301MuH	Miss Willson	
	(2 cred.; all; prereq., A22)					
A30f,w	Harmony II	VII	TTh	301MuH	Miss Willson	
	(2 cred.; all; prereq., A29)					
A32f,w	Appreciation of Music.....	VI	MWF	103MuH	Mr. Boland	
	(3 cred.; all; no prereq.)					
A33f,w	Instrumentation and Conducting	VI	TTh	103MuH	Mr. Boland	
	(3 cred.; all; prereq., A22, two terms of A25 or A26)					

* This course may be continued for six quarters giving a maximum of 3 credits.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
A34f,w	Band (½-3* cred.; all agr.; no prereq.)	IX	MWF	201MuH	Mr. Boland
A35f,w	Dramatic Art (½ cred. under special conditions. See Faculty Regulations)	6:15	T	202MuH	Mr. Birder
A41f,w	Parliamentary Law (1 cred.; jr., sr.; no prereq.)	I	S	202Ad	
A42f,w	American Government (3 cred.; sr.; no prereq.)	II	TThS	204Da	Mr. Christianson
A43f,w	Economics (3 cred.; sr.; no prereq.)	III	MWF	204Da	Mr. Christianson
A45f,w	Industrial History (3 cred.; jr., sr.; no prereq.)	VI	MWF	204Da	Mr. Christianson
A46f,w	Rural Sociology (3 cred.; sr.; no prereq.)	III	TThS	204Da	Mr. Christianson
A47f,w	American History (3 cred.; jr., sr.; no prereq.)	VIII	MWF	204Da	Mr. Christianson
A55f,w	Social Training (2 cred.; all H.E.; no prereq.)	III	MW	WH	Miss Matson
A56f,w	Social Problems for Boys..... (1 cred.; all agr.; no prereq.)				
	Sec. 1	I	Th	202So	Miss Hognason
	2	II	T	202So	
	3	III	W	204Da	
A61f,w	Spelling (1 cred.; all; no prereq.)				
	Sec. 1	II	S	107MuH	Miss Wade
	2	IV	S	107MuH	
A62f,w	Penmanship (1 cred.; all; no prereq.)				
	Sec. 1	II	TTh	107MuH	Mrs. Heathcote
	2	IV	TTh	107MuH	
A80f,w	Typewriting I (3 cred.; all; no prereq.)				
	Sec. 1	III, IV	MWF	106MuH	Mrs. Heathcote
	2	III, IV	TThS	106MuH	
	3	VI, VII	MWF	106MuH	
	4	I, II	MWF	106MuH	
	5	I, II	TThS	106MuH	
A81f,w	Typewriting II (3 cred.; jr., sr. H.E.; prereq., A80)				
	Sec. 1	I, II	MWF	106MuH	Mrs. Heathcote
	2	VI, VII, VIII	TTh	106MuH	
A82f,w	Typewriting III (3 cred.; jr., sr. H.E.; prereq., A81)	VI	MWF	106MuH	Mrs. Heathcote
A83f,w	Stenography I (3 cred.; all H.E.; no prereq.)	IV	MWF	104MuH	Miss Wade
A84f,w	Stenography II (3 cred.; jr., sr. H.E.; prereq., A83)	III	MWF	104MuH	Miss Wade

* This course may be continued for six quarters giving a maximum of 3 credits.

THE SCHOOL OF AGRICULTURE

No.	Title	Hour	Day	Bldg.	Instructor
A85f,w	Stenography III (3 cred.; jr., sr. H.E.; prereq., A84)	II	MWF	104MuH	Mrs. Heathcote
A86f.w	Bookkeeping I (3 cred.; all; no prereq.)	VI, VII, VIII	TTh	107MuH	Miss Wade
A87f.w	Bookkeeping II (3 cred.; all; prereq., A86)	III, IV	TThS	107MuH	Miss Wade
A88f.w	Commercial Law (3 cred.; all; no prereq.)	II	MWF	202Ad	

SOILS

No.	Title	Hour	Day	Bldg.	Instructor
A1f,w	Soils (3 cred.; all agr.; no prereq.)				
	Sec. 1	I	MWF	204So	Mr. Nesom.
	2	IV	MWF	204So	Mr. McMiller

VETERINARY MEDICINE

No.	Title	Hour	Day	Bldg.	Instructor
A1w	Physiology (3 cred.; all; no prereq.)	II	TThS	103Ve	Mr. Kernkamp
A4w	Elements of Bacteriology.... (3 cred.; jr., sr.; no prereq.)	II	MWF	103Ve	Mr. Fenstermacher
A5f	Physiology and Hygiene of Breeding (2 cred.; jr., sr. agr.; no prereq.)	II	WF	103Ve	Mr. Boyd
A7f.w	Veterinary Studies (3 cred.; jr., sr. agr.; no prereq.)	I	MWF	102Ve	Mr. Boyd

The Bulletin
of the University of
Minnesota

North Central School and Station
Grand Rapids, Minnesota

Announcement for the Year
1930-1931



Vol. XXXIII No. 38 August 25 1930

Entered at the post-office in Minneapolis as 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

1930							1931													
JULY							JANUARY							JULY						
Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa
..	..	1	2	3	4	5	..	..	..	..	1	2	3	..	..	..	1	2	3	4
6	7	8	9	10	11	12	4	5	6	7	8	9	10	5	6	7	8	9	10	11
13	14	15	16	17	18	19	11	12	13	14	15	16	17	12	13	14	15	16	17	18
20	21	22	23	24	25	26	18	19	20	21	22	23	24	19	20	21	22	23	24	25
27	28	29	30	31	..	..	25	26	27	28	29	30	31	26	27	28	29	30	31	..
..
AUGUST							FEBRUARY							AUGUST						
..	..	..	..	..	1	2	1	2	3	4	5	6	7	..	..	..	..	..	..	1
3	4	5	6	7	8	9	8	9	10	11	12	13	14	2	3	4	5	6	7	8
10	11	12	13	14	15	16	15	16	17	18	19	20	21	9	10	11	12	13	14	15
17	18	19	20	21	22	23	22	23	24	25	26	27	28	16	17	18	19	20	21	22
24	25	26	27	28	29	30	..	..	..	..	..	..	..	23	24	25	26	27	28	29
31	..	..	..	..	..	..	..	..	..	..	..	..	..	30	31	..	..	..	..	..
..
SEPTEMBER							MARCH							SEPTEMBER						
..	1	2	3	4	5	6	1	2	3	4	5	6	7	..	..	1	2	3	4	5
7	8	9	10	11	12	13	8	9	10	11	12	13	14	6	7	8	9	10	11	12
14	15	16	17	18	19	20	15	16	17	18	19	20	21	13	14	15	16	17	18	19
21	22	23	24	25	26	27	22	23	24	25	26	27	28	20	21	22	23	24	25	26
28	29	30	..	..	..	..	29	30	31	..	..	..	..	27	28	29	30	..	..	..
..
OCTOBER							APRIL							OCTOBER						
..	..	..	1	2	3	4	..	..	..	1	2	3	4	..	..	..	..	1	2	3
5	6	7	8	9	10	11	5	6	7	8	9	10	11	4	5	6	7	8	9	10
12	13	14	15	16	17	18	12	13	14	15	16	17	18	11	12	13	14	15	16	17
19	20	21	22	23	24	25	19	20	21	22	23	24	25	18	19	20	21	22	23	24
26	27	28	29	30	31	..	26	27	28	29	30	..	..	25	26	27	28	29	30	31
..
NOVEMBER							MAY							NOVEMBER						
..	..	..	..	..	..	1	..	..	..	..	..	1	2	1	2	3	4	5	6	7
2	3	4	5	6	7	8	3	4	5	6	7	8	9	8	9	10	11	12	13	14
9	10	11	12	13	14	15	10	11	12	13	14	15	16	15	16	17	18	19	20	21
16	17	18	19	20	21	22	17	18	19	20	21	22	23	22	23	24	25	26	27	28
23	24	25	26	27	28	29	24	25	26	27	28	29	30	29	30	..	..	..	..	..
30	..	..	..	..	..	..	31	..	..	..	..	..	..	..	..	..	..	..	..	..
..
DECEMBER							JUNE							DECEMBER						
..	1	2	3	4	5	6	..	1	2	3	4	5	6	..	1	2	3	4	5	6
7	8	9	10	11	12	13	7	8	9	10	11	12	13	6	7	8	9	10	11	12
14	15	16	17	18	19	20	14	15	16	17	18	19	20	13	14	15	16	17	18	19
21	22	23	24	25	26	27	21	22	23	24	25	26	27	20	21	22	23	24	25	26
28	29	30	31	..	..	..	28	29	30	..	..	..	..	27	28	29	30	31	..	..
..

SCHOOL CALENDAR 1930-31

1930			
July	26		Fifteenth Annual Visiting Day
September	29	Monday	Registration
September	30	Tuesday	Organization of classes
October	30	Friday	Home Coming Day
November	27	Thursday	Thanksgiving Day
December	19	Friday	First term closes; Christmas recess begins
1931			
January	5	Monday	Registration of new students
January	6	Tuesday	Second term begins; organization of classes
March	23-27	Week	North Central School Farmers' Week
March	27	Friday	School term closes
April	13-16		Junior Short Course
June	22-26		Women's Encampment

COMMENCEMENT WEEK

March	20	Friday	Superintendent's reception to graduating class
March	22	Sunday	Baccalaureate address
March	23	Monday	Literary program
March	24	Tuesday	Athletic program
March	25	Wednesday	Class exercises
March	26	Thursday	Ag-Royal and Banquet
March	27	Friday	Commencement

FACULTY

Lotus D. Coffman, Ph.D., LL.D., President of the University
Walter C. Coffey, M.S., LL.D., Dean of the Department of Agriculture

AT GRAND RAPIDS

ADMINISTRATION

R. L. Donovan, B.S.Agr., Superintendent
Mary Kulstad, Registrar and Librarian
Otto W. Swenson, Preceptor
Marie Opgrande Mollins, Director of Dining Hall
August Van Loo, Accountant
Harold Stunneck, Secretary and Clerk

AGRICULTURAL ENGINEERING

Diedrich Grussendorf, B.Agr., Farm Mechanics
Otto W. Swenson, Assistant Farm Machinery and Motors

AGRONOMY

Theodore S. Weir and R. L. Donovan, Soils and Farm Management
Otto W. Swenson, Assistant in Agronomy

HORTICULTURE AND ENTOMOLOGY

Theodore S. Weir, B.S.A.

ANIMAL HUSBANDRY

Clarence L. Cole, B.S., and R. L. Donovan, Animal and Dairy Husbandry
Diedrich Grussendorf, Poultry

ASSOCIATED SUBJECTS

Diedrich Grussendorf, Sciences
Marie Opgrande Mollins, English and Music
Mary Kulstad, Mathematics
Claribel Hunziker, History and Commercial Subjects
Otto W. Swenson, Athletics

GENERAL INFORMATION

LOCATION

The North Central School of Agriculture is located at the Experiment Station, one mile east of Grand Rapids, Minnesota, on the paved State Highway, No. 35. Busses from the Twin Cities and from the Mesaba Range stop at the station when requested.

PURPOSE

The school offers a practical course of study designed to fit young men for useful citizenship and successful farm life.

TIME OF OPENING

The fall term opens for Registration September 29, 1930. Classes will begin at 8:15, Tuesday, September 30, 1930.

The winter term will open for registration January 5, 1931, and classes will begin at 8:15, January 6, 1931. This term closes March 27, 1931.

THREE YEARS' COURSE

The course of study offered covers a wide range of subjects and requires three winters of six months each for completion. The methods of instruction tend to educate the students toward the farm instead of away from it; to develop in them a love of farm life by showing its possibilities.

COLLEGE PREPARATORY

Graduates from the regular courses who have completed two summers of supervised work on their home farms, one additional school year of six months, and one additional summer's work or the equivalent thereof, will be admitted to the College of Agriculture, Forestry, and Home Economics of the University of Minnesota.

ADMISSION

Applicants who have completed a common school course will be admitted without examination.

Applicants who have not completed the common school course should write to the registrar for further information.

Students who cannot pursue the full course from either lack of time or proper preparation may make special arrangements for taking such subjects as will be most helpful to them. These students can become candidates for a diploma only after meeting all entrance requirements. State

High School Board certificates are accepted for work in English, physiology, algebra, geometry, civics, and history; or credits not lower than 75 per cent received on state teachers' examinations.

ROOMS IN DORMITORY

The rooms are all cheerful and modern. Each room is furnished with two single beds, a chiffonier, a table, chairs, and bed linen. Students planning to attend the School of Agriculture should reserve rooms in advance. Write early asking the registrar to reserve a room in the dormitory.

WHAT TO BRING

Each student should come provided with comforters or blankets, towels, comb, brushes, tumbler, and nightgowns or pajamas.

EXPENSES

The necessary expenses for the year do not exceed \$150. This amount does not include traveling and personal expenses.

Each student is required to pay for breakage of apparatus used in practical work, and for all damage done to school property.

Textbooks are furnished at a rental of \$1 to students who do not desire to purchase. A fee of \$2.50 each term will entitle all students to attend all school functions, athletic contests, games, and entertainments.

It should be remembered that expenses for fees are for the entire term; after the first month, the only expenses are for board and room.

Board is payable the first of each month in advance. A surtax of 2 per cent is added to all bills delinquent more than ten days. No deduction is made for board for any absence of less than one month. If students are compelled to be absent for that length of time, they are allowed half rates, provided they make arrangements with the accountant before leaving. On entering the school, each student should bring sufficient money to pay for one month's board and room, and for books and fees. This amounts to about \$35.

The following expenses are charged to all students. Fees are payable at the time of registration, and board and room at the first of each month.

Registration fee for any part of school year to residents.....	\$5.00
Registration fee for non-residents, per month.....	5.00
Deposit as guarantee of proper treatment of school property.....	5.00
Board, per week	4.25
Room per week, including flat laundry.....	1.25
Book rent, per term.....	1.00
Student privilege ticket for all school functions, athletic contests, games, and entertainments	2.50

Special fees in laboratory courses are as follows: carpentry, engineering, farm mechanics, chemistry at \$1 each a term. Crop studies and dairying 50 cents each a term. A rental fee of \$1 a month is charged for the use of typewriters.

REQUIREMENTS FOR GRADUATION

Completion of the prescribed course of study, including all required work and enough electives to make a total of 160 credit hours.

One summer of supervised home project work. Of the 160 credits necessary for graduation 5 must be home project work, and 10 will be allowed.

An honorable standing in department.

Payment of all school accounts.

HOME LIFE IN THE DORMITORY

The dormitory life of the students while attending the School of Agriculture is subject to supervision. Everything possible is done to promote a healthful moral atmosphere.

The preceptor and preceptress have charge of students in the dormitory and regulations enforced are for the good of all.

From 8:15 a.m. to 4:30 p.m. students are busy with their school work. From 4:30 p.m. to 6:00 p.m. there is a recreation period in which the students' time is at their own disposal. After 7:30 p.m., students are expected to be in their rooms and to be quiet so that all may study undisturbed. Students can leave the campus in the evening only upon the permission of the preceptor or preceptress.

Students are required to be correct in their habits, and to observe pleasantly all directions for their government. Anyone not in accord with these restrictions and not willing to lend a hand toward strong moral growth should not come to the school.

Infraction of dormitory rules may be sufficient cause for dismissal from school.

ASSEMBLY PERIOD

An assembly period is held three mornings every week throughout the school year. Students are required to attend these assembly exercises. It is the purpose of the school to secure prominent speakers to address the student body at these morning exercises. The assembly period is also used as a forum for public discussion of the many questions and announcements of importance to the student body. The various societies and organizations also use this period for the promotion of their work.

HOLIDAYS

Lincoln's and Washington's birthdays will be appropriately observed, but classes will be held as usual. On Thanksgiving Day, no classes will be held.

STUDENTS' LITERARY SOCIETIES

Societies for the purpose of improvement in education and debate and for obtaining instruction in the form of lectures, give excellent oppor-

tunities for entertainment and culture. Practice in parliamentary procedure is given which will greatly benefit the students. Each student is expected to associate himself with one of these societies as early in his course as possible.

MUSICAL ORGANIZATIONS

A school glee club is organized during the fall term. A school orchestra will also be organized provided a sufficient number desire it. Students are urged to join these organizations.

ELIGIBILITY FOR CONTESTS

The following rules will govern eligibility for all interscholastic games.

1. A student must be enrolled in the school not less than two weeks before the contest.
2. He shall be making grade in at least four subjects for which he is enrolled. These four subjects must total 20 credit hours.

SCHOLARSHIP AND LOAN FUNDS

The North Central School of Agriculture considers itself very fortunate in being able to present the following loan fund provisions. The donors have specified the purposes for which each may be used. The general purpose, however, is to enable the school to reach a large number, to provide the means of encouraging many to acquire the training which the school offers, and to stimulate greater effort in school work.

GRAND RAPIDS COMMERCIAL CLUB FUND

The Commercial Club of Grand Rapids has created a revolving loan fund to aid students at the North Central School of Agriculture. Information regarding this fund may be received by writing to the superintendent.

CALEB DORR CASH SCHOLARSHIP PRIZES

By a decision made in April, 1922, by the Board of Regents of the University of Minnesota, a part of the Dorr fund is now made available to the schools of agriculture. This fund consists of \$50,000 willed by the late Caleb Dorr, of Minneapolis, the income of which will be used to promote scholarship and student activity records. Further information regarding this fund as it applies to the North Central School of Agriculture may be obtained by writing to the superintendent.

JUNIOR SHORT COURSE

The fourth annual Junior Short Course, from April 13 to April 16, 1931, is open to boys and girls from 12 to 20 years of age. With the exception of \$3 for board, there is no expense connected with the course. The course aims to deepen the interest of boys and girls in life on the farm. Special emphasis is placed on boys' and girls' club work. Instruc-

tion is given for the planning and carrying out of work in such projects and contests as gardening, corn and potato growing, pig, calf, and chicken raising, cooking, sewing, and canning. Illustrated lectures, moving pictures of educational value, games, singing, and excursions add interest and pleasure to the course.

FARMERS' AND HOMEMAKERS' SHORT COURSE

The North Central School of Agriculture will hold the annual Farmers' Short Course the fourth week in March. This course consists of daily programs covering a large field of subjects dealing with problems on agriculture in northern Minnesota, in talks as well as in demonstrations.

WOMEN'S CAMP

The third annual Women's Camp will be held at the North Central School June 23 to 27, 1931, to provide instruction and recreation for homemakers. Instruction in the form of demonstrations will be offered in home-making, community building, child training, music, and recreation.

EXPERIMENT STATION

The North Central School and Station is now conducting extensive experiments in agronomy, soils, horticulture, forestry, animal husbandry, poultry, apiary, and agricultural engineering.

SCHOOL FARM

The farm comprises 454.6 acres, and furnishes an extensive laboratory for the work of the school. Over 100 acres is in forest reserve, so designated by the Board of Regents; 200 acres are included in crop lands and grounds; and the rest is stump-land pasture not suited for crop purposes. Information concerning the methods employed on the farm is always available to the students. The classroom work is supplemented with actual practice either in the field or with crops grown on the farm.

STATION FLOCKS AND HERDS

The school now maintains an abundance of livestock, all of which is used for student work in animal husbandry. A dairy herd consisting of from 80 to 100 head, as well as flocks of sheep, horses, and swine; and poultry, including hens, ducks, turkeys, and geese, are maintained for station and school purposes. Excellent opportunities are thus provided for students to study intelligently the various courses in animal husbandry.

LIBRARY

The school is equipped with a good reference library to meet the needs of the various departments.

COURSES OF STUDY

THREE-YEAR COURSE

FRESHMAN

<i>Fall</i>		<i>Winter</i>
<i>Required</i>		<i>Required</i>
English	5	English
Livestock		Livestock
Farm Dairying	3	Livestock Breeding
Poultry I	3	Stock Judging
Plant Husbandry		Plant Husbandry
Plant Life	5	Cereals
Arithmetic	5	Industrial Geography
Gymnasium	1	Gymnasium
Social Training	½	Social Training
Electives	2½	Electives
	25	
Total		Total
		25
<i>Elective</i>		<i>Elective</i>
Breeds	2	Spelling and Penmanship.....
Motors	2	Piano
Piano	2	Violin
Violin	2	Glee Club
Glee Club	½	Mechanical Drawing
Typewriting	3	Carpentry
Spelling and Penmanship.....	3	
Farm Shop	2	

JUNIOR

<i>Fall</i>		<i>Winter</i>
<i>Required</i>		<i>Required</i>
English	5	English
Chemistry	5	Farm Accounts
Forage Crops	5	Fruits and Vegetables.....
Livestock		Livestock
Judging	2	Feeds and Feeding
Poultry II	3	Gymnasium
Gymnasium	1	Physics
Electives	4	Elective
	25	
Total		Total
		25
<i>Elective</i>		<i>Elective</i>
Farm Engineering		Farm Engineering
Land Clearing	1	Advanced Carpentry
Concrete	1	Mechanical Drawing
Piano	2	Piano
Violin	2	Violin
Bookkeeping	5	Bookkeeping
Typewriting	3	Typewriting
Glee Club	½	Glee Club
Corn and Grain Judging.....	2	
Motors	2	

COURSES OF STUDY

II

SENIOR

<i>Fall</i>		<i>Winter</i>	
<i>Required</i>		<i>Required</i>	
English	5	English	5
United States History	5	Government	5
Soils	5	Farm Management	5
Electives	10	Electives	10
	—		—
Total	25	Total	25
<i>Elective</i>		<i>Elective</i>	
Farm Engineering		Farm Engineering	2
Farm Drainage	1	Advanced Motors	
Farm Machinery	1	Livestock	
Livestock		Poultry Production	5
Dairy Management	2	Crops	
Crops		Ornamental Trees	2
Farm Forestry	2	Beekeeping	1
Bookkeeping	5	Typewriting	3
Typewriting	3	Piano	2
Piano	2	Violin	2
Violin	2	Glee Club	½
Glee Club	½	Bookkeeping	5

ADVANCED

<i>Fall</i>		<i>Winter</i>	
<i>Required</i>		<i>Required</i>	
English	5	English	5
General History	5	General History	5
Elementary Algebra	5	Elementary Algebra	5
Geometry	5	Geometry	5
	—		—
Total	20	Total	20
<i>Elective</i>		<i>Elective</i>	
Herd Management	5	Advanced Motors	2
Horticulture	5	Bees	3
Livestock Management		Horticulture	5
Livestock Breeding	3	Marketing Livestock and Livestock	
(Laws of Heredity)		Production	3
Market Milk	2	Bookkeeping	5
Bookkeeping	5	Typewriting	3
Typewriting	3	Agriculture Economics	
Rural Sociology	3	Machinery, etc.	3
Glee Club	½	Glee Club	½
Piano	2	Piano	2
Violin	2	Violin	2

HOME PROJECT WORK

The purpose of this work is to promote and extend the technical work given in the classrooms and laboratories during the regular school session. Reports are required throughout the season and the work is at all times in charge of supervisors who make the necessary visits to each student.

Five credits for home project work are required for graduation and ten credits will be allowed.

The home projects may be classified as follows:

ANIMAL HUSBANDRY

Dairy Herd Management	Rearing Chicks
Pork Production	Poultry Culling
Sheep Raising	Baby Beef
Dairy Calf	

AGRICULTURE

Potato Production	Corn Production
Garden Production	Plant Identification
Home Beautification	Planting Windbreak
Pure Seed Production	

BEEKEEPING

FARM ENGINEERING

Building Construction	Tractor Operation
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DESCRIPTION OF COURSES

AGRICULTURE

- A. Cereal Crops. A study of the principal grain crops adapted to Minnesota. Seed selection, seed treatment, soil, and cultural practices. Mr. Swenson.
- B. Forage Crops. A study of grasses, legumes for pastures and meadows. Annual forage crops and root and tuber crops grown for livestock. Seed selection, cultural requirements, and their importance to the farm. Mr. Swenson.
- C. Grain Judging. Score card practice judging work, identification of farm crop plants, seeds and weed seeds, with the object of making the student proficient in judging and identifying good and pure seed. Mr. Swenson.
- D. Soil Management. Soil formation and classification with particular attention to those of this territory. Factors influencing the fertility of soils and its maintenance including texture, tilth, moisture, air, tiling, organic matter, soil organisms, acidity, plant food, crop rotation, farm manures, commercial fertilizers, and types of farming. Mr. Weir.
- E. Farm Records and Accounts. A study of farm accounts. Regular records of a farmer's receipts and expenditures for the year are kept, including the inventory and closing of accounts. Mr. Grussendorf and Mr. Donovan.
- F. Farm Management. Study of the farm as organized business, giving consideration to types of farming, combination of enterprises, field and homestead arrangement, crop rotation, soil management, livestock labor, equipment and improvements, factors affecting cost of production and farm profits, land tenure. Mr. Weir.
- G. Pure Seed Production. Mr. Swenson.

HORTICULTURE AND ENTOMOLOGY

- A. Plant Life. A course in the study of the various properties of a plant with special reference to the potato. Mr. Weir.
- B. Decorative Plants. A study of the various flowers and shrubs used for decorative purposes. Making landscape plans. Grouping and planting of ornamental flowers and shrubs. Mr. Weir.
- C. a. Fruit and Vegetable Crops. Fruit growing. Importance of farm orchard and small fruit gardens is emphasized. Field work consists of a study of orchard soils, planting and cultural methods, propagation, pruning, spraying, harvesting, marketing, selection of varieties of native and hardy fruits. Mr. Weir.
b. Vegetable Gardening. The value of the home vegetable garden, preparation of the ground, and selection of plants and seeds are given attention. Includes tillage, rotation, transplanting, preparation and care of hotbeds, and insects dangerous to the garden. Mr. Weir.
- D. Farm Forestry. Why, how, when, and where to plant woodlots. Also, characteristics and adaptability of the more common trees; methods of propagation, and the conservation of planted and natural forests. Mr. Weir.

BEEKEEPING

The value and importance. Value and importance of bees as a source of income for the farm. Bee equipment. Mr. Weir.

AGRICULTURAL ENGINEERING

- A. Agricultural Physics. A laboratory study of mechanics, heat, light, sound, and electricity with special attention to these forces as they appear on the farm. Mr. Grussendorf.
- B. Blacksmithing. Instruction is given in the common hot-metal operations on the farm including forging, welding, tempering, horseshoeing, and plowwork. Mr. Grussendorf.
- C. Carpentry. Care and sharpening of wood-working tools useful on the farm. Construction and repair of agricultural equipment and farm buildings. Mr. Grussendorf.
- D. Mechanical Drawing. The use of mechanical drawing instruments is taught by drawing farm equipment and buildings. Mr. Grussendorf.
- E. Farm Motors. The principles of construction and operation of gasoline engines is given by laboratory work on stationary and automobile engines. Mr. Grussendorf.
- F. Farm Shop. Practice in rope work, soldering, belt lacing, pipe fitting, and harness repair. Mr. Grussendorf.
- G. Agricultural Engineering. Practice is given in stump and rock blasting, in running levels for drainage and foundations, and in the mixing and placing of concrete. Mr. Grussendorf.
- H. Farm Machinery. Selection, use, care, operation, including plows, harrows, disk harrows, mowers, binders, rakes, loaders, etc. Mr. Swenson.

DAIRY AND ANIMAL HUSBANDRY

- A. Farm Dairying. A study of the principles and practices of producing dairy products, including a discussion of dairy barns, silos, herd management, milk production, and testing. Mr. Cole.
- B. Dairy Breeds. Various breeds for dairy purposes are studied. Comparative judging. Score cards. Mr. Cole.
- C. Livestock Breeds. Breeds, beef cattle, hogs, horses, and sheep are discussed as to origin, development, characteristics, adaptation, and economic importance. Score card judging. Mr. Cole.
- D. Feeds and Feeding. General composition of the animal body; composition and digestibility of feeds; feeding standards; methods of feeding. Mr. Cole.
- E. Herd Management. Principles governing breeding and building up of herds; value of purebred sires; study of records and pedigrees, herd books, and method of registration. Problems of sanitation and disease. Mr. Cole.
- F. Livestock Production and Marketing. Statistical studies of production, markets, market demands, and market classes and grades. Study of market reports. Mr. Cole.
- G. Animal Breeding. Theory and practice of animal breeding, including variation, heredity, selection, effect of purebred animals in improving types of stock and pedigrees. Mr. Cole.

- H. Poultry I. A study of the farm laying flock covering feeding for egg production, culling, housing, and the poultry breeds. Mr. Grussendorf. Poultry II. A continuation of the study of the laying flock with emphasis on diseases, fattening and marketing. Some time is given to turkeys, ducks, and geese. Selection, care, and feeding of the breeding flock. Incubation and brooding, including the feeding and diseases of baby chicks. Mr. Grussendorf.

ENGLISH

- A. English I-A. Review of parts of speech. Oral and written themes required. An appreciation of good literature is encouraged by the reading of the simpler classics. Book reviews are given. Mrs. Mollins. English I-B. Continuation of English I-A. Sentence and paragraph structure. Letter writing. Theme work is continued. Most common rules of punctuation. Mrs. Mollins.
- B. English II-A. More advanced theme writing. Oral reports. Book reports. Standard books and selections of interest are read. Mrs. Mollins. English II-B. A continuation of English II-A. Punctuation is studied extensively. Business letters. Outlining in oral and written reports. Mrs. Mollins.
- C. English III-A. Advanced work in written composition of descriptive type. Advanced classics and extensive outside reading. Mrs. Mollins. English III-B. Reading of classics continued. Composition work of narrative and argumentative types. Simple newspaper writing. Mrs. Mollins.
- D. English IV-A. History of English literature with reading from masterpieces. A few themes. Mrs. Mollins. English IV-B. Continuation of English IV-A.
- E. Public Speaking and Debate. The purpose is to develop skill and experience in appearing before the public as both speakers and debaters. Orations and topics are used for drill in deportment and in expression and the principles of argumentation are taught by debating. Methods of conducting public meetings are taught by parliamentary procedure. Miss Hunziker.

INDUSTRIAL HISTORY AND CIVICS

- A. Industrial Geography. A study of the principal commodities in commerce and conditions, natural and otherwise, that affect their production. Miss Kulstad.
- B. United States History. The early discovery and colonization of the continent are studied, but conditions leading to the formation of the Union, the growth of the nation, the Civil War and subsequent problems are emphasized. Miss Hunziker.
- C. General History I. This course shows the emergence of mankind from savagery, the formation of the ancient nations, and especially the contributions of Greece and Rome to modern civilization. In the medieval period, the rise of modern nations, inventions and conditions affecting modern life are especially noted. Miss Hunziker.
- D. General History II. The development of the present European nations is studied, particularly as it influences conditions in America. Changes

in political, economic, and social conditions during the last one hundred years are stressed. Miss Hunziker.

- E. Government. The divisions of government from the township to the state are studied and the work is especially adapted to Minnesota, its laws and its courts. The national government, its tendencies and present day problems, is then studied. Miss Hunziker.

MATHEMATICS

- A. Arithmetic. A review of the simple mathematical processes. Drill on tables. Application of knowledge to farm problems, with a view of using practical short cuts. Miss Kulstad.
- B. Algebra I. This course covers the usual first-year academic credit work in algebra. Miss Kulstad.
Algebra II. A continuation of Course I. Miss Kulstad.
- C. Geometry I. This course is designed to cover the usual first year credit work in plane geometry. Miss Kulstad.
Geometry II. Continuation of Geometry I. Miss Kulstad.

BUSINESS TRAINING

- A. Bookkeeping. The principles of double entry bookkeeping as far as controlling accounts are illustrated by exercises and sets. The use of ordinary business papers is shown; also the principles of banking and transportation. Miss Hunziker.
- B. Bookkeeping. After the principles of Gregg shorthand are mastered, business letters are dictated to give speed and experience with new outlines. Work is also given in reading notes and prepared articles in shorthand. Miss Hunziker.
- C. Spelling and Penmanship. Drill in spelling a certain set of words in common use. Rules for spelling. Daily drill and individual instruction in penmanship. Miss Kulstad.
- D. Typewriting. The first drills are given for the purpose of memorizing the keyboard and learning the use of the machine. Drills are then given in touch and speed and letters of increasing difficulty are assigned. Miss Hunziker.

MUSIC

- A. Glee Club. A glee club is organized each term with practice twice a week. Three- and four-part songs are sung. Reading of notes is aimed at in every practice. The organization furnishes musical numbers for the literary society and assembly programs. Mrs. Mollins.
- B. Chorus. All members of the school are included in the chorus, which meets weekly. Two-, three-, and four-part songs are used. Mrs. Mollins.
- C. Violin requirements. Berold, Kayser, Mazar, Kreutzer, Dont, Fiorillo, Gavinier, Wessely scales.
- D. Orchestra. Credit to be arranged.

SOCIOLOGY

- Rural Sociology. A study of the rural conditions in the different sections of the country with suggestions for improvements wherever possible. Miss Hunziker.

The Bulletin
of the University of
Minnesota

Northwest School and Experiment
Station

Crookston, Minnesota

Announcement for the Year
1930-1931



Vol. XXXIII No. 27 June 10 1930

Entered at the post-office in Minneapolis as 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

1930							1931														
JULY							JULY														
Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa	
..	..	1	2	3	4	5	1	2	3	1	2	3	4
6	7	8	9	10	11	12	4	5	6	7	8	9	10	5	6	7	8	9	10	11	
13	14	15	16	17	18	19	11	12	13	14	15	16	17	12	13	14	15	16	17	18	
20	21	22	23	24	25	26	18	19	20	21	22	23	24	19	20	21	22	23	24	25	
27	28	29	30	31	..	..	25	26	27	28	29	30	31	26	27	28	29	30	31	..
..
AUGUST							AUGUST														
..	..	..	..	..	1	2	1	2	3	4	5	6	7	..	..	..	..	..	..	1
3	4	5	6	7	8	9	8	9	10	11	12	13	14	2	3	4	5	6	7	8	
10	11	12	13	14	15	16	15	16	17	18	19	20	21	9	10	11	12	13	14	15	
17	18	19	20	21	22	23	22	23	24	25	26	27	28	16	17	18	19	20	21	22	
24	25	26	27	28	29	30	..	..	..	..	..	..	..	23	24	25	26	27	28	29
31	..	..	..	..	..	..	..	..	..	..	..	..	..	30	31	..	..	..	..	..
..	
SEPTEMBER							MARCH														
..	1	2	3	4	5	6	1	2	3	4	5	6	7	..	..	1	2	3	4	5
7	8	9	10	11	12	13	8	9	10	11	12	13	14	6	7	8	9	10	11	12	
14	15	16	17	18	19	20	15	16	17	18	19	20	21	13	14	15	16	17	18	19	
21	22	23	24	25	26	27	22	23	24	25	26	27	28	20	21	22	23	24	25	26	
28	29	30	..	..	..	..	29	30	31	..	..	..	..	27	28	29	30	..	..	..
..	
OCTOBER							APRIL														
..	..	..	1	2	3	4	..	..	..	1	2	3	4	..	..	..	..	1	2	3
5	6	7	8	9	10	11	5	6	7	8	9	10	11	4	5	6	7	8	9	10	
12	13	14	15	16	17	18	12	13	14	15	16	17	18	11	12	13	14	15	16	17	
19	20	21	22	23	24	25	19	20	21	22	23	24	25	18	19	20	21	22	23	24	
26	27	28	29	30	31	..	26	27	28	29	30	..	..	25	26	27	28	29	30	31
..	
NOVEMBER							MAY														
..	..	..	..	..	..	1	..	..	..	..	..	1	2	1	2	3	4	5	6	7
2	3	4	5	6	7	8	3	4	5	6	7	8	9	8	9	10	11	12	13	14	
9	10	11	12	13	14	15	10	11	12	13	14	15	16	15	16	17	18	19	20	21	
16	17	18	19	20	21	22	17	18	19	20	21	22	23	22	23	24	25	26	27	28	
23	24	25	26	27	28	29	24	25	26	27	28	29	30	29	30	..	..	..	..	..
30	..	..	..	..	..	..	31	..	..	..	..	..	..	..	..	..	..	..	..	..
..	
DECEMBER							JUNE														
..	1	2	3	4	5	6	..	1	2	3	4	5	6	..	..	..	..	..	..	..
7	8	9	10	11	12	13	7	8	9	10	11	12	13	6	7	8	9	10	11	12	
14	15	16	17	18	19	20	14	15	16	17	18	19	20	13	14	15	16	17	18	19	
21	22	23	24	25	26	27	21	22	23	24	25	26	27	20	21	22	23	24	25	26	
28	29	30	31	..	..	..	28	29	30	..	..	..	..	27	28	29	30	31	..	..
..	

SCHOOL CALENDAR

1930-31

1930

June	16-19		Fifth Annual Women's Camp
September	29	Monday	Registration
September	30	Tuesday	Organization of classes
October	25	Saturday	Homecoming Day
November	27	Thursday	Thanksgiving Day
December	19	Friday	First term closes; Christmas recess begins

1931

January	5	Monday	Registration of new students
January	6	Tuesday	Second term begins; organization of classes
February	9-13	Week	Northwest School Farmers' Week
March	27	Friday	School term closes
June	8-11		Junior Short Course

COMMENCEMENT WEEK

March	21	Saturday	Interclass field meet
March	22	Sunday	Baccalaureate address
March	23	Monday	Intersociety declamatory contest
March	24	Tuesday	Superintendent's reception to graduating class
March	25	Wednesday	Musical recital
March	26	Thursday	Class Day exercises and commencement

FACULTY

Lotus D. Coffman, Ph.D., LL.D., President of the University
Walter C. Coffey, M.S., LL.D., Dean of the Department of Agriculture

AT CROOKSTON

ADMINISTRATION

Austin A. Dowell, M.S., Superintendent
J. W. Mlinar, B.S., Registrar
Fanny B. Lippitt, B.S., Director of Dining Hall
Ruth Sheldon, R.N., School Nurse
Vivian Sanders, Secretary
Kate Bedard, Accountant

AGRICULTURAL ENGINEERING

Arnold M. Foker, Carpentry and Farm Engineering
S. A. Anderson, B.S., Farm Motors and Mechanics
E. L. Ocock, B.S.A., Assistant in Farm Motors and Mechanics

AGRONOMY

Ray S. Dunham, B.S., Farm Crops and Soils
Elmer R. Clark, B.S.A., Pure Seed Work and Home Projects

ANIMAL HUSBANDRY

Orville M. Kiser, B.S.A., Animal and Dairy Husbandry
R. J. Christgau, B.S.A., Animal Husbandry and Physical Training
Alvey M. Pilkey, Poultry

HORTICULTURE

Thomas M. McCall, B.S.A., Horticulture

HOME ECONOMICS

Fanny B. Lippitt, B.S., Foods and Nutrition
Retta Bede, B.S., Foods and Cookery
Elsie Mae Kingston, B.S., Clothing and Textiles
Ruth Sheldon, R.N., Nursing

ASSOCIATED SUBJECTS

Edward W. Avery, B.S., Advanced Subjects, Debate
Hildur Peterson, B.A., Music and Vocal Training
DeEtte Cenfield Genung, B.A., English
Fae Hughbanks, Business Training
John W. Mlinar, B.S., Academic Subjects
Henry A. Pflughoeft, B.S., Boys' and Girls' Club Work
Rose C. Polski, B.A., Piano
Anne Simley, M.A., English
Grace M. Warne, B.A., English and Violin

GENERAL INFORMATION

LOCATION

The Northwest School of Agriculture is located at the Experiment Farm, one and one-half miles north of Crookston, Minnesota. There is a paved roadway between the school and the city, and regular auto bus service is maintained.

PURPOSES

The school was organized in 1906. It offers a practical course of study designed to fit young men and young women for successful farm life, and aims to give its students the necessary preparation for useful citizenship.

The work of the school aims to interpret for the young men and the young women from the farms, the life with which they are familiar. It gives reasons for the various farm operations, and makes a scientific basis for the proper management of the farm and the home.

TIME OF OPENING

The fall term of the Northwest School of Agriculture will open for registration on September 29, 1930, and classes will begin at 8 o'clock on Tuesday, September 30. The fall term closes on December 19, 1930.

The winter term will open for registration on January 5, and classes will begin at 8 o'clock on January 6, 1931. The winter term closes March 27, 1931.

THREE YEARS' COURSE

The course of study offered covers a wide range of subjects, and is largely technical in character. It is briefly outlined on pages 17 to 29. The regular course for both young men and young women requires three winters of six months each for completion.

The methods of instruction tend to educate students toward the farm instead of away from it, to develop in them a love for farm life by showing them its possibilities. In this respect the school has been very successful, as nearly all of its graduates continue agricultural pursuits.

ADVANCED COURSES

It has been found that the eighteen months of the long course is a very short time in which to give all the work that should be included in a satisfactory course. Therefore a fourth six months of work is offered. During this fourth session, graduates of the long course may elect to specialize in one of the lines of work listed below. They may at the same time choose from the elective lists subjects that they could not obtain during their first three sessions. The major lines of work suggested for boys are dairying, beef production, farm engineering, carpentry, advanced farm management, and academic subjects. The major lines for girls are dress-making, advanced home management, nursing, music, and business training.

COLLEGE PREPARATORY

Graduates of the Northwest School of Agriculture, who have completed two summers of supervised work on their home farms, one additional school year of six months, and one additional summer's work or the equivalent thereof, will be admitted to the College of Agriculture, Forestry, and Home Economics of the University of Minnesota and state teachers colleges.

DEPARTMENT OF MUSIC

For those who are interested, credit courses in piano and voice instruction are offered. Twelve half-hour lessons per term are given, with special time for practice. Fees of \$7 per term for the lessons and \$2.50 per term for piano rental are charged. Special rooms are set aside for practice, making it possible to do good, thoro work. A class in musical theory meets once a week, and instruction is also given in the history of music, ear training, and the rudiments of harmony and interpretation.

WHEN TO COME

Students should not come before Monday, September 29, or Monday, January 5. Dormitories will not be open before that time and the first meal in the dining hall will be served at noon on those days.

HOW TO GET TO THE SCHOOL

Check all baggage to Crookston and bring checks to the school. A charge of 25 cents is made by the school for transporting trunks at the opening of school. The same charge is made for the return of the baggage at the close of school, provided it is ready to go on the days assigned. A charge of 50 cents is made for transporting trunks at any other time.

ADMISSION

Applicants who have completed a common school course will be admitted without examination and boys must have had six months' practical experience on a farm.

Applicants who have not completed the common school course should write to the registrar for further information.

Students more than twenty-one years of age who cannot pursue the full course, either from lack of time or of proper preparation, may make special arrangements for taking such projects as will be most helpful to them.

Students from city or grade schools will not be admitted before finishing eighth grade work, or until their former school records have been passed upon by the superintendent. These records must be presented at least three weeks prior to the opening of school.

State High School Board certificates are accepted for work in English, physiology, algebra, geometry, and civics, or credits of 75 per cent or more received on state teachers' examinations.

ROOMS IN DORMITORIES

Old or new students planning to attend the School of Agriculture should reserve rooms in advance. Write early to the registrar, asking him to

reserve a room in one of the dormitories. This may be done by paying a deposit fee of \$2 which will apply on the first month's rent. If the student is unable to enter school, the deposit may be reclaimed before September 15, after which time it is forfeited. Each dormitory room is furnished with two single beds, a dresser, table, and chairs. The rooms are all lighted by electric light and heated by steam. Preferences as to roommates should be stated early and will be considered as far as possible.

WHAT TO BRING

Each student should come provided with sheets, blankets, quilts, one bedspread, one pillow, three pillow cases, dresser scarf, towels, napkins, comb, brushes, one glass tumbler, and one teaspoon, and at least two nightgowns.

Each girl should bring with her, in addition to her ordinary supply of clothing, kimono and bedroom slippers, laundry bag, gymnasium suit, and gymnasium shoes. The kimono and bedroom slippers may be of any style and material; the laundry bag should be of washable material, large enough to hold the soiled clothes of one person, and made to hang on two closet hooks; the gymnasium suit should consist of a pair of black sateen bloomers and a white middie blouse. Standard pattern No. 9225 is recommended for the bloomers. A yard and a half of material 36 inches wide is required for the average size. Black gymnasium or tennis shoes complete this costume. For those who are unable to make the bloomers at home, assistance will be furnished at the school.

EXPENSES

Necessary expenses for the year do not exceed \$150. This amount does not include traveling and personal expenses.

Each student is required to pay for breakage of apparatus used in practical work, and for all damage done to school property.

Textbooks are furnished at a rental of \$2 per year to students who do not desire to purchase. A gymnasium fee of \$1.00 per term is charged all students.

Music fees for private lessons are \$7 for each term. Piano rental is \$2.50 per term.

A fee of \$2.50 each term entitles each student to attend all school functions, athletic contests, and games and entertainments.

It should be remembered that expenses for fees are for the entire term, and after the first month the only expenses are for board and room.

The cost to the student for board is the actual cost of maintaining the table (including management). Board is payable the first of each month in advance. *A surcharge of 10 per cent is added to all bills delinquent more than ten days. No deduction is made for board for any absence of less than five days. No room refunds will be made for any period of less than one month. If students are compelled to be absent for that length of time, they are allowed half rates, provided they make arrangements with the accountant before leaving.*

On entering the school, each student should bring sufficient money to pay one month's board and room, and to pay for his books and fees. This will amount to from \$35 to \$45.

The following expenses are charged to all students. Fees are payable at the time of registration, and board and room at the first of each month.

Registration fee for any part of school year.....	\$ 5.00
For non-residents of Minnesota.....	10.00
Deposits as guarantee of proper treatment of school property.....	5.00
Health fee for term, required of all students.....	3.00
Board per week (price subject to change).....	4.00
Room per week, including flat laundry (price subject to change).....	1.25
Book rent, per term.....	1.00
Gymnasium fee (required of all), per term.....	1.00
Student privilege tickets for all school functions, athletic contests, and games and entertainments (required of all students).....	2.50

Special fees in laboratory courses are as follows: blacksmithing, \$2 a term; carpentry, engineering, farm mechanics, cooking, sewing, chemistry, or dairying, 50 cents each a term. A fee of \$1 a month is charged for the use of typewriters.

HEALTH SERVICE

The health fee collected from all students is used to maintain the Students' Health Service. A fully equipped hospital is maintained and a full time nurse is engaged during the school year. The health fee provides for physical examinations for all students and care by the nurse in case of sickness. *It does not provide for extra nurses or physicians in case of serious sickness, when such are necessary. A charge of 75 cents a day will be made for detention in the hospital after the first twenty-four hours.*

REQUIREMENTS FOR GRADUATION

1. *Boys' and girls' regular courses.*—The completion of the prescribed courses of study, including all the required work and enough elective work to make a total of 150 credit hours for the boys and 144 for the girls.

2. Honorable standing in department.

3. An essay of not less than one thousand words upon a topic connected with agriculture or home economics, typewritten on paper of approved size for binding and filing in the library.

4. For young men, practical experience in farm work during each of the two summers that come between the freshman and senior years. Students will register for the study of some definite farm problem to be studied each summer and report at stated intervals during the summer the progress made. Five of the 150 credits must be earned by home projects and ten are allowed. (See also College Preparatory, page 6.)

HOME LIFE ON THE CAMPUS

The life of the student while attending the school is subject to supervision. Students residing in the school dormitories are not allowed to leave the campus without permission of the preceptor or preceptress. The home life of each student is carefully guarded and everything is done to promote a healthful and moral atmosphere. The use of tobacco is strictly forbidden.

The preceptor of the School of Agriculture has charge of the boys in their dormitory and social life, and the preceptress has charge of the girls in their dormitory and social life, under such regulations as may be approved by the superintendent. Students are required to be correct in their habits, and to observe pleasantly all directions for their government.

From 8:15 a.m. to 4:30 p.m., students not at recitation or assembly are expected to be in their rooms or in the library, studying or reading; also after 7:30 in the evening. The rooms shall at all times be quiet, especially in the evening, so that no student may be disturbed.

Anyone not in accord with these restrictions, and not willing to lend a hand toward a strong moral growth, should not come to the School of Agriculture.

ASSEMBLY

On each Tuesday, Thursday, and Saturday at 11:40 a.m., the students assemble in the auditorium. After the opening exercises, brief talks are given by the superintendent, members of the faculty, or invited guests.

During the year the list of speakers includes prominent men, state and national officials, business men, particularly those connected with the agricultural industries, professional men, prominent clergymen of all denominations, educators from other institutions, and successful farmers. The addresses are of great interest and value to the students.

LECTURE COURSE

During the school year, a lecture and entertainment course, consisting of five lectures and musical programs, will be given at a low cost. It is hoped to provide high grade lectures and programs which will furnish a pleasant relaxation from school work and be instructive as well.

STUDENTS' LITERARY SOCIETIES

Societies for the purpose of improvement in public speaking and debate, and for obtaining instruction in the form of lectures, give excellent opportunities for entertainment and culture. Practice in parliamentary procedure is given which will greatly benefit the student. Each student is expected to associate himself with one of these societies as early in his course as possible.

MUSICAL ORGANIZATIONS

A school orchestra is maintained each year. A competent leader has charge of this work. Glee clubs, choruses, and quartets contribute greatly toward creating an interest in music.

STUDENTS' CHRISTIAN ASSOCIATIONS

Young Men's and Young Women's Christian associations have been formed, having for their objects social fellowship and moral and spiritual development. Bible classes will be held Sunday morning at 8:45. The associations are non-sectarian. Religious exercises are held at the school each Sunday evening at 7 o'clock. Various pastors and business men address the students at these meetings. The Christian associations conduct the exercises and secure the speakers.

RED RIVER AGGIE

The *Red River Aggie* is an annual published by the senior class of the school. The book gives an outline of all school and class activities, is fully illustrated, and contains, in addition to brief articles of student interest, a complete record of the development and growth of the institution.

THE NORTHWEST MONTHLY

The *Northwest Monthly* is published by the faculty of the school. It serves as a community publication, and is a medium by which former students and alumni are kept in touch with one another and with the school. It is also published to disseminate useful information and results of station work.

SCHOLARSHIP AND LOAN FUNDS

The Northwest School of Agriculture considers itself very fortunate in being able to present the following loan fund provisions. The donors have specified the purposes for which each may be used. The general purpose, however, is to enable the school to reach a large number, to provide the means of encouraging many to acquire the training which the school offers, and to stimulate greater effort in school work.

THE GILFILLAN TRUST FUND

This fund may be used by students of the Northwest School of Agriculture in accordance with the action of the Board of Regents taken September 26, 1916. The regulations governing the administration of the income from the fund may be learned by addressing the superintendent of the Northwest School of Agriculture, Crookston, Minnesota.

CALEB DORR CASH SCHOLARSHIP PRIZES

By a decision made in April, 1922, by the Board of Regents of the University of Minnesota, a part of the Dorr fund is now made available to the schools of agriculture. This fund consists of \$50,000 willed by the late Caleb Dorr, of Minneapolis, the income of which will be used to promote scholarship and student activity records. Further information regarding this fund as it applies to the Northwest School of Agriculture may be obtained by writing to the superintendent.

FAIRFAX-ANDOVER SOCIAL CLUB LOAN FUND

The Fairfax-Andover Social Club (a farm club near Crookston) provided \$150 to be used as a students' loan fund. This money will be loaned to students at 6 per cent interest as a temporary loan.

CLASS OF 1917 LOAN FUND

The class of 1917 has provided \$140 to be used as a students' loan fund. The interest from this fund shall be awarded annually to the student who makes the greatest progress in debating.

SPECIAL COURSES

A few students are unable to enter in the fall or unable to attend school for the three years. In order to provide for such students, the course of

study for the first year has been so arranged that new students may take the regular work and complete a course of study, beginning January 5, 1931.

JUNIOR SHORT COURSE

The nineteenth annual Junior Short Course, from June 9 to June 12, 1930, is open to boys and girls from 12 to 20 years of age. With the exception of \$3 for board, there is no expense connected with the course. The course aims to deepen the interest of boys and girls in life on the farm. Special emphasis is placed on boys' and girls' club work. Instruction is given for the planning and carrying out of work in such projects and contests as gardening, corn and potato growing, pig, calf, and chicken raising, cooking, sewing, and canning. Illustrated lectures, moving pictures of educational value, games, singing, and excursions add interest and pleasure to the course.

NORTHWEST SCHOOL FARMERS' AND WOMEN'S WEEK

The exhibit of farm crops in connection with the course was the origin of the annual Red River Valley winter shows held at Crookston during the second week of February, which now includes farm crops, livestock, poultry, and industrial exhibits. A five-day meeting at this time held under the auspices of the Northwest School serves the purpose of the original short course.

WOMEN'S CAMP

The fifth annual Women's Camp will be held at the Northwest School June 16-19, 1930, to provide instruction and recreation for homemakers. Instruction in the form of demonstrations will be offered in homemaking, community building, child training, music, and recreation.

EXPERIMENT STATION

The Northwest School and Station is now conducting extensive experiments in agronomy, soils, horticulture, animal husbandry, and agricultural engineering. Bulletins and circulars containing discussions of the results of experiments carried on are issued from time to time. These are mailed free upon application.

SCHOOL FARM

The farm comprises approximately 600 acres, and furnishes an extensive laboratory for the work of the school. Information concerning the methods employed on the farm is always available to the students. The classroom work is supplemented with actual practice either in the field or with crops grown on the farm.

STATION FLOCKS AND HERDS

The school now maintains an abundance of livestock, all of which is used for student work in the Animal Husbandry Department. Purebred Holstein, Guernsey, and Shorthorn cattle; grade and purebred Percheron horses; Shropshire sheep; Duroc Jersey hogs; White Leghorn and Rhode Island Red chickens are maintained for station and school purposes. These furnish excellent opportunities for students to study intelligently the various courses in animal husbandry.

COURSES OF STUDY

The numbers preceding the names of courses refer to descriptions given on pages 17-29. The letters f, w, s (fall, winter, spring) following a course number refer to the semester in which the course is offered. Courses listed in the first column are required of all boys. Courses listed in the second column are electives. Students should select electives to make a total of not more than 26 credit hours per semester together with the required subjects.

BOYS' THREE-YEAR COURSE

FIRST YEAR¹

Fall Term

REQUIRED			ELECTIVES		
No.	Title	Credits	No.	Title	Credits
101af,w	English Ia	5	14f,w	Blacksmithing	5
31f,w	Farm Dairying	2½	11f,w	Elementary Motors	5
51f,w	Farm Poultry	2½	13f,w	Farm Mechanics	5
61f,w	Botany	5	15f,w	Carpentry	5
111f,w	Farm Arithmetic ²	5	121f	Industrial Geography	5
171	Personal Hygiene	..	141af,w	Music Ia	1
172	Gymnasium	..	151af	Typewriting Ia	3
173f,w	Social Training	1	153af	Shorthand Ia	5
	Electives	5	150f,w	Spelling and Penmanship	2
		—	140	Private Music	4
		26			

Winter Term

No.	Title	Credits	No.	Title	Credits
101bw	English Ib	5	14f,w	Blacksmithing	5
32f,w	Study of Breeds	5	11f,w	Elementary Motors	5
1f,w	Cereal Crops	5	12f,w	Advanced Motors	5
111f,w	Farm Arithmetic ²	5	13f,w	Farm Mechanics	5
171	Personal Hygiene	..	15f,w	Carpentry	5
172	Gymnasium	..	122w	Industrial History	5
200	Summer Home Projects	1-5	141bw	Music Ib	1
	Electives	5	151bw	Typewriting Ib	3
		—	153bf	Shorthand Ib	5
		25	150f,w	Spelling and Penmanship	2
			140	Private Music	4

¹ The letters f,w following course numbers indicate that the course is offered both semesters.

² Students having a State Board certificate in arithmetic need not take Farm Arithmetic.

COURSES OF STUDY

SECOND YEAR

Fall Term

REQUIRED			ELECTIVES		
No.	Title	Credits	No.	Title	Credits
102af	English IIa	5	123f	Ancient History	5
33f	Principles of Stock Feeding	2½	18f	Mechanical Drawing	5
52f	Poultry Problems	2½	17f	Field Machinery	3
62f	Fruit and Vegetable Crops	5	142af	Music IIa	1
2f	Agricultural Chemistry	5	151af	Typewriting Ia	3
172	Gymnasium	5	152af	Typewriting IIa	3
	Electives	5	153af	Shorthand Ia	5
		—	154af	Shorthand IIa	5
		25	16f,w	Advanced Carpentry	3
			64f	Beekeeping	3
			140	Private Music	4

Winter Term

No.	Title	Credits	No.	Title	Credits
102bw	English IIb	5	156w	Bookkeeping	5
34w	Stock Feeding	2½	124w	Modern History	5
35w	Stock Judging	2½	142bw	Music IIb	1
3w	Forage Crops	5	127w	Parliamentary Law	1
4w	Farm Accounts	2½	151bw	Typewriting Ib	3
63w	Forestry	2½	152bw	Typewriting IIb	3
172	Gymnasium	5	153bw	Shorthand Ib	5
200	Summer Home Projects	15	154bw	Shorthand IIb	5
	Electives	5	19w	Farm Drawing	5
		—	140	Private Music	4
		25			

THIRD YEAR

Fall Term

REQUIRED			ELECTIVES		
No.	Title	Credits	No.	Title	Credits
103af	English IIIa	5	114af	Algebra Ia	5
36f	Herd Management	2½	39f,w	Meat Cutting	2
37f	Animal Breeding	2½	128f	Civics	5
5f	Soil Management	5	143af	Music IIIa	1
131f	Farm Marketing I	2	155af	Office Training Ia	8
129f	Rural Sociology	3	153af	Shorthand Ia	5
172	Gymnasium	5	154af	Shorthand IIa	5
	Electives	5	151af	Typewriting Ia	3
		—	152af	Typewriting IIa	3
		25	140	Private Music	4

Winter Term

No.	Title	Credits	No.	Title	Credits
103bw	English IIIb	5	114bw	Algebra Ib	5
38w	Livestock Production and Sanitation	2½	39f,w	Meat Cutting	2
53w	Poultry Diseases	2½	20w	Physics	5
6w	Farm Management	5	143bw	Music IIIb	1
132w	Farm Marketing II	2	155bw	Office Training Ib	8
130w	Rural Economics	3	153bw	Shorthand Ib	5
172	Gymnasium	5	154bw	Shorthand IIb	5
	Electives	5	151bw	Typewriting Ib	3
		—	152bw	Typewriting IIb	3
		25	140	Private Music	4

CREDIT REGULATIONS REGARDING BOYS' THREE-YEAR COURSE

In addition to the required work of the term, students must elect enough work to make a total of not less than 23 or more than 26 credit hours. Exceptions may be allowed by the Committee on Students' Work.

Students desiring to complete the business training work may elect such subjects in the second and third year in place of a required subject, upon conference with the Students' Work Committee.

Credit toward graduation will be allowed for work in debate, literary societies, school athletic teams, or other student activities, on a basis to be determined by the Students' Work Committee.

From one to four credits per term may be earned by approved work in instrumental or vocal music. A special fee will be charged for such courses. The same credit may be earned without the fee by membership in the orchestra by those who are competent for the work.

A class will not be maintained for less than six students, except in shop work, where the minimum is eight students.

GIRLS' THREE-YEAR COURSE

FIRST YEAR

Fall Term

REQUIRED			ELECTIVES		
No.	Title	Credits	No.	Title	Credits
101af,w	English Ia	5	121f	Industrial Géography	5
73f	Physiology	3	54w	Poultry	5
71f,w	Elementary Cooking Ia..	4	140	Private Music	4
86f,w	Elementary Garment Making	3	61f,w	Botany	5
88f	Drawing and Design	1	150f,w	Spelling and Penmanship.	2
141af,w	Music Ia	1	151af	Typewriting Ia	3
182	Social Training	1	153af	Shorthand Ia	5
181	Physical Training	..			
	Electives	6			
		—			
		24			

Winter Term

No.	Title	Credits	No.	Title	Credits
101bw	English Ib	5	31f,w	Farm Dairying	2½
111f,w	Arithmetic	5	122w	Industrial History	5
74w	Public Health	2	54w	Poultry	5
71aw	Elementary Cooking Ib..	4	140	Private Music	4
87w	Garment Making	3	150f,w	Spelling and Penmanship.	2
141bw	Music Ib	1	151bw	Typewriting Ib	3
181	Physical Training	..	153bw	Shorthand Ib	5
200	Summer Home Projects..	1-5	61f,w	Botany	5
	Electives	5			
		—			
		25			

COURSES OF STUDY

15

SECOND YEAR

Fall Term

REQUIRED			ELECTIVES		
No.	Title	Credits	No.	Title	Credits
102af	English IIA	5	123f	Ancient History	5
72f	Advanced Cooking	4	62f	Fruit and Vegetable Crops	5
92f	Textiles	2	140	Private Music	4
89f	Elementary Dressmaking.	4	64f	Beekeeping	3
75f	Home Nursing I.....	2	18f	Mechanical Drawing	5
142af	Music IIA	1	2f	Agricultural Chemistry...	5
91f	Costume Design	1	153af	Shorthand Ia	5
181	Physical Training	1	154af	Shorthand IIA	5
	Electives	5	151af	Typewriting Ia	3
		—	152af	Typewriting IIA	3
		24			

Winter Term

No.	Title	Credits	No.	Title	Credits
102bw	English IIB	5	93w	Laundrying	2
76w	House Planning	3	124w	Modern History	5
75aw	Home Nursing II	2	127w	Parliamentary Law	1
90w	Dressmaking	3	140	Private Music	4
142bw	Music IIB	1	63w	Farm Forestry	2½
181	Physical Training	1	156w	Bookkeeping	5
200	Summer Home Projects..	1-5	153bw	Shorthand Ib	5
	Electives	10	154bw	Shorthand IIB	5
		—	151bw	Typewriting Ib	3
		24	152bw	Typewriting IIB	3

THIRD YEAR

Fall Term

REQUIRED			ELECTIVES		
No.	Title	Credits	No.	Title	Credits
103af	English IIIa	5	79f	Household Accounts	2
77f	Home Management	3	80f	Nutrition	2
94f	Art Needlework	1	140	Private Music	4
143af	Music IIIa	1	128f	Civics	5
129f	Rural Sociology	3	114af	Algebra Ia	5
181	Physical Training	1	153af	Shorthand Ia	5
	Electives	11	154af	Shorthand IIA	5
		—	151af	Typewriting Ia	3
		24	152af	Typewriting IIA	3
			155af	Office Training Ia	8

Winter Term

No.	Title	Credits	No.	Title	Credits
103bw	English IIIb	5	65w	Floriculture	2
78w	Institutional Management	3	140	Private Music	4
95w	Advanced Dressmaking ..	2	20w	Physics	5
143bw	Music IIIb	1	114bw	Algebra Ib	5
130w	Rural Economics	3	153bw	Shorthand Ib	5
181	Physical Training	1	154bw	Shorthand IIB	5
	Electives	10	151bw	Typewriting Ib	3
		—	152bw	Typewriting IIB	3
		24	155bw	Office Training Ib	8

ADVANCED AND COLLEGE PREPARATORY COURSES

The work offered in this course is arranged to fit young men and women to enter the College of Agriculture, Forestry, and Home Economics, and state teachers colleges. It will cover a period of six months, beginning and closing at the same time as the regular school classes. Students capable of carrying satisfactorily all the subjects required will be granted a certificate.

Graduates of the three-year course of the Northwest School of Agriculture who have completed two summers of supervised work on their home farms, one additional school year of six months, and one additional summer's work or the equivalent thereof, will be admitted to the University of Minnesota, to the state teachers colleges, and the high school teacher training departments.

Students from other schools who wish to prepare for college or university entrance may elect subjects from the school course which will meet the necessary requirements.

OUTLINE OF COURSES (FOURTH YEAR)

<i>Fall Term</i>			<i>Winter Term</i>		
No.	Title	Credits	No.	Title	Credits
114af	Elementary Algebra Ia...	5	114bw	Elementary Algebra Ib...	5
115af	Plane Geometry	5	115bw	Plane Geometry	5
104af	American Literature and Composition	5	104bw	American Literature and Composition	5
105af	English Literature	5	105bw	English Literature	5
133af	Comparative Agriculture..	2	133bw	Comparative Agriculture..	2

DESCRIPTION OF COURSES

Following each course is a statement, in parentheses, of credits, classes of students eligible, prerequisites, and recitation and laboratory hours required. Thus (5 cred.; fr., jr., sr., adv.; prereq., Carpentry; 4 hrs. rec., 5 hrs. lab.) means that the course carries 5 credits, is open to freshmen, juniors, seniors, and students of advanced standing; has for a prerequisite Carpentry, and requires 4 hours of recitation and 5 hours of laboratory.

AGRICULTURE

1. Cereal Crops. Leading cereal crops, classes and varieties adapted to northwestern Minnesota, production and distribution, soil and climate adaptations, seed treatment, cultural practices, and control of diseases. Laboratory includes specimens of grain diseases and exercises in grain judging. (5 cred.; fr., jr., sr., adv.; 4 hrs. rec., 2 hrs. lab.) Mr. Clark.
2. Agricultural Chemistry. A study of elementary chemistry and its application to soil and fertilizers. Laboratory experiments in elementary chemistry and soil tests. (5 cred.; jr., sr., adv.; 5 hrs. rec.) Mr. Dunham.
3. Forage Crops. Grasses, legumes, root and tuber crops grown for livestock. Cultural directions. Laboratory work with dried and green specimens includes identification, characteristics, and habits of growth of the various crops. (5 cred.; jr., sr., adv.; 5 hrs. rec.) Mr. Dunham.
4. Farm Accounts. Practical farm records and their uses for the Red River Valley farmer. Calculations involved in farm accounting. Special emphasis upon the requirements of the income tax law. (2½ cred.; jr., sr., adv.; 5 hrs. rec., 6 weeks.) Mr. Clark.
5. Soil Management. Soil formation and classification. The principles of soil management are brought out in a study of soil moisture, pore space, organic matter, tillage, drainage, and crop rotations. Laboratory experiments with soils from students' home farms. (5 cred.; sr., adv.; 5 hrs. rec.) Mr. Dunham.
6. Farm Management. Systems of farming; selection of farm; the planning of rotations suitable to the students' home farms and to farms operated under different systems. Cost of producing crops; marketing products; business methods applied to the farm. (5 cred.; sr., adv.; 5 hrs. rec.) Mr. Dunham.

AGRICULTURAL ENGINEERING

11. Elementary Motors. Care and operation. Principles of construction, and handling of stationary and traction gasoline engines, including timing, ignition, starting and lighting systems, carburetion, cooling, and lubrication. The student is given a thoro knowledge of the care and

- operation of the gas engine. (5 cred.; fr., jr., sr., adv.; 2 hrs. rec., 6 hrs. lab.) Mr. Anderson, Mr. Ocock.
12. Advanced Motors. Auto and tractor repair. Practical work in overhauling and repairing automobiles and tractors, including complete motor and transmission overhauling; front and rear axle adjustment; and the common carburetor and electric repairs which can be made in the farm shop. (5 cred.; fr., jr., sr., adv.; 10 hrs. lab.) Mr. Anderson, Mr. Ocock.
 13. Farm Mechanics. Practical work in soldering, pipe fitting, babbitting, and bearing scraping; rope work, belt lacing, and harness repair. (5 cred.; fr., jr., sr., adv.; 2 hrs. rec., 6 hrs. lab.) Mr. Anderson, Mr. Ocock.
 14. Blacksmithing. Instruction is given in the management of the forge; in bending, shaping, and welding iron and steel, and tempering steel tools, thus familiarizing the student with operations necessary for blacksmith repair work on the farm. (5 cred.; fr., jr., sr., adv.; 10 hrs. lab.) Mr. Foker.
 15. Carpentry. Care and use of tools taught by means of practical farm problems, methods of sharpening tools, practical application of the various carpentry tools. (5 cred.; fr., jr., sr., adv.; 10 hrs. lab.) Mr. Foker.
 16. Advanced Carpentry. Continuation of carpentry with emphasis on building construction including foundation, framing, stair and rafter cutting, and selection of materials, and concrete work. (3 cred.; jr., sr., adv.; prereq., Carpentry; 6 hrs. lab.) Mr. Foker.
 17. Field Machinery. Care and adjustment of both horse- and tractor-drawn implements, including plows, disk harrows, binders, mowers, and other harvesting and belt machinery. Practical work in making adjustment and repairs. (3 cred.; jr., sr., adv.; 6 hrs. lab.) Mr. Anderson, Mr. Ocock.
 18. Mechanical Drawing. Practice in lettering and emphasis on working drawings for the shop. Designing of small farm structures. (5 cred.; jr., sr., adv.; 5 hrs. rec.) Mr. Foker.
 19. Farm Drawing. Continuation of Mechanical Drawing. Specializing in the planning and arranging of various buildings on the farm. Attention is given to building materials, estimates of costs, and specifications. (5 cred.; jr., sr., adv.; prereq., Mechanical Drawing; 5 hrs. rec.) Mr. Foker.
 20. Agricultural Physics. Nature of matter and force, heat, light, sound, and electricity in their application to everyday use. (5 cred.; sr., adv.; 5 hrs. rec.) Mr. Clark.

DAIRY AND ANIMAL HUSBANDRY

31. Farm Dairying. A study of the principles of successful dairy herd management. Various breeds for dairy purposes are studied. Comparative judging of dairy cattle. Principles of milk testing and keeping of herd records. (2½ cred.; fr., jr., sr., adv.; 5 hrs. rec., 6 weeks.) Mr. Kiser.

32. Study of Breeds. The types and breeds of horses, beef and dairy cattle, sheep, and swine are studied as to origin, history, characteristics, adaptation, and general economic importance. This course is supplemented by practice in judging horses, cattle, sheep, and hogs. The station herds are used for this purpose. (5 cred.; fr., jr., sr., adv.; 5 hrs. rec.) Mr. Christgau.
33. Principles of Stock Feeding. The principles of plant growth as applied to the production of feeds. Physiological functions of the organs of digestion and circulation as applied to animal nutrition. Feeding standards, characteristics of various feeding stuffs, formation and rations. (2½ cred.; jr., sr., adv.; prereq., Study of Breeds; 4 hrs. rec., 2 hrs. lab., 6 weeks.) Mr. Kiser.
34. Stock Feeding. Feeding livestock under farm conditions. Consideration of experimental work and present practice. Practical feeding problems. Efficiency and economy in the feeding of rations. (2½ cred.; jr., sr., adv.; prereq., Principles of Stock Feeding; 6 hrs. rec., 6 weeks.) Mr. Kiser.
35. Stock Judging. Attention is called to desirable and undesirable qualities in the various breeds. Comparative judging. Discussions on the subjects of type, market classes, and utility values of animals. (2½ cred.; jr., sr., adv.; 4 hrs. lab., 12 weeks.) Mr. Kiser.
36. Herd Management. Principles of governing breeding and building up of herds, with special reference to the value of purebred sires, study of pedigrees, herd books, and method of registration. Problems of sanitation and disease. (2½ cred.; sr., adv.; 5 hrs. rec., 6 weeks.) Mr. Kiser.
37. Animal Breeding. Theory and practice of animal breeding. Special attention is given to variation, heredity, and selection. The effect of purebred animals in livestock improvement. Study of pedigrees, herd books, and method of registration. (2½ cred.; sr., adv.; 5 hrs. rec., 6 weeks.) Mr. Kiser.
38. Livestock Production and Sanitation. Production of beef cattle, sheep, and swine both purebred and market stock. Statistical studies of the livestock situation. Study of daily livestock market reports. Problems of sanitation. Animal anatomy, causes, prevention, and care of animal diseases. (2½ cred.; sr., adv.; 5 hrs. rec., 6 weeks.) Mr. Kiser.
39. Meat Cutting. Slaughtering of hogs, sheep, and beeves. Judging a carcass. Study of meat cuts and meats. (2 cred.; sr., adv.; 4 hrs. lab., 6 weeks.) Mr. Kiser.

POULTRY HUSBANDRY

51. Farm Poultry. Poultry house construction. Feeds and feeding. Essentials for winter egg production. Killing and dressing fowls. (2½ cred.; fr., jr., sr., adv.; 5 hrs. rec., 6 weeks.) Mr. Pilkey.
52. Poultry Problems. Breeds and breeding of poultry, including turkeys, ducks, and geese. Selection and management of the laying flock.

- Natural and artificial incubation and brooding. Flock culling practice. (2½ cred.; jr., sr., adv.; 5 hrs. rec., 6 weeks.) Mr. Pilkey.
53. Poultry Diseases. Diseases of poultry, their cause, prevention, and treatment. Poultry marketing. (2½ cred.; sr., adv.; 5 hrs. rec., 6 weeks.) Mr. Pilkey.
54. Farm Poultry (for girls). Poultry on the farm. Poultry house construction. Feeds and feeding. Management of the laying flock. Natural and artificial incubation and brooding. Common diseases of the farm flock. (5 cred.; fr., jr., sr., adv.; 5 hrs. rec., 12 weeks.) Mr. Pilkey.

HORTICULTURE AND BEEKEEPING

61. Botany. Taught with special reference to plants of interest to the northern Minnesota farmer. Seeds and plants of the common weeds are studied, classified, and identified. Special emphasis is placed upon various methods of weed eradication. (5 cred.; fr., jr., sr., adv.; 4 hrs. rec., 2 hrs. lab.) Mr. McCall.
62. Fruits and Vegetable Crops. 1. *Fruit Growing*.—Importance of farm, orchard, and small-fruit gardens is emphasized. Field work consists of a study of orchard soils, planting and cultural methods, propagation, pruning, spraying, harvesting, marketing, selection of varieties of native and hardy fruits. 2. *Vegetable Gardening*.—The value of the home vegetable garden, preparation of the ground, and selection of plants and seeds are given attention. Includes tillage, rotation, transplanting, preparation and care of hotbeds, and insects dangerous to the garden. 3. *Potato Culture*.—The importance of the potato as a crop for Minnesota is recognized in this laboratory course. Includes the study of potato soils, seed selection, growing the crop, harvesting, storing, marketing, diseases and their control. (5 cred.; jr., sr., adv.; 5 hrs. rec.) Mr. McCall.
63. Farm Forestry. Why, how, when, and where to plant windbreaks and wood lots is taught; also characteristics and adaptability of the more common trees; methods of propagation, and the conservation of planted and natural forests. (2½ cred.; jr., sr., adv.; 5 hrs. rec., 6 weeks.) Mr. McCall.
64. Beekeeping. Value and importance of bees as a source of income for the farm, study of different races of bees, practical exercises in handling of bees. Local apiaries furnish abundance of material for practical demonstrations. (3 cred.; jr., sr., adv.; 3 hrs. rec.) Mr. McCall.
65. Floriculture (for girls). Study of flowers, with special reference to planting, growing, and propagation. Considerable time spent on grouping and planting of ornamental flowers and shrubs, and making landscape planting plans. Station greenhouses supply material for laboratory work. (2 cred.; sr., adv.; 2 hrs. rec.) Mr. McCall.

HOME ECONOMICS

71. Elementary Cooking Ia. Classification of foods and a study of the scientific principles underlying the cooking of the carbohydrate, fat, and protein foods; doughs and batters; beverages, desserts, and salads. (4 cred.; fr., jr., sr., adv.; 2 hrs. rec.; 4 hrs. lab.) Miss Bede.
- 71a. Elementary Cooking Ib. A continuation of Elementary Cooking Ia. (4 cred.; fr., jr., sr., adv.; 2 hrs. rec., 4 hrs. lab.) Miss Bede.
72. Advanced Cooking. Canning and preserving. Planning and serving meals. (4 cred.; jr., sr., adv.; 2 hrs. rec., 4 hrs. lab.) Miss Bede.
73. Physiology. Study of the structure of human body; digestion, absorption, and metabolism of foods; fundamental principles of human nutrition. (3 cred.; jr., sr., adv.; 3 hrs. rec.) Miss Sheldon.
74. Public Health. Methods of spread and prevention of communicable diseases. Protection of food, water, and milk. Vital statistics. Personal hygiene. (2 cred.; fr., jr., sr., adv.; 2 hrs. rec.) Miss Sheldon.
75. Home Nursing I—Home Hygiene and Care of the Sick. Sick room etiquette, care of children, first aid in emergencies, preparation and serving of food for the sick. (2 cred.; jr., sr., adv.; 2 hrs. rec.) Miss Sheldon.
- 75a. Home Nursing II—Child Care and Training. Consideration of the infant and pre-school child as to heredity, environment, and correction of defects and physical development. (2 cred.; jr., sr., adv.; 2 hrs. rec.) Miss Sheldon.
76. House Planning and Furnishing. Location, construction, and planning of farm houses; heating, lighting, ventilating, and equipping house; artistic and economic furnishing with work on cost and schemes of furnishing, floor and wall coverings, curtains and pictures, for each room. (3 cred.; jr., sr., adv.; 1 hr. rec., 4 hrs. lab.) Miss Bede.
77. Home Management. Distribution of family income; household accounts; purchasing supplies; planning and serving meals; relation of cost to income. (3 cred.; sr., adv.; 3 hrs. rec.) Miss Lippitt.
78. Institutional Management. Study of planning, purchasing, care and preparation of food in quantity; organization and administration, and practice housework. (3 cred.; sr., adv.; 3 hrs. rec.) Miss Lippitt.
79. Household Accounts. Housekeeping as a business, the average income, the budget and its apportionments, the economic and administrative responsibility of women in regulating and controlling the cost of living through judicious expenditures. (2 cred.; sr., adv.; 2 hrs. rec.) Miss Bede.
80. Nutrition. Simple problems of nutrition with caloric values and menus worked out for the adult man and woman, and children of different ages. Planning of family dietary, cost of dietaries, food for the sick and convalescent. (2 cred.; sr., adv.; 2 hrs. rec.) Miss Lippitt.

CLOTHING

86. Elementary Garment Making. Making of cooking apron and cap, underwear (including a slip), wash dress, and extra problems for those who have time. Hand stitches as applied to simple undergarments and household articles. Care of sewing machines. Use of commercial patterns. (3 cred.; fr., jr., sr., adv.; 2 hrs. rec., 2 hrs. lab.) Miss Kingston.
87. Garment Making. A continuation of Elementary Garment Making. (3 cred.; fr., jr., sr., adv.; 2 hrs. rec., 2 hrs. lab.) Miss Kingston.
88. Drawing and Design. Treats of the fundamental principles in designs and color harmony, with special emphasis on house furnishings. (1 cred.; fr., jr., sr., adv.; 2 hrs. lab.) Miss Kingston.
89. Elementary Dressmaking. Pattern alterations; making of wool blouse, wool dress, underwear, afternoon or informal party dress, and infant's layette. (3 cred.; jr., sr., adv.; 2 hrs. rec., 2 hrs. lab.) Miss Kingston.
90. Dressmaking. A continuation of elementary dressmaking. (3 cred.; jr., sr., adv.; 2 hrs. rec., 2 hrs. lab.) Miss Kingston.
91. Costume Design. Principles of design as applied to dress. Special emphasis given to different types and figures. (1 cred.; jr., sr., adv.; prereq., Drawing and Design; 2 hrs. lab.) Miss Kingston.
92. Textiles. Survey of processes concerned in the manufacture of cotton, wool, silk, and flax, and tests for adulteration and substitution. (2 cred.; jr., sr., adv.; 2 hrs. rec.) Miss Kingston.
93. Laundering. Care of laundry room and utensils, study of water, soap, starch, removal of stains, washing of woollen garments, ironing. Principles of dry cleaning. (2 cred.; jr., sr., adv.; 2 hrs. rec.) Miss Bede.
94. Art Needlework. Review of principles of design and color harmony. Decorative stitches and use in original design. Artcraft work. (1 cred.; sr., adv.; prereq., Drawing and Design; 2 hrs. lab.) Miss Kingston.
95. Advanced Dressmaking. Includes the more advanced problems. Underwear and dress for graduation are made in this course. (2 cred.; sr., adv.; 4 hrs. lab.) Miss Kingston.

ENGLISH

- 101a. English Ia. Oral and written composition; with particular attention to sentence structure, punctuation, and spelling. Letter writing. Drills for the purpose of eliminating errors. The reading of simple classics to create a love for literature. Silent reading is taught to train the student to read quickly and accurately and thus speed up the thought getting process and develop the habit of concentration. (5 cred.) Mrs. Genung.

Speech.—One hour a week. Reading aloud, drilling upon articulation and enunciation, short talks on familiar subjects, public programs

to enable the students to speak clearly and easily before an audience. Mrs. Genung.

Debate.—One hour a week. Principles of argumentation, briefs, debating in class, in public programs, and in debating societies. Mr. Avery.

101b. English Ib. Continuation of English Ia. (5 cred.)

102a. English IIa. Practical Business English. Paragraphing and methods of paragraph development. Narration, description, and exposition in oral and written composition. Study of good literature as basis for composition work and means of increasing student's vocabulary. (5 cred.) Miss Warne.

Speech.—Extemporaneous talks, interpretation, and a little dramatic work. Miss Warne.

Debate.—A development and a continuation of the first year's work. Mr. Avery.

102b. English IIb. A continuation of English IIa. (5 cred.)

103a. English IIIa. Study of sentence structure and principles of composition. Organization of longer themes. Reading of a few of the best English classics. Shakespeare. (5 cred.) Miss Simley.

Speech.—Special study of extemporaneous speech. Frequent participation in public programs. Dramatics. Miss Simley.

103b. English IIIb. A continuation of English IIIa. (5 cred.)

104a. American Literature and Composition A. The history and development of American literature with selected readings from each period. A careful study of composition with college entrance requirements in mind. (5 cred.) Miss Simley.

Speech.—Analysis of various forms of literature. Interpretation based on study of action and voice. Study of the drama, with practice in production. Miss Simley.

104b. American Literature and Composition B. A continuation of Course 104a. (5 cred.)

105a. English Literature A. A survey of literature with selected readings from each period. Frequent critical essays on outside reading. (5 cred.) Miss Simley.

105b. English Literature B. A continuation of Course 105a. (5 cred.)

MATHEMATICS

111. Farm Arithmetic. Drill for speed and accuracy; application of principles to everyday farm problems, as measurements of materials, extension, capacity, marketing of grain, stock, and products; purchase of machinery and supplies; cash accounts, business forms, and interest. (5 cred.; fr. only; 5 hrs. rec.) Mr. Pilkey.

114a. Algebra Ia. This work covers *New First Course in Algebra* by Hawkes-Luby-Touton, or equivalent text, omitting ratio and proportion, graphical representation, and imaginaries. (5 cred.; 5 hrs. rec.) Mr. Mlinar.

- 114b. Algebra Ib. A continuation of work begun in Algebra Ia. (5 cred.; 5 hrs. rec.) Mr. Mlinar.
- 115a. Geometry Ia. The course in geometry covers Avery's *Plane Geometry* from Book I to Book V taking up the study of rectilinear figures, the circle, proportion and measurement and similar figures, areas of polygons, regular polygons, and the measurement of the circle. (5 cred.; 5 hrs. rec.) Mr. Mlinar.
- 115b. Geometry Ib. A continuation of work begun in Geometry Ia. (5 cred.; 5 hrs. rec.) Mr. Mlinar.

SOCIAL SCIENCES

121. Industrial Geography. Study of climate, rainfall, location, and other geographical conditions affecting the primary industries. (5 cred.; fr., jr., sr., adv.; 5 hrs. rec.) Mr. Avery.
122. Industrial History. A study of the growth of industry, commerce, labor, population, and agriculture in the United States. (5 cred.; fr., jr., sr., adv.; 5 hrs. rec.) Mr. Avery.
123. Ancient History. The emergence of mankind from savagery. The contributions of ancient Greece and Rome to modern civilization. The work in this course covers also the Middle Ages. (5 cred.; jr., sr., adv.; 5 hrs. rec.) Mr. Mlinar.
124. Modern History. The development of present European nations is traced from the sixteenth century to the present time. (5 cred.; jr., sr., adv.; 5 hrs. rec.) Mr. Mlinar.
127. Parliamentary Law. The essentials of parliamentary practices as necessary in conducting public meetings effectively. (1 cred.; jr., sr., adv.; 1 hr. rec.) Mr. Avery.
128. Civics. Legislative, judicial, and executive departments and their functions. School district, township, county, state, and national government. (5 cred.; sr., adv.; 5 hrs. rec.) Mr. Clark.
129. Rural Sociology. The problems of rural communities, of rural health and sanitation, and of rural social institutions will receive attention. (3 cred.; sr., adv.; 3 hrs. rec.) Mr. Christgau.
130. Rural Economics. Attention is given to the consideration of factors affecting agricultural production and farm products. (3 cred.; sr., adv.; 3 hrs. rec.) Mr. Christgau.
131. Farm Marketing I. Fundamentals in connection with the problems confronting the farmer today in disposing of his products. (2 cred.; sr., adv.; 2 hrs. rec.) Mr. Dowell.
132. Farm Marketing II. A continuation of work in Farm Marketing I. (2 cred.; sr., adv.; 2 hrs. rec.) Mr. Dowell.
- 133a. Comparative Agriculture Ia. A study of the different systems of agriculture, marketing, rural credit facilities, and rural life of the principal agricultural countries of the world. (2 cred.; adv.; 2 hrs. rec.) Mr. Dunham.

- 133b. Comparative Agriculture Ib. A continuation of work begun in Comparative Agriculture Ia. (2 cred.; adv.; 2 hrs. rec.) Mr. Dunham.

MUSIC

140. Private Music. Instruction adapted to needs of each student. (See below.)
- 140a. Piano. Technical exercises for development and control of fingers, hands, and arms. Studies and compositions by best composers. A special fee is charged for this work. Miss Polski.
- 140b. Voice. Exercise in breathing and tone placing, for relaxing the throat, for formation of vowels and consonants, and for sight reading. Songs by American and foreign composers are studied. This work also requires a special fee. Miss Peterson.
- 140c. Violin. Methods and studies adapted to the individual students. This course requires a special fee. Miss Warne.
- 141a. Music Ia. Elementary Music. Consists of work in ear training, vocal development, sight reading, group singing. (1 cred.; fr., jr., sr., adv.; 1 hr. per week.) Miss Peterson.
- 141b. Music Ib. A continuation of work begun in Music Ia. (1 cred.; fr., jr., sr., adv.; 1 hr. per week.) Miss Peterson.
- 142a. Music IIa. Purpose is to study history, form, and beauty of musical compositions. (1 cred.; jr., sr., adv.; 1 hr. per week.) Miss Peterson.
- 142b. Music IIb. A continuation of work begun in previous semester. (1 cred.; jr., sr., adv.; 1 hr. per week.) Miss Peterson.
- 143a. Music IIIa. An acquaintance with the great music of the world through solos and records. (1 cred.; sr., adv.; 1 hr. per week.) Miss Peterson.
- 143b. Music IIIb. A continuation of work begun in previous semester. (1 cred.; sr., adv.; 1 hr. per week.) Miss Peterson.
145. Chorus Work. A glee club for boys and girls, a mixed chorus, and quartets are organized during the year. Students with the best voices are admitted to these. No special fee is charged. Miss Peterson.

BUSINESS TRAINING

150. Spelling and Penmanship. Practical drills closely related to work in other subjects, aiming to give proficiency in everyday requirements. (2 cred.; fr. only; 2 hrs. rec.) Mr. Avery.
- 151a. Typewriting Ia. Proper use of the machine; accuracy in touch typing through finger drills, and writing of required exercises. (3 cred.; fr., jr., sr., adv.; 5 hrs. lab. per week.) Miss Hughbanks.
- 151b. Typewriting Ib. A continuation of work begun in previous semester. (3 cred.; fr., jr., sr., adv.; 5 hrs. lab. per week.) Miss Hughbanks, Miss Warne.
- 152a. Typewriting IIa. Includes business letters and tabulating and executing legal documents. Forty to fifty words a minute required. (3

- cred.; jr., sr., adv.; 5 hrs. lab. per week.) Miss Hughbanks, Miss Warne.
- 152b. Typewriting IIb. A continuation of work started in previous semester. (3 cred.; jr., sr., adv.; 5 hrs. lab. per week.) Miss Hughbanks, Miss Warne.
- 153a. Shorthand Ia. During the first year, the students complete the *Manual of Gregg Shorthand* as well as many easy business letters. (5 cred.; fr., jr., sr., adv.; 5 hrs. rec.; Miss Hughbanks.
- 153b. Shorthand Ib. A continuation of work begun in the previous semester. (5 cred.; fr., jr., sr., adv.; 5 hrs. rec.) Miss Hughbanks.
- 154a. Shorthand IIa. Reviews the *Manual*, gives much new dictation material, including *Gregg Speed Studies* and work from the *Gregg Writer*. The student's speed should be raised to 100 words a minute. (5 cred.; jr., sr., adv.; 5 hrs. rec.) Miss Hughbanks.
- 154b. Shorthand IIb. A continuation of work begun in previous semester. (5 cred.; jr., sr., adv.; 5 hrs. rec.) Miss Hughbanks.
- 155a. Office Training Ia. This course combines the work of Shorthand I and II and Typewriting I and II. The student receives practical office work, including dictation and letter writing, filing, mimeographing, and secretarial training. (8 cred.; sr., adv.; prereq., Shorthand and Typewriting I and II; 10 hrs. lab. per week.) Miss Hughbanks.
- 155b. Office Training Ib. A continuation of work begun in previous semester. (8 cred.; 10 hrs. lab. per week.) Miss Hughbanks.
156. Bookkeeping. The principles of double entry bookkeeping are taught by means of class drills and the working out of model sets of books. In this course the student is made familiar with checks, notes, drafts, and other business papers. (5 cred.; jr., sr., adv.; 5 hrs. rec.) Miss Hughbanks.

PHYSICAL TRAINING

The aim of this department is to maintain the health of the students, to give outdoor exercise and deep breathing, to stimulate functional activity, to give co-ordination and control, and to form right habits of living.

MEN

171. Personal Hygiene. Importance of proper care of human body. Special attention is given to foods, water, air, narcotics, cleanliness, clothing, exercise, first aid to injured, care of sick, and care of special organs of the body. Mr. Christgau.
172. Gymnasium. Required of all men not excused because of physical disability. Aims to inspire pupils with desire to reach and maintain physical efficiency. Calisthenics with dumb-bells, Indian clubs, etc. Games or running follow light apparatus work. Mr. Christgau.
173. Social Training. Lectures and demonstrations on social conventions of home, school, and public life. (1 cred.; fr. boys; 1 hr. per week.) Lectures given by different faculty members.

WOMEN

181. Physical Training. Exercises in correct posture and walking habits. Exercises to develop quick thinking and action. Simple folk dances. Miss Kingston.
182. Social Training. Lectures and demonstrations on social conventions of home, school, and public life. (1 cred.; fr. girls; 1 hr. per week.) Miss Bede.

SUMMER HOME PROJECTS

AGRICULTURAL PROJECTS

200. Students will register for the study of some definite farm problem to be studied each summer and report at stated intervals during the summer the progress made. (See courses listed below.)
201. Dairy Herd Management. Student assumes care of dairy herd on his home farm for at least six months, making regular reports in regard to feeding and management, and keeping accurate accounts of milk production, butter tests, feed consumed, etc. (5 cred.) Mr. Kiser.
202. Pork Production. Care and feeding of one or more litters for six months, with complete records of feeding and care, cost of production, and returns. (3 to 5 cred.) Mr. Kiser.
203. Sheep Raising. Care of farm flock for one season, with complete records of feeding and management. (2 to 5 cred.) Mr. Christgau.
204. Baby Beef Production. Care and feeding of baby beef with records of cost of production. (3 to 5 cred.) Mr. Christgau.
205. Livestock Judging. The organization and training of a livestock judging team among the young people of your community. (2 to 3 cred.) Mr. Kiser.
206. Hogging-Off Corn. The growing of corn for hogging-off, with records of cost of production and results. (2 to 3 cred.) Mr. Kiser.
207. Potato Production. Production of one or more acres of potatoes for seed, including tuber unit selection, seed treatment, spraying with Bordeaux mixture and poisonous insecticides, and proper cultural practices. Records of cost of production and financial returns are required. (5 cred.) Mr. McCall.
208. Garden and Truck Crops. Planning, planting, and culture of home vegetable garden, or growing one-fourth acre or more of truck crop for market. Field notes and cost records are required. (3 to 5 cred.) Mr. McCall.
209. Planting Windbreak. Practical application of principles taught in forestry course, in planting windbreak of at least one hundred trees on home farm. (3 to 5 credits.) Mr. McCall.
210. Plant Identification and Weed Eradication. Identification and selection of farm plants and weeds, including common injurious weeds. Field notes on habits of growth and methods of eradication are required. (5 cred.) Mr. McCall.

211. Beekeeping. Care of two or more colonies of bees, including approved methods of management, and marketing of honey. (1 to 3 cred.) Mr. McCall.
212. Home Beautification. Planning the improvement of home grounds through planting shrubs and flowers. Includes plans and lists of shrubs and plants to be used, and some preliminary planting. (2 to 5 cred.) Mr. McCall.
213. Corn Production. Production of one acre or more of a standard variety of corn for seed, following up-to-date methods of seed selection, curing, testing, and cultural operations as taught in the classroom. (3 to 5 cred.) Mr. Clark.
214. Pure Seed Production. Production of one acre or more of a pure standard variety of wheat, oats, barley, or flax with special attention to preserving purity of seed and to producing high quality seed grains. (3 to 5 cred.) Mr. Clark.
215. Alfalfa Production. Growing of one acre or more of alfalfa, with records of labor and other production costs, yields, and notes on observations. (1 to 3 cred.) Mr. Dunham.
216. Farm Accounts. Includes the keeping of a complete system of financial accounts on the home farm for one season. (5 cred.) Mr. Clark.
217. Poultry Production. Hatching, brooding, feeding, and management of chicks, ducks, or geese, including records of production costs. (3 cred.) Mr. Pilkey.
218. Poultry Culling. Culling the farm flock. Project may be extended to include demonstrations in other flocks in the community. (1 to 5 cred.)
219. Turkey Production. Hatching and rearing turkeys within an enclosure. (3 to 5 cred.) Mr. Pilkey.
220. Building Construction. Planning, locating, and constructing a garage, machine shed, poultry house, or other farm buildings on the home farm. (1 to 3 cred.) Mr. Foker.
221. Tractor Operation. A study of the management and operation of the tractor on the home farm, including cost of fuel and oil, repairs, etc., and complete records of work done. (5 cred.) Mr. Anderson.
222. Community Service. The organization and promotion of 4-H clubs or other community, social, or religious organizations. (5 cred.) Mr. Pflughoeft.

HOME ECONOMICS PROJECTS

251. Canning Fruit and Vegetables. The canning of not less than twelve quarts of vegetables and not less than twelve quarts of fruit, with records of methods used and costs. (2 cred.) Miss Bede.
252. Canning Meat. The canning of not less than twelve quarts of meat by the "oven method," with notes and cost record. (1 cred.) Miss Bede.
253. Preserving. The making of not less than six quarts of sweet or sour pickles, at least twelve glasses of jelly, and not less than six pints of preserves, jam, or conserve. (1 cred.) Miss Bede.

254. Baking. Includes the baking of nine batches of yeast bread and six batches of quick bread, and reports on baking, time, and cost of materials. (2 cred.) Miss Bede.
255. House Dress. Making a washable house dress for self or other member of the family. (1 cred.) Miss Kingston.
256. Made-Over Dress. Making over a dress for self or other member of the family. (1 cred.) Miss Kingston.
257. Wool or Silk Dress. Making a wool or silk dress for self or other member of the family. (1 cred.) Miss Kingston.
258. Table Linen. Hemming a half dozen table napkins and a lunch cloth by hand with damask or French hem. (1 cred.) Miss Kingston.
259. Embroidery. Embroidering a lunch cloth or a three-piece dresser set, or a buffet set on linen or Indian head. The design should be original and conventional. (1 cred.) Miss Kingston.
260. Hemstitching. Hemstitching, either single or double, a half dozen handkerchiefs or a thirty-six inch square lunch cloth and four napkins. (1 cred.) Miss Kingston.
261. Cooking and Serving. Cooking and serving six vegetables three times each. (1 cred.) Miss Bede.
262. Cake Making. Making eight cakes—four sponge cakes and four butter cakes. (1 cred.) Miss Bede.
263. Baking Cookies. Making twelve bakings of cookies, six of which are drop cookies and six rolled out. (1 cred.) Miss Bede.
264. Desserts. Making and serving six hot desserts and six cold desserts. (1 cred.) Miss Bede.
265. Pie Baking. Making twelve pies, six of which are two-crust pies, and six one-crust pies. (1 cred.) Miss Bede.
266. Meal Preparation. Planning meals for one week, to meet the needs of your home family and following all principles for well-balanced meals. (1 cred.) Miss Bede.
267. Room Furnishing. Renovating some room in the home, to make it more efficient and comfortable, carrying out the principles taught in the House Planning courses. (1 cred.) Miss Bede.

SUMMARY OF ATTENDANCE

1929-30

Regular School Course	Men	Women	Total
Advanced	15	13	28
Seniors	43	20	63
Juniors	71	28	99
Freshmen	97	36	133
Special	11	19	30
	<hr/>	<hr/>	<hr/>
Total	237	116	353
Women's Camp, 1929 .....	..	141	141
Junior Short Course, 1929.....	155	133	288
Cow Testers' Short Course, 1929.....	17	..	17
	<hr/>	<hr/>	<hr/>
Total	409	390	799

STUDENTS

1929-30

ADVANCED

Bain, Evelyn, Baudette	Johnson, Harvey Rollag
*Bakke, Irene, Gary	Knutson, Winton, Thief River Falls
Bierbaum, Evelyn, Clearbrook	Larson, Fordyce, Ulen
Cenfield, Williamine, Clinton	Larson, Robert, Crookston
Cordes, Harold, Henning	Naplin, Alice, Wylie
Dale, Julia, Fertile	Newhouse, Ernest, Crookston
Elseth, Viola, Perley	Odland, Martin, Crookston
Filipi, Estelle, Angus	*Paquin, Abraham, Oklee
Gandrud, Stanton, Detroit Lakes	Ross, Edna, Crookston
*Gleason, Robert, Minneapolis	Stephenson, Hazel, Gary
Gullekson, Jetle, Beltrami	*Sulerud, Earl, Gary
Hanson, Florence, Mentor	*Thompson, Annette, Blackduck
Harris, Ethel, Crookston	Torkelson, Emmet, Crookston
Johnson, Elmer C., Erskine	Weaver, Lloyd, Crookston

SENIORS

Anden, Theodore, Fergus Falls	Dale, Melvin, Fertile
Anderson, Ivan, Greenbush	Degerness, Alvin, Gary
Banks, Harold, East Grand Forks	Erickson, Alice, Pencer
Bendix, Harold, Henning	Ferry, Ruby, Hendrum
Bitzer, Willard, Williams	Flom, Kenneth, Twin Valley
Bryngelson, Vernon, Callaway	Grendahl, Edgar, Gary
Cane, Thomas, Ponemah	Gustafson, Linden, Lancaster
Carlson, Clarence, Stephen	Hamre, Norah, Gary
Carroll, Harold, Mentor	Hanson, Arnold, Thief River Falls
Caudle, Johanna, Crookston	Hetland, McLean, Halsted
Dablow, Marie, Thief River Falls	Hoiland, Burdeen, Halsted

* Graduates also of three-year course.

Hoiland, Osborn, Halsted
 Holm, Arthur, Winger
 Ingebretson, Orville, Ulen
 Jensen, Gladys, Underwood
 Johnson, Halbert, Underwood
 Johnson, Harold L., Radium
 Johnson, Viola, Middle River
 Johnstad, Kenneth, Beltrami
 Josephson, Alice, Trail
 Juelson, Harmen, Fertile
 King, Edward, Euclid
 Koppang, Evinda, Climax
 Krogstad, Emma, Fertile
 Letnes, Daniel, Crookston
 Letnes, Isabelle, Crookston
 Lindquist, Clifford, Wylie
 Loeslie, Lucille, Radium
 McDonald, Eugene, Underwood
 Moe, Helga, East Grand Forks
 Mortenson, Elmer, Wannaska
 Nelson, John, Winger

Newhouse, Lawrence, Crookston
 Nisbet, Herbert, East Grand Forks
 Omundson, Lawrence, Radium
 Payne, Howard, Leonard
 Pederson, Effie, Clitherall
 Peterson, Arthur F., East Grand Forks
 Peterson, Lawrence, Gary
 Radniecki, Stanley, Trail
 Rots, Annette, Clitherall
 Satre, Aslaug, Kennedy
 Soderberg, Melvin, Kennedy
 Stein, Audrey, Warroad
 Strickler, William, Euclid
 Swenson, Earl, Fosston
 Tangjer, Lester, Bagley
 Tastad, Marie, Gary
 Vik, Carl, Halma
 Waldal, Selma, Plummer
 Walters, Vera, Crookston
 Wardner, Marvin, Fisher

JUNIORS

Anderson, Ingvald, Fisher
 Anderson, John, Hallock
 Arveson, Carl, Donaldson
 Avery, Kenneth, Hallock
 Beatty, George, Euclid
 Bedard, Rishton, Northcote
 Benson, Melvin, Stephen
 Berger, Rudolph, Greenbush
 Bloomquist, Glenn, Drayton, N.D.
 Boman, Roy, Syre
 Brandli, Ann, Warroad
 Bruun, Alpha, Climax
 Burk, Arthur, Brooks
 Canedy, Hazel, Laporte
 Carlson, Arne, Lake Park
 Dahlgren, Hazel, Kennedy
 DeMaster, Antoinette, Beaulieu
 Donley, Clinton, Fergus Falls
 Egeland, Frederick, Fisher
 Eggen, Gladys, Fertile
 Elliason, Erven, Donaldson
 Engelstad, Eldon, Fertile
 Erickson, Vernon, Badger
 Filipi, Angela, Angus
 Filipi, Jesse, Angus
 Fraser, Ronald, Grand Rapids
 Gill, Halley, Ada
 Gilmet, Roland, Red Lake Falls
 Glass, Dorothy, Mentor
 Gredvig, Arnold, Fertile
 Grove, Arthur, Roosevelt
 Hanson, Emil, Overly, N. D.
 Harris, Beulah, Crookston
 Harris, Herschel, Crookston
 Haugen, Harry, Plummer
 Hedstrand, Selma, East Grand Forks

Hendrickson, Arthur, Fosston
 Hill, Arlene, Brooks
 Hoff, Allan, Dalton
 Holmes, Donald, Strathcona
 Holmes, Ilyne, Warroad
 Hviding, Silas, Hendrum
 Jacobson, Alma, Kennedy
 Johnson, Chauncey, Detroit Lakes
 Johnson, Fredolph, Warren
 Johnson, Harold S., Greenbush
 Johnson, Lloyd M., Winger
 Johnson, Melvin, Erskine
 Karlin, Verner, Hawley
 Kroulik, Clifford, Donaldson
 Larson, Theodosia, Twin Valley
 Lee, Wilbur, Pencer
 Leiran, Dennis, Beltrami
 Malme, Mildred, Nielsville
 Mason, Sidney, Graeton
 Moen, Martin, Dalton
 Montbriand, Donald, Hudson, Wis.
 Mortenson, Carter, Underwood
 Myers, Edwin, Warroad
 Naplin, Helen, Wylie
 Neegard, Emma, Gonvick
 Nelson, Harold, Hawley
 Ness, Carl, Eldred
 Nornes, Bjarne, Winger
 Nornes, Helmer, Lockhart
 Noyes, Hazel, Brooks
 Noyes, Marvel, Erskine
 Olson, Harold, Beltrami
 Pearson, John, Middle River
 Peterson, Clarence, Hawley
 Peterson, Raymond, East Grand Forks
 Philipp, Estelle, Mavie

Radway, Richard, Roosevelt
 Rasmussen, Alfred, Crookston
 Ross, Lloyd, Alvarado
 Sandem, Evelyn, Lockhart
 Schroeder, Herbert, Fergus Falls
 Schultz, George, Fergus Falls
 Schultz, Harold, Gary
 Skoglund, Conley, Holt
 Skoglund, Roger, Holt
 Skrutvold, Amos, Pencer
 Slette, Tumina, Twin Valley
 Sorenson, Paul, Hallock
 Stenborg, Nels, Clearbrook
 Stenborg, Ruth, Clearbrook

Strande, Ervin, Fergus Falls
 Sundrud, Arthur, Fosston
 Swanson, Ingolf, Alvarado
 Tangen, Harry, Menahga
 Thompson, Bertrand, McIntosh
 Thoreson, Ann, Little Fork
 Truhn, Leonard, Park Rapids
 Valor, Marion, Climax
 Weckwerth, Alta, Hazel
 Widdifield, Walter, Park Rapids
 Woods, Dora, Radville, Sask., Canada
 Worman, Dorothy, Crookston
 Yergens, Chester, McIntosh

FRESHMEN

Abbott, Wallace, Mentor
 Adkins, Douglas, Grygla
 Anderson, Alton, Grygla
 Ardell, William, Twin Valley
 Beauchene, Ernest, Huot
 Berg, Wilhelm, Red Lake Falls
 Bjornrud, Kenneth, Newfolden
 Borg, Ingemar, Grygla
 Brickson, Beatrice, Lake Park
 Buck, Paula, Grygla
 Burk, Alice, Brooks
 Bursheim, Robert, Winger
 Carlson, Florence, Beltrami
 Carlson, Garfield, Shelly
 Chapman, Lloyd, Crookston
 Cordes, Melvin, Henning
 Coulter, Robert, East Grand Forks
 Dalager, Esther, Pelican Rapids
 Darst, Conley, Greenbush
 Dexheimer, Arthur, Twin Valley
 Dodgson, Claire, Bartlet, N. D.
 Durand, Garnet, Stephen
 Edeen, Ruby, Clearbrook
 Eggen, Agnes, Fertile
 Ekeberg, Alton, Fosston
 Elseth, Gordon, Newfolden
 Engevik, Severt, Gatzke
 Erickson, Leola, Twin Valley
 Erlandson, Lawrence, Trail
 Gilbertson, Thor, Ada
 Gordon, Arvin, Badger
 Greenley, Kermit, Viking
 Gronner, Alvin, Underwood
 Gustafson, Delbert, Lancaster
 Hagen, Mervin, Underwood
 Hanson, Gerhart, Goodridge
 Hanson, Harry, Trail
 Hanson, Herbert, Fisher
 Hanson, Kenneth, Fosston
 Hanson, LeRoy, Fertile
 Hanson, Paul, Crookston
 Harris, Lucy, Crookston
 Harstad, Lawrence, Crookston

Haugen, Lester, Winger
 Haugerud, Curtis, Pelican Rapids
 Heegard, Olive, Hendrum
 Henry, Pearl, Crookston
 Henry, Verna, Crookston
 Hillestad, Melvin, Hawley
 Hoffman, Marie, Erie
 Hoidal, Conrad, Winger
 Holte, Christian, Baudette
 Hoppe, Emil, Warren
 Hoscheid, Leonard, Baudette
 Hovelson, Orville, Gary
 Johnson, Akfield, Warren
 Johnson, Elbert, Newfolden
 Johnson, LeRoy, Detroit Lakes
 Johnson, Orpha, Rollag
 Johnson, Selma, Greenbush
 Jorland, Page, Holt
 Karlson, Warren, Warroad
 King, Myrtle, Holt
 Knutson, Jasper, Oslo
 Kronemann, Herbert, Fergus Falls
 Larson, Adolph, Twin Valley
 Larson, Orville, Ada
 Leas, Arden, Mentor
 Lohi, Chester, Melvin
 Lundin, Clarence, Stephen
 Lunsetter, Walter, Gatzke
 Maattala, Ebba, Oklee
 Maloick, Ceciel, Detroit Lakes
 Mandt, Peter, Oklee
 Melander, Grace, Gonvick
 Melin, Leonard, Wylie
 Moen, Norman, Gary
 Moran, Joseph, St. Vincent
 McGhan, Ronald, Ellingson, S. D.
 McIlraith, John, Northcoote
 McKibbin, Frances, Lancaster
 Naplin, Rose, Wylie
 Nelson, Alfred, Goodridge
 Nelson, Clarence, Twin Valley
 Ness, Aaron, Maplebay
 Njaa, Theodore, Wannaska

Noss, Bertha, Gary
 Noss, Oscar, Gary
 Ofstedal, Palmer, Fertile
 Olson, Alfred, Erie
 Olson, Rudolph, Dalton
 Oseth, Ole, Oslo
 Pearson, Irene, Hallock
 Peterson, Earl, Hazel
 Pugh, Ethyl, Plummer
 Radniecki, Jack, Trail
 Refing, Orin, Fertile
 Roadfeldt, George, Salol
 Rud, Marcus, Radium
 Sandry, Edna, Thief River Falls
 Sargent, Edward, Crookston
 Saunders, Clara, Radville, Sask., Canada
 Scott, Arnold, Lengby
 Sheridan, Blanche, Neilsville
 Simmons, Dorothy, Crookston
 Simonson, Herman, McIntosh
 Simonson, Lawrence, McIntosh
 Smeby, Sidney, Winger
 Smith, Agnes, Drayton, N. D.
 Smith, Milton, Alvarado

Solberg, Garvin, Hazel
 Solmonson, Violet, Thief River Falls
 Stock, Lehart, Mavie
 Strand, Arnold, Twin Valley
 Strand, Erling, Twin Valley
 Stroble, Merrill, Angus
 Tangen, Alice, Menahga
 Theiling, Norman, Grygla
 Thompson, Bennie, Newfolden
 Thompson, Genevieve, Underwood
 Thompson, Martin, Maplebay
 Thorson, Oliver, Fisher
 Toomey, Donald, Thief River Falls
 Torgerson, Esther, Fosston
 Torkelson, Eleanor, Crookston
 Urbaniak, Lucille, Argyle
 Vangsness, Ralph, Twin Valley
 Vilven, Stephen, Crookston
 Volker, William, Crookston
 Walker, Glenn, Clearbrook
 Wang, Belle, Winger
 Weckwerth, Clarence, Hazel
 Widseth, Edwin, McIntosh

SPECIALS

Berhow, Alice, Fertile
 Carlson, Lillian, Hazel
 Clark, Margaret, Crookston
 Dalager, Clarence, Pelican Rapids
 DeYoung, Katherine, Crookston
 Dowell, Hannah, Crookston
 Dowell, Margaret, Crookston
 Dunbar, Anne, Lancaster
 Dunham, Jean, Crookston.
 Dunham, Margaret, Crookston
 Foker, Robert, Crookston
 Hansegard, Raymond, Doyon, N. D.
 Henderson, Harris, Halstad
 Johnson, Elmer O., Newfolden
 Kiser, Joy, Crookston

Kiser, Mrs. O. M., Crookston
 Kopperud, James, Pelican Rapids
 Kveen, Gustav, Roseau
 Lavelly, Nellie, Crookston
 Lee, Gladys, Fosston
 Lindberg, Mabel, Argyle
 Lundeen, Elsie, Clearbrook
 Miller, Julia, Goodridge
 Olson, Hilmen, Melvin
 Patten, Ethel, Crookston
 Schlauderaff, Raymond, Detroit Lakes
 Sorenson, Olga, Beltrami
 Stepp, Lillian, Williams
 Ulseth, Reuben, Thief River Falls
 Wiese, Theodore, Perham

INDEX

	Page		Page
Admission	6	Junior Short Course	11
Advanced course	5	Lecture courses	9
Assembly	9	Literary societies	9
Attendance summary, 1929-1930..	30	Loan funds	10
Caleb Dorr Scholarship prizes....	10	Location	5
Calendar	2, 3	Music	6, 9
Class of 1917 loan fund.....	10	Northwest Farmers' Week	11
College preparatory	6, 16	<i>Northwest Monthly</i>	10
Course descriptions	17-29	Purpose	5
Courses of study (advanced)....	16	<i>Red River Aggie</i>	10
Courses of study (Boys' 3-yr.)... 12-13		Registration	5
Courses of study (Girls' 3-yr.)... 14-15		Scholarship and loan funds.....	10
Credit regulations	14	School Farm	11
Descriptions of courses.....	17-29	Special courses	10
Expenses	7-8	Station flocks and herds.....	11
Experimental Station	11	Students enrolled, 1929-1930....	32-33
Fairfax-Andover Club loan fund..	10	Summary of attendance.....	30
Faculty	4	Three-year course	5
Flocks at school station.....	11	Winter shows	11
Gilfillan trust fund.....	10	Y.M.C.A.	9
Graduation, requirements for....	8	Y.W.C.A.	9
Health Service	8		
Herds at school station.....	11		

THE UNIVERSITY OF MINNESOTA
NORTHWEST SCHOOL OF AGRICULTURE

Please read the bulletin carefully, noting the paragraphs headed Admission, Time of Opening, Rooms in Dormitories, What to Bring, and Expenses. If you plan to enter the school, fill out the application blank below and mail it to the registrar, Northwest School of Agriculture, Crookston, Minnesota. Send with this application \$2 made payable to the Northwest School for a room reservation in one of the dormitories. This \$2 will be applied on your first month's expenses on entering school. In case your application is received after all space has been assigned, you will be so notified. In case you cannot enter school after making application, you should notify the registrar as soon as possible. If this is done prior to fifteen days before the opening of school, the money will be returned, otherwise it will not. Students are strongly urged to reserve rooms in advance.

One hundred fifty dollars will pay the entire expenses for six months.

.....
Mail the following application to the registrar, Northwest School of Agriculture, Crookston, Minnesota:

To the Registrar:
Northwest School of Agriculture,
Crookston, Minnesota.

I am enclosing \$2 for a room reservation in one of the dormitories.

I wish to room with the following person.....

.....(State preference if any).

Name

Home address: R.F.D.....Post-office

The Bulletin
of the University of
Minnesota

West Central School and Station
Morris, Minnesota

Announcement for the Year
1930-1931



Vol. XXXIII No. 26 May 28 1930

Entered at the post-office in Minneapolis as 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

SCHOOL CALENDAR

1930-31

1930			
September	29	Monday	First term opens; registration
September	30	Tuesday	Organization of classes
October	18	Saturday	Home Coming Day
November	8	Saturday	Parents' Day
November	11	Tuesday	Armistice Day
November	28	Thursday	Thanksgiving Day; a holiday
December	20	Saturday	First term closes; Christmas vacation begins
1931			
January	5	Monday	Christmas vacation ends; second term opens; registration
January	6	Tuesday	Organization of classes
February	12	Thursday	Lincoln's Birthday (special exercises)
February	22	Sunday	Washington's Birthday (special exercises)
March	20	Friday	Annual Music Pupils' Recital
March	22	Sunday	Baccalaureate Service
March	23	Monday	Annual Concert Recital
March	24	Tuesday	Senior Class Play
March	26	Thursday	Junior-Senior Alumni Banquet
March	27	Friday	Commencement Exercises
June	9	Tuesday	Short Course for Farm Women opens
June	12	Thursday	Short Course for Farm Women closes
June	15	Monday	Boys' and Girls' Club Short Course opens
June	18	Thursday	Boys' and Girls' Club Short Course closes
June	19	Friday	Annual Student Homecoming
July	24	Friday	Station Visitors' Day

FACULTY

Lotus D. Coffman, Ph.D., LL.D., President of the University
Walter C. Coffey, M.S., LL.D., Dean of the Department of Agriculture

AT MORRIS

ADMINISTRATION

Paul E. Miller, M.Agr., Superintendent
Edwin J. Volden, Registrar
Mildred Nealy, B.A., Librarian
Gladys E. Hinson, B.S., Director of Dining Hall
Martha Spannaus, R.N., School Nurse
Ina Agre, Accountant
Hazel Amelsberg, Secretary

AGRICULTURAL ENGINEERING

Albert C. Heine, Physics, Farm Mechanics
Alex B. Rolfe, Forge and Welding
Lloyd W. Benner, Motor Mechanics
Julius Felt, Carpentry and Farm Structures

AGRONOMY

Roy O. Bridgford, B.S., Farm Crops and Soils
Theodore Fenske, B.S., Farm Crops and Soils
Allen W. Edson, B.S., Farm Management
Julius Jellum, Assistant in Agronomy

HORTICULTURE

John A. Anderson, B.S.A., Botany and Horticulture
Lacey Darnell, B.S., Floriculture

ANIMAL HUSBANDRY

Philip S. Jordan, B.S., Animal and Dairy Husbandry
Allen W. Edson, B.S., Poultry
Theodore Grotjohn, Herdsman

HOME ECONOMICS

Gladys E. Hinson, B.S., Foods and Cookery
Emily L. Taylor, B.S., Foods and Home Management
Martha Spannaus, R.N., Nursing
Tone E. Halvorson, B.S., Dressmaking and Millinery
Bessie L. Schramek, B.S., Clothing and Applied Art

ASSOCIATED SUBJECTS

Theodore S. Long, B.A., English, Public Speaking
Nanna Jelstrup, B.A., English, Mathematics
Catherine Gaines, B.A., English, Physical Training
Edwin J. Volden, Mathematics
Glenn I. Prickett, B.A., History
Martin J. Sorflaten, B.A., Music
Oretta Steeneron, B.A., Business Training
Lulu Miles, Penmanship

GENERAL INFORMATION

PURPOSE

The West Central School of Agriculture was organized in 1910 as a division of the Department of Agriculture of the University of Minnesota. It was established primarily for the training of young men for the profession of farming and of young women for the profession of home making. It is a secondary school accepting students directly from the eighth grade and offers great opportunities to that large group of young people who desire intensive vocational training and who are limited as to the time they can give to the completion of their education. The work is planned and subjects are taught with the purpose of making the students efficient in their chosen vocations. The courses are sufficiently extended to give a fairly complete technical knowledge of the professions of farming and home making, and a working basis for the economic and sociological aspects of farm life. The technical courses are amply supplemented by cultural subjects designed to give the students a broad and liberal viewpoint and the necessary preparation for useful citizenship.

LOCATION

The school is admirably situated to serve the west central part of the state. It adjoins the city of Morris and is situated on a natural rise of ground overlooking the Pomme de Terre Valley. The campus, with its twenty buildings, beautiful lawns, and pleasant drives, is one of the beauty spots of this section.

ADMISSION

The school will admit any young man or woman who desires a technical training in agriculture and home economics. It is desirable that prospective students should have completed the eighth grade, altho in special cases those who have not completed eighth grade work will be admitted, and opportunity will be given to complete this work. Mature young men and women who have been out of school for one or more years and desire special training in agriculture and home economics will be admitted. In certain lines of work, high school subjects will be accepted for advanced credit. Students should correspond with the registrar, West Central School of Agriculture, Morris, before coming to the school, and make the necessary preliminary arrangements for registration.

TIME OF OPENING

The fall term of the West Central School of Agriculture will open Monday, September 29, and close Saturday, December 20. The winter term will open Monday, January 5, and close Friday, March 27. The school work covers a period of six months, at a time when the student can best be spared from home.

THREE-YEAR COURSE

The regular courses cover a period of three sessions of six months each, beginning in October and closing in March. The long course for young men is so arranged as to make it possible for a student to select a large portion of his work in any one of the three lines: agronomy, animal husbandry, or agricultural engineering. The long course for young women permits of special training in home management, dressmaking, music, home nursing, public speaking, business training, etc. Both young men and young women may receive credit in music in connection with any of the courses. They may also choose academic subjects in the third and fourth years, preparatory to college or normal school entrance. The main emphasis of the institution is given to its long course, and all are urged to complete the three sessions.

ADVANCED COURSES

It has been found that many students desire an advanced year after completing the regular three-year course. To meet this demand a fourth year of six months of work is offered. During this advanced year, graduates of the long course may elect to specialize in one of the lines of work listed below. They may at the same time choose from the elective lists subjects that they could not obtain during their first three sessions. The major lines of work suggested for boys are dairying, beef production, farm engineering, carpentry, advanced farm management, and academic subjects. The major lines for girls are dressmaking, advanced home management, nursing, music, and business training.

COLLEGE PREPARATORY

Graduates of the West Central School of Agriculture who have completed two summers of supervised work on their home farms, one additional school year of six months, and one additional summer's work or the equivalent thereof, will be admitted to the University of Minnesota, to the state teachers colleges, and the high school teacher training departments.

DEPARTMENT OF MUSIC

For students desiring special courses in music, credit courses in both vocal and instrumental music are offered. Prospective students should refer to the description of the music courses on pages 25 and 26.

HOME PROJECT WORK

The purpose of this work is to promote and extend the technical work given in the classrooms and laboratories during the regular school sessions. The approved methods of home economics and agricultural practice are applied to some branch of the home or farm enterprise which the project is intended to cover. Reports are required throughout the season and the work is at all times in charge of supervisors who make the necessary visits to each student.

A description of all projects is given on pages 27 to 29.

ROOMS IN DORMITORY

Old or new students planning to attend the School of Agriculture should write early to the registrar asking him to reserve a room in one of the dormitories. Students should reserve rooms in advance. This may be done by paying a deposit fee of \$2 which will apply on the first month's room rent. If the student is unable to enter school, the deposit may be reclaimed before September 15, after which time it is forfeited. Each dormitory room is furnished with two single beds, a dresser, table, chairs, curtains, and pillows. Preference as to roommates should be stated early and will be considered as far as possible.

WHAT TO BRING

Each student should bring with him two comforts and blankets, towels, comb, brushes, one tumbler and teaspoon, bedroom slippers, and at least two nightgowns or pajama suits. Boys will also bring sheets and pillow cases for their beds.

Each girl should bring with her in addition to her regular supply of clothing, kimono, apron, and bedroom slippers, laundry bag, gymnasium suit, and tennis shoes. The kimono and bedroom slippers may be of any style and material; the laundry bag should be of washable material large enough to hold the soiled clothes of one person; the gymnasium suit should consist of a pair of black sateen bloomers and a white middie blouse. The following patterns are recommended: Butterick 3436, McCall 2514, Standard 9225. Three and one-half yards of material 36 inches wide are required for the average size.

EXPENSES

Necessary expenses for the year do not exceed \$150, including board and room. This amount does not include traveling and personal expenses.

Students are required to pay for breakage of apparatus used in school work and for all damage done to school property. The unused portion of this fee is returned at the close of school.

Small fees to cover the cost of material used are charged for certain of the laboratory courses. The amount of the fee in each case will be found in the description of the course. These fees are subject to change.

Music fees for private lessons are \$7 for each term. Piano rental is \$2.50 per term.

It should be remembered that fees are for the entire term, and after the first month the only expenses are for board and room.

Board is payable the first of each month in advance. A surcharge of ten per cent is added to all bills delinquent more than ten days. No deduction is made for board for any absence from the campus of less than two weeks. No room rent refunds will be made for any period of less than one month. If students are compelled to be absent for that length of time they are allowed half rates provided they make arrangements with the manager of the dining hall before leaving. All students not residents of Morris are required to live in the dormitories and to board in the school dining hall.

No increases will be made unless living costs necessitate an increase in the cost of board.

On entering the school each student should bring sufficient money to pay for one month's board and room, and to pay his fees. This will amount to from \$35 to \$45.

TABLE OF CHARGES

The following expenses are charged to all students. Fees are payable at the time of registration, and board and room on the first of each month.

Registration fee	\$5.00
Breakage fee	5.00
Post-office box per term .....	.20
Gymnasium fee	1.00
Health fee per term, required of all students except those living at home	2.00
Book rental per term	1.50
Board per week	4.00
Room per week	1.25

HEALTH SERVICE

The health fee collected from all students is used to maintain the Students' Health Service. A fully equipped hospital is maintained and a full time nurse is engaged during the school year. The health fee provides for physical examinations for all students and care by the school nurse in case of illness. It does not provide for extra nurses in case of serious sickness, where such are necessary, or extra costs caused by epidemics; nor does it provide for physician's calls. These must be paid for by the student securing the service.

REGISTRATION

No student will be allowed to register for less than 23 credit hours of work except by special permission.

All fees must be paid or arranged for at the time of registration.

No student will be allowed to register after the second week of the term except by special permission.

CANCELLATION OF REGISTRATION

No student may drop a subject for which he is registered without special permission.

If a student is below grade in a subject at the time of cancellation, his record in that subject will be entered as a failure.

For each change in registration after the second week of school a charge of 25 cents will be made. All such changes must be on the proper form, which the student may obtain at the registrar's office. All changes in registration must be approved by the superintendent.

No laboratory fees will be returned unless the registration is cancelled in the registrar's office within 10 days after the opening of school.

ABSENCES

No student will be admitted to class after an absence without a pass from the preceptor or preceptress. In case of sickness, passes will be obtained from the nurse.

All work lost through absence from class must be made up.

CLASSIFICATION

In order to be classified as a junior, a student must have not less than 42 credit hours of work.

In order to be classified as a senior, a student must have not less than 94 credit hours of work.

MARKING SYSTEM

The passing mark is 75 on the scale of 100.

All grades are submitted to the registrar's office at the end of each month, in percentage.

A grade of I (incomplete) at the end of any month represents that the required work of that month has not been completed and that the mark has not been determined. This incomplete must be removed during the following month.

A grade of C (condition) at the end of a term represents that the required work of the course has not been completed and that the final mark has not been determined. The condition must be removed during the first months of the following term, otherwise it automatically becomes a failure.

Extension of time for the removal of conditions may be granted in special cases.

Students who have not been absent more than three times and who have obtained a grade of 90 or above in any subject will be excused from final examination in that subject. Three tardinesses constitute an absence.

ELIGIBILITY

The following rules will govern eligibility for all interscholastic athletic contests:

- A. The student must be enrolled in the school not less than two weeks before the contest.
- B. He shall be making grade in at least four subjects for which he is enrolled. These four subjects must total 20 credit hours.

REQUIREMENTS FOR GRADUATION

Completion of the prescribed course of study, including all required work and enough electives to make a total of 160 credit hours.

One summer of supervised home project work. Of the 160 credits necessary for graduation 5 must be home project work, and 10 will be allowed.

An honorable standing in department.

Payment of all accounts.

For students transferring from other schools one full year of residence is required.

HOME LIFE IN THE DORMITORIES

The dormitory life of the students while attending the School of Agriculture is subject to supervision. Everything possible is done to promote a healthful, moral atmosphere.

The preceptors and preceptresses have charge of students in their dormitories, and regulations enforced are for the good of all.

From 8:00 a.m. to 4:00 p.m. students are busy with their school work. From 4:00 to 6:00 p.m. is a recreation period in which students' time is at their own disposal. After 7:30 p.m. students are expected to be in their rooms and to be quiet so that all may study undisturbed. Students may leave the campus in the evening only upon permission of the preceptors and preceptresses. No firearms of any kind will be permitted in dormitories.

The use of profanity and tobacco in dormitory rooms is strictly forbidden.

Infraction of dormitory rules may be sufficient cause for dismissal from school.

DISCIPLINE

It is the aim of the administration to be firm, reasonable, and sympathetic. A student who becomes antagonistic to the spirit of the school will be dismissed whenever the general welfare requires it. The school does not wish to undertake the problem of disciplining students who are not in sympathy with its purposes.

BUILDINGS AND EQUIPMENT

The physical plant now includes 12 modern brick and stone buildings which compose the educational group and 10 frame buildings which make up the farm group. The school group includes two girls' dormitories with facilities for 125 girls; 3 boys' dormitories with accommodations for 225 boys; Agricultural Hall, with stock judging pavilion, meat cutting, dairy, soils, chemistry, horticulture, botany, and farm crops laboratories, and classrooms for all agricultural work; Engineering Building with woodshop, forgeshop, farm mechanics laboratory, drafting room, and three lecture rooms; Music Hall, with two studios and numerous practice rooms. The Business Training Department is also located in this building and includes typewriting, shorthand, business training, and penmanship rooms; Dining Hall, with two large dining rooms and modern kitchens; a new, modern Students' Hospital and Health Service Building equipped with 27 beds, dispensary, and nurses' quarters; Home Economics Building with 2 food laboratories, 2 sewing laboratories, laundering laboratory, home management room, classrooms, and departmental offices; new Administration Building with auditorium, large library, business, registrar's, and administration offices; Home Management Practice House to accommodate a unit of 10 people; and the new Physical Education Building being erected this year which will include gymnasium, swimming pool, locker rooms, and team training quarters.

The equipment in all shops and laboratories is ample and sufficient for the most practical and efficient instruction.

The ten farm buildings give ample housing facilities for the herds, flocks, and farm equipment which are available for student use.

ASSEMBLY PERIOD

An assembly period is held each morning except Thursday throughout the school year. Students are required to attend these assembly exercises. It is the purpose of the school to secure prominent speakers to address the student body at these morning exercises. The assembly period is also used as a forum for public discussion of the many questions and announcements of importance to the student body. The various societies and organizations also use this period for the promotion of their work. The Thursday morning period is used for conferences between instructors and students.

HOLIDAYS

Lincoln's and Washington's birthdays will be appropriately observed, but classes will be held as usual. On Thanksgiving Day no classes will be held, but school will continue as usual on the Friday and Saturday following.

PROFESSIONAL CLUBS

An engineering club for boys especially interested in agricultural engineering and a livestock club for students interested in this branch of agriculture are open to all students. Interesting and instructive programs are given by these societies twice each month.

RELIGIOUS WELFARE

In maintaining the highest moral and religious atmosphere and in fostering the development of complete Christian manhood and womanhood—physical, intellectual, social, and spiritual—the student body and faculty have developed a close relationship with all of the downtown churches in Morris. Students affiliate with the churches of their preference and make them their church homes while attending school. In addition to this affiliation, religious services are held each Sunday on the school campus. These exercises are under the joint direction of the Faculty-Student Joint Religious Welfare Committee. The Young Women's Christian Association is represented on the campus by a strong and active organization.

MUSICAL ORGANIZATIONS

The school musical organizations include a large chorus, a boys' glee club, a girls' glee club, and a school orchestra. Students especially interested in music are urged to join these organizations and receive the training which they afford. The musical clubs appear at various school functions. A public concert recital is given at the close of the school year.

THE MOCCASIN

The *Moccasin* is an annual published by the senior class of the school. The book gives an outline of all school and class activities, is fully illustrated, and contains, in addition to brief articles of student interest, a record of development and growth of the institution.

WEST CENTRAL SCHOOL NEWS

The *West Central School News* is a quarterly published by the faculty of the school. It serves as a community publication, and is a medium by which former students and alumni are kept in touch with one another and with the school. It is also published to disseminate useful information and results of station work among its readers.

STUDENT LOAN FUNDS

Students attending the West Central School of Agriculture are afforded the opportunity of participating in the student loan funds available to students who attend the University of Minnesota. This money is loaned to worthy and deserving students at the West Central School in amounts not to exceed \$75 to any one person in one year, at the rate of 5 per cent per annum. Students interested in securing a student loan should correspond with the superintendent of the West Central School of Agriculture.

CALEB DORR CASH SCHOLARSHIPS

By a decision made in April, 1922, by the Board of Regents of the University of Minnesota, a part of the income from a bequest made by the late Caleb Dorr, of Minneapolis, was made available to the Schools of Agriculture. At the West Central School this fund is awarded to worthy students for excellence in scholarship and for achievement in leadership in boys' and girls' club work. The scholarships awarded are usually in the amount of \$50 and are used in helping to defray the students' expense while in school.

INTERSCHOLASTIC ACTIVITIES

Each year the school is represented by two debating teams, declamation contestants, stock and grain judging teams, which meet in interscholastic contests with similar institutions.

In athletics the school is represented by both football and basket-ball teams. These teams schedule games with high schools, colleges, and agricultural schools.

LIBRARY

The library is well equipped to supply the needs of the students. A large number of books have been selected to meet the requirements of the various departments. These, with the government and station reports, are available for use by instructors and students.

The librarian is always ready to give whatever assistance she can in directing students in the selection of books they may need in the pursuit of their work.

BOYS' AND GIRLS' CLUB WEEK

During the third week of June will be held the annual Boys' and Girls' Club Week. This course is open to all boys and girls from twelve to twenty years of age. A charge of \$2.00 covers all expenses, including board and

room for the entire week. Boys are given special training in all of the boys' club projects. The girls are given work in home economics with special reference to the club projects. At the close of the week two free trips to the 1931 Minnesota State Fair will be awarded to students who have done the best work during the week. Games, music, entertainments, and a special junior short course party will make the entire week one of special interest to all who attend. Moving picture entertainments are given each evening. A special circular describing this short course will be ready for distribution in April, 1930.

SHORT COURSE FOR FARM WOMEN

An annual short course for farm women is held during the second week in June. The main object of this course is to provide a few days of rest and recreation for the women of the farms in west central Minnesota. Talks, lectures, and demonstrations along lines of interest to farm women will fill in part of the day. The large dormitory and dining hall will provide ample living accommodations, and part of each day will be given to rest and recreation. The fee for the entire course, including room and board, is \$4.00.

EXPERIMENT STATION

The West Central School and Station is now conducting extensive experiments in crops, soils, horticulture, and animal husbandry. Special reports and bulletins are published from time to time giving the results of experimental work.

SCHOOL FARM

The farm comprises approximately 400 acres and furnishes an extensive laboratory for the work of the school. Information concerning the methods employed on the farm is always available to the students. The classroom work is supplemented with actual practice either in the field or with laboratory practice using the crops grown on the farm.

STATION FLOCKS AND HERDS

The school now maintains excellent livestock herds and flocks, all of which are used for student work in the Animal Husbandry Department. Purebred Holstein and Shorthorn cattle; Percheron horses; Shropshire sheep; Duroc Jersey hogs; White Leghorn and White Plymouth Rock chickens are maintained for station and school purposes. These furnish excellent opportunities for students to study intelligently the various courses in animal husbandry.

COURSES OF STUDY

Figures following the names of courses indicate the number of credit hours.

One credit hour is equivalent to one class period per week devoted to recitation or two such periods devoted to laboratory work.

A class period is forty-five minutes and a laboratory period is ninety minutes.

For description of the following courses see pages 18-29.

See pages 27-29 for description of home project work.

COURSES FOR BOYS

FRESHMAN YEAR

Required—first term	}	English I, 5 Farm Arithmetic, 4 or Farm Accounts, 4 Corn Growing, 5 Milk Testing, 1 Carpentry I, 2 Blacksmithing I, 2 Gymnasium, 1
Required—second term	}	English II, 5 Types and Breeds, 5 Carpentry II, 2 Stock Judging I, 1 Penmanship, 3 Gymnasium, 1
Eight credit hours must be chosen from this group during freshman year	}	Spelling and Penmanship, 3 Social Training, 1 Farm Records and Accounts, 3 Elementary Beekeeping, 3 Poultry Production, 3 Cereal Crops, 5 Floriculture, 3 Automotive Engineering, 6 Fruit and Vegetable Crops, 5 Automotive Electricity, 4 Farm Shop Work, 1 Blacksmithing II, 2 Piano, 2 Violin, 2 Chorus, 1 Orchestra, 1

JUNIOR YEAR

Required—first term	{ English III, 5 Chemistry, 4 Feeds and Feeding, 5 Gymnasium, 1	
Required—second term	{ English IV, 5 Physics I, 5 Gymnasium, 1	
Subjects must be selected from this group or from electives not taken in freshman year to make a total of 25 credit hours with the required subjects for each term	{ Garden and Orchard, 5 Corn and Grain Judging, 2 Mechanical Drawing, 2 Farm Drainage, 5 Stock Judging II, 1 Livestock Production, 3 Elementary Beekeeping, 3 Forge III, 2	} First term only
	{ Adv. Poultry Production, 3 Public Speaking, 3 Piano, 2 Violin, 2 Orchestra, 1 Glee Club, ½	} May be taken either term
	{ Forage Crops, 2 Fruit and Vegetable Crops, 5 Farm Structures I, 2 Stock Judging III, 1 Dairy Production, 3 Gas Welding, 2 Incubation and Brooding, 3 Farm Management, 5 Advanced Shop Practice, 1	} Second term only

COURSES OF STUDY

15

SENIOR YEAR

Required—first term	{	English V, 5 United States History, 5 Gymnasium, 1	
Required—second term	{	English VI, 5 Government, 5 Soils, 5 Gymnasium, 1	
Subjects must be selected from this group or from electives not taken in freshman or junior year to make a total of 25 credit hours with the required subjects for each term	{	Farm Structures II, 2 Pure Seed Production, 2 Agricultural Physics II, 5 Animal Breeding, 3 Bookkeeping I, 5 Farm Mechanics, 5 Commercial Law I, 5	} First term only
	{	Stock Judging IV, 2 Public Speaking, 3 Meats, 2 Adv. Poultry Production, 3 Piano, 2 Violin, 2 Orchestra, 1 Glee Club, ½	} May be taken either term
	{	Rural Sociology, 3 Bookkeeping II, 5 Advanced Electricity, 3 Farm Marketing, 3 Animal Diseases, 3 Incubation and Brooding, 3 Commercial Law II, 5 Advanced Shop Practice, 1	} Second term only

Two credits shall be allowed for participation in the senior class play. Two credits shall be allowed for participation in an interscholastic debate. One credit shall be allowed for membership in an interscholastic athletic team and such members will be excused from gymnasium classes. Not more than five special credits, including credits for play, debate, and musical organizations, shall count toward graduation.

COURSES FOR GIRLS

FRESHMAN YEAR

Required—first term	{	English I, 5 Garment Making I, 3 Foods and Cookery I, 3 Drawing and Design I, 1 Gymnasium, 1 Home Nursing I, 3 Social Training, 1	
Required—second term	{	English II, 5 Garment Making II, 3 Foods and Cookery II, 3 Drawing and Design II, 1 Home Nursing II, 3 Gymnasium, 1	

Eleven to 14 credit hours must be chosen from this group each term	<ul style="list-style-type: none"> General Science, 5 Home Accounts I, 3 	} First term only		
			<ul style="list-style-type: none"> Home Nursing II, 3 Floriculture, 3 Home Accounts II, 2 	} Second term only
	<ul style="list-style-type: none"> Poultry, 2 Beekeeping, 3 Home Economics, Spelling, 3 Glee Club, ½ Chorus, 1 Music (instrumental or vocal), 2 	} Either term		
			JUNIOR YEAR	
Required—first term			<ul style="list-style-type: none"> Dressmaking I, 3 Elementary Dietetics I, 3 English III, 5 Gymnasium, 1 	
Required—second term	<ul style="list-style-type: none"> Dressmaking II, 3 Child Care, 3 English IV, 5 Gymnasium, 1 Elementary Dietetics II, 3 			
Four to 9 credit hours must be chosen from this group each term or from electives not taken in freshman year	<ul style="list-style-type: none"> Home Furnishing, 3 Shorthand I, 5 Typewriting, 2 Chemistry I, 5 Applied Art I, 2 	} First term only		
			<ul style="list-style-type: none"> Nursing III, 3 Algebra II, 5 Shorthand II, 5 Typewriting, 2 Chemistry II, 5 Floriculture, 3 Applied Art II, 2 	} Second term only
	<ul style="list-style-type: none"> Public Speaking, 3 Poultry, 2 Laundrying, 2 Beekeeping, 3 Applied Art I, 2 Glee Club, ½ Chorus, 1 Music (instrumental or vocal), 2 	} Either term		
			Required—first term	<ul style="list-style-type: none"> English V, 5 United States History, 5 Dressmaking III, 4 Home Management, 3 Gymnasium, 1
Required—second term			<ul style="list-style-type: none"> English VI, 5 Government, 5 Dressmaking IV, 4 Gymnasium, 1 	

* Students taking business training electives will register in the five-hour course.

COURSES OF STUDY

17

Required—first or second term	Home Management House, 6	
Seven to 12 credit hours in this group or from electives not taken in junior year	Nursing IV, 3 Geometry I, 5 Chemistry I, 5 Algebra I, 5 Bookkeeping I, 5 Business Training I, 3 Dictation I, 5 Commercial Law I, 5 General History I, 5	} First term only
	Rural Sociology, 3 Chemistry II, 5 Algebra II, 5 Geometry II, 5 Art Appreciation, 2 Horticulture, 3 Dictation II, 5 Commercial Law II, 5 Bookkeeping II, 5 Business Training II, 5 Physics I, 5 General History II, 5 Applied Art II, 2	} Second term only
	Beekeeping, 3 Poultry, 2 Public Speaking, 3 Applied Art I, 2 Glee Club, ½ Chorus, 1 Music (instrumental or piano), 2 Typewriting, 1	} Either term

Through their choice of electives, girls may prepare themselves for one of several lines of work. At the time of registration, students will be advised how to select their work so that it will prepare them for the vocation in which they are interested. They may prepare for business positions, for normal training work, for college entrance, or for nurses' training. A carefully planned course in home economics is the foundation of all the courses for girls.

COURSES FOR BOYS AND GIRLS

ADVANCED YEAR AND COLLEGE PREPARATORY COURSES

Required—first term	Plane Geometry I, 5 Elementary Algebra I, 5 English VII, 5 General History I, 5
Required—second term	Plane Geometry II, 5 Elementary Algebra II, 5 English VIII, 5 General History II, 5 Botany, 5
Electives	Solid Geometry, 5 Advanced Algebra, 5 Rural Sociology, 3 Physics II, 5

DESCRIPTION OF COURSES

AGRONOMY AND FARM MANAGEMENT

- Corn Growing. A study of the corn plant; its botanical structure, relation to soil and climate; selection and testing; soil preparation; harvesting; disease, silage, varieties, and corn judging. Rec. 5 hrs.; 5 credits; fee, 50 cents.
- Cereal Crops. A study of the principal cereal crops. Seed selection; soil and cultural requirements; harvesting. Rec. 5 hrs.; 5 credits; fee, 50 cents.
- Corn and Grain Judging. Score card practice, commercial grading and judging work, with the object in view of making the student proficient in the selection and growing of purebred seed. Lab. 2, 2 hrs.; 2 credits; fee, 50 cents.
- Forage Crops. A study of the leguminous crops, clover, alfalfa, etc., pastures and meadows, and the annual forage crops. Cultural requirements of forage crops and their importance to the farm. Lab. 2, 2 hrs.; 2 credits.
- Pure Seed Production. Methods of breeding and growing purebred seed corn and grain on the farm. The course includes a study of certification and seed registration. Lab. 2, 2 hrs.; 2 credits; fee, 50 cents.
- Soils. This course is applied to the needs of western Minnesota. Soil formation; soil types, soil physics, soil chemistry, soil tillage, and the use of fertilizers are given chief attention. Rec. 3 hrs.; lab. 2, 2 hrs.; 5 credits; fee, \$1.
- Farm Management. A study of farm organization as related to types of farming, combinations of enterprises, crop rotation, soil management, field and farmstead arrangement, and the efficient use of labor and equipment. Rec. 5 hrs.; 5 credits.
- Farm Records and Accounts. A study of farm accounts. The student keeps a practical set of books on the year's work, from the taking of the inventory to closing the accounts at the end of the year. Rec. 3 hrs.; 4 credits.
- Advanced Studies in Farm Management. Advanced work in some of the more important problems of farm management, including farm labor, cost of production, marketing, and similar subjects. Rec. 1 hr.; lab. 4, 2 hrs.; 5 credits.

MARKETING

- Farm Marketing. A study of the present systems of distributing farm products. Special study is made of co-operative laws and co-operative marketing institutions. Rec. 3 hrs.; 3 credits.

ANIMAL AND DAIRY HUSBANDRY

- Types and Breeds. Study of the history, development, characteristics, and adaptability of the various breeds of horses, cattle, sheep, and swine. Rec. 5 hrs.; 5 credits.

- Milk Testing. Principles of milk testing. The students are given a practical working knowledge of herd testing and record work. Lab. 1, 2 hrs.; 1 credit; fee, 50 cents.
- Stock Judging I. Study and practice in the use of score cards, showing the relation of the body structure to economical production, covering all classes of livestock. Lab. 1, 2 hrs.; 1 credit.
- Stock Judging II. Comparative judging of beef cattle, swine, and sheep. Lab. 1, 2 hrs.; 1 credit.
- Stock Judging III. Comparative judging of dairy cattle and horses. Lab. 1, 2 hrs.; 1 credit.
- Stock Judging IV. This course is given over to market classes of beef cattle, hogs, and sheep, and is combined with the meats course, many of the animals going directly from the judging ring to the killing room. Lab. 1, 4 hrs.; 2 credits.
- Meats. Practice in killing, cutting, and curing of meats with lectures and demonstrations. This course is combined with Stock Judging IV. Lab. 1, 4 hrs.; 2 credits.
- Feeds and Feeding. General composition of the animal body; composition and digestibility of feeds; feeding standards; methods of feeding. Rec. 5 hrs.; 5 credits.
- Animal Breeding. Theory and practice of animal breeding, including variation, heredity, selection, effect of purebred animals in improving types of stock and pedigrees. Rec. 3 hrs.; 3 credits.
- Animal Diseases. Causes, prevention, and cure of animal diseases, including emergency treatment. Rec. 3 hrs.; 3 credits.
- Livestock Production. Production of beef cattle, sheep, and swine, both purebred and market stock, including from a practical standpoint, feeding and management of the herd or flock, selection of breeding stock, and arrangement of buildings and yards. Rec. 3 hrs.; 3 credits.
- Dairy Production. An advanced course designed to fit a student for the successful management of a dairy herd. Rec. 3 hrs.; 3 credits.

POULTRY HUSBANDRY

- Poultry Production. Principles of general management, house construction, important commercial breeds and types, feeding and culling for egg production; common ailments and simple treatments. Rec. 2 hrs.; lab. 2 hrs.; 3 credits.
- Incubation and Brooding. A study of the best methods of incubation and brooding, natural and artificial, includes selection of breeds, eggs for incubation, feeding and care of chicks, how to avoid losses. Rec. 2 hrs.; lab. 1, 2 hrs.; 3 credits.
- Advanced Poultry Production. Practice in feeding and management, and marketing; a study of laying rations and keeping accounts. Each student will care for laying and fattening pen of poultry. Rec. 2 hrs.; lab. 2 hrs.; 3 credits.

BEE CULTURE

Elementary Beekeeping. Fundamentals of bee behavior throughout the cycle of the year. Fundamentals of beekeeping practice through the year. Modern equipment for beekeeping practice. Starting with bees, increase, moving, uniting, feeding. Rec. 3 hrs.; 3 credits.

AGRICULTURAL ENGINEERING

Carpentry I. Carpentry: care, use, and sharpening of tools; laying-off work; making of joints and framing, and work designed to be especially helpful in planning, framing, and construction of farm buildings. Lab. 2, 2 hrs.; 2 credits; fee, \$1.50.

Carpentry II. Continuation of Course I. Lab. 2, 2 hrs.; 2 credits; fee, \$1.75.

Blacksmithing I. Blacksmithing; forging and welding of iron and steel, making and tempering of hand tools. Work designed to be especially helpful in the repair and operation of machinery. Lab. 2, 2 hrs.; 2 credits; fee, \$2.

Blacksmithing II. Continuation of Blacksmithing I. Lab. 2, 2 hrs.; 2 credits; fee, \$2.50.

Blacksmithing III. Continuation of Blacksmithing II. Lab. 2, 2 hrs.; 2 credits; fee, \$2.50.

Farm Shop Work. A course in simple sheet metal work, soldering, harness repair, rope work, belt lacing, use of taps and dies, pipe fitting, etc. Lab. 1, 2 hrs.; 1 credit; fee, \$1.50.

Farm Drainage. Practice with level and chain; work in leveling, ditching, location, laying tile, running lines, figuring areas, staking out buildings, mapping, and estimating costs. Rec. 3 hrs.; lab. 2, 2 hrs.; 5 credits.

Farm Structures I. Design, location, and erection of farm buildings; study of proper pitches, roof trusses, barn frames, estimates of costs. Working models are made in the shop. Lab. 2, 2 hrs.; 2 credits; fee, \$1.

Farm Structures II. A continuation of Farm Structures I. Designing of buildings needed on the home farm, and the working out of a general plan that will meet the builder's requirements. Lab. 2, 2 hrs.; 2 credits; fee, \$1.

Automotive Engineering. A study of internal combustion engines with emphasis placed on tractor, truck, and automobile engines. A careful study of carburetion, ignition, lubrication, and cooling systems. Practice is given in the repair and adjustment of all automotive equipment. Rec. 2 hrs.; lab. 8 hrs.; 6 credits; fee, \$1.50.

Automotive Electricity. An elementary course in electricity, with its application to starting, lighting, and ignition systems for automotive engines. Part of the time is devoted to a study of farm lighting equipment. Rec. 3 hrs.; lab. 2 hrs.; 4 credits; fee, 50 cents.

Advanced Electricity. Prerequisites: Automotive Electricity, Physics I and II. The course is designed for students who care to go a little deeper into the study of electricity than is permissible under Automotive Electricity. Rec. 2 hrs.; lab. 2 hrs.; 3 credits; fee, 50 cents.

- Mechanical Drawing. Principles of drafting, lines, lettering, views of objects, making of working drawings, interpretation of drawings. Lab. 4 hrs.; 2 credits; fee, 25 cents.
- Oxyacetylene Welding. A study of the properties of the various metals, treatment of metals, preheating, annealing, practice with torch on actual problems. Rec. 1 hr.; lab. 2 hrs.; 2 credits; fee, \$2.
- Advanced Carpentry. Preparation aiming to bring together in applied way earlier elements of course with such topics as designing and estimating. Final credit dependent upon eight months of actual work under approved carpenter. Lab. as arranged.
- Farm Mechanics. Selection, use, and care of farm machinery. Farm lighting, heating, plumbing, ventilation, and sewerage disposal systems. A study is made of properties of sand, gravel, and cement, with practice in proportioning and mixing concrete, hand tool, and tempering. Rec. 3 hrs.; lab. 4 hrs.; 5 credits; fee, 50 cents.
- Advanced Shop Practice. Laying out exercises, micrometer reading, working to scale, setting up lathe, adjusting chucks, lathe practice, including thread cutting, bench work supplementary to lathe work, use of reamers, etc. Lab. 2 hrs.; 1 credit.

HORTICULTURE AND BOTANY

- Agricultural Botany. A study of flowering plants, molds, mushrooms, rots or decays, and yeast. Rec. 3 hrs.; lab. 2, 2 hrs.; 5 credits; fee, 50 cents.
- Fruit and Vegetable Crops. Planning, planting, culture, value, and management of the orchard and garden on the general farm. Rec. 5 hrs.; 5 credits.
- Floriculture. A general course including the growing of fruits, flowers, and ornamental plantings. The work is taught with special emphasis upon application of the principles to the student's home conditions. Rec. 3 hrs.; 3 credits.

ENGLISH

- English I. Reading, spelling, and a brief review of the principles of grammar. Considerable time is devoted to oral reports. Short written theme required. Rec. 5 hrs.; 5 credits.
- English II. Continuation of English I. Letter writing in connection with simple sentence and paragraph structure. Several selections are memorized. Rec. 5 hrs.; 5 credits.
- English III. Letter writing and spelling continued. Standard books and selections of interest are read. The outline is used exclusively in oral and written work. Rec. 5 hrs.; 5 credits.
- English IV. A continuation of English III. Rec. 5 hrs.; 5 credits.
- English V. Advanced work in written composition of a narrative type. An appreciation of good literature is cultivated by extensive reading. Rec. 5 hrs.; 5 credits.
- English VI. Reading and advanced composition of descriptive and argumentative types continued. Rec. 5 hrs.; 5 credits.

- English VII. English literature. History of English literature with readings from masterpieces. Rec. 5 hrs.; 5 credits.
- English VIII. English literature. Continuation of English VII. Rec. 5 hrs.; 5 credits.
- English IX. Public speaking. Drill in voice exercise, platform deportment, and memorized selections for expression; extemporaneous speaking. Rec. 3 hrs.; 3 credits.

MATHEMATICS

- Farm Arithmetic. Training in simple mathematical processes, applications of principles to problems requiring measurements of material, extension, capacity. Practical applications to farm and home life. Assists in the mathematics of the technical school course. Rec. 5 hrs.; 4 credits.
- Home Accounts I. For girls. Similar to farm accounts for boys except that application is made to home instead of farm work. Rec. 3 hrs.; 3 credits.
- Home Accounts II. A continuation of Home Accounts I. 3 hrs.; 3 credits.
- Algebra I. Designed to cover the usual first year academic credit work in elementary algebra. Rec. 5 hrs.; 5 credits.
- Algebra II. Continuation of Course I. Rec. 5 hrs.; 5 credits.
- Algebra III. Continuation of Course II. Rec. 5 hrs.; 5 credits.
- Plane Geometry I. Planned to cover usual academic course in plane geometry. Rec. 5 hrs.; 5 credits.
- Plane Geometry II. Completion of Plane Geometry I. Rec. 5 hrs.; 5 credits.
- Solid Geometry. Planned to cover the usual course in this subject. Rec. 5 hrs.; 5 credits.

PHYSICAL TRAINING

- Gymnasium (Girls). All students will be required to take gymnasium work during their entire residence at the school. Girls will be organized into classes for exercise, calisthenics, and games. 1 credit.
- Gymnasium (Boys). Gymnasium is offered to all boys who live in school dormitories. The gymnasium with its facilities is kept open every afternoon and evening for the use of students. A \$1.00 fee is charged all students for maintaining the gymnasium.

SOCIAL SCIENCE

- General History I. A study of world history during the ancient and medieval periods to the French Revolution, and designed to show the social and political development of men and nations during these periods. Rec. 5 hrs.; credits, 5 hrs.
- General History II. A continuation of Course I from the French Revolution to the present time, with special emphasis on the growth and development of nationalism and democratic and liberal reforms during this period. Rec. 5 hrs.; credits, 5 hrs.

- United States History. A course intended to present a clear account of the colonial backgrounds of the United States with greater emphasis on the recent industrial, economic, and social development of our nation. Rec. 5 hrs.; 5 credits.
- United States Government. A limited study of the departmental organization and function of the national, state, and local government. Rec. 5 hrs.; 5 credits.
- Rural Sociology. A limited study of the backgrounds of sociology. Rural social institutions, and existing rural problems. Rec. 3 hrs.; 3 credits.

PHYSICS

- Agricultural Physics. A simple and practical course in physics. The work includes the mechanics of solids, fluids, heat, and sound with a few assignments from the subjects of light and electricity. Rec. 5 hrs.; 5 credits.
- Physics II. A continuation of Physics I. Rec. 5 hrs.; 5 credits.

CHEMISTRY

- General Chemistry (Boys). A general introductory course in chemistry treating of the fundamental principles necessary for an understanding of chemistry in its relation to agriculture. Rec. 2 hrs.; lab. 2, 2 hrs.; 4 credits; fee, \$1.
- General Chemistry (Girls). A general introductory course in chemistry treating of the fundamental principles necessary for an understanding of chemistry in its relation to home economics. Rec. 3 hrs.; lab. 2, 2 hrs.; 5 credits; fee, \$1.
- Home Economics Chemistry. Application of general principles of chemistry to activities of the home, including study of food chemistry and digestion of food; chemistry of textiles; dyeing; soaps and other cleansing agents. Rec. 3 hrs.; lab. 2, 2 hrs.; 5 credits; fee, \$1.

HOME ECONOMICS

FOODS AND HOME MANAGEMENT

- Foods and Cookery I. The purpose of this course is to give experience in meal preparation, to develop scientific principles of cookery, general proportions, practical skill, and standards for finished products. Lab. 2, 3 hrs.; 3 credits; fee, \$1.50.
- Foods and Cookery II. A continuation of Course I, including the study of batters and doughs, quick breads, griddle cakes, cakes, cookies, pies, bread, and salads. Lab. 2, 3 hrs.; 3 credits; fee, \$1.50.
- Elementary Dietetics I. A study of the needs of the body, planning of dietaries, menus, serving, meal planning, and the actual serving of meals to small groups. Lab. 2, 3 hrs.; 3 credits; fee, \$2.
- Elementary Dietetics II. A continuation of Course I, and also including a detailed study of meats. Lab. 2, 3 hrs.; 3 credits; fee, \$2.

- Home Management. Study of the problems of management in the home including discussion of family and community relationships. Rec. 3 hrs.; 3 credits.
- Home Management House. Senior students will spend six weeks in residence in the practice house. Experience is given in actual management of a home including care of child. 6 credits.
- Child Care and Training. The purpose of this course is to give an understanding of the place of the child in the home through the study of the physical care and mental training of the infant and pre-school child. Rec. 3 hrs.; 3 credits.
- Laundrying. Includes care of laundry room and utensils, study of water, soap, starch, removal of stains, washing of woolen garments, ironing; also the principles of dry cleaning. Rec. 1 hr.; lab. 1, 2 hrs.; 2 credits.
- Social Training (Girls). Subject-matter includes proper speech, table etiquette, dress, relationship of boys and girls, conversation, and social correspondence. Rec. 1 hr.; 1 credit.
- Social Training (Boys). Subject-matter includes introductions, social poise, relationship of boys and girls, duties of host, table etiquette, and dress. Rec. 1 hr.; 1 credit.

CLOTHING AND RELATED ART

All materials for the clothing courses must be selected in consultation with the instructor. Students are requested not to bring material from home unless arrangements have been made with the instructor.

- Garment Making I. Two aprons, a holder, and a bloomer set are made in this course. Problems in darning and patching are required. A study of cotton materials is made including wearing qualities and prices. Simple decorations, trimmings, and costs of finished garments are discussed. Lab. 2, 3 hrs.; 3 credits.
- Garment Making II. A study of cotton and linen dress fabrics; making a wash dress, slip, and pajamas; simple problems in decorative needlework, and a discussion of the clothing budget. Lab. 2, 3 hrs.; 3 credits.
- Drawing and Design I. Principles of design and color harmony with emphasis upon design as expressed in clothing, house furnishing, and articles in common use. Lab. 1, 3 hrs.; 1 credit.
- Drawing and Design II. Application of principles to costume design. Lab. 1, 3 hrs.; 1 credit.
- Elementary Dressmaking I. Includes the planning and making of a wool dress. Lab. 2, 3 hrs.; 3 credits.
- Elementary Dressmaking II. A child's dress and an informal party dress are made. The use of sewing machine attachments is studied. Lab. 2, 3 hrs.; 3 credits.
- Advanced Dressmaking I. A course in make-over. Each student in conference with instructor decides on problems. A brief study of millinery is also included. Lecture 1 hr.; lab. 2, 3 hrs.; 4 credits.

- Advanced Dressmaking II. Includes the making over of garments selected by the student which include further construction problems. A graduation dress is also made. Rec. 1 hr.; lab. 2, 3 hrs.; 4 credits.
- Home Furnishing. Location of farm buildings, types of farm dwellings, study of house plans, choice of site, exposure, plumbing, heating, interior finish, walls, floors, furniture, curtains, pictures. Rec. 1 hr.; lab. 2, 2 hrs.; 3 credits.
- Applied Art I. Application of the principles of design to the making and decorating of useful household furnishings. Lab. 2, 2 hrs.; 2 credits.
- Applied Art II. Continuation of Course I with more advanced work. Lab. 2, 2 hrs.; 2 credits.
- Art Appreciation. The aim of this course is to develop a sense of taste in the appreciation of art through the study of various forms of art, including paintings, ceramics, decorative objects, costume, etc. Rec. 2 hrs.; 2 credits.

HOME NURSING

- Home Nursing I. Structure and functions of the human body and personal hygiene. Rec. 3 hrs.; 3 credits.
- Home Nursing II. Communicable diseases and first aid. Rec. 3 hrs.; 3 credits.
- Home Nursing III. Hygiene in the home including care of the sick and preparation and serving of food for the sick. Rec. 3 hrs.; 3 credits.
- Home Nursing IV. Hygiene of maternity, prenatal care; infant nutrition and care. Rec. 3 hrs.; 3 credits.

MUSIC

All courses in music except group organizations include a group of twelve private lessons and daily supervised practice periods. Music Hall is equipped with several private practice rooms and all students registered for music courses are assigned the use of the practice rooms. The fees charged in connection with the various courses pay for the private lessons and the use of piano for practice purposes.

- Piano I. Exercises for band position and rhythm; two-, three, and five-finger exercises; major scales. Studies: Gurlitt, *Technic and Melody*; Tapper, *First Piano Book*, or *Graded Studies*, Grade I. Solos: Tapper, Sartorio, etc. 2 credits; fee, \$9.50.
- Piano II. Exercises for hand and arm control; thumb exercises, major scales; transpositions of five-finger exercises, two- and three-finger exercises. Studies: Streabbog's *Twelve Very Easy Studies*, Czerny's *Anthology* Vol. I. Solos: *Graded Pieces*, Grade II. 2 credits; fee, \$9.50.
- Piano III. Scale with different rhythms, one and two notes, 80 mm., broken chords. Studies: Concone's *Twenty-four Melodious Studies*; Tapper's *Graded Studies*, Grade III; Czerny's *Anthology*, Vol. II. Solos: Beethoven, Heller, etc. 2 credits; fee, \$9.50.

- Piano IV. Scales with different touches, one, two, three, and four notes, 80 mm.; Herz exercises, arpeggios; bloc chords with pressure and drop arm. Foote; first-year Bach; Czerny; wrist and forearm studies. Solos: Grade III; Mozart; Sonatinas. 2 credits; fee, \$9.50.
- Piano V. Lynne's *Key Circle Exercises*, Book I. Heller, *Opus 47*; first-year Bach. Solos: easy sonatas by Haydn and Mozart. *Graded Pieces*, Grades III and IV; Tapper, *Graded Pieces*, Grade III. 2 credits; fee, \$9.50.
- Piano VI. Studies: Schmitt finger exercises; major and minor scales, hands separate, legato and staccato in varied rhythms; octave studies. Solos: pieces by Schumann, Mendelssohn, Jenson, etc. Easier Beethoven works. 2 credits; fee, \$9.50.
- Vocal Course. Graded course in voice culture and art of singing by Fred-eric Haywood is the basis for this with selections from the following studies: Marzo, Sieber, Concone, Marchesi, Panofka, Spicker, with suitable solos in each grade. Fee, \$7.
- Violin Course. Methods and studies by Grun, Fischel, Sevcik, Dancla, Kayser, Kreutzer, Rode, Fiorillo, and solos adapted to each grade. Fee, \$7.
- Cornet Course. School and studies by Herbert Clark. Also Arban, Shoenbruck, international method with solos. Fee, \$7.
- Clarinet Course. Methods by Klose or Lazarua. Also solos. Fee, \$7.
- Other Band and Orchestral Instruments. Carefully arranged courses in each instrument. Cello, trombone, saxophone, snare drum, etc.
- Harmony and Counterpoint. Part of each lesson period devoted to playing and correcting exercises from suitable text, as Shepard, Chadwick, Foote and Spalding, Clark; or an intensive course in harmony and composition may be taken through private lessons.
- Chorus. A large assembly chorus will be organized at the first of the year, rehearsing daily. This chorus will furnish music for the morning exercises and special occasions, and will give concerts during the year.
- Music Analysis. For piano students. Pupils will analyze a large amount of standard music material, giving the student a clear insight into the structural features of great compositions.
- Musical Theory and Appreciation. Purpose is to study history, form, and beauty of musical composition. An acquaintance with the great music of the orchestra and its individual instruments through solos and records.
- Orchestra. Two orchestras, one for beginners and one for advanced students, are organized at the beginning of the school year. Credit is given for membership in these organizations.

BUSINESS

- Spelling and Penmanship I (General). Five hours drill per week in spelling and penmanship. This course is open to all students. Rec. 5 hrs.; 3 credits.

- Business Spelling and Penmanship I (Business training students). Daily drill and individual instruction in penmanship; daily drill in spelling, the use and meaning of words, and rules for spelling. Rec. 5 hrs.; 5 credits.
- Business Spelling and Penmanship II. Continuation of Course I. Rec. 5 hrs.; 5 credits.
- Typewriting. Taught throughout the course. Provides individual instruction in the use of the machine. Memorization of the keyboard and graded lessons are used. Each lesson must be done correctly before the student is advanced. 2 to 5 credits; fee, \$2.50.
- Shorthand I. Gregg system supplemented with speed studies is used. Rec. 5 hrs.; 5 credits.
- Shorthand II. Continuation of Course I. Rec. 5 hrs.; 5 credits.
- Dictation I. When students are capable of taking ordinary dictation and transcribing their notes on the typewriter, they are given office work to do and thus gain experience while still at school. 5 hrs.; 5 credits.
- Dictation II. Continuation of Course I. 5 hrs.; 5 credits.
- Business Training I. Duplicating and mimeographing, filing and indexing, business ethics. Rec. 5 hrs.; 5 credits.
- Business Training II. Continuation of Course I. Rec. 5 hrs.; 5 credits.
- Bookkeeping I. Preparation and interpretation of balance sheets; purpose of accounts and principles of account classification; profit and loss statements. Rec. 5 hrs.; 5 credits.
- Bookkeeping II. Source of ledger entries; cash receipts and disbursements; general journal; purchase and sales records. Practice set. Rec. 5 hrs.; 5 credits.
- Commercial Law I. A thoro study is made of contracts, sales, agency, and negotiable instruments. Rec. 5 hrs.; 5 credits.
- Commercial Law II. Continuation of Course I and further study includes guaranty, bailment, insurance, real property, fixtures, partnership, corporations, and bankruptcy. Rec. 5 hrs.; 5 credits.

SUMMER HOME PROJECTS

AGRICULTURAL PROJECTS

- Dairy Herd Management. Student assumes care of dairy herd on his home farm for at least six months, making regular reports in regard to feeding and management and keeping accurate accounts of milk production, butterfat tests, feed consumed, etc. 3 credits.
- Swine Management. Management and feeding of the home herd. Farrowing records, feed records, and cost of production figures are made a part of this project. Opening and closing inventories are required and a financial statement showing total costs and receipts. 3 credits.
- Lamb Production. Ten or more ewes are required for this project. Lambing records are kept, the lambs are earmarked and date of birth recorded. Feed records are kept and the lambs weighed up when averaging 150 days old. The student is required to show a pen of at least three lambs at his county fair. Three credits.

- Management of the Laying Flock. The student takes full charge of the laying flock of 50 hens or more for egg production. A balanced ration is fed and feed and production records are made a part of the project. 3 credits.
- Incubation and Brooding. In this project 100 or more chicks are brooded, fed, and raised by the student. A definite ration is fed throughout the project and accurate records are kept. 3 credits.
- Beekeeping. In this project the student takes charge of an apiary of not less than ten hives. Care and management of the bees and production records are included as a part of the project. 3 credits.
- Corn Production. Growing not less than five acres of a standard variety of corn. The course includes the selection of seed, testing, preparation of ground, planting, cultivating, harvesting, and the keeping of accurate records of labor and other expense. 3 credits.
- Potato Production. Growing one or more acres of potatoes for seed. The work includes seed selection and treatment, control of diseases, cultural practices, cost of production, and financial returns. 3 credits.
- Fruit Growing. Management of the home orchard for one season. The work will consist of pruning, cultivation, spraying, harvesting, and preparing the orchard for winter. Cost records are kept. 3 credits.
- Home Beautification. Planning and planting foundation shrubs and plants around the farm home and other buildings, caring for the same during the growing season and preparing for winter. The student makes a planting plan which is approved before the work is undertaken. 3 credits.
- Farm Accounts. Required work consists of taking inventories as of April 1 and September 30, in the meantime keeping a classified record of receipts and disbursements, and from this record preparing operating statement, showing financial results of operation. 3 credits.
- Tractor Operation. A study of the management and operation of the tractor on the home farm, including cost of fuel and oil, repairs, etc., and complete records of work done. 3 credits.
- Farm Shop. Equip a farm shop, making an inventory of all tools, keeping a record of all repair work done about the farm during the season, showing cost of material and labor. 3 credits.
- Community Service. The organization and promotion of community, social, or religious organizations. 3 credits.

HOME ECONOMICS PROJECTS

- Canning Fruits and Vegetables. The student will can not less than 12 quarts of vegetables, including two or more kinds, and not less than 12 quarts of fruit, including two or more kinds. Records of methods, time, and costs are made a part of this project. 2 credits.
- Baking. Includes the baking of not less than seven bakings of yeast bread and rolls and not less than seven bakings of quick breads with a record of time, costs, and materials. 2 credits.

- Foods and Cookery. Includes the preparing of salads, salad dressings, cakes, pies, cookies, puddings, and other simple desserts. Each product is made and scored at least three times. 2 credits.
- Home Management. Includes the planning and preparation of all meals in the home for a period of two weeks. 2 credits.
- Garment Making. Making of a washable house dress for self or other member of the family. A record is kept of time and cost. 2 credits.
- Clothing Repair. Not less than 15 articles of clothing and household linen are to be repaired. A record is kept of time and expenses, and money saved. 2 credits.
- Laundering. This project includes doing the family laundering for four weeks, dry cleaning, stain removal, etc. 2 credits.
- Children's Clothing. Consists of making of a layette for a baby, or two suits or dresses for a small child. 2 credits.
- Make-Over. In consultation with instructor the student will arrange to make over some garment before leaving school. After the work is completed it is to be approved by the instructor before credit is given. 2 credits.
- Home Furnishing. Includes the redecorating of a room including walls, woodwork, and furniture, making of curtains, etc. 2 credits.

UNIVERSITY OF MINNESOTA
WEST CENTRAL SCHOOL OF AGRICULTURE

Please read the bulletin carefully, noting the paragraphs headed Admission, Time of Opening, Rooms in Dormitories, What To Bring, and Expenses. If you plan to enter the school, fill out the application blank below and mail it to the registrar, West Central School of Agriculture, Morris, Minnesota. Send with this application \$2 made payable to the West Central School for a room reservation in one of the dormitories. This \$2 will be applied on your first month's expenses on entering school. In case your application is received after all space has been assigned, you will be so notified. In case you cannot enter school after making application, you should notify the registrar as soon as possible. If this is done prior to fifteen days before the opening of school, the money will be returned, otherwise it will not. Students are strongly urged to reserve rooms in advance.

One hundred fifty dollars will pay the entire expenses for six months.

.....

Mail the following application to the registrar, West Central School of Agriculture, Morris, Minnesota:

To the Registrar:
West Central School of Agriculture,
Morris, Minnesota.

I am enclosing \$2 for a room reservation in one of the dormitories.

I wish to room with the following person.....

.....(state preference if any). I expect

to enter school about.....

Name

Home address: R. F. D.....Post-office.....

The Bulletin
of the University of
Minnesota

The Law School
Announcement for the Years
1930-1932



Vol. XXXIII No. 33. July 30 1930

Entered at the post-office in Minneapolis as 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

THE ASSOCIATION OF AMERICAN LAW SCHOOLS

The Association of American Law Schools was organized in 1900 for the purpose of improving legal education. Membership is dependent upon maintaining the standards set by the association. These standards have been advanced from time to time as conditions warranted. At present they are substantially the same as those approved by the American Bar Association stated below. The association now includes 64 of the 178 law schools in the United States. The University of Minnesota Law School has been a member of the association since it was organized.

THE AMERICAN BAR ASSOCIATION STANDARDS FOR ADMISSION TO THE BAR

The following resolution was adopted by the American Bar Association, September 1, 1921. It was approved by a national conference of state and local bar associations, February 24, 1922, and by the Minnesota State Bar Association, September 1, 1922.

"(1) The American Bar Association is of the opinion that every candidate for admission to the bar should give evidence of graduation from a law school complying with the following standards:

(a) It shall require as a condition of admission at least two years of study in a college.

(b) It shall require its students to pursue a course of three years' duration if they devote substantially all of their working time to their studies, and a longer course, equivalent in the number of working hours, if they devote only part of their working time to their studies.

(c) It shall provide an adequate library available for the use of the students.

(d) It shall have among its teachers a sufficient number giving their entire time to the school to insure actual personal acquaintance and influence with the whole student body.

The Council on Legal Education and Admission to the Bar is directed to publish from time to time the names of those law schools which comply with the above standards and of those which do not and to make such publications available so far as possible to intending law students."

The University of Minnesota Law School is approved by the council.

UNIVERSITY CALENDAR

1930-31

1930	<i>Fall Quarter</i>		
September	18	Thursday	Payment of fees closes, except for new students
September	25-26		Registration days ¹ for Law School
September	29	Monday	Payment of fees for new students closes
November	1	Saturday	Fall quarter classes begin, 8:30 a.m.
November	4	Tuesday	Homecoming Day
November	11	Tuesday	General Election Day; a holiday
November	27	Thursday	Armistice Day; a holiday
November	27	Thursday	Thanksgiving Day; a holiday
December	4	Thursday	State Day Convocation
December	18	Thursday	Commencement Convocation
			Fall quarter ends, 5:20 p.m.
December	26	Friday	Payment of fees closes for all students in residence fall quarter

1931	<i>Winter Quarter</i>		
January	5	Monday	Winter quarter classes begin, 8:30 a.m.
February	12	Thursday	Lincoln's Birthday; a holiday
February	19	Thursday	Charter Day Convocation
February	23	Monday	(Sunday February 22 Washington's Birthday) a holiday
March	19	Thursday	Commencement Convocation
			Payment of fees closes for all students in residence winter quarter
March	21	Saturday	Winter quarter ends, 5:20 p.m.

<i>Spring Quarter</i>			
March	30	Monday	Spring quarter classes begin, 8:30 a.m.
April	3	Friday	Good Friday; a holiday
May	14	Thursday	Cap and Gown Day Convocation
May	30	Saturday	Memorial Day; a holiday
June	7	Sunday	Baccalaureate service
June	8	Monday	Fifty-ninth annual commencement
June	13	Saturday	Spring quarter closes, 5:20 p.m.

¹ Registration subsequent to the date specified will necessitate the approval of the college concerned. See also penalty fees for late registration, page ——. No student will be allowed to register in the University after one week from the beginning of the quarter excepting in unusual cases wherein special circumstances shall justify the appropriate committee of the college concerned permitting registration at a later date.

FACULTY

Lotus Delta Coffman, Ph.D., LL.D., President
Everett Fraser, B.A., LL.B., Dean of the Law School and Professor of Law
Wilbur H. Cherry, B.A., LL.B., Professor of Law
Ralph H. Dwan, B.A., LL.B., S.J.D., Professor of Law
Henry J. Fletcher, LL.M., Professor Emeritus
Harvey S. Hoshour, B.A., LL.B., Professor of Law
Henry L. McClintock, Ph.B., LL.B., S.J.D., Professor of Law
James Paige, M.A., LL.M., Professor of Law
Harold S. Quigley, Ph.D., Professor of Political Science
Henry Rottschaefter, B.A., J.D., S.J.D., Professor of Law
Oliver P. Field, M.A., LL.B., S.J.D., Associate Professor of Political
Science
Maynard E. Pirsig, B.A., LL.B., Associate Professor of Law
William L. Prosser, B.A., LL.B., Assistant Professor of Law
John F. Bonner, LL.B., Instructor in Practice
Paul S. Carroll, B.A., LL.B., Instructor in Practice
L. N. DeMouilly, B.A., LL.B., Instructor in Practice
Samuel H. Maslon, B.A., LL.B., Instructor in Law

SPECIAL LECTURERS

Charles W. Bunn, B.S., St. Paul
Homer B. Dibell, B.A., LL.B., Associate Justice of the Supreme Court of
Minnesota
Bert Fesler, Duluth, Judge of the District Court
Hugh V. Mercer, LL.M., D.C.L., Minneapolis
George W. Strong, LL.B., Minneapolis
Arthur C. Pulling, Law Librarian

GENERAL INFORMATION

OBJECT AND METHOD OF INSTRUCTION

The Law School of the University of Minnesota was established in 1888.

The object of the Law School is to provide a thoro training in the law and to prepare students for practice in any jurisdiction where the Anglo-American legal system prevails.

In the last few years a number of law schools have increased admission requirements to three or more years of college work, but have made no change in the period of law study. Believing that the additional time might well be used in a broader study of law, this school now offers a four-year law course to students who enter with two years of college work as an alternative to the three-year law course preceded by three years of college work.

Instruction is given by the use of the "case system." This method of teaching law, which has been approved by experience and which is now employed in the leading law schools of the country, has the twofold merit of enabling the student to acquire a thoro and practical knowledge of legal principles, and to become familiar with those processes of legal reasoning which have determined the form and character of our jurisprudence, and will govern its future development.

The faculty is composed chiefly of resident professional law teachers who devote their entire time and energy to teaching. The courses in practice are taught by men experienced in practice at the Minnesota bar. In addition, courses of lectures on special topics are given by distinguished lawyers and judges, selected primarily from the bar of Minnesota.

LAW BUILDING

A new law school building was erected in 1928. It is situated on the east bank of the Mississippi near the center of the campus. It contains four classrooms, a reading room 140 by 50 feet capable of seating 260 students, stackroom for 100,000 volumes, offices of instructors, *Law Review* room, and rooms for men and women students. The building is well equipped and admirably suited for the work of a modern law school.

LIBRARIES

The library of the Law School contains 54,600 volumes, including all the American reports, state and federal, Interstate Commerce and other commission reports, nearly all the English, Australian, New Zealand, Indian, and Canadian reports, the English, federal, and state statutes (with a few exceptions), the standard digests, encyclopedias, legal periodicals, and textbooks. To this collection substantial additions, particularly in foreign law, are constantly being made. The State Law Library, located at the Capitol in St. Paul, is also accessible to students in the Law School.

STATE AND UNITED STATES COURTS

The University is located within easy reach of both the federal and state courts. The United States courts are in session in St. Paul and Minneapolis during the greater part of the school year. The Supreme Court of Minnesota, sitting at St. Paul, the district courts of Ramsey and Hennepin counties, and the municipal courts of St. Paul and Minneapolis are open and in session almost constantly, and afford the student abundant opportunity for witnessing the trial of actual cases and hearing the argument of appeals.

MINNESOTA LAW REVIEW

The *Minnesota Law Review* is a legal periodical published by the faculty and students of the Law School. There are seven regular issues each year, from December to June, inclusive, containing leading articles by law teachers, judges, and lawyers, and notes and comments on recent cases prepared by students in the school. Twenty students are elected to the editorial board of the *Review* from the junior and senior classes upon recommendation of the faculty on the basis of scholarship. Membership on the board is an honor, and an opportunity for training in legal research of the highest value. Law offices prefer graduates who have been members of the board. Work done on the *Review* is given weight by the faculty in awarding honors in the Law School. The *Review* is the official journal of the Minnesota State Bar Association, and is sent to all members of the association.

ORDER OF THE COIF

The school has a chapter of the Order of the Coif, a national honorary society of law students. Election to the society is made by the faculty at the close of the senior year, from the ten per cent of the graduating class highest in scholarship.

SCHOLARSHIPS AND AIDS

Twenty scholarships of \$150 each are offered by the Law Alumni Association, the *Minnesota Law Review*, and the faculty of the Law School, to students in the junior and senior classes for meritorious work in the course and on the *Minnesota Law Review*. Several readerships of \$125 each are also available to high rank students of the senior class. Loan funds available to law students are listed in the bulletin of general information.

ADMISSION

Candidates for admission to the Law School must have completed at least two years of work in the College of Science, Literature, and the Arts of the University of Minnesota, or some other accredited college or university. The minimum requirement is 90 quarter (60 semester) credits.

Students entering the Law School after November 1, 1930, must complete a total of six years of college and law school work to qualify for the bachelor of laws degree. A student may elect to take three years of college work and three of law school work, or two years of college work and four of law school work. A minimum of 135 quarter (90 semester)

credits will be necessary on entering the Law School to be admitted to the three-year law school course, and a minimum of 90 quarter (60 semester) credits to be admitted to the four-year law school course.

An average of one honor point for each credit in all college work is necessary for admission. Excess honor points do not count as credits for admission to the Law School. Application for admission should be sent to the registrar of the University together with a transcript of the applicant's college record.

Students preparing to enter the Law School may qualify for the degree of bachelor of arts or bachelor of science in law on completing four years of college and law work by complying with the requirements of the proper six-year combined course outlined below.

RECOMMENDED PRE-LAW COURSE

Students in the University preparing to enter the Law School register in the College of Science, Literature, and the Arts. They should follow a course that will qualify them for the bachelor of arts degree or the bachelor of science in law degree. The requirements for the former are found in the bulletin of the College of Science, Literature, and the Arts. The requirements for the latter are stated in the combined course below. The faculty of the Law School recommends that prospective law students select generally the following subjects:

- | | |
|--------------------------------|----------------------------|
| 1. Latin, 0 to 20 credits | 5. Philosophy 2, and 50-51 |
| 2. Rhetoric, English A-B-C | 6. Psychology 1-2 |
| 3. Natural science, 10 credits | 7. History 4-5 and 33 |
| 4. Political science 1 | 8. Economics 6-7 |

Additional subjects should be selected in Economics, History, Philosophy, Political Science, Sociology, and Speech.

COMBINED SIX-YEAR COURSE LEADING TO DEGREES OF BACHELOR OF ARTS AND BACHELOR OF LAWS

A student in the College of Science, Literature, and the Arts of this University who has by the end of his junior year secured not less than 135 credits selected in accordance with the regulations of that college and an average of one honor point for each credit in all his college work, may take during his senior year the first year law course, and upon its completion receive the degree of bachelor of arts. Upon completion of the work of the remaining two years in law, such student will receive the degree of bachelor of laws, thus obtaining both degrees in six years. The first two years of this course may be taken in another accredited college, but the third year must be taken in the College of Science, Literature, and the Arts of this University. Several Minnesota colleges permit students who have completed three years of work to transfer to this Law School and accept the first year of law in completion of their requirements for their bachelor of arts degree.

COMBINED SIX-YEAR COURSE LEADING TO DEGREES OF BACHELOR OF SCIENCE IN LAW AND BACHELOR OF LAWS

A student who has completed two years of work in the recommended pre-law course including Rhetoric, English, Psychology, American Government, Logic, English Constitutional History, and Principles of Economics in the College of Science, Literature, and the Arts of this University, or equivalent work in some other accredited college or university, with an average of one honor point for each credit in all his college work, and who has completed two years of work in the Law School in accordance with its rules, will be entitled to receive the degree of bachelor of science in law. Upon completion of two more years of work in the Law School, he will receive the degree of bachelor of laws, thus obtaining both degrees in six years.

ADVANCED STANDING

No credit is given for time spent in private reading or for study in a law office. The candidate for graduation must spend the required time in residence, either at this Law School or at some other school which is a member of the Association of American Law Schools. A student coming from such other law school must have the preliminary education required for admission to this school and must spend at least one year in attendance at this school before he can qualify for a degree. Advanced standing will be given only to students with satisfactory records, and credit may be withdrawn because of poor work in this school. Candidates should forward a transcript of their record in both pre-law and law work. Attorneys at law who have been admitted to practice in the state of Minnesota and who have had the required college work may enter the senior law class without examination upon presentation to the registrar of their certificates of admission to the bar, and shall be entitled to the degree of bachelor of laws upon satisfactorily completing such courses, aggregating 36 credits (one year's work), as the law faculty may designate.

ELECTIVES IN OTHER DEPARTMENTS OF THE UNIVERSITY

Students in the Law School may be permitted, after completion of the work of the first year, and under proper regulations to elect, without extra charge, courses offered in other departments of the University, provided that such election does not interfere with their law studies; but such election of courses in other departments may be made only with permission of the law faculty.

REGISTRATION

New students will be admitted only at the opening of the school year.¹ All students should register on or before the registration period stated in the university calendar. Lectures in all subjects begin promptly on the opening day of the term, and those who join their classes later will necessarily be seriously handicapped in their work. No student will be admitted

¹ See general information bulletin, page 46, for the provisions as to penalty for late registration.

THE LAW SCHOOL

to classes unless he registers within ten days after the opening of the year, except by special action of the faculty and for good cause shown.

FEES

Quarterly resident tuition fees.....	\$40.00
Quarterly non-resident tuition fees.....	50.00
Credit hour fee (resident).....	3.75
Credit hour fee (non-resident).....	4.75
Quarterly incidental fee.....	6.00
Deposit fee (first quarter only).....	5.00
Special fees	
Examination for removal of conditions.....	1.00
Special examination	5.00
Graduation fee	10.00
Large diploma fee	5.00

EXPENSES

Careful estimates of the expenses of a student attending the Law School, together with other general information useful to students, are to be found in the bulletin of general information, to be had upon application to the registrar of the University.

INQUIRIES

Further particulars as to any phase of the work of the Law School not given herein, or in the bulletin of general information, will be cheerfully given upon request. Communications addressed to the dean of the Law School of the University of Minnesota, Minneapolis, Minnesota, will receive prompt attention.

DEGREES AND COURSES OF STUDY

The Law School offers courses leading to the degree of bachelor of science in law and bachelor of laws.

The bachelor of science in law degree is conferred on students who have completed two years of college work (as specified in the combined six-year course leading to the degrees of bachelor of science in law and bachelor of laws, page 9) and two years of work in the Law School. Graduates of the School of Business Administration and of the College of Engineering are eligible as candidates for this degree. The law work may be chosen in accordance with the objective of the student, and may be restricted generally to commercial law. One purpose of the course for this degree is to provide a training in law for business purposes. This degree will not qualify for admission to the bar, but graduates of good standing in this course may obtain the bachelor of laws degree by two years additional study.

The bachelor of laws degree will be conferred on all regular students entering the Law School prior to November 1, 1930, upon completion of a three-year course. To qualify for graduation, a student must complete the entire work of the first and second years and the required work of the third year, together with a sufficient number of electives to aggregate 12 hours of work per week throughout the third year.

Students entering the Law School after November 1, 1930, with three years of college work (see Admission) may qualify for the bachelor of laws degree in three years as above prescribed. Students entering after November 1, 1930, with less than three years of college work must pursue a course of four years in the Law School in order to qualify for the bachelor of laws degree. The curriculum for the first two years of this course will be substantially as now prescribed, but the curriculum for the remaining two years will be extended to include such subjects as administration of law, legislation, legal history, comparative law, jurisprudence, criminology, accounting, etc., not now listed in this bulletin.

Students, unless they be of exceptional ability and industry, who find it necessary to devote a considerable portion of their time and energy to work not connected with their law studies are strongly advised to limit their work in the Law School to not more than ten hours in the classroom per week, and thus extend their study of law over a longer period.

No student, unless permitted by special action of the faculty, will be allowed to carry more than the regular prescribed work for the year, or proportional work for any term.

Attendance upon all special lectures scheduled is required; and all students in the Law School may be required to serve as jurors or witnesses in any proceedings before the practice court.

A course leading to the degree of master of laws may be taken under the direction of the Graduate School of the University. Candidates must have completed two years of college work, and the work required for the bachelor of laws degree in a school which is a member of the Association of

American Law Schools. No specific course of study is required, but the course elected must be approved by an adviser. Subjects in the curriculum of the Law School not counted towards the first degree may be elected and additional work in subjects already studied. The candidate may also elect studies in the social sciences in the College of Science, Literature, and the Arts, and in the School of Business Administration. The candidate must complete 24 quarter credits of classroom work and prepare a thesis that will be accepted for publication in the *Minnesota Law Review*. The course may be shaped to secure a more extensive survey of the law and related subjects, or to give a more thoro training in some special branch.

All the courses offered by the Law School are given between the hours of 8:30 a.m. and 5:30 p.m.

A student who is absent from the school two consecutive years must satisfy the requirements in force when he returns.

FIRST YEAR COURSES

Contracts. Offer and acceptance; consideration; contracts under seal; the Statute of Frauds; rights of beneficiaries and assignees; joint and several contracts; conditions; illegality; impossibility; discharge of contracts. Williston, *Cases on Contracts* (Second ed.). Three hours. Mr. Hoshour.

Property I. Real and personal property distinguished; possessory rights, liens, pledges; title to personal property by accession, confusion, gift, and finding. Theory of feudal land tenure; rights incident to ownership; profits; easements; licenses; covenants running with land. Case-book to be announced. Three hours. Mr. Fraser.

Torts. Principles underlying law of civil liability for wrongful conduct; specific wrongs of deceit, defamation, malicious prosecution, interference with contracts and trade, etc. Bohlen, *Cases on Torts* (Third ed.). Three hours. Mr. Paige.

Common Law Actions and Equity I. The several forms of action at common law. Relation of forms of action to substantive law. Introduction to equity. Cook and Hinton, *Cases on Common Law Pleading. Durfee's Cases on Equity*. Two hours. Mr. McClintock.

Criminal Law and Procedure. The common and statutory law of crimes; criminal procedure. *Sayre's Cases on Criminal Law*. Two hours. Mr. Maslon.

Agency. Principal and agent, master and servant—their rights and obligations, mutually and as to third persons. Mechem, *Cases on Agency* (Second ed.). Two hours. Mr. Rottschaefer.

SECOND YEAR COURSES

Constitutional Law. Nature of American constitutional system; legislative, executive, and judicial departments; fundamental rights; due process of law; police power; taxation; eminent domain; the Federal Government and its general powers. Interstate commerce. Hall, *Cases on Constitutional Law*. Two hours. Mr. Rottschaefer.

- Equity II. Nature of equity jurisdiction; injunctions; bills of peace; interpleader; specific performance; bills of account. *Durfee's Cases on Equity*. Two hours. Mr. McClintock.
- Private Corporations. The nature, creation, and citizenship of corporations; *ultra vires* contracts and acts; stock issues; rights and liabilities of stockholders, officers and agents of corporations; rights of creditors. Richards, *Cases on Private Corporations* (Second ed.). Two hours. Mr. Hoshour.
- Property II and Decedents' Estates. (1) Titles and conveyancing; the execution of deeds and estates created thereby; executive sales and priorities; actions concerning real property. Dibell, *Cases on Real Property*. (2) Testamentary capacity; execution, revocation, and republication of wills; descent; probate of wills and administration of estates. Dibell, *Cases on Wills and Descent*. Two hours. Mr. Dibell.
- Negotiable Instruments. Formal and essential requirements of negotiable instruments, and the nature of the liability of the respective parties thereto; acceptance; endorsement; transfer; presentment; notice of dishonor; the Negotiable Instruments Law. Britton, *Cases on Negotiable Instruments*. Two hours. Mr. Paige.
- Sales. Contracts resulting in the transfer of title to personal property, and the special rights and remedies of the buyer and seller. Williston, *Cases on Sales* (Second ed.). Two hours. Mr. Prosser.
- Trusts. Nature and incidents of the trust relationship; methods of creating trusts; rights and obligations of trustees and beneficiary; constructive trusts, charitable trusts. Scott, *Cases on Trusts*. Two hours. Mr. Dwan.
- Brief Making. Legal argument with practical exercises in the writing of briefs. One hour. Mr. Cherry.

THIRD AND FOURTH YEAR COURSES

- Practice and Practice Court (required). This course deals with the various proceedings in an action from the commencement thereof, through trial and appellate courts, to final satisfaction of judgment, including work in the practice court. Sunderland, *Cases on Trial and Appellate Practice* (1924 edition). Three hours. Mr. Cherry, Mr. Bonner, Mr. Carroll, Mr. Pirsig, Mr. De Moully.
- Evidence (required). Burden of proof; judicial notice; admission and exclusion of evidence; competency, privilege, and examination of witnesses; hearsay rule and recognized exceptions; opinions and conclusions; circumstantial evidence; best evidence rule; parole evidence rule. Hinton, *Cases on Evidence*. Two hours. Mr. Cherry.
- Pleading (required). Demurrers, pleas, replications, departure, new assignment, amendment, set-off and counterclaim. Relation of code to common law pleading, parties, splitting and joinder of causes, the complaint, answer, demurrer, reply, motions, bills of particulars, amendment, and aider. Throckmorton, *Cases on Code Pleading*. Two hours. Mr. Pirsig.

- Property III. Conditional and future interests in land: reversion and remainders; executory limitations by way of use and devise; powers; rule against perpetuities; conditions in restraint of alienation. Minnesota restrictions on future interests and trusts. Kales, *Future Interests*, American Casebook Series, and selected cases. Two hours. Mr. Fraser.
- Conflict of Laws. The rules applied by courts in enforcing rights acquired under the law of a sister state or a foreign country. Lorenzen, *Conflict of Laws* (Second ed.). Two hours. Mr. McClintock.
- Mortgages. Legal and equitable mortgages of realty and chattels; rights of mortgagor and mortgagee at law and in equity; foreclosure, redemption, extension, assignment, and discharge of mortgages. Dibell, *Cases on Mortgages*. One hour. Mr. Dibell.
- International Law. Mr. Quigley.
(See announcement of Department of Political Science.)
- Administrative Law. Mr. Field.
(See announcement of Department of Political Science.)
- Damages. Exemplary damages; nominal damages; direct and consequential damages; elements of injury; function of court and jury; liquidated damages; entire and prospective damages; limitations of interest; aggravation and mitigation. Special applications. Beale, *Cases on Damages* (Third ed.). Two hours, half year. Mr. Prosser.
- Insurance. Nature and requisites of the contract; premiums and assessments; insurable interests; concealment; representations and warranties; waiver and estoppel; rights under the policy; beneficiaries, assignees, and creditors; construction of the policy. Vance, *Cases on Insurance*. Two hours, half year. Mr. Prosser.
- Municipal Corporations. Legislative control; officers and agents; power to incur indebtedness, to pass ordinances, to grant franchises, to levy taxes, to issue securities, to own and operate public utilities; municipal liability for torts. Tooke's *Cases on Municipal Corporations*. Two hours, half year. Mr. Dwan.
- Public Utilities. Origin of common callings, peculiar duties and liabilities incident thereto, the modern law applicable to those engaged in public service, particularly common carriers, with special reference to the Interstate Commerce Act and similar state statutes. Robinson, *Cases on Public Utilities*. Two hours, half year. Mr. Rottschaefer.
- Taxation. This course deals only with the legal questions arising in connection with the assessment of property and the levying and collection of taxes. Rottschaefer, *Cases on Taxation*. Two hours, half year. Mr. Rottschaefer.
- Partnership. The nature and formation of the partnership relation; the rights and liabilities of the partners, both *inter se* and as to third parties. Gilmore, *Cases on Partnership*. Two hours, half year. Mr. Dwan.
- Suretyship. The surety distinguished from the guarantor, the guaranty insurer, and the endorser; surety's defenses against creditors; surety's rights to subrogation, indemnity, contribution, and exoneration; cred-

- itor's rights to surety's securities. Ames, *Cases on Suretyship*. Two hours, half year. Mr. Paige.
- Quasi Contracts. Nature and scope of quasi contracts, benefits voluntarily conferred by mistake, in partial performance of a contract, in the absence of a contract; benefits conferred under duress; waiver of tort. Thurston, *Cases in Quasi Contracts*. Two hours, half year. Mr. Prosser.
- Bankruptcy. Origin, history, and nature of the bankruptcy law; jurisdiction of the courts; acts of bankruptcy; practice; receivers; claims, preferences; assets, trustees, liens; adverse claimants; summary jurisdiction; crimes, composition, discharge. Selected cases. Two hours, second half year. Mr. Dwan.
- Persons. Marriage and divorce; parent and child; guardian and ward; property law peculiar to the marriage relation; rights and liabilities of persons under the disabilities of coverture, infancy, insanity, etc. McCurdy, *Cases on the Law of Persons and Domestic Relations*. Two hours, half year. Mr. Paige.
- Jurisprudence. Nature and purpose of jurisprudence; schools of jurisprudence; the end of law; its nature; its sources, forms, and modes of growth; its scope and subject-matter; analysis of fundamental legal conceptions; relation of existing law. Textbook to be announced. Two hours, half year. Mr. Rottschaefter.

WORK IN PRACTICE

Members of the third year class, in addition to classroom instruction in practice, engage in the exercises of the practice court. Each student is assigned a number of cases in which he is required to draw the necessary pleadings, to see to the service of process of pleadings, and to prepare for and conduct the trial. In at least one of the cases so assigned, the student must take steps to secure or oppose a provisional or extraordinary remedy. Each student also serves as a witness in several cases. The trial is followed by a discussion of the conduct of the case, led by the instructor who has acted as judge.

Students prepare three sets of papers, which include all papers ordinarily used in the prosecution and defense of a civil action in the District Court and on appeal to the Supreme Court. The papers are explained and discussed in class.

Members of the third year class are required to serve as assistants in the office of the Legal Aid Society and to attend at the office of the society during the periods assigned for such service.

ATTENDANCE FOR 1929-30

First year class.....	127
Second year class	80
Third year class	70
Total	277

The Bulletin
of the University of
Minnesota

The Medical School
Announcement for the Years
1929-1931



Vol. XXXII *No. 23* *May 6 1929*

Entered at the post-office in Minneapolis as 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

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Division of Nursing Instruction

Associate Professor Marion L. Vannier, R.N., Director; Assistant Professors Bessie Baker, B.S., R.N., Katherine E. Dougherty, R.N., Dorothy Kurtzman, R.N., Olena Ordahl, R.N.; Instructors Esther Andreassen, R.N., Lana M. Babcock, R.N., Helen I. Erickson, R.N.,

Phoebe Gordon, B.A., Eva Gregerson, Deborah M. Jensen, R.N., B.S., Marie Olson, R.N., Minna Schultz, R.N., Gertrude I. Thomas; Assistant Jean Carrie Hawley, R.N.

Division of Hospital Dentistry

Associate Professor William A. Grey, D.D.S., Director; Assistant Professors Harold C. Hillman, D.D.S., Daniel E. Ziskin, D.D.S.; Instructors Irwin A. Epstein, D.D.S., Harry Levin, D.D.S.; Assistants Henry Bjorndahl, D.D.S., Oscar Bjorndahl, D.D.S., Joseph T. Cohen, D.D.S., Hugh B. Ruettell, D.D.S., Harold A. Worman, D.D.S.

Division of Hospital Social Service

Instructor Marion A. Tebbets, B.A., Director

Division of Anesthesia

Instructor Ralph T. Knight, B.A., M.D.

Division of Radiology

Associate Professor Leo G. Rigler, B.S., M.D., Director; Assistant Professor Robert G. Allison; Assistants Malcolm B. Hanson, M.D., Walter H. Ude, B.S., M.D.; Teaching Fellows Harry Hillstrom, B.S., M.D., Jacob Sagel, B.A., B.S., M.D.

MILITARY SCIENCE AND TACTICS, R.O.T.C.

Assistant Professor Kent Nelson, M.D., Colonel, Medical Corps, U.S.A.

CONTRIBUTING DEPARTMENTS

ZOOLOGY

Professors William A. Riley, Ph.D., Head; Hal Downey, Ph.D.; Assistant Professor Adolph Ringoen, Ph.D.

AGRICULTURAL BIOCHEMISTRY

Professors Ross A. Gortner, Ph.D., Head; Leroy S. Palmer, Ph.D.; Assistant Professor Cornelia Kennedy, Ph.D.; Instructor W. Martin Sandstrom, Ph.D.

PHYSICAL CHEMISTRY

Professor Frank H. MacDougall, Ph.D.; Assistant Professor Nelson W. Taylor, Ph.D.

GENERAL INFORMATION

The Medical School is conducted on the four-quarter system. Beginning freshmen are received at the opening of the fall and winter quarters. Students with advanced standing may be received at the beginning of any quarter for work for which they are prepared, provided there is a vacancy.

REQUIREMENTS FOR ADMISSION

At least ninety quarter credits of college work, including rhetoric, 9 credits; chemistry, 20 credits; physics, 12 credits; and zoo'logy, 12 credits; a reading knowledge of French or German; subject to detailed requirements and rules governing limited registration. A candidate's record must show a total number of honor points, at least equal to the total number of credits; also a number of honor points in rhetoric, chemistry, physics, and biology equal to the total number of credits in these subjects taken collectively.

1. *Rhetoric*: 9 quarter (6 semester) credits. At Minnesota this requirement is met by Rhetoric 4-5-6 (9 credits) or by English-Rhetoric A-B-C (15 credits).

2. *Chemistry*: 20 quarter (13 semester) credits, including general chemistry, qualitative and quantitative analysis, and organic chemistry with laboratory work. At Minnesota, Inorg. Chem. 4-5 (or 1, 2, 3) and 11, Anal. Chem. 7 and Org. Chem. 1-2 are necessary. Students are advised to take chemistry in high school.

3.* *Physics*: 12 quarter (8 semester) credits, covering mechanics, sound, heat, light, electricity, and magnetism, with proper laboratory work. At Minnesota, Courses 3 and 4, 21 and 22, 31 and 32, 41 and 42 (a total of 16 credits) meet the requirement. See bulletin of the College of Science, Literature, and the Arts for description of these courses and statement of prerequisites.

4. *Zoology*: 12 quarter (8 semester) credits, including proper laboratory work. At Minnesota, Zoology 5-6-7, meets this requirement; Zoology 1-2, 10 credits, will be accepted.

5. *Foreign language*: Sufficient high school or college training to insure a reading knowledge of French or German medical literature. This requirement is fulfilled as regards French:

(a) By passing any two of Courses 8, 9, 10 in Scientific French in the Department of Romance Languages of this University or by acceptable courses covering similar work done elsewhere; or

(b) By passing an examination conducted by the Department of Romance Languages. The minimum preparation demanded for admission

* Students at the University of Minnesota of good ability as shown by their records and who have had high school physics may petition the Students' Work Committee of the Medical School to substitute other college work for part of the physics set forth in the above requirement. The petition must indicate the subject desired to be substituted for part of the physics and the reasons why such substitution for part of the physics seems advantageous to the student's educational plan.

to this examination is 15 credits of French with an average mark of C, or satisfactory equivalent.

The language requirement is fulfilled as regards German:

(a) By passing in Course 31-32, Department of German, in this University or by acceptable credits covering similar work done elsewhere; or

(b) By passing an examination in Scientific German conducted by the Department of German. The usual requirement for admission to this examination is two college years of German, or satisfactory equivalent.

6. *Military drill* and *Gymnasium*, if part of the requirement of the college in which pre-medical studies were made, must have been satisfactorily completed.

QUALITY CREDITS

The total number of credits required for admission to the Medical School may be diminished, in the case of superior students, under the quality credit rule of the College of Science, Literature, and the Arts. The omitted work may not be from the required courses unless special permission is obtained from the Students' Work Committee of the Medical School.

Advised Subjects

Pre-medical students are advised to secure preparation in some or all of the following: Latin (high school or college), mathematics, psychology, sociology, drawing, comparative anatomy, additional work in biology and chemistry. A still broader cultural background is advisable if the student can devote time and money to longer pre-professional study. See the combined B.A.-M.D. course in the bulletin of the College of Science, Literature, and the Arts.

MODIFIED ADMISSION REQUIREMENTS

The foregoing regulations governing the quality and amount of pre-medical training required for admission to the Medical School will be enforced in all cases upon those who present the minimum amount of work. In cases of mature and superior students, especially such as have taken degrees and have made special progress along some line, (even tho it may not have been closely related to medicine), concessions may be made. Cases under this paragraph will be considered individually and upon petition to the Students' Work Committee of the Medical School.

It should be borne in mind that no student can pursue the medical course to advantage without knowledge of biology, chemistry, and physics.

REGISTRATION LIMITED

The incoming (third year or freshman) class in the fall quarter will be limited to one hundred. Application blanks may be obtained from the dean's office.

The last day for receiving applications to begin the freshman year in the fall quarter will be June 15. If college work was done elsewhere than at the University of Minnesota, detailed credentials, showing subjects, credits, and marks, must be presented by July 1.

Subject to recommendations as to character, ability, and personal qualities, candidates will be accepted in the order of their scholastic rating as indicated by the records of their previous work. The entire one hundred candidates will be accepted as soon after July 1 as possible. Candidates will be notified of their acceptance or rejection by July 15.

Accepted applicants will receive a bill for a preliminary fee of \$10. This must be paid within ten days, in order to hold a place in the limited registration. The above fee will not be returnable should the student fail to enter.

In the winter quarter not to exceed 40 students may be accepted into the freshman year. These students must have passed the courses in Gross Anatomy the preceding summer, and must have completed pre-medical requirements by January 1.

Other qualifications being equal, residents of Minnesota will be given preference in selecting students for the Medical School.

The fifth and sixth (junior and senior) years are limited to such numbers as can be provided with good training in the clinics connected with the school. Division A begins the work of the fifth year in the summer quarter. Divisions B, C, and D in the fall quarter. Students desiring to enter the junior year from other schools should bear these facts in mind in making applications for admission.

UNCLASSED STUDENTS

Superior students prepared for particular courses in departments of the Medical School may be admitted as unclassified students. Such students receive subject credit for courses satisfactorily completed but are not entitled to time credit toward the bachelor or doctor of medicine degree.

SPECIAL STUDENTS

The term "special student" is applied to a medical graduate who desires to register for a time in the Medical School but who does not wish to work toward an advanced degree.

IRREGULAR STUDENTS

The term "irregular student" indicates one who is not following the regular schedule but who is not deficient and is entitled to time credit toward a medical degree.

ADMISSION WITH ADVANCED STANDING

Honorably dismissed students of Class A medical schools may be received into advanced classes provided vacancies occur. Such a student must submit credentials covering pre-medical and medical studies, showing that the student had the pre-medical requirements and has maintained the standard of scholarship required in this school.

As a rule notebooks and other evidences of laboratory work must be presented. The amount of advanced standing in any subject to be granted a student from another school is decided by the respective department in

conference with the Students' Work Committee. Subject credit, but not legal time credit, may be given for studies pursued other than in medical schools. An examination may be required for admission with advanced standing.

For six- and seven-year combined courses in Science or Arts and Medicine, see the bulletin of the College of Science, Literature, and the Arts.

FEEES

The quarterly fee in the Medical School is \$75 for residents of Minnesota and \$100 for non-residents, payable at the beginning of each quarter. No fee is charged in the Medical School for the final hospital or advanced laboratory year.

In addition to tuition, each student is charged an incidental fee of \$6 each quarter.

A deposit of \$10 each year is required as a caution fee, against which certain charges are made. Any balance remaining from this deposit will be returned to the student at the close of each year.

Students who take less than the regular course of study may arrange their fees at the rate of \$3.25 (non-residents \$4.50) for each weekly clock hour per quarter.

Repetition of work in course demands the repetitional payment of fees.

A fee of \$1 is payable for a condition examination; and one of \$5 for a special examination.

A graduation fee of \$10 is charged for each degree conferred.

Registration penalties.—The penalty fee for late registration, late change of registration, or late payment of fees will be \$2, and \$1 additional for each day of delay after classes begin, provided that no student shall pay more than \$12 of penalty in any given quarter.

Fees as listed above will be charged in the academic year 1929-30, but are subject to change on reasonable notice thereafter.

MICROSCOPES

Each student must be provided throughout the entire four-year course, with a microscope of approved quality and equipment.

In the fifth and sixth years each student is required to provide himself with a hemocytometer, a head mirror, and a stethoscope of approved form.

THE SUMMER SESSION

A full summer quarter is conducted in the Medical School. Courses offered in summer include junior and senior schedules, and also a repetition of most of the freshman and sophomore courses given in the regular year.

For courses of instruction offered and schedule of fees for special courses see bulletin of the Summer Session.

MARKING SYSTEM AND SCHOLARSHIP RULES

See bulletin boards for rules on marking and scholarship.

PHYSICAL EXAMINATIONS AND PROPHYLACTIC
INOCULATION

Registration in the Medical School in particular quarters is not complete until the student has undergone certain physical examinations, tests, and vaccinations. See bulletin boards for rules on this subject.

CLINICAL OPPORTUNITIES

THE UNIVERSITY HOSPITALS AND DISPENSARY

The University Hospitals include the Elliot Memorial Building, the Cancer Institute, the Todd Memorial Hospital, the Eustis Children's Hospital, the Out-Patient Building, and the Students' Health Service Building, and has a capacity of 450 beds.

AFFILIATED HOSPITALS

The Minneapolis General Hospital and the Ancker Hospital of St. Paul are closely affiliated with the Medical School. Over half of their clinical service is under the direction of the faculty. The combined resources of these two hospitals total some 1,400 beds.

The Gillette State Hospital for Crippled Children, of 250 beds at Phalen Park, St. Paul, and the Hennepin County Tuberculosis Sanatorium at Glen Lake, an institution of 700 beds, are used for clinical instruction.

The Wilder Dispensary, St. Paul, is used for required and elective section clinics.

Certain elective section clinics are held in other institutions, as Pillsbury House, Margaret Barry House, Wells Memorial House, Emanuel Cohen Community Center, the South Town Clinic, the Salvation Army Rescue Home, and the Shriners' Hospital.

Sections of the senior class are sent for two-week periods to the state mental hospitals at Fergus Falls, Rochester, and St. Peter.

MILITARY SCIENCE AND TACTICS

There is a Medical Reserve Officers' Training Corps in connection with the Medical School to which the surgeon general of the army details an officer to serve as professor. See the departmental statement of this department.

THE GRADUATE SCHOOL IN MEDICINE

The Graduate School includes the opportunities for study and research offered by the Medical School in Minneapolis and by the Mayo Foundation for Medical Education and Research, at Rochester, Minnesota.

Further information may be found in the announcement of the Graduate School or in the circular of information on graduate work in medicine.

Fellowships in the pre-clinical sciences pay \$900 the first year, \$1,200 the second year, and \$1,500 the third year. A Bachelor's degree is prerequisite to these fellowships. In the clinical departments the stipends are \$800 the first year, \$900 the second year, and \$1,000 the third year. The M.D. degree and a year of internship are prerequisite to clinical fellowships. About 200 fellowships are available each year at Rochester and Minneapolis.

OTHER COURSES

The School of Nursing and courses in public health, including work for public health nurses, are conducted in the Medical School. Short courses for physicians both at Minneapolis and at various points in the state, and a course for embalmers are conducted through the Extension Division by the Medical School. A course in medical technology is conducted jointly by the College of Science, Literature, and the Arts and the Medical School. A course for dietitians is conducted in the University Hospital. Circulars descriptive of any of these courses will be sent on request. Courses in hospital social service are conducted by the Department of Sociology, the practical work being in the University Hospital. Two nurse anesthetists can be trained each year at the University Hospital.

CURRICULUM

THE CURRICULUM FOR THE M.B. DEGREE

OPTIONAL COURSES OF STUDY

Candidates for the M.B. degree may:

- a. Pursue the regular curriculum outlined below, or
- b. Follow the regular curriculum with modifications in the direction of special work in some particular department. Such students may register, if desired, during certain quarters in the Graduate School; and such registration, if major work is done in a Medical School department, may be transferred later to the Medical School to count toward a medical degree. Such students may qualify for advanced degrees such as M.S. and Ph.D. See paragraph on irregular course students. Substitutions in the regular curriculum are made on petition.

REGULAR CURRICULUM

DEPARTMENTAL HOURS

	Clock hours		Clock hours
Physical Chemistry	99	Medicine	966
Anatomy, gross and microscopic..	693	Surgery	344
Bacteriology	176	Obstetrics	380
Physiology, including Physiologic Chemistry	429	Pediatrics	223
Pathology	352	Ophthalmology and Oto-Laryngology	114
Preventive Medicine and Public Health	54	Roentgenology	22
Pharmacology	176	Sequence Section Clinics.....	99
		Total	4,127

EXAMINATIONS

A comprehensive examination is given at the close of each year on the combined courses included in that year. Not only a knowledge of the subject-matter of individual courses but ability to correlate this material must be demonstrated.

PLAN OF CLINICAL CURRICULUM: JUNIOR AND SENIOR YEARS

In order to utilize the clinical facilities of the school throughout the year the junior and senior classes are each divided into four divisions of not more than 36 students each, known as A, B, C, and D.

Division A will begin junior work in the summer quarter succeeding their sophomore year. They will attend six quarters consecutively and may be candidates for the M.B. degree at the December commencement.

Division B will begin junior studies in the fall quarter following their sophomore year, will attend six quarters consecutively, and may be candidates for the M.B. degree at the March commencement.

Divisions C and D will begin junior studies in the fall after the sophomore year. Division C will take a vacation in the next succeeding summer

and Division D in the next succeeding fall quarter. Both these divisions may be candidates for the M.B. degree at the June commencement.

The membership of Division A is fixed by student choice in the order of scholarship at the end of the sophomore year. Tentative divisions of the junior class are made in the fall quarter of that year. Final B, C, D divisions of the senior class are determined by student choice in the order of scholarship in the third quarter of the junior year. This choice of divisions is subject to the right of the Students' Work Committee, for sufficient reason, to place a given student in such division as will best foster his educational interests. A student may change from one division to another only on petition approved by the Students' Work Committee.

In the junior year all regular students take certain required courses and clinics. This program may be deviated from by petition approved by the Students' Work Committee. Elective work additional to the regular program is optional.

In the senior year the course consists of clerkships and dispensary work, together with certain lectures. Students interested in investigative problems in medical science or in public health may by petition approved by the proper department head and the Students' Work Committee substitute such other work as may be agreed upon.

In the senior year each student will have eight weeks' clerkship in obstetrics and gynecology, six weeks' clerkship in pediatrics, thirteen weeks' clerkship in medicine, and ten weeks' clerkship in surgery and specialties. The clerks are responsible for histories and physical examinations at the hospitals and for dispensary attendance during vacations between quarters. See special schedule of clerkships published each quarter.

IRREGULAR COURSE STUDENTS

While the course of studies in this school is arranged on the traditional four-year plan, it is believed by the faculty that a rigid class system is not desirable and that many students will find it wise to extend their medical education over a longer period. Students who are obliged to work for self-support during school attendance are especially advised to spread their medical course over a longer time than the minimum of twelve quarters.

It is to be understood that the required courses set forth only the minimum fundamental information in the various branches of medical science and only the minimum of clinical experience with which a graduate may begin to practice. Attention is directed to the elective courses scheduled in the various departments and to the opportunities offered by the Graduate School. Able students are urged to undertake advanced work and research in some chosen field, to the end alike of advancing medical knowledge and of preparing themselves to fill teaching positions or to carry the investigative spirit into their medical practice. The dean and department heads will advise with such students on the progress of their studies, and will assist ambitious students to lay out programs suitable to their needs.

Petitions for reasonable substitutions in the required curriculum will be approved.

REQUIREMENTS FOR THE B.S. DEGREE

a. Completion of the pre-medical college work in accordance with the requirements for admission to the Medical School and regulations of the Junior College.

b. Completion of the required courses of the first two years of the medical course and Physiology 105.

c. The gaining of not less than 90 honor points in the required pre-clinical courses.

d. Fulfillment of Arts College requirements for B.S. degree, such as drill and gymnasium.

REQUIREMENTS FOR THE M.B. DEGREE

Good moral character; compliance with the admission requirements; the attainment of the degree of bachelor of arts or bachelor of science, to which one year in medicine for the Arts degree, and two years in medicine for the Science degree, may contribute; the completion of a full four-year period (12 quarters) of work in the Medical School in compliance with the scholarship rules are the essentials for the bachelor of medicine degree.

M.B. DEGREE WITH DISTINCTION

A student who in the first three quarters of the medical course stands in the upper third of his class may petition to be recognized as a candidate for the M.B. degree with distinction.

Such candidate must register for at least six hours of elective work per week in one of the Medical School departments through at least three quarters, working under an adviser on the staff of that department. He must be recommended by his adviser two quarters before the student's expected graduation, to the M.B. Degree Honors Committee, which committee after consideration of the full record of the student in required and elective courses, his research (if any), his general attainments, and the results of a special examination (if deemed necessary by the committee), may recommend such student for the M.B. degree "with distinction," "with high distinction," or "with highest distinction."

Such recommendation shall count respectively 20, 40, and 60 honor points on the record of a student used in ranking his class for the choice of clinical divisions, choice of internships, (except in hospitals where appointments are made earlier), recommendations for fellowships and honors, or other purpose for which a ranking of students may be employed.

Students who enter the Medical School with superior records may be admitted to elective courses in the freshman year, looking toward candidacy for the M.B. degree with distinction.

CURRICULUM FOR THE M.D. DEGREE

Students who have attained the M.B. degree may qualify for the M.D. degree.

- a. By completion of one year (12 months) of internship in a hospital approved by the Internship Committee, or
- b. By completion of one year's work of advanced character in an approved laboratory, or
- c. By an approved year of advanced study or work in public health.

M.D. WITH DISTINCTION

The degree M.D. "with distinction" is granted to a student who in addition to the above requirement presents an acceptable thesis and stands high in his studies.

COURSES FOR PHYSICIANS

Physicians who desire to attend medical lectures and clinics for a limited period of time may obtain a visitor's ticket from the dean. They may enter for regular lecture and clinical courses in the Medical School upon payment of the usual Medical School fees. They may arrange for special courses of study in anatomy, physiology, experimental surgery, cadaver surgery, pathology, bacteriology, pharmacology, etc., as the facilities of the department will permit.

LIBRARY

The medical library is among the best university medical libraries in this country. It is housed in the General Library Building.

GIFTS AND MEMORIALS

The Elliot Memorial Hospital was built through gifts of \$120,000 from the heirs of Dr. Adolphus F. Elliot and part state funds toward the building, and \$42,000 from various Minneapolis citizens for the site.

The Memorial Cancer Institute was erected through a gift of \$250,000 from the Citizens' Aid Society of Minneapolis as a memorial to the late Mr. George Chase Christian.

The Todd Memorial pavilion for eye, ear, nose, and throat diseases, was erected in part by gifts from Mrs. F. C. Todd, Mrs. E. C. Gale, and Mrs. Emery Mapes and in part by state funds. This building is a memorial to Dr. Frank C. Todd, professor of ophthalmology and oto-laryngology in the Medical School, who died while in the army medical service in 1918.

The sum of \$2,250,000 has been donated to the Medical School by the late William Henry Eustis, of Minneapolis, for the erection and endowment of a hospital and convalescent home for disabled children. The hospital proper is part of the University Hospital group on the campus.

The convalescent home will be built on a site donated by Mr. Eustis on the West River Drive.

The Medical School is in need of other facilities such as a nurses' dormitory, women's hospital, urologic hospital, psychopathic hospital, and endowment funds for research and the maintenance of hospital beds.

PRIZES

Certain prizes are granted for special work in the Medical School. See the bulletin of general information and the Medical School bulletin boards.

LOAN FUNDS

The University has loan funds available for medical students. Consult the bulletin of general information.

DESCRIPTION OF COURSES*

ANATOMY

Departmental Office, Institute of Anatomy

REQUIRED COURSES

- 1w-2s. Anatomy for Embalmers. 110 hours; 8 credits.† Assoc. Prof. Erdmann and assistants.
- 3f,s. Elementary Anatomy. School of Nursing. 44 hours; 3 credits. Dr. Fisher.
- 4w. Elementary Anatomy. For dental hygienists. 33 hours; 3 credits. Dr. Fisher.
- 5s. Human Anatomy. For students in physical education. 66 hours; 4 credits. Assoc. Prof. Erdmann.
- 6f,su-7w,su. Gross Human Anatomy. Dissection, including osteology. Third year medical students. Prerequisite, Zoology 5-6-7; 330 hours; 18 credits. Enrolment limited to 96 students in the fall and winter, and to 48 students in the summer. Prof. Jackson, Assoc. Prof. Erdmann, and assistants.
- 9f,su. Systematic Anatomy. Pre-junior dental students. Prerequisite, Zoology 5-6-7; 99 hours; 5 credits. Enrolment limited to 90 students in the fall quarter. Asst. Prof. Miller and assistants.
- 10s,su. Anatomy of the Head and Neck. Pre-junior dental students. Prerequisite, Course 9; 99 hours; 5 credits. Enrolment limited to 90 students in the spring quarter and 30 in the summer. Asst. Prof. Miller and assistants.
- 14w,su. Histology and Embryology. Pre-junior dental students. Prerequisite, Course 9; 132 hours; 6 credits. Enrolment limited to 90 students in the winter quarter. Prof. Rasmussen and assistants.
- 103s,su. Human Histology. Microscopic study in the various tissues and organs. Third year medical students. Prerequisite, Course 6-7; 165 hours; 9 credits. Enrolment limited to 140 students in the spring quarter. Prof. Rasmussen and assistants.
- 107s. Human Embryology. Development of the human body. Third year medical students. Prerequisite, Course 6-7; 99 hours; 6 credits. Prof. Scammon and assistants.
- 111f,su. Human Neurology. A study of the central nervous system and sense organs. Fourth year medical students. Prerequisites, Courses 103, 107; 99 hours; 6 credits. Enrolment limited to 132 students in the fall quarter. Prof. Rasmussen and assistants.

* The letters f, w, s, and su indicate that the corresponding courses are offered in the fall, winter, spring, and summer quarters, respectively. Numbers joined by hyphens indicate that the course is continued through more than one quarter. Letters separated by commas indicate the repetition of the course in corresponding quarters.

† Credits, as stated in this bulletin, are on the quarter system; they are comparable with semester credits upon a ratio of three to two.

ELECTIVE COURSES

In general, the elective courses are for small groups of 6 to 16 students. For registration in these courses, permission by the instructor is required, excepting Courses 43s, 45f-46w, 115w, 126f,w, and 129f-130w-131s.

- 43s. Applied Anatomy. Relationships, with reference to clinical applications. Medical students. Prerequisite, Course 6-7; 33 hours; 1½ credits. Assoc. Prof. Erdmann.
- 45f-46w.* Special Dissections. Dissections of special regions, including preparation of museum specimens. Prerequisite, Course 6-7. 33 hours; 1 credit. Assoc. Prof. Erdmann.
- 115w. History of Anatomy. Medical bibliography is included. Lectures. 22 hours; 2 credits. Asst. Prof. Miller.
- 126f,w. Advanced Histology. A study of special preparations, including practice in the identification of unknown specimens. Prerequisite, Course 103. 33 hours; 1 credit. Prof. Lee.
- 129f-130w-131s.* Topographic Anatomy. Based upon a study of serial cross sections of the human body. Prerequisite, Course 6-7. 33 hours (or more); 2 credits (or more). Prof. Jackson.
- 133f,su. Anatomy of the Fetus and Child. A survey of prenatal and post-natal development. Prerequisites, Courses 6-7, 107. 33 hours; 3 credits. Prof. Scammon.
- 134w. Anatomy of the New-Born. A detailed laboratory study of the anatomy of the new-born. Prerequisite, Course 133, or equivalent. 66 hours; 3 credits. Prof. Scammon.
- 135f,su. Physical Development of Childhood. Lectures, with study of illustrative material. Primarily for students in the College of Education. 22 hours; 2 credits. Prof. Scammon.
- 148s.* X-Ray Anatomy. Same as Radiology 87. Lectures and demonstrations. Prerequisite, Course 6-7; 11 hours; 1 credit. Assoc. Prof. Rigler.
- 149w. Experimental Neurology. A study of the morphology of the central nervous system as determined by experimental methods. Prerequisite, Course 111; 66 hours; 3 credits. Prof. Rasmussen.
- 150f,w. Seminar in Neurology. Study of the literature on selected phases of human neurology. Prerequisite, Course 111; hours and credits arranged. Prof. Rasmussen.
- 151s. Morphology and Significance of the Endocrine System. Gross and microscopic structure with functional relations of the endocrine organs. Prerequisite, Courses 103, 107; 66 hours; 3 credits. Prof. Rasmussen.
- 152f,w. Prosection. Preparation of special dissections to be used for demonstrations in human gross anatomy. Prerequisite, Course 6-7; hours and credits arranged. Prof. Jackson, Asst. Prof. Miller.
- 153f-154w-155s-156su.* Advanced Anatomy. Advanced work, largely individual in character, in gross anatomy, histology, embryology, or neurology. Hours and credits arranged. Profs. Downey, Jackson, Rasmussen, Scammon, Asst. Prof. Miller.

* These courses may be taken continuously through three or four quarters or in any one quarter.

- 157s. Developmental Anatomy of the Head. Prerequisites, Courses 103, 107; 66 hours; 3 credits. Prof. Scammon.
- 158s. Special Histology and Neurology of the Head Region. Prerequisites, Courses 103, 111; 66 hours; 3 credits.
- 160f-161w-163su.* Seminar in Human Growth. A study with graphic analysis of data on human physical development. Prerequisite, Course 135, or equivalent; hours and credits arranged. Prof. Scammon.
- 165f-166w. Hematology. Primarily for medical students, but open to others with proper qualifications. Normal and pathologic morphology of the blood and blood forming organs, with special emphasis on the study of the blood from the standpoint of diagnosis and prognosis. 3 credits each quarter. TTh VII, VIII, IX. Prof. Downey.
- 201f-202w-203s-204su.* Research in Anatomy. Research work in gross or microscopic anatomy, neurology, histology, or embryology. Hours and credits arranged. Profs. Downey, Jackson, Rasmussen, Scammon.
- 205f-206w-207s. Anatomical Seminar. Presentation and discussion of research work in progress in the department, together with reviews of current anatomical literature. 11 hours; 1 credit. Prof. Jackson.

BACTERIOLOGY AND IMMUNOLOGY

Departmental Office, Milard Hall

REQUIRED COURSES

- 1f,w,s. Elementary Bacteriology. Nursing students and others. 66 hours; 4 credits. Mrs. Green.
- 41su,f,w,s. General Bacteriology. Culture media; methods of staining and identification; principles of sterilization and disinfection; examination of air, water, milk; relation of bacteriology to the industries. Prerequisites, 10 credits in chemistry and 10 credits in biology; 99 hours; 5 credits. For medical students, fall, TTh VI, VII, VIII, IX; winter, MWF I, II, III; for Agriculture and Home Economics, fall, winter, spring, MWF VI, VII, VIII. Prof. Henrici, Assoc. Prof. Green, Asst. Prof. Halvorson, Mrs. Green, Dr. Skinner.
- 52w. General and Special Bacteriology for Dental Students. Pre-junior year. 65 hours; 4½ credits. Assoc. Prof. Green and assistants.
- 101f,su. Special Bacteriology. The pathogenic bacteria, especially in relation to definite diseases; principles of infection and immunity. Fourth year medical students and others. Prerequisite, general bacteriology; 77 hours; TThS I, II; 4 credits. Prof. Larson and assistants.

ELECTIVE COURSES

- 103w. Soil Microbiology. Studies of the microscopic inhabitants of the soil. MWF I, II, III; 5 credits. Dr. Skinner.

* These courses may be taken continuously through three or four quarters or in any one quarter.

- 114s. The Higher Bacteria. Actinomycetes, yeasts, and molds. Prerequisites: general and special bacteriology; 66 hours; 3 credits. Prof. Henrici.
- 116w. Immunity. Laws of hemolysis. Quantitative relationship between antigen and antibody. Wasserman reaction. Opsonins. Vaccines. Toxin. Antitoxin. Precipitin reactions. Blood grouping. Atopy. Anaphylaxis. Prerequisite, 101; 66 hours; 3 credits. Prof. Larson.
- 117s. Pathogenic Protozoa. Prerequisites, general and special bacteriology; Zoology 144-145-146; 66 hours; 3 credits. Prof. Larson.
- 118w. Morphology and Taxonomy of Bacteria. Cytology of bacteria; consideration of morphological, biochemical, and immunological characters as data for classification. Prerequisites, general and special bacteriology; 66 hours; 3 credits. Prof. Henrici.
- 119w. Bacteriological Chemistry. Microphysics. Chemical constituents. Permeability. Bacterial enzymes. Toxins. Bacteriolytics. Suspension stability. Chemistry of immune reactions. Prerequisites, general and special bacteriology, Physiology 100, 101, or Agricultural Biochemistry 111, 112. 66 hours; 4 credits. Assoc. Prof. Green and assistant.
- 120s. Bacterial and Virus Diseases Common to Man and Animals. Prerequisites, general and special bacteriology. T VI, VII; Th VI; 3 credits. Assoc. Prof. Green.
- 121w-122s. Industrial Bacteriology. Lecture and laboratory. 3 credits each quarter; TTh I-II. Asst. Prof. Halvorson.
- 150f-151w or 150w-151. Advanced Bacteriology. Opportunity of working out special problems. Prerequisites, general and special bacteriology; credits arranged. Limited to ten students. Profs. Larson, Henrici, Assoc. Prof. Green, Asst. Prof. Halvorson, Dr. Skinner.
201. Research in Bacteriology. Graduate students of the necessary preliminary training may elect research, either as majors or minors, in bacteriology. Hours and credits arranged. Profs. Larson, Henrici, Assoc. Prof. Green, Asst. Prof. Halvorson, Dr. Skinner.
- 203f,w,s. Seminar in Bacteriology. 1 credit. Staff.

PATHOLOGY

Departmental Office, 110, Institute of Anatomy

REQUIRED COURSES .

- 4f. Pathology for Students in Dentistry. 110 hours; 6 credits. Prof. Clawson, Dr. Guttman, Dr. Kumpf, Dr. McGregor.
- 101w. Pathology. Part I. The general principles governing pathologic changes. Fourth year medical students. Prerequisites, histology, embryology, and special bacteriology. 165 hours; 9 credits. Profs. Bell, Clawson, Asst. Prof. McCartney, Dr. Guttman, Dr. Kumpf, Dr. MacGregor, Dr. Slocumb.

- 102s. Pathology. Part II. The pathologic processes of infectious diseases; the special pathology of organs. Fourth year medical students. Prerequisites, Pathology, Part I. 165 hours; 9 credits. Profs. Bell, Clawson, Asst. Prof. McCartney, Dr. Guttman, Dr. Kumpf, Dr. McGregor, Dr. Slocumb.
- 109su,f,w,s. Clinical Pathological Conference. Presentation of clinical data and pathologic specimens from selected cases with discussion of diagnosis. 11 hours in each quarter. Required in two quarters, senior year. Elective for others. Prof. Bell.

ELECTIVE COURSES

- 103f. Pathology of Heart Diseases. Study of diseases of the heart illustrated by clinical histories and gross and microscopic preparations. Prerequisite, Pathology 102; 22 hours. Prof. Clawson.
- 104su,f,w,s. Autopsies. Fifth and sixth year medical students. Staff.
- 105f,w. Gross Pathology. Demonstration of fresh postmortem material. Prerequisite, Pathology 102; 22 hours. Asst. Prof. O'Brien.
110. Histopathology of Skin. M, 9:00-11:00. Prof. Michelson.
111. Neuropathology. Assoc. Prof. McKinley.
112. Pathology of the Eye, Ear, Nose, and Throat. Asst. Prof. Camp.
- 116s,su. Tumor Clinic. 22 hours. Prof. Bell, Asst. Prof. Campbell.
201. Research. Graduate students, of the necessary preliminary training, may elect research, either as major or minor in pathology. Hours and credits arranged.

PHARMACOLOGY

Departmental Office, Millard Hall

REQUIRED COURSES

- 1w,su. Elementary Pharmacology. A brief study of drugs for nurses and others. 33 hours; 3 credits. Mr. Wright.
- 2s. Therapeutics and Toxicology for Students in Pharmacy. 33 hours; 3 credits. Assoc. Prof. Brown.
- 4w. Dental Pharmacology. 44 hours; 4 credits. Assoc. Prof. Brown, Dr. Bieter.
- 6w. Experimental Pharmacology. For dental students. 22 hours; 1 credit. Assoc. Prof. Brown, Dr. Bieter.
- 101w. Introduction to Pharmacology. Fourth year medical students. 22 hours; 2 credits. Prerequisites, Physiology 100, 101, 103. Prof. Hirschfelder, Assoc. Prof. Brown.
- 102s. General and Experimental Pharmacology. Part I. A detailed study of drugs important in medical practice. Fourth year medical students. Prerequisite, 101; lect. 33 hours, lab. 66 hours; 6 credits. Prof. Hirschfelder, Assoc. Prof. Brown, Dr. Bieter, Mr. Wright.
- 105su,w. General Pharmacology. Part II. Same as Course 102 in continuation. Fifth year medical students. Prerequisite, 102; 22 hours; 2 credits, Prof. Hirschfelder, Assoc. Prof. Brown.

- 106f. General Pharmacology. Part III. Same as Course 102 in continuation. Fifth year medical students. 22 hours; 2 credits. Prof. Hirschfelder, Assoc. Prof. Brown.
- 108su,f. Prescription Writing. Fifth year. Prerequisite, 102; 11 hours; 1 credit. Assoc. Prof. Brown.

ELECTIVE COURSES

- 109f,w,su. Pharmacological Problems. Experimental study of special topics in pharmacology, with a review of the literature. Hours and credits arranged. Prof. Hirschfelder, Assoc. Prof. Brown, Dr. Bieter.
- 110f,su. Detection of Poisons. Hours and credits arranged. Assoc. Prof. Brown.
- 201f,w,s.* Seminar in Physiology and Pharmacology. Reviews of recent literature. 11 hours; 1 credit. Staff.
- 203su,f,w,s.* Research in Pharmacology. Open to graduate and advanced students. Hours and credits arranged. Prof. Hirschfelder, Assoc. Prof. Brown.
- 204w.* Advanced Pharmacology. Limited to 4 graduate students. 11 hours; 1 credit. Hours and registration arranged. Prof. Hirschfelder, Assoc. Prof. Brown.
- 205w.* General Discussions in Pharmacology. With collateral readings. Limited to 6 advanced students. 11 hours; 1 credit. Time to be arranged. Prof. Hirschfelder, Assoc. Prof. Brown.

PHYSIOLOGY

Departmental Office, Millard Hall

REQUIRED COURSES

- 1f,s. Physiologic Chemistry for Nurses. 40 hours; 2 credits. Asst. Prof. Greisheimer and others.
- 2f,s. Physiology for Nurses. 70 hours; 5 credits. Asst. Prof. Greisheimer and others.
- 4w,s,su. Human Physiology. For academic, home economics, and pharmacy students. 4 credits; lect., rec., and dem.; MWF III, IV. Asst. Prof. Greisheimer or Dr. Loucks, and assistants.
- 57f,su.† Physiologic Chemistry. For academic, dentistry, physical education students, and others. Lectures and demonstrations. Prerequisites, zoology and organic chemistry; 44 hours; 4 credits. Prof. McClendon and assistants.
- 58s,su.† Human Physiology. For dental students and others. Prerequisites, 57 or zoology and organic chemistry; 99 hours; 6 credits. Prof. Lyon, Dr. King, Dr. Loucks, and assistants.

* Written permission required.

† Courses 57 and 58 are intermediate courses intended for those who desire a less detailed consideration than that given in 100, 101, 103, 104. Students may not receive credit for both sequences, nor for Course 4 in addition to either of these sequences.

- 60s. Physiology of Physical Exercise. For physical education students and others. Lectures and laboratory. Prerequisite, Course 4; 66 hours; 4 credits. Dr. Loucks.
- 100w,su. Physiologic Chemistry. Metabolism of proteins, fats, carbohydrates. Third year medical students and others. Prerequisites, physics and organic chemistry; 99 hours; 5 credits; lect. MWF IV; lab. A, TTh I, II, III; lab. B, FS I, II, III; lab. C (non-medics) TTh VI, VII, VIII. Prof. McClendon, Dr. Pascoe, and assistants.
- 101s,su. Physiologic Chemistry. Application of inorganic and physical chemistry to physiology. Prerequisite, Course 100; 5 credits. Schedule and staff same as 100.
- 103f,su. Physiology of Cells, Muscle, Nerve, Blood, Circulation, Respiration, Digestion. Fourth year medical students and others. Prerequisites, organic chemistry and zoology; 132 hours; 8 credits; lect. MTWThF II, lab. A, M VI, VII, VIII; F III, IV; lab. B, W III, IV; F VI, VII, VIII; rec. A, TTh III; rec. B, T IV, S II. Profs. Scott, Lyon, Asst. Prof. Greisheimer, and assistants.
- 104w,su. Physiology of the Nervous System and Special Senses, Metabolism, Nutrition, and Excretion. Fourth year medical students and others. Prerequisite, Course 103, or organic chemistry and neurology; 88 hours; 7 credits; lect. MWF IV; S III; lab. A, F II, III; S I, II; lab. B, MW II, III; rec. A, M VI; rec. B, T II. Profs. Scott, Lyon, Asst. Prof. Greisheimer, and assistants.
- 105f. Roentgen Rays, Light, and Radium. The physical and physiological basis of physical therapy. Prerequisites, 103, 104. Fifth year medical students. 11 hours; 1 credit. Assoc. Prof. Stenstrom.

ELECTIVE COURSES

- 108f. Seminar in Physiologic Optics. For graduate and medical students. Prerequisite, Course 104 or equivalent; 18 hours; 1½ credits. Prof. Lyon.
- 109w. Seminar in Physiology of the Senses. For graduate and medical students. Prerequisite, Course 104 or equivalent; 18 hours; 1½ credits. Prof. Lyon.
- 113su,f,w,s. Problems in Physiology. Arranged with qualified students. Each student will be assigned a topic for special laboratory study. Conferences and reading. May be taken one or more quarters. Prerequisites, Courses 103, 104, or equivalent; 66 hours; 3 credits each quarter or arranged. Prof. Scott, Asst. Prof. Greisheimer, Dr. King, Dr. Loucks.
- 114w-115s. Applied Physiology. The interpretation of symptoms and signs of abnormal function. Prerequisites, Courses 103, 104, or equivalent; 3 credits each quarter. Asst. Prof. Greisheimer.
- 131w. Advanced Physiology of Muscle, Blood, Circulation, and Digestion. Conference and laboratory work. Prerequisite, Physiology 103; 66 hours; 3 credits. Prof. Scott.
- 135f,w,s. Conference on Physiology, with qualified students. 11 hours; 1 credit. Prof. Scott.

- 153f,w,s,su. Problems in Physiologic Chemistry. Special work arranged with qualified students. May be taken one or more quarters. Prerequisite, Course 100-101; hours and credits arranged. Prof. McClendon, Dr. Pascoe.
- 154f. Seminar in Physiology of Sex. 11 hours; 1 credit. Prof. McClendon.
- 155f,156w,157s. Pathological Chemistry. Blood chemistry of diabetes and nephritis. Basal metabolism, deficiency diseases. Prerequisite, Course 100-101; 66 hours; 3 credits each quarter. Dr. Pascoe.
- 163w. Metabolism. Lectures and laboratory work on special phases of metabolism. Prerequisite, Physiology 101. Lectures may be taken alone; number of students unlimited, 22 hours; 2 credits. Laboratory course limited to ten students, 33 hours; 1 credit.
- 201f,w,s. Seminar in Physiology and Pharmacology. For instructors and advanced students. Same as Pharmacology 201. 11 hours; 1 credit. Profs. Scott, Hirschfelder, and staff.
- 202f,w,s,su. Advanced Experimental Physiology. Prerequisites, Physiology 103 and 104; hours and credits arranged. Prof. Scott.
- 203f,w,s,su. Research in Physiology. Hours and credits arranged. Prof. Scott, Asst. Prof. Greisheimer, Dr. King.
- 204f,w,s,su. Research in the Physics and Physiology of Radiation. Hours and credits arranged. Assoc. Prof. Stenstrom.

For electives in the practical aspects of radiology and allied subjects offered by Assoc. Prof. Stenstrom, see Hospital Department, Division of Radiology.

- 205f,w,s,su. Research in Physiologic Chemistry. Hours and credits arranged. Prof. McClendon, Dr. Pascoe.
- 206s. Seminar in History of Physiology and Related Sciences. 11 hours; 1 credit. Prof. Lyon.

PREVENTIVE MEDICINE AND PUBLIC HEALTH

REQUIRED COURSES

- 2w. First Aid. (See bulletin of Physical Education.)
- 3f,w,s. Personal Hygiene and Elementary Sanitation. (See Science, Literature, and the Arts bulletin.)
- 5f. Elementary Preventive Medicine for Nurses. (See Nursing bulletin.)
- 12s. Hygiene and First Aid to the Sick and Injured. (See Engineering bulletin.)
- 52f,w,s. Health Care of the Family. (See Home Economics bulletin.)
- 53f,su. Elements of Preventive Medicine. (See Public Health bulletin.)
- 57f. Health of Infant and Pre-school Child. (See Science, Literature, and the Arts bulletin.)
- 58w,su. Maternal and Child Hygiene. (See Public Health bulletin.)
- 59w. Social Hygiene. (See Public Health bulletin.)
- 60w. Tuberculosis and Its Control. (See Public Health bulletin.)
- 61w. Mental Hygiene. (See Public Health bulletin.)
- 62f,su. Principles of Public Health Nursing. (See Public Health bulletin.)
- 63w. Special Fields in Public Health Nursing. (See Public Health bulletin.)

- 64f,w,s,su. Field Practice in Infant Welfare Nursing. (See Public Health bulletin.)
- 65f,w,s,su. Field Practice in School Nursing. (See Public Health bulletin.)
- 66f,w,s,su. Field Practice in County Nursing. (See Public Health bulletin.)
- 67f,w,s,su. Field Practice in a Tuberculosis Sanatorium. (See Public Health bulletin.)
- 68f,w,s,su. Field Practice in Visiting Nursing. (See Public Health bulletin.)
- 70f,w,su. Home Nursing and Child Care. (See Public Health bulletin.)
- 100f. Preventive Medicine and General Hygiene. Medical students. Prerequisites, bacteriology, physiology; 36 hours; 3 credits. Assoc. Profs. Diehl, Myers, Asst. Profs. Lees, O'Brien.
- 101f,w,s,su. Public Health Administrative and Field Work. Demonstrations of health agencies at work. Groups of 10 to 18 medical students for 6 weeks. Prerequisite, 100; 18 hours; 2 credits. Staff.

ELECTIVE COURSES

- 50f,w,su. Public and Personal Health. (See Science, Literature, and the Arts bulletin.)
- 73w. Occupational Hygiene and Disease. (See Science, Literature, and the Arts bulletin.)
- 80w,su. Health Supervision of the School Child. (See Education bulletin.)
- 102w. Sanitation. (See Public Health bulletin.)
- 103s. Public Health Bacteriology. (See Public Health bulletin.)
- 104f,w,s,su. Epidemiology. (See Public Health bulletin.)
- 106f,w,s. Public Health Administration. (See Public Health bulletin.)
- 107s. Sanitary Surveys. For medical students. Conferences, practical field work, and report on a specified survey. Of particular value to practitioners who may be called upon to serve as local health officers. Prerequisite, 53 or 100; 48 hours; 2 credits. Assoc. Prof. Diehl.
200. Research. (See Public Health bulletin.)

MEDICINE

DIVISION OF GENERAL MEDICINE

REQUIRED COURSES

1. Courses for Nurses. (See Nursing School bulletin.)
19. Clinical Medicine for Dentists. (See Dental College bulletin.)
- 20w-21s. Introductory Physical Diagnosis. Lectures and practical work on the examination of the normal body. This is followed during the second quarter by lectures on the pathological variations and signs, with assignment of the students to hospital wards for the examination of selected cases. Fourth year. Prerequisites, gross anatomy, Physiology 103; 66 hours; 6 credits. Profs. Berglund, Fahr, Assoc. Prof. Myers, and others.
- 22su,f,w,s. Clinics in Medicine. Bedside studies at Ancker Hospital, St. Paul. Fifth year, 17 hours for each student. See Sequence B. Asst. Profs. Hall, Lepak, Oerting, Dr. C. B. Drake, Dr. Herrmann.

- 22a. Physical Signs in Pulmonary Tuberculosis. Fifth year. 17 hours per student. See Sequence B. Tuberculosis Pavilion, Ancker Hospital, St. Paul. Dr. Greer.
- 23su,f,w,s. Systematic studies in the field of internal medicine exclusive of neurology, guided and supervised by tutors. Osler's *Practice of Medicine* is the textbook. Other literature is assigned. Fifth year. Prerequisite, Med. 20-21; 11 hours a quarter; 33 hours total. Assoc. Prof. Gardner, Asst. Profs. A. H. Beard, Lepak, Nathanson, Oerting, Peppard, Dr. Reuben Johnson, Dr. Lindquist.
- 24f,w,s. Divisional Clinic in Medicine. Fifth year, each division one quarter. Prerequisite, Med. 20-21; 17 hours per student. Classroom of Minneapolis General Hospital. Prof. Fahr and staff.
- 25su,f,w,s. Physical Diagnosis and Case Taking. Individual work, a junior and a senior work together; histories, physical examinations, and provisional diagnoses on assigned dispensary patients under supervision of instructors. In sections at University and Wilder dispensaries. Fifth year. Prerequisite, Med. 20-21; 66 hours.
- 26su,f. Clinical Chemistry and Microscopy. Methods of laboratory examination for diagnostic purposes. Fifth year. Prerequisites, pathology, physiologic chemistry; 66 hours. Prof. Downey, Asst. Prof. Medes.
- 27su,f,w,s. Physical Diagnosis and Therapy. Conducted with sections in the following dispensary clinics: (1) general medicine; (2) heart clinic; (3) chest clinic; (4) metabolism; (5) gastrointestinal clinic. Sixth year. 66 hours per student.
- 28f,w,s. Divisional Dispensary Clinics. Conducted in the University Dispensary. Fifth year. Prerequisite, Med. 20-21; 22 hours; MWF 2:00-2:50. Each division attending two clinics a week; total per student, 66 hours. Dispensary staff.
- 29su,f,w,s. Class Clinic in Medicine. Conducted in the University Hospital. Fifth year. Prerequisite, Med. 20-21; 11 hours each quarter; 33 hours total per student. T 11:00-11:50. Prof. White and others.
- 30su,f,w,s. Class Clinic in Medicine. University Hospital and Minneapolis General Hospital. Students on clerkship at University Hospital at any given date will attend this clinic at University Hospital; vice versa for students taking clerkship at the General Hospital. Sixth year. Prerequisite, fifth year courses in medicine; 22 hours per quarter; total per student, 66 hours; TTh 8:00-8:50. Hospital staffs.
- 31s. Mouth Infections. The typical infections of the oral cavity and their causal relations to disease. 6 hours. Prof. Hartzell.
- 35su,f,w,s. Clinical Clerkship in Medicine. Individual work in the medical wards of the University Hospital, taking and recording of case histories, making of physical examinations and of provisional diagnoses. Clerks are held responsible for history and course of disease as well as a detailed knowledge of the treatment given to patients assigned them. Sixth year. Prerequisite, clear record in all prior subjects; 180 hours. Profs. Berglund, Ulrich, and staff.
- 35xsu,f,w,s. Same as 33 at the Minneapolis General Hospital. Prof. Fahr and staff.

36. Resident Clerkship in Tuberculosis. Two-week periods at Glen Lake Sanatorium, 72 hours credit. Seniors in medical clerkship quarter. Asst. Prof. Mariette and staff.

ELECTIVE COURSES

53. Advanced Physical Diagnosis. Minneapolis General Hospital. Not less than 3 nor more than 6 students. Asst. Prof. Peppard.
54. Graphic Recording and Functional Diagnosis of Cardiovascular Diseases. Not less than 3 nor more than 6 students. Asst. Prof. Ziskin, Dr. Davis.
56. Clinical Studies in Metabolism. Limited to 6 students. Asst. Prof. McKinlay.
57. Advanced Physical Diagnosis of the Chest. Practical dispensary work on tuberculous patients. Not less than 3 nor more than 6 students. Dr. Weisman.
- 58s. Diagnosis and Treatment of Diseases of the Lungs. Three lectures per week. Two periods per week (hospital wards and dispensary). Lectures with or without hospital work. Sophomores, juniors, and seniors. Hours and credits arranged. Assoc. Prof. Myers.
59. Physical Signs in Pulmonary Tuberculosis. Tuberculosis Pavilion, Ancker Hospital, St. Paul. 4 to 6 students. Dr. Geer.
102. The Respiratory Organs in Health and Disease. Designed for students desiring training in preparation of scientific and clinical papers for publication. One or more quarters. Limited to 6 students. Assoc. Prof. Myers.
103. Chemical Problems of Disease. For specially prepared students. Sophomores, juniors, or seniors. Hours, problems, and credits arranged. Prof. Berglund.
104. Practical Work in Chest Examinations. Students will be responsible for examinations in chest clinics at Minneapolis General Hospital, Lymanhurst, University Dispensary, and Thomas Hospital (under supervision of instructors). Hours and credits arranged. Limited to 10 students. Assoc. Prof. Myers, Dr. K. W. A. Anderson, Dr. Kernkamp.
- 105w. Problems in Pathological Physiology. Experimental work in physiology of the cardiovascular system, gastrointestinal system, respiratory and the renal systems as affected by experimental procedures simulating the common processes of disease in those organs. Laboratory of Pathological Physiology, Millard Hall. Sophomores. Hours, problems, and credits arranged. One to four students. Prof. Fahr, Dr. Davis.
- 106w. Problems in Clinical Physiology. Experimental and clinical investigations of the pathological functions in cardiovascular, renal, gastrointestinal, and respiratory diseases in the Laboratory of Pathological Physiology, Millard Hall, and in the Minneapolis General Hospital, and the University Dispensary. Juniors and seniors. Hours, problems, and credits to be arranged. One to four students. Prof. Fahr and staff.

DIVISION OF NERVOUS AND MENTAL DISEASES

REQUIRED COURSES

- 40w. Neurology and Neurologic Diagnosis. Lectures on methods of examination and the diseases of the nervous system. Fifth year. Prerequisite, Med. 20-21; 33 hours. Prof. Hamilton, Assoc. Profs. Hammes, McKinley, Morrison.
- 41s. Psychiatry. Methods of modern psychiatry; lectures on the mental disorders. Fifth year. Prerequisite, Med. 40; 22 hours. Prof. Hamilton, Dr. Hannah, Dr. Hengstler.
- 42su,f,w,s. Clinical Neurology and Psychiatry. Section clinics in nervous and mental diseases at the Ancker Hospital, St. Paul. A part of course in required clinics. Fifth year. 17 hours. See Sequence A. Assoc. Prof. Hammes, Dr. Hengstler, Dr. Kamman, Dr. Ruhberg, Dr. Whitmore.
- 42x. Same as 42, at the Minneapolis General Hospital. Asst. Prof. Michael, Dr. Ahrens.
- 43s. Medical Jurisprudence. Principles of law, rules of evidence, and duties of physicians in medico-legal cases. 16 hours. Prof. Hamilton, Dr. Ruhberg.
- 44su,f,w,s. Clerkship Physical Diagnosis and Case Taking. Sections of the class for two-week periods in the University Hospital, Minneapolis General Hospital, and dispensaries. 36 hours credit. Medical clerkship quarter. Prof. Hamilton, Assoc. Prof. McKinley, Asst. Prof. Michael, Dr. Ahrens, Dr. Hannah, Dr. Hutchinson.
- 45su,f,w,s. Resident Clerkship in Psychiatry. Two weeks residence at a state mental hospital. Medical clerkship quarter. Prerequisite, Med 41; 72 hours credit. Dr. Freeman, Dr. Kilbourne, Dr. Patterson, and staffs.

ELECTIVE COURSES

81. Treatment in Nervous Diseases. Referring particularly to dementia paralytica and tabes dorsalis. Limited to six students. Assoc. Prof. Hammes.
85. Clinical Psychiatry. Conducted at Minneapolis General and University Hospitals. This course will include bedside studies and training in taking psychiatric histories. Limited to juniors and seniors. Hours and credits arranged; three to six students. Dr. Berkwitz.
123. Pathology of the Nervous System. Not less than 5 students. Same as Pathology 111. Carries sophomore honor point credit. Assoc. Prof. McKinley.
124. Advanced Neuropathology. Limited to two students. Prerequisites, Pathology 101 and 102. Assoc. Prof. McKinley.
125. Problems in Neuropathology. The student will be assigned a topic for special study. Limited to 2 students. Prerequisite, Pathology 102. Assoc. Prof. McKinley.

DIVISION OF DERMATOLOGY

REQUIRED COURSES

- 46w. Course in Dermatology. Clinical lectures upon the common skin diseases and syphilis, including diagnosis and treatment. Fifth year. Prerequisites, Med. 20, 21; 33 hours. Prof. Michelson.
- 47su,f,w,s. Physical Diagnosis and Therapy. Section of the senior class in dermatology and syphilis, in the Dispensary at the University and at the Minneapolis General Hospital. 24 hrs. credit. Prof. Michelson, Assoc. Profs. Irvine, Sweitzer, Dr. Boreen, Dr. Gager, Dr. Turnacliiff.
- 48su,f,w,s. Ward Clinics in Dermatology. Fifth year, 17 hours, see Sequence B. Conducted in City and County Hospital, St. Paul. Asst. Prof. Freeman, Dr. Gager.

ELECTIVE COURSES

91. Night Clinics in Dermatology and Syphilis in the Out-Patient Department. Open to six students in clerkship division in each quarter. Dr. Turnacliiff.
92. Clinic in Dermatology. Th 1:30-2:30. Wilder Dispensary.
93. Assistantship, Dermatology and Syphilis. Prerequisite, medical clerkship. 1 student. WS 1:00-3:00. Minneapolis General Hospital. Assoc. Prof. Sweitzer.
94. Assistantship and Conference in Dermatology. Prerequisite, medical clerkship. 1 student. Daily 1:00-3:00; University Hospital and University Dispensary. Prof. Michelson and staff.
150. Histopathology of the Skin. Clinical and pathologic phases will be exemplified. Prerequisite, Pathology 102. Same as Pathology 110. Prof. Michelson, Dr. Gager.
153. Seminar in Dermatology. Hours to be arranged. Prof. Michelson and others.

OBSTETRICS AND GYNECOLOGY

Departmental Office, Institute of Anatomy

REQUIRED COURSES

1. Obstetric Nursing. See Nursing School bulletin. Prof. Litzenberg and others.
2. Gynecologic Nursing. See Nursing School bulletin. Prof. Litzenberg and others.
- 20f. Obstetrics. The physiology of pregnancy, labor, and the puerperium. Fifth year medical students. Prerequisites, anatomy, embryology, physiology; 33 hours. Prof. Litzenberg and others.
- 21w. Obstetrics. The pathology of pregnancy, labor, and the puerperium. Fifth year medical students. Prerequisite, Course 20; 33 hours. Prof. Litzenberg and others.
- 22su,f,w,s. Division Clinic. Fifth year. 17 hrs. credit; Minneapolis General Hospital. Prof. Adair and staff.

- 23su.f. Gynecology. A study of diagnostic methods in diseases of women. Fifth year medical students. Prerequisite, Pathology; 11 hours. Prof. Litzenberg, Asst. Prof. Barry.
- 24su.s. Gynecology. A study of diseases of women. Prerequisite, Course 23; 22 hours. Prof. Litzenberg, Asst. Prof. Barry.
- 25su.f,w,s. Obstetrics and Gynecology Clinic. The pathology of pregnancy, labor, and the puerperium, and of diseases of women. Prerequisites, Courses 20, 21, 22, 23, 24. Required of seniors during two quarters; elective for others. 44 hours. Prof. Litzenberg and staff.
- 35su.f,w,s. Clinical Clerkship in Obstetrics and Gynecology. Study of assigned patients in University Hospital and out-patient service in "The District" and Salvation Army Home; case histories; physical examinations, laboratory examinations; parturition clinics; operations; manikin demonstrations and bedside clinics. 100 hours. Prof. Litzenberg and staff.
- 35xsu.f,w,s. Part of 35 at Minneapolis General Hospital. Prof. Adair and staff.
- 35ysu.f,w,s. Part of 35. Two weeks residence at the Ancker Hospital. 72 hours. Asst. Prof. Barry and staff.
- 36su.f,w,s. Clinics in Obstetrics and Gynecology. University Dispensary. Part of required section clinics, clerkship period. 25 hours. Asst. Prof. LaVake and staff.
- 37su.f,w,s. Clinic in Obstetrics and Gynecology. Minneapolis General Hospital Dispensary. Sixth year, 12 hours. Asst. Profs. LaVake, Maland, Simons.

ELECTIVE COURSES*

25. Obstetrics and Gynecology Clinic. (See 25 above.) Prof. Litzenberg and others.
50. Gynecologic Clinic. Diagnosis and treatment of diseases of women. Wilder Dispensary, St. Paul. Four students. Asst. Prof. Barry, Dr. Bicek, Dr. Hartley.
51. Gynecologic Clinic. Diagnostic and operative clinic in diseases of women. Ancker Hospital, St. Paul. Asst. Prof. Barry, Dr. Hammond.
54. Applied Anatomy of the Pelvis. The anatomy of the female generative organs using anatomical specimens, models, and the patient for demonstration. University Dispensary. Asst. Prof. LaVake.
55. Prenatal Clinics. Antepartum care of pregnant women at the various prenatal stations; limited to one student at each station. Asst. Profs. Maland, Simons, and others.
56. Pathologic Obstetrics. Minneapolis General Hospital. Demonstration of abnormal obstetric cases and operative procedure. One clinic each week. Limited to six senior students. Prof. Adair and staff.
57. Operative Gynecology. Demonstrations of gynecological operations and postoperative treatment. Limited to six senior students. Prof. Adair.

* Elective courses in this department are usually repeated each quarter. See quarterly programs for hours and credits.

- 201. Advanced Obstetrics and Gynecology. Required of first year fellows. Profs. Litzenberg, Adair, and associates.
- 202. More advanced subjects. Required of second year fellows. Profs. Litzenberg, Adair, and associates.
- 203. Still more advanced. Third year fellows. Profs. Litzenberg, Adair, and associates.
- 204. Seminar. A weekly conference for fellows and graduate students. Prof. Litzenberg.
- 205. Research. Clinical and laboratory research upon problems in obstetrics and gynecology. Required of third year fellows, who must complete a satisfactory thesis during the year. Staff.

OPHTHALMOLOGY AND OTO-LARYNGOLOGY

Departmental Office, Todd Hospital

REQUIRED COURSES

- 20w. Ophthalmology. Lectures and demonstrations. Fifth year. Prerequisites, anatomy, physiology, pathology; 18 hours. Prof. Burch.
- 21w,s. Laryngology and Rhinology. Lectures and demonstrations. Fifth year. Prerequisites, anatomy, physiology, pathology; 15 hours. Asst. Prof. Phelps.
- 22s. Otology. Lectures and demonstrations. Fifth year. Prerequisites, anatomy, physiology, pathology; 11 hours. Assoc. Prof. Newhart.
- 36su,f,w,s. Clinic in Diseases of the Eye. Diagnosis and treatment of cases, University Dispensary; part of required section clinics, clerkship period. 35 hours. Asst. Profs. Camp, Clark, Macnie, Strout.
- 37su,f,w,s. Clinic in Diseases of the Ear, Nose, and Throat. Diagnosis and treatment, University Dispensary; part of required section clinics, clerkship period. 35 hours. Asst. Profs. Fjelstad, Hanson, Phelps, and assistants.

ELECTIVE COURSES

- 52. Clinic in Diseases of the Eye. 50 hours credit. TThS 1:00-2:30; Wilder Dispensary, St. Paul. Prof. Fulton.
- 53. Clinic in the Diseases of the Ear, Nose, and Throat. 50 hours credit. TThS 1:00-2:30; Wilder Dispensary, St. Paul. Asst. Prof. Connor.
- 54. Didactic and Practical Instruction in Refraction. Credits arranged. MTThF 8:00-9:30; University Dispensary. Dr. Hymes, Dr. Herbolsheimer.
- 121. Operative Clinics in Eye, Ear, Nose, and Throat. 17 hours credit. Limited to ten students. TF 3:00-4:00. University Hospital. Prof. Burch, Asst. Profs. Camp, Clark, Fjelstad, Hanson, Macnie, Phelps, Strout.

PEDIATRICS

Departmental Office, Eustis Hospital

REQUIRED COURSES

- 20s. Physical Diagnosis in Children. Special diagnostic methods applied to pediatrics. Conducted in sections of fourth year class. Prerequisites, anatomy, embryology, Physiology 100, 101, 103; 11 hours. Assoc. Prof. Swanson.
- 21w-22s. Diseases of Children. Diseases peculiar to, or distinctive of, children. Fifth year. Prerequisite, 20; 44 hours. Prof. Schlutz and staff.
- 23s. Combined Lecture and Amphitheater Clinic Course. Fifth year. 11 hours. Prof. Schlutz.
- 24f,w,s,su. Contagious Clinic. General Hospital. Sections of one division each quarter. Fifth year. 17 hours. See Required Sequence A. Asst. Profs. Platou, Seham.
- 24xf,w,s,su. Same as 24. Ancker Hospital, St. Paul. Dr. Colby, Dr. Critchfield, Dr. Hedenstrom, Dr. A. Stewart.
- 25f,w,s,su. Amphitheater Clinic in Pediatrics. Required of one division of junior class each quarter; elective for others. 17 hours. Assoc. Prof. Huenekens.
- 26f,w,s,su. Clinic in Pediatrics. Sections of fifth year class. 17 hours. See Required Sequence B. Ancker Hospital, St. Paul. Assoc. Prof. Ramsey, Asst. Prof. Birnberg, Dr. Critchfield, Dr. Hagaman, Dr. Shannon.
- 30f,w,s,su. Infant Welfare Clinic. Required of sections of one division of senior class each quarter. 6 hours. 19 Millard Hall. Dr. Moriarty.
- 31f,w,s,su. Amphitheater Clinic in Pediatrics. Required of one division of senior class each quarter; elective for others as 103. 17 hours. Prof. Schlutz and staff.
- 35f,w,s,su. Clinical Clerkship in Pediatrics. The observations and study of patients in the University Hospital and University Dispensary; case histories; physical examinations and provisional diagnoses; treatment. One division of senior class each quarter. Each student 6 weeks. 100 hours. Prof. Schlutz, Asst. Prof. C. A. Stewart, and staff.
- 35xf,w,s,su. Part of 27, at Minneapolis General Hospital. Assoc. Profs. Huenekens, Swanson, and staff.
- 120w,s. Lecture and Amphitheater Clinic in Child Guidance. Offered two quarters a year. Required of two divisions of senior class each quarter offered; elective for others. 17 hours. Prof. Chamberlain.

ELECTIVE COURSES

- 55f,w,s,su. Course in Infant Feeding. Conducted at various places. Dr. E. A. Anderson, Dr. Colby, Dr. Shannon, Dr. Siperstein.
- 56f. Clinic in Pediatrics. Care and treatment of newly born. University Hospital. Asst. Prof. Taylor.
- 59f,w,s,su. General Pediatric Clinic. Minneapolis General Hospital, Dr. Moriarty; Miller Hospital, Dr. Colby.
- 60w. Diseases of the Heart. Lymanhurst. Asst. Prof. Seham.

- 61f,w,s,su. General Pediatrics Including Skin Diseases. 66 hours. (By arrangement students may take this course only one or two days a week with corresponding credit.) Wilder Dispensary. Dr. Critchfield, Dr. Klein.
- 101f,w,s. Contagious Diseases. Lecture and conference, including demonstration of methods and therapeutic procedures. Sixth year and graduates. 11 hours. Asst. Prof. Platou.
- 102f,w,s. Treatment of Laryngeal Diphtheria, with Demonstration of Intubation, Tracheotomy, Laryngoscopy, etc. Fifth year, sixth year, and graduates. 6 hours. Asst. Prof. Platou.
- 103f,w,s,su. Amphitheater Clinic in Pediatrics. Same as 31. Fifth year, sixth year, and graduates. Prof. Schlutz and staff.
- 104f. Drug Treatment and Special Forms of Therapy in the Treatment of Children's Diseases. A lecture course. 11 hours. Asst. Prof. C. A. Stewart.
- 117.* Pediatric Clinic. Out-Patient Clinic. Asst. Prof. C. A. Stewart and others.
- 129.* Pediatric Seminar. Prof. Schlutz and staff.
- 200.* Advanced Study of Diseases of Infants and Children. Prof. Schlutz, Assoc. Prof. Swanson, Asst. Prof. Ziegler.
- 202.* Research in Diseases of New-Born. Prof. Schlutz, Assoc. Prof. Swanson, Asst. Prof. Ziegler.
- 204.* Research in Physiology of New-Born. Prof. Schlutz, Assoc. Prof. Swanson, Asst. Prof. Ziegler.
- 206.* Research in Diseases of Infants and Growing Children. Prof. Schlutz, Assoc. Prof. Swanson, Asst. Prof. Ziegler.
- 208.* Research in Physiology of Infants and Growing Children. Prof. Schlutz, Assoc. Prof. Swanson, Asst. Prof. Ziegler.
- 210.* Research in Anatomy of Infants and Growing Children. Prof. Schlutz, Assoc. Prof. Swanson, Asst. Prof. Ziegler.

SURGERY

GENERAL SURGERY

REQUIRED COURSES

- 21su,f. Principles of Surgery. A study of the various surgical inflammations and processes; pathology and treatment. Principles underlying general surgical procedures. Lectures and demonstrations. Fifth year. 33 hours. Assoc. Prof. Wangenstein, Asst. Prof. Campbell.
- 22su,f,w,s. Fracture Divisional Clinic. Fifth year. 17 hours credit.
- 23w-24s. Regional Surgery. The practical surgery of the anatomical regions of the body; head, neck, thorax, abdomen, and extremities. Lectures and demonstrations. Fifth year. 44 hours. Profs. Strachauer, Schwyzer, Assoc. Prof. Ritchie, Asst. Prof. Wilcox.
- 25s. Fractures and Dislocations. Lectures and demonstrations. Sixth year. 22 hours.

* Electives in pediatrics repeated each quarter; permission required to take course.

- 26su,w. Diagnostic Clinic. Surgical conditions as presented in the Out-Patient Department or Hospital. Fifth year. 22 hours to each division. Assoc. Prof. Johnson, Asst. Prof. McKinney.
- 27su,f,w,s. Diagnostic Clinic. Wilder Dispensary. 11 hours. Fifth year. See Required Sequence C. Assoc. Prof. Ritchie, Dr. von der Weyer, Dr. Williamson.
28. Diagnostic and Operative Clinics. Fifth year. 17 hours credit. See Required Sequence B. Conducted at the Ancker Hospital. Assoc. Prof. Colvin, Asst. Profs. Abbott, Jones, Dr. Culligan, Dr. Hauser.
- 30su,f,w,s. Surgery Clinic. Amphitheater clinic demonstrating surgical conditions in hospital patients. Sixth year. 33 hours. Required three quarters. Assoc. Prof. Wangenstein.
- 31su,f,w,s. Minor Surgery Clinics. Sections daily in the Out-Patient Department; a part of required clinics. Sixth year. 22 hours. Asst. Prof. McKinney, Dr. Bratrud, Dr. Hayes.
- 35su,f,w,s. Clinical Clerkships. The personal study of assigned patients; case histories, laboratory examinations, provisional diagnoses, with suggestions as to therapy; attendance at operation of such studied cases and observation of post-operative management. Practical instruction in anesthesia. 100 hours. University Hospital. Staff.
- 35xsu,f,w,s. Part of 28, at Minneapolis General Hospital. Asst. Prof. Zierold, Dr. Regnier.

ELECTIVE COURSES

52. Cadaver Surgery. The technique and performance of the various standard operations upon the cadaver. Asst. Prof. Campbell, Dr. Peyton.
54. Proctology. A clinical course conducted in the Out-Patient Department. Asst. Prof. Fansler, Dr. Hullsiek.
55. Diagnostic and Operative Clinics. Conducted at the University Hospital. Prof. Strachauer, Assoc. Profs. Johnson, Law, Ritchie, Wangenstein, Asst. Profs. Campbell, Dunn.
56. Diagnostic and Operative Clinics. Conducted at the Minneapolis General Hospital. Assoc. Prof. Corbett, Asst. Profs. Robitshek, Wilcox, Zierold, Dr. F. A. Olson, Dr. Regnier.
- 57.* Problems in Experimental Surgery. Fifth and sixth years. Four students. Hours and credits arranged. Assoc. Prof. Wangenstein.

ORTHOPEDIA

REQUIRED COURSES

- 40f,w,s. Orthopedic Surgery. A course of clinical lectures, demonstrations, and operations conducted in each quarter, with divisions of the junior class, at the Gillette State Hospital, Phalen Park. 22 hours. Asst. Profs. Chatterton, Cole.
- 41su,f,w,s. Orthopedic Clinic. Conducted in the Out-Patient Department; a part of required senior section clinics. 11 hours. Dr. Evans, Dr. Gosin.

* Permission of instructor required.

- 42f,s. Orthopedic Surgery. A course of lectures covering orthopedic conditions in the adult; lantern slides and demonstrations. Sixth year. 11 hours. Assoc. Profs. Geist, Reed.

ELECTIVE COURSES

60. Orthopedic Clinic. Conducted at the Minneapolis General Hospital. Asst. Prof. Giessler.
63. Orthopedic Clinic. Conducted at the Shriners' Hospital. Assoc. Prof. Reed, Asst. Prof. Cole.

UROLOGY

REQUIRED COURSES

- 46w. Genitourinary Diseases. The etiology, diagnosis, and treatment of this group of diseases. A course of lectures. Sixth year. 18 hours. Assoc. Prof. F. R. Wright.
47su,f,w,s. Genitourinary Clinic. The observation, examination, and treatment of patients in the Out-Patient Department; sixth year, a part of required section clinics. 22 hours. Assoc. Prof. Wright, Asst. Prof. Wethall, Dr. Giere.

ELECTIVE COURSES

48. Urologic Clinic. Fifth year, 17 hours. See Sequence B. Conducted at the Minneapolis General Hospital. Asst. Prof. Owre.
49. Urologic Diagnosis and Cystoscopy. Fifth year, 17 hours. See Sequence B. A course conducted at the Ancker Hospital. Dr. Foley.
63. Orthopedic Clinic. Conducted at the Shriners' Hospital. Assoc. Prof. Reed, Asst. Prof. Cole.
70. Night Clinic in Urology. Limited to 4 students. University Dispensary. Asst. Prof. Wethall.
114. Urologic Diagnosis and Cystoscopy. Hours and credits arranged. Asst. Prof. Thomas.

HOSPITAL DEPARTMENT

DIVISION OF NURSING INSTRUCTION

For full list of courses see the bulletin of the School of Nursing.

ELECTIVE COURSES

- 60f,w,s. Nursing Practice for Medical Students. Demonstrations and conferences on the more common nursing procedures and their adaptation in the home.

DIVISION OF DIETETICS

For courses see Nursing School bulletin and special circular.

DIVISION OF HOSPITAL DENTISTRY

ELECTIVE COURSE

50f,w,s. Hospital Dental Practice, in the University Hospital, University Dispensary, and Minneapolis General Hospital. For students of Medicine or Dentistry. Hours and credits arranged. Assoc. Prof. Grey and staff.

DIVISION OF HOSPITAL SOCIAL SERVICE

ELECTIVE COURSES

- 60f,w,s,su. Principles and Practices of Hospital Social Work. 2 to 4 credits. Hours arranged. Miss Tebbets and assistants.
- 61f,w,s,su. Field Work (H.E. 156). Practical work in respective specialized fields available for home economics students. Limited to groups of eight. 3 credits. Section 1, Th VI, VII, VIII, and three hours to be arranged. Asst. Prof. A. H. Beard and Miss Tebbets.
- 62s. Hospital Economics and Relationships. Lectures presenting hospital organization and covering backgrounds, aims, and interdependence of groups therein including the social, psychological, and ethical factors. 2 credits; hours arranged. Miss Tebbets and others.
- 63s. Occupational Therapy. Lectures covering history, development, and relationships; institutional values. 1 credit. Hours arranged. Asst. Prof. Mariette, Miss Tebbets, and others.
- 65f,w,s,su. Application of Principles and Practices of Hospital Work. Selected medical-social problems as related to other professional groups. Open to nurses and medical students. 2 to 4 credits. M III, and hours arranged. Miss Tebbets and assistants.

DIVISION OF ANESTHESIA

20. Individual Instruction in Anesthesia. Part of surgical clerkship, Surgery 35. Dr. Knight and others.

DIVISION OF RADIOLOGY

REQUIRED COURSES

- 79s. Roentgenology and Radiation Therapy. Lectures and demonstrations. Fifth year medical students. Prerequisites, anatomy, physiology, pathology; 22 hours. Assoc. Profs. Rigler, Stenstrom.
- 80f,w,s. Roentgen Diagnosis for Medical Clerks. Part of Medicine 33. Assoc. Prof. Rigler.
- 81f,w,s. Radiation Therapy for Surgical Clerks. Part of Surgery 28. Assoc. Prof. Stenstrom.

ELECTIVE COURSES

- 85f,w,s. Plate Reading. Fifth or sixth year. 11 hours credit. Assoc. Prof. Rigler.
- 86f. X-Ray Technique. 22 hours credit. Assoc. Prof. Rigler.
- 87s. X-Ray Anatomy. Prerequisites, Anatomy 6 and 7. Same as Anatomy 148. 22 hours credit. Assoc. Prof. Rigler.

- 88w. X-Ray Diagnosis. Fifth or sixth year. 11 hours credit. University Hospital or Minneapolis General Hospital. Dr. Hanson, Dr. Ude.
- 90f. Fundamentals of Radiology. Same as Physiology 105. 11 hours; 1 credit. Assoc. Prof. Stenstrom.
- 95w. Clinic in X-Ray Therapy. Fifth or sixth year. 11 hours credit. Assoc. Prof. Stenstrom.
- 101f,w,s. Surgical-Roentgenological Conference. Prerequisite, Rad. 79. Fifth and sixth year, and graduates. Assoc. Profs. Rigler, Wangenstein.
- 102w,s. X-Ray Conference. Prerequisite, Radiology 79. Fifth and sixth year and graduates. 11 hours credit. Assoc. Prof. Rigler, Dr. Ude.
- 103f,w,s,su. Physical Therapy Treatment Clinic. Fifth and sixth year and graduates. 22 hours credit. Assoc. Prof. Stenstrom.
- 104w. Roentgen and Radium Therapy. Fifth and sixth year and graduates. Hours and credits arranged. Assoc. Prof. Stenstrom.
- 200f,w,s.* Research in Roentgenology. Hours and credits arranged. Assoc. Prof. Rigler.
- 201w.* X-Ray Diagnosis of Diseases of the Skull and Upper Respiratory Tract. 11 hours; 1 credit. Assoc. Prof. Rigler.
- 202f.* X-Ray Diagnosis in Pediatrics. 11 hours; 1 credit. Assoc. Prof. Rigler.
- 204f,w,s. Research Problems in Biophysics. Same as Physiology 204. Hours and credits arranged. Assoc. Prof. Stenstrom.
- 208f,w,s.* Radiology Seminar (Bimonthly). Hours and credits arranged. Assoc. Profs. Rigler, Stenstrom.

DEPARTMENT OF MILITARY SCIENCE AND TACTICS, R.O.T.C.

This department contributes elective courses to the Medical School and leads to a certificate of proficiency in military science and tactics—medical, which qualifies for appointment and commission in the Medical Officers Reserve Corps, U. S. Army. The course is progressive and as a whole is intended also to aid the student in his preparation for citizenship. B stands for basic, A for advanced courses.

- B-1f. Elements of Military Science. An introductory course to familiarize the student with the more necessary fundamentals of military science and organization of the Medical Department. For freshmen only. 33 hours; 3 credits. Asst. Prof. Nelson.
- B-2s. Medical Tactics. A theoretic course in organization and tactics, preparatory to completion of this training by practical work in camp. For sophomores only. 33 hours; 3 credits. Asst. Prof. Nelson.
- A-1w. Military Hygiene and Sanitation. A theoretic course in the essentials of military hygiene and sanitation, to supplement the practical training in camp and in the Department of Public Health and Preventive Medicine. For juniors only. 33 hours; 3 credits. Asst. Prof. Nelson.

* Permission of instructor required.

- A-2s. Medical Administration. A theoretic and practical course to train the student in medico-military administration with special reference to hospitals and hospitalization methods and also includes surgical and medical diseases peculiar to war, methods of gas defense, and miscellaneous medico-military subjects. For seniors only. 33 hours; 3 credits. Asst. Prof. Nelson.
- A-1su. Field Service. A practical course at an army camp in hygiene and sanitation, medical tactics, administration, drill command, of six weeks' duration. Summer quarter following sophomore year. 180 hours. Asst. Prof. Nelson.

DEPARTMENT OF ZOOLOGY

(Contributing elective courses to the Medical School)

- 107f. Protozoology. Lectures, reference, and laboratory work on the structure and life history of Protozoa. Special reference is paid to the relations of the Protozoa to disease of animals. 5 credits. MTWThF I, II. Prof. _____
- 144f,s-145w-146s. Animal Parasites and Parasitism. Lectures and laboratory work. Origin and biological significance of parasitism, and the structure, life-history, and economic relations of representative parasites. Second term devoted primarily to relations of insects to diseases of man and animal. 3 credits each quarter. WF VI, VII, VIII. Prof. Riley.
- 181f-182w. Embryology. A survey of the principles of animal development dealing with fundamental invertebrate and vertebrate types. Lectures, reference, and laboratory work. 3 credits each quarter. TTh VI, VII, VIII. Asst. Prof. Ringoen.
- 183s. Genetics and Eugenics. Facts and theories of heredity and application to man. 3 credits. TS IV; Th V. Prof. Wodsedalek.

AGRICULTURAL BIOCHEMISTRY

(Contributing elective courses to the Medical School)

- 111f-112w. Biochemistry. Advanced course dealing with the colloidal state, and the chemistry of proteins, carbohydrates, glucosides, tannins, fats, acids, enzymes, and pigments, and their physicochemical relations to the vital processes involved in growth and nutrition. Prerequisites, organic chemistry and zoology (1 year) or botany (1 year). 3 credits each quarter; lect. MWF III; ..., Th VI. Prof. Gortner.
- 113f-114w-115s. Biochemical Laboratory Methods. A laboratory course paralleling the lectures in 111-112, using recent methods for the investigation of biologically important compounds, with especial reference to the detection and estimation of such compounds in cells or tissues. Prerequisite, Quantitative Analysis, parallel 111-112. 2 credits each quarter; T VI, VII, VIII; Th VII VIII, IX. Dr. Sandstrom.

- 116w. Advanced Animal Nutrition. Lectures and assigned readings on recent developments in animal nutrition, covering the field of proteins, mineral metabolism, vitamins, and the relation of nutrition to disease. Prerequisites, 111 or physiologic chemistry; 3 credits. T III; Th II, III. Prof. Palmer, Asst. Prof. Kennedy.
- 206f. Colloids. Lectures dealing with the colloidal state, the preparation and properties of colloidal solutions, and the relation of these to biochemical processes. Prerequisites, Course 111-112, or physical chemistry. 3 credits; MWF II. Prof. Gortner.
- 207s. Enzymes. Lectures dealing with the nature of enzyme action, including methods of preparation and investigation of enzymes, their physical and chemical properties and their methods of action. Prerequisites, Course 111-112, or physiologic chemistry. 3 credits; MWF III.
- 208w. Proteins. Lectures on the composition, structure, biochemical reactions, and functions of the protein and amino acids. Prerequisite, Course 111-112, or advanced organic chemistry. 3 credits; MWF II. Prof. Gortner.

INTERDEPARTMENTAL INSTRUCTION

IN CHARGE OF ASSISTANT PROFESSOR O'BRIEN CORRELATION CLINICS

Recognizing the growing trend in educational practice of correlating fundamental and applied knowledge, the Medical School offered one hour weekly clinics in applied anatomy for the freshman class, winter quarter, 1929. The course was given by William A. O'Brien, M.D., assistant professor of pathology, and W. T. Peyton, M.D., Ph.D., instructor in surgery. This was followed by a second series of clinics in applied physiological chemistry by Assistant Professor O'Brien and Associate Professor W. W. Swanson, M.D., in the spring quarter.

During the coming year 1929-30 the program will be enlarged to include both the freshman and sophomore years. The schedule will probably be as follows:

Freshman year: Fall quarter—General Introduction; Winter—Anatomy; Spring—Physiologic Chemistry.

Sophomore year: Fall quarter—Neurology; Winter—Physiology; Spring—Special Pathology.

These courses, one hour a week respectively; no credit.

THE SCHOOL OF CHEMISTRY

DEPARTMENT OF PHYSICAL CHEMISTRY

(Required course in the Medical School)

110f,w. Physical Chemistry. Designed chiefly for medical and biological students. 4 credits per quarter; prerequisite, 7. Asst. Prof. Taylor.

For other courses in chemistry which may be elected for credit in the Medical School see bulletin of the School of Chemistry.

The Bulletin
of the University of
Minnesota

The School of Nursing
Announcement for the Year
1929 -1930



Vol. XXXII No. 40 June 8 1929

Entered at the post-office in Minneapolis as 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, 1928

SCHOOL OF NURSING

FACULTY

THE ADMINISTRATIVE COMMITTEE

- Lotus D. Coffman, Ph.D., LL.D., President
Elias P. Lyon, Ph.D., M.D., LL.D., Dean of Medical School and Head of the Department of Physiology
Marion L. Vannier, R.N., Director of the School of Nursing and Associate Professor of Nursing
Esther M. Greisheimer, Ph.D., M.D., Assistant Professor of Physiology
Dorothy S. Kurtzman, R.N., Superintendent of Nurses, University Hospital, and Assistant Professor of Nursing
Eula B. Butzerin, R.N., B.S., Director of Public Health Nursing Course, Assistant Professor of Preventive Medicine and Public Health
Jennings C. Litzenberg, B.S., M.D., F.A.C.S., Professor of Obstetrics

CORPS OF OFFICERS AND INSTRUCTORS IN THE ASSOCIATED HOSPITALS*

- Marion L. Vannier, R.N., Director of the School, Associate Professor of Nursing
Dorothy S. Kurtzman, R.N., Superintendent of Nurses (a) and Assistant Professor of Nursing
Bessie Baker, R.N., B.S., Superintendent of Nurses (b) and Assistant Professor of Nursing
Olona Ordahl, R.N., Superintendent of Nurses (d) and Assistant Professor of Nursing
Ada M. Olsen, R.N., Instructor in Nursing (a)
Esther Thompson, R.N., B.S., Instructor in Nursing (a)
Julia Miller, R.N., Instructor in Nursing (a)
Lana Babcock, R.N., Instructor in Nursing (b)
Sena K. Peterson, R.N., Instructor in Nursing (b)
Helen Irene Erickson, R.N., Instructor in Nursing (c)
Melda Korfhage, R.N., Instructor in Nursing (c)
Martha Wunschel, R.N., Instructor in Nursing (c)
Phoebe Gordon, B.A., Instructor in Nursing
Gertrude I. Thomas, Instructor in Dietetics (a)
Eva Gregerson, Instructor in Dietetics (b)
Jeanette Goldthorpe, Instructor in Dietetics (c)
Mildred Hagstrom, Instructor in Dietetics (d)

In addition to the above listed instructors in nursing, there are approximately 75 head nurses in the four hospitals who act as teaching assist-

* The following letters serve as index to the particular hospital in which the instructor serves: (a) The University Hospital; (b) The Charles T. Miller Hospital; (c) The Minneapolis General Hospital; (d) The Northern Pacific Beneficial Association Hospital.

ants for the department and carry on a program of both classroom teaching and ward teaching.

CONTRIBUTING DEPARTMENTS

William H. Kirchner, B.S., Professor of Drawing and Descriptive Geometry
J. Anna Norris, M.D., Professor of Physical Education for Women and
Director of Health and Physical Education for Women

The lecturers and instructors in scientific and clinical subjects in the School of Nursing are members of the Medical School faculty. For a list of these members see Medical School bulletin.

LECTURERS GIVING VOLUNTARY SERVICE
IN THE SCHOOL OF NURSING

B. I. Derauf, M.D.
H. G. Collie, M.D.

J. H. Jesion, M.D.
M. A. Shillington, M.D.

GENERAL INFORMATION

THE ASSOCIATED HOSPITALS

The four hospitals connected with the University of Minnesota School of Nursing are:

The University Hospital, situated on the University campus, includes the Elliot Memorial Building, the Cancer Institute, the Todd Memorial Hospital, and the Eustis Children's Hospital. It has a capacity of about 400 beds. Supported by state funds and endowments, it cares for patients sent in from all parts of the state.

The Charles T. Miller Hospital, one of the associated group of hospitals, situated in St. Paul, is a beautiful and thoroly modern building, housing fifty free patients and one hundred fifty private beds.

The Minneapolis General Hospital is supported by taxation and has some six hundred beds, principally for the use of the indigent sick. It enters large numbers of accident and emergency cases and acute diseases.

The Northern Pacific Beneficial Association opened in the fall of 1921 its new model hospital building situated within St. Paul in the midway district. It cares for the sick among employees and the families of employees of the railway system, the name of which it bears.

The Hennepin County Tuberculosis Sanatorium at Glen Lake, an institution of over 700 beds, is affiliated with the School of Nursing to give the students experience in the care of tuberculous patients.

UNIVERSITY RELATIONS

The School of Nursing is a part of the Medical School and is controlled through its Administrative Committee. The director of the school is responsible to the dean of the Medical School.

While the associated hospitals and the School of Nursing are interdependent, each serving the purposes of the others, the faculty looks upon the hospitals as the teaching laboratories of the nurse in which her interests, together with those of the medical student body, are primary considerations.

By the association of several hospitals with the University School, in the interests of nursing education, it is possible to give students the advantage of practical service with free patients, per diem patients, and private patients; and to add to the regular graded work experience in the care of contagious diseases, tuberculosis, and a large number of accident and emergency cases.

Students of the School of Nursing enjoy opportunities of clinical observation in the Out-Patient Department of the University Hospital and are assigned, during their junior and senior years, to its nursing service.

The dispensary of the Minneapolis General Hospital is also available for study and training to the students of the school.

THE LIBRARIES

The medical libraries of the University contain 19,000 bound volumes, 45,200 unbound volumes, monographs, reprints, etc., and 276 current periodicals.

The general University Library also is open to students of all schools. The library catalogs a number of works selected with reference to the needs of students of the School of Nursing.

REQUIREMENTS FOR ADMISSION

Applications for admission to the School of Nursing should be made in writing to the director. Information and application blanks may be had upon request, of the director of the School of Nursing, Millard Hall, University of Minnesota, Minneapolis. Educational credentials should accompany the application. All applicants must meet personally the enrolment committee of the school. Enrolment meetings are held just previous to the opening of school. A class is entered at the opening of fall and spring quarters.

Applicants must state age and residence, and present credentials of graduation from a four-year high school of the first grade or its equivalent by examination. While a high school diploma is a prerequisite to admission, preference will be given to women of superior preliminary training. Applicants must be not less than eighteen nor more than thirty-five years of age. Eighteen-year-old applicants will be admitted only when they give assurance of sufficient maturity. They must submit satisfactory evidence to the committee of physical and mental fitness and good character, and will undergo a general physical examination by the school physicians. References are required, one of these to be from former high school teachers.

Applicants who are not high school graduates may be admitted by examination. Information concerning the type of examinations and dates when they are given may be had by writing to Mrs. Koenig, university examiner.

REGISTRATION AND FEES

Upon acceptance of the candidate by the enrolment committee, registration is made at the office of the registrar of the University. Fees approximating \$40 cover the preliminary course of instruction and are payable at the office of the university cashier. Students supply their own textbooks and stationery at an estimated cost of \$15 a year. Housing and board are provided in the associated hospitals at no cost to the student. Students who accept board and housing from the hospitals during the preliminary quarter and who voluntarily decide to leave the school before they have given any service whatsoever are expected to reimburse the hospitals for this expense. No fees are charged during the remaining two and one-half years of the course. Uniforms are furnished by the hospitals and.

after the first three months, laundry is done without charge. Clothing, other than the hospital uniform dress, students provide for themselves. Students are expected to buy the school cape and cap for outdoor wear, at the end of the first three months in the school. The cost is approximately \$25.

A vacation of two weeks in the first year, four weeks in the second year, and two weeks in the third year is allotted to each nurse at her own living expense.

Graduates of other schools for nurses, in good standing, or matriculants of these schools, having the required entrance qualifications, will be admitted to the preliminary course of instruction upon the conditions of entrance cited above and upon payment of the prescribed fee. Upon successfully passing the examinations in this course, they are granted a certificate of proficiency, which, if they are matriculants of any other school, is submitted to the superintendent in charge.

THREE-YEAR COURSE PLAN OF INSTRUCTION

The completion of the entire course of instruction in the three-year course of the School of Nursing leads to the degree of graduate in nursing conferred, upon recommendation of the faculty, by the Board of Regents of the University of Minnesota.

All matriculants are required to take the preliminary course of instruction and to pass examinations at its close. The faculty reserves the right to pass upon the general fitness of the student to enter the hospital services at the close of the preliminary period.

In the last half of the first year and the first half of the second year, the student is assigned to duty and receives instruction in the men's and women's medical and surgical wards of the associated hospitals. In the second half of the second year and throughout the third year, she is assigned to special duty in the obstetrical, gynecological, and children's wards in the operating rooms, and in special departments of practice.

The practical work of a student as well as the classroom work must be satisfactory to the nursing faculty to permit her to continue in the school.

The practical work of each year is accompanied by courses of lectures and demonstrations conducted by members of the faculty. Examinations conclude each of these courses.

AFFILIATED SCHOOLS

Students from affiliated schools or from those of recognized standing and of general requirements equivalent to those of the University of Minnesota, who have completed two years of study and are graduates of such schools, will be admitted to the third year of the School of Nursing as affiliated students, so far as housing capacity will permit. Upon successful completion of the work of the third year they will receive a certificate.

This affiliated third year course is planned especially for those students whose training has been in schools allied to hospitals of exclusively surgical or other special character.

COURSE IN PUBLIC HEALTH NURSING FOR GRADUATE NURSES

The course in Public Health Nursing is given under the direction of the Department of Preventive Medicine and Public Health, in co-operation with the School of Nursing. It covers a period of nine months, or a full academic year, divided into three quarters. The satisfactory completion of the nine-month course, or the minimum of forty-five credits, in certain prescribed subjects, is necessary to secure the certificate in public health nursing. For information consult director, Public Health Nursing Course.

FIVE-YEAR COURSE IN ARTS AND NURSING AND NURSING EDUCATION LEADING TO THE DEGREE OF BACHELOR OF SCIENCE AND GRADUATE IN NURSING

During the first five quarters in this course the student is registered in the College of Science, Literature, and the Arts. This period is followed by ten quarters during which the student is registered in the University School of Nursing. The last three quarters of the fifth year are devoted to elective work in the College of Science, Literature, and the Arts, or the College of Education, in preparation either for teaching and supervision or nursing work or for public health nursing. The cost of the first five quarters and last three quarters of the course is similar to that estimated for any student in the College of Science, Literature, and the Arts (see general information bulletin). The expenses during the two and one-half years in the School of Nursing are the same as those described on page — of this bulletin. Students should consult Miss Vannier, director of the School of Nursing, concerning their registration in the first two years.

In either course, the following subjects are required in the first two years:

FALL QUARTER			FIRST YEAR WINTER QUARTER			SPRING QUARTER		
	Credits			Credits			Credits	
Rhet. A†	5		Rhet. B†	5		Rhet. C†	5	
Bot. 1	5		Bot. 2	5		Anat. 2	3	
Chem. 6‡	5		Chem. 7‡	5		Elect.	8	
	—			—			—	
Total	15		Total	15		Total	16	
FALL QUARTER			SECOND YEAR WINTER QUARTER			SPRING QUARTER*		
	Credits			Credits			Credits	
Zoology 1	5		Zoology 2	5		Phys. 4 or 2	5	
Psy. 1	3		Psy. 2	3		Ed. Psy.	3	
Hist.	5		Hist.	5		Bact. 5†	5	
Rhet. 18§ or 12	3		Rhet. 19§ or 13	3		Hist. of Nurs.	1	
	—			—		Theory of Diet.	1	
Total	16		Total	16		Lettering	1	
	—			—			—	
						Total	16	

* Registration in the spring quarter is in the School of Nursing.

† Electives may be substituted if English requirement is met by examination.

‡ Chem. 9 and 10 may be substituted if the student has had high school chemistry.

§ Public Speaking 41-42 may be substituted for Rhetoric 18 and 19.

The regular S., L. and A. requirements in the matter of gymnasium and personal hygiene must be met.

THIRD AND FOURTH YEARS

Students are registered in the School of Nursing during the third and fourth years, which consist of four quarters each, summer, fall, winter, and spring.

The theoretical and practical work of the first summer quarter includes dietetics, metrology, pharmacology, hospital economics, nursing practice, and case study, with general work in the wards for a portion of each day under supervision.

In the succeeding quarters the student is assigned to graded services and to lecture and recitation courses in the associated hospitals.

FIFTH YEAR

If the student elects Public Health Nursing the last three quarters of the fifth year are taken in the College of Science, Literature, and the Arts. The program must be approved by the director of the Public Health Nursing Course and by the assistant dean for the Senior College. The following credits are required for the work of the last three quarters in the Public Health Nursing Course:

	Credits
Sociology	10
Public Health (theory).....	15
Public Health (field).....	14
Child Welfare Institute (child training).....	3
Electives	6

If the student elects Nursing Education the last three quarters are taken in the College of Education. Upon satisfactory completion of the work the degrees of graduate in nursing and bachelor of science are granted. If practice teaching is taken in the proper subjects, a high school certificate is also granted. The following curriculum is outlined for the senior year:

FALL QUARTER		WINTER QUARTER		SPRING QUARTER	
	Credits		Credits		Credits
Tech. of Teach.	3	Spec. Methods	5	Prac. Teach.	5
Sociol. I	5	The High School.....	3	Hosp. Admin.	4
Ed. Elect.	8	Hosp. Prac. Teach. ...	2	Electives	5
	—	Electives	5		—
Total.....	16		—		—
		Total.....	15	Total.....	14

Graduates of the five-year Nursing Course interested in entering the field of medical social work see the announcement of Training Course for Social and Civic Work and the Department of Sociology for outline of courses leading to a Master's degree in sociology.

DESCRIPTION OF COURSES

CONTRIBUTING DEPARTMENTS

ANATOMY

2f,s. Elementary Anatomy. The general properties and development of tissue cells; the development of the human embryo. The description and demonstration of the osseous, muscular, nervous, circulatory, respiratory, excretory, and reproductive systems. Forty-four hours. Dr. Fisher.

PHYSIOLOGY

1f,s. General and Physiologic Chemistry. (a) A brief study of physical and chemical laws; of the composition of matter, chemical compounds, chemical and energy changes; of the ionic theory; of gases and solutions. (b) The physiologic chemistry of gases, water, salts, carbohydrates, fats and proteins; of the nutritive media, of digestive fluids and digestion, of metabolism, of excretion and excretory products. 36 hours. Dr. Greisheimer.

2f,s. Elementary Physiology. Functional properties of tissue cells; the material bases of the body; the nutritive media; the physiology of nerve and muscle, of the nervous system; the vascular mechanism; respiration, digestion, excretion, and metabolism. Sixty-three hours. Dr. Greisheimer and others.

PHARMACOLOGY

1w,su. Elementary Pharmacology. A study of the history, uses, classification, and preparation of drugs; definition of descriptive terms; systems of weights and measures; methods of administration, principles of dosage, etc. Thirty-three hours. Dr. Potter.

14w,su. Metrology. Systems of weights and measures; equivalents; solutions; dosage. Eleven hours. Miss Gordon and others.

BACTERIOLOGY

1f,s. Elementary Bacteriology. The principles and technique of general bacteriology. Studies in the morphologic and biologic characters of the common bacteria. Preparation of culture media. Disinfectants and disinfection. Bacteriology of water and food products. Sixty-six hours. Mrs. Green.

DRAWING

69f,s. Exercises in Lettering. For training the nurse in the making of records and the charting of clinical observations; the accurate forming of letters in plain, single stroke types and special clinical characters. Eleven hours.

PHYSICAL EDUCATION

- 4f,s. Personal Hygiene. A study of the conditions governing the health of the individual. Ideals and conceptions of health. Ethical and economic aspects of hygiene. Responsibility of the nurse in health preservation and disease prevention. Eleven hours. Dr. Norris.

NURSING DEPARTMENT

- 1f,s. History of Nursing. A study of nursing history to cultivate an understanding and appreciation in nursing traditions and ideals, and of the people and influences that have brought the profession to its present status. Eleven hours. Miss Baker.
- 2w,su. Nursing Ethics. This course deals with the present scope of nursing; the attitude of the nurse towards various problems, the patient, the physician, and other nurses. Hospital etiquette; the principles of self-government. Eleven hours.
- 5w,su. A Study of Hospital Economics. The general principles of hospital and household economics. Hospital buildings; construction, heating, lighting, and plumbing. Equipment and operation of service rooms, kitchens, special departments. Hospital supplies; household chemicals. Eleven hours.
- 6w,su. Case Study. A course in the technique of building up nursing case studies. Historical background; personality and social background in relation to health; preventive and educational measures possible while patient is in the hospital; types of case to be selected for study; directions for studies in the different services. Eleven hours.
- 10f,s. Dietetics Theory. A course of practical exercises and lectures upon foods; their definition, classes, forms; food values; food composition; energy values; caloric index; selection of dietaries; balanced rations; market conditions. Eleven hours. Miss Thomas.
- 11w,su. Dietetics Practice. Methods of cooking; effect on food values; percentages of loss; treatment of various classes of foods; of typical foods; enhancement of food values; mechanical methods of preparation; raw foods. Forty-eight hours.
- 15-21f,w,s,su. Principles and Practice of Nursing. Courses of lectures, demonstrations, and practical exercises. Eighty hours.
15. The Environment of the Patient. The care of room, ward, service room, bath, lavatory, serving room, linen room, bed and bedding, detail of bed making.
16. Admission and General Care of the Patient. The bed, bath, and toilet; preparation of the patient for the night; prevention of bedsores, stiffness, and cramping of muscles; care of mouth, teeth, and hair; special devices for comfort.
17. Observation and Examination of the Patient. How and what to observe; temperature, pulse, respiration; feces, urine, sputum. Preparation of patient for routine examination; methods of assisting examiner; the doctor's order book; value of bedside records; detail and technique of record.

18. Methods and Mechanisms of Treatment. Preparation of solutions; application of heat and cold; counterirritants; enemata; vaginal douche; catheterization; lavage, gavage, gastric expression. Baths; reduction of temperature; sedative baths; baths and packs to produce sweating; local baths; medicated baths.
19. The Preparation of Patients for Operation. Details of preparation; the ether bed; post-operative care of patient.
20. Medicines. The medicine case; medicine trays; system of giving medicines; method of preparing and giving hypodermic injections; method of giving inhalations; methods of giving drugs by inunction.
21. Infectious Diseases. Precautions of care; details of disinfection; care of typhoid fever cases; venereal diseases.
23. Massage. Demonstrations and class practice in the general manipulation of the body tissues and in those general movements which have the value of passive exercise for the sick or convalescent. Eight hours.
24. Bandaging. Demonstrations and practical exercises in the uses and methods of application of bandages of all forms. Eight hours.

JUNIOR AND SENIOR COURSES

PATHOLOGY

28. The Principles of Pathology. Deviations from the normal in the more common diseases. A brief consideration of the normal and pathologic blood and excretions of the body. Eighteen hours.

SURGERY

29. Introduction to Surgery. Development of modern surgery, surgical infections, surgical emergencies, surgery of the extremities. Operating room technique. Eleven hours.
30. Surgical Nursing. Anesthesia, special surgical conditions, diseases requiring surgery; pre- and post-operative care of patients. Twenty-three hours.

MEDICINE AND MEDICAL NURSING

32. Medical Nursing. Diseases of the heart, blood, respiratory system, urinary system, gastrointestinal tract. General nursing care, observation of symptoms, recording of intake and output of fluids; diet, drugs, rest. Twenty-three hours.
34. Advanced Medical Nursing. Review of cardiac and respiratory diseases with special emphasis on advanced conditions and complications. Diseases of endocrine glands, infectious and contagious diseases; medical emergencies. Eleven hours.

TUBERCULOSIS

36. Study of Tuberculosis. History and general distribution; pathology; pulmonary tuberculosis; heliotherapy; surgical therapy with lantern slides; diet; social problems; nursing care in the home and in sanatorium. Thirteen hours.

DIETETIC TREATMENT OF DISEASE

37. The Dietary of Disease. The conditions of digestion, absorption, assimilation, and metabolism in disease; the influence of age, sex, and previous nutrition; the relation of food and water supply to functional inactivity, tissue loss, and elimination. The dietary of continued fevers; gastrointestinal disorders; respiratory disorders; disorders of nutrition; renal diseases, cardiac disorders, and diabetes. Eleven hours.

GYNECOLOGY

39. Gynecological Nursing, including Obstetrics and Gynecology 2. A study of terms and definitions bearing upon the nursing of pelvic diseases; preparation of gynecological patients for examination and for operation; general care of gynecological cases; special modes of treatment. Nine hours.

PEDIATRICS

40. Junior Pediatric Nursing. The Normal Child. Conditions of growth and development; breast feeding; artificial feeding; mixed feeding; preparation of foods in laboratory; general care and nursing. Psychology of childhood. Social aspects of children's diseases. Seventeen hours.
41. Senior Pediatric Nursing. Diseases of Digestive Tract. Disorders of respiratory system. Diseases of circulatory system; of genitourinary tract. Nervous disorders. Constitutional diseases. Syphilis; gonorrhoea. Contagious diseases. Diphtheria; scarlet fever; smallpox; chicken pox; whooping-cough; measles; mumps; meningitis; poliomyelitis. Twenty-one hours.

OBSTETRICS

43. Junior Obstetrical Nursing, including Obstetrics and Gynecology 1. Lectures and demonstrations of the anatomy and physiology of the female pelvis; the physiology of pregnancy; its accidents; the physiology of parturition; the nursing of labor. Eleven hours.
44. Senior Obstetrical Nursing. Complications; post-partem hemorrhage, puerperal fever; puerperal convulsions; puerperal insanity. Thirteen hours.

PREVENTIVE MEDICINE

45. Hygiene and Public Health. Including Preventive Medicine 5. A descriptive course tracing the development and growth of public health with special reference to the past fifty years and a consideration of the various phases of preventive medicine in the present day. Twelve hours.

DISEASES OF THE SKIN

46. The Nursing Care of the Skin. A course upon methods of treatment of disorders of the skin in general occurrence. Seventeen hours.

SCHOOL OF NURSING

NERVOUS AND MENTAL DISEASES

47. The Nursing of Nervous and Mental Conditions. Insanity; its common forms and symptoms; principles of care of insane patients. Epilepsy; its manifestations and care. Neurasthenia, hysteria; their recognition and distinctive features; their nursing; their rest cure. Eleven hours.

SPECIAL SENSES

48. The Eye, Ear, Nose, and Throat. Anatomy and physiology. General and local care; use of applications, douches, etc. Recognition and care of foreign bodies. Prevention and treatment of ophthalmia neonatorum. Pre-operative and post-operative care. Fifteen hours.

SPECIAL THERAPEUTICS

49. Special Methods of Treatment. Special forms of therapy, requiring the services of the nurse. The X-ray in the diagnosis and treatment of disease. The use of vaccines and sera. Oral hygiene. Six hours.

SOCIAL RELATIONS

50. Professional Problems. Social and civic status of nurses. Professional ethics. Nursing education; legislation; organizations. Fifteen hours.

NURSING EDUCATION

60. Hospital Administration—A Course for Head Nurses. An intensive study of some of the problems of head nursing; the administration of different types of hospitals as it affects ward management and the head nurse; discussion of the head nurse as a teacher, supervisor, and administrator. Course involves assigned readings, discussion, and field trips. Prerequisite, permission of the instructor. This course is intended for senior nurses majoring in nursing education or for graduate nurses meeting the university requirements. Forty-four hours.

For courses in special methods and practice teaching in School of Nursing see College of Education bulletin.

The Bulletin
of the University of
Minnesota

The College of Dentistry
and
The School for Dental Hygienists
Announcement for the Years
1930-1932



Vol. XXXIII No. 37 August 8 1930

Entered at the post-office in Minneapolis as 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

THE COLLEGE OF DENTISTRY
and
THE SCHOOL FOR DENTAL HYGIENISTS

FACULTY

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and the School for Dental Hygienists, Professor of Prosthetic Den-
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- Andrew J. Weiss, Instructor in Prosthetic Dentistry
- Harold C. Wittich, D.D.S., Instructor in Operative Dentistry
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- S. Marx White, B.S., M.D., F.A.C.P., Professor of Medicine

METALLOGRAPHY

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MILITARY SCIENCE AND TACTICS

- William C. Webb, Jr., D.D.S., Major, Dental Corps, U.S.A., Assistant Professor of Military Science and Tactics

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Benjamin J. Clawson, M.D., Ph.D., Professor of Pathology
James S. McCartney, Jr., B.A., M.D., Assistant Professor of Pathology

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Joseph King, M.A., M.D., Instructor in Physiology
Milo M. Loucks, Ph.D., Instructor in Physiology
Truman A. Pascoe, Ph.D., Instructor in Physiologic Chemistry

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Orwood J. Campbell, B.S., M.D., Instructor in Surgery
William T. Peyton, M.D., Ph.D., Instructor in Surgery

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Wilson D. Wallis, Ph.D., Professor of Anthropology
Berne G. De Vries, D.D.S., F.A.C.D., Lecturer in Orthodontia
Esther N. Farrand, B.S., D.D.S., Lecturer in Orthodontia

HEADS OF UNIVERSITY DEPARTMENTS GIVING COURSES FOR DENTAL
HYGIENISTS

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J. Anna Norris, M.D., Professor of Physical Education for Women and Director of Health and Physical Education for Women
Frank M. Rarig, M.A., Professor of Public Speaking and Chairman of the Department of Public Speaking

Dwight E. Minnich, Ph.D., Professor of Zoology and Head of the Department of Zoology

Russell A. Stevenson, Ph.D., Dean of the School of Business Administration

C. A. Moore, Ph.D., Professor of English and Chairman of the Department of English

Rodney M. West, B.A., Registrar, University of Minnesota, Secretary of the Faculty, College of Dentistry, University of Minnesota

GENERAL INFORMATION

COURSES OFFERED IN THE COLLEGE OF DENTISTRY

FIVE-YEAR COURSE

The College of Dentistry unites with the College of Science, Literature, and the Arts in offering a five-year course consisting of two years in Arts and three years in Dentistry, leading to the degree of doctor of dental surgery.

COMBINED COURSE IN MEDICINE AND DENTISTRY

Students contemplating such a course are advised to complete the admission requirements for the Medical School and the first two years of medical science in that school. Further information may be obtained from the Administrative Board of the Medical School and the dental faculty.

REQUIREMENTS FOR ADMISSION

Application for admission should be in the examiner's office not later than July 1. All accepted applicants will receive a bill for a ten-dollar preliminary fee, payable within ten days. This fee is not returnable.

Applicants for admission must present two years of collegiate work (ninety quarter, or sixty semester, credits) in science, literature, and the arts, completed at this or some other recognized college or university.

The minimum requirements for admission include nine quarter (six semester) credits in English (rhetoric); twelve quarter (eight semester) credits in zoology; twenty quarter (thirteen and one-third semester) credits in chemistry (including general inorganic, qualitative analysis, organic); four quarter (two and two-thirds semester) credits in mathematics; eight quarter (five and one-third semester) credits in physics; six quarter (four semester) credits each in mechanical engineering (shop practice) and drawing; six quarter (four semester) credits in psychology; and enough additional credits to make a total of at least ninety quarter (sixty semester) credits. The faculty may accept electives for mechanical engineering, drawing, and psychology.

At Minnesota the pre-dental requirements are met by the following two-year course of study, provided high school chemistry and higher algebra are presented for admission (if these are not presented, Chemistry 1-2-3 is required instead of Chemistry 4-5; and Mathematics 3 must be taken as a prerequisite to Mathematics 4 or 6):

1. Zoology 5-6-7, twelve quarter credits
2. Chemistry 4-5, 11, Organic 1-2, twenty quarter credits
3. Mathematics 4, four quarter credits; or Mathematics 6, five quarter credits
4. Physics 3-4, and one of 23-24, 33-34, 43-44, eight quarter credits
5. Freshman English A-B-C, fifteen quarter credits; or Composition for Technical Students 4-5-6, nine quarter credits

6. *Drawing 41-42-43, six quarter credits
7. *Mechanical Engineering 11-12-13, six quarter credits
8. *Psychology 1-2, six quarter credits
9. Electives to make a total of ninety quarter credits

Those whose pre-dental work has been taken elsewhere than at the University of Minnesota must present to the examiner certified credentials of both preparatory and college work showing the subjects completed, credits, and grades.

Students preparing for admission to the College of Dentistry are advised to follow this arrangement as closely as possible.

ADMISSION TO ADVANCED STANDING

Students from other dental colleges whose standards are fully equivalent to those of this institution, may be received into advanced classes. Such students must make formal application on the blank provided, and must submit credentials covering pre-dental and dental studies. Such credentials must show that the student had the required pre-dental subjects and has maintained the standard of scholarship required of students of this college.

As a rule notebooks and other evidences of laboratory work must be presented. The amount of credit to be granted a student from another school is decided by the heads of the respective departments in conference with the Students' Work Committee. Subject credit, but not legal time credit, may be given for studies pursued other than in dental schools.

Students desiring advanced standing at the University of Minnesota should have a transcript of their record sent to the university examiner by the registrar of the college previously attended.

Students from foreign dental schools (not including Canadian schools) who are not graduates, will not be given credit in any course, except after examination.

REQUIREMENTS FOR GRADUATION

A candidate for the degree of doctor of dental surgery must be twenty-one years of age, of good moral character, and, after satisfying all the requirements for admission to the college, must have complied with all the rules and regulations of the college and obtained regular credit for all subjects of the entire course.

RECOGNITION

The Board of Dental Examiners in all states requiring a five-year course of study, in addition to fifteen units of secondary school education, for the degree of doctor of dental surgery, recognizes our graduates and admits them to examination.

On the recommendation of the Board of Examiners in Dental Surgery, the Council of the Royal College of Surgery, in London, has added the College of Dentistry of the University of Minnesota to the list of dental schools recognized by the college. This recognition implies that the Royal

* The faculty may accept electives for these courses.

College of Surgeons will exempt graduates in dental surgery of the University of Minnesota from the preliminary science examination for the license in dental surgery, and they will be admitted to the first and second professional examinations on producing the required certificates of study.

SUMMER SESSION

A summer session of six or eleven weeks is offered in the Departments of Anatomy, Bacteriology and Immunology, Chemistry, Dentistry, Pathology, Pharmacology, and Physiology. For detailed statements, see summer session bulletin.

FEES

Tuition fee (per quarter):	
Residents of Minnesota.....	\$60.00
Non-residents	70.00
Clock hour tuition fee (unclassified students, auditors and others carrying less than full work):	
Residents of Minnesota	2.50
Non-residents	3.00
Deposit (first quarter only).....	10.00
Military deposit (required of all students taking military drill).....	10.00
Incidental fee	6.00
Graduation fee	10.00
Special fees:	
Examination for removal of condition.....	1.00
Examinations for credit (after the first quarter in residence).....	5.00
Special examination	5.00
Laboratory deposit (required of students registered for courses in chemistry)	5.00

REGISTRATION PENALTIES

A penalty fee for late registration, late change of registration, or late payment of fees shall be two dollars (\$2) and one dollar (\$1) additional for each day of delay after classes begin, provided that no student shall pay more than ten dollars (\$10) of penalty in any given quarter.

LIBRARY

The complete library of dental books, literature and periodicals is maintained in the general university library, in a special section devoted to medical, dental and biological sciences.

HONOR FRATERNITY

The Beta Beta chapter of the Omicron Kappa Upsilon has been organized. Students are chosen for membership in the senior year by the faculty on the basis of scholarship, character and conduct during their entire course and not more than twelve per cent of each class is eligible.

SCHOLARSHIPS AND LOAN FUNDS

A scholarship of fifty dollars annually is available to assist a worthy student in dentistry.

The University Loan Funds are available to students after one quarter in residence to assist them in continuing their course. Scholarship and character are the basis on which these loans are made available to students.

INTERNESHIPS

Two internships at the College of Dentistry are offered annually to graduates desiring to devote further time to study and clinical work before engaging in the teaching or practice of dentistry. An increasing number of hospitals are offering internships to dental graduates.

GRADUATE WORK

Graduate work and opportunities for research are open in certain fields of dentistry to properly qualified students.

The qualifications for admission to graduate work in this field are a baccalaureate degree from an acceptable college or university, and the dental degree from this or any other approved college of dentistry. Such qualified students desiring graduate work will pursue courses of study in accordance with the regulations of the Graduate School. They may elect majors and minors for the graduate degree from the graduate courses in anatomy, embryology, histology, neurology, pathology, bacteriology, chemistry, physiology, and physiologic chemistry. The material for investigation along dental lines in these various subjects is available from the dental clinic, the medical dispensary, the University Hospital, and the Mayo Clinic, at Rochester, Minnesota, through the Mayo Foundation for Medical Education and Research. The Mayo Foundation offers several fellowships in dentistry similar to fellowships in other specialties on the foundation.

No special bulletin is issued for this work. The interested student will find the general conditions and the courses in the above fields set forth in the bulletin on graduate work in medicine.

PRACTITIONERS' COURSES

In order to enlarge its educational field and to fill a want that has found expression among practitioners, the College of Dentistry through the General Extension Division offers from time to time a series of courses in crown and bridge work, oral diagnosis, operative dentistry, orthodontia, prosthetic dentistry, periodontia, oral hygiene, oral surgery, and similar subjects. These courses are confined to graduate dentists.

There is also an opportunity for a dentist to come into the College of Dentistry for clinical courses at any time of the year by registering through the General Extension Division. The courses which may be taken in from one to two weeks at any time during the school sessions are: crown and bridge work, oral diagnosis, operative dentistry, prosthetic dentistry, periodontia, and oral surgery.

Registration and payment of fees may be arranged for in advance by correspondence, or by personal interview through the General Extension Division.

COURSES OF STUDY IN THE COLLEGE OF DENTISTRY FOR 1930-32

	Fall Quarter		Winter Quarter		Spring Quarter		Total	
	Crs.	Hrs.	Crs.	Hrs.	Crs.	Hrs.	Crs.	Hrs.
PRE-JUNIOR YEAR								
Anatomy, Gross	5	99	..	..	5	99	10	198
Anatomy, Hist. & Embry..	..	..	6	132	..	..	6	132
Anatomy, Oral	3	77	2	44	2	44	7	165
Bacteriology, Gen. & Spec.	..	..	4½	66	..	..	4½	66
Chemistry, Physiologic ...	4	44	..	..	..	..	4	44
Physiology .....	..	..	..	..	6	99	6	99
Prosthesis	4	110	5	143	5	143	14	396
	16	330	17½	385	18	385	51½	1100
JUNIOR YEAR								
Crown and Bridge Work..	2	66	3	99	3	99	8	264
Diagnosis, Gen. & Oral..	..	..	1	11	..	..	1	11
Metallography .....	..	..	..	..	2	33	2	33
Operative Dentistry	5	143	4	110	5	143	14	396
Oral Histology & Pathology	..	..	2	22	2	22	4	44
Oral Hygiene .....	..	..	..	..	1	11	1	11
Oral Surgery	1	11	1	22	..	..	2	33
Orthodontia .....	..	..	..	..	1	33	1	33
Pathology, Gen. & Spec...	6	110	..	..	..	..	6	110
Pharmacology .....	..	..	5	66	..	..	5	66
Prosthesis	1	11	2	44	3	77	6	132
	15	341	18	374	17	418	50	1133
SENIOR YEAR								
Crown and Bridge Work..	3	77	3	77	3	77	9	231
Diagnosis, Gen. & Oral..	2	44	..	..	..	..	2	44
Operative Dentistry	4	110	5	143	5	143	14	396
Orthodontia	2	44	2	44	2	44	6	132
Periodontia	1	33	1	33	..	..	2	66
Prosthesis	2	66	2	66	2	66	6	198
Surgery	2	44	1	33	1	33	4	110
Surgery, Principles of....	..	..	..	..	2	22	2	22
Thesis & Seminar.....	..	..	1	11	1	11	2	22
	16	418	15	407	16	396	47	1221

DESCRIPTION OF COURSES

EXPLANATIONS

A *dagger* (†) indicates that all quarters of the course must be completed before credit is received for any quarter.

ANATOMY

- 9f,su. Systematic Anatomy. Lectures and recitations on the gross morphology of the various systems of the body. Laboratory work upon human and mammalian material. Special emphasis laid upon human osteology. 9 hours a week. 5 credits. Offered to pre-juniors. Prerequisite: Zoology 5-6-7. Enrolment limited to 90 students in the fall quarter. Prof. Jackson, Asst. Prof. Miller, and assistants.
- 10s,su. Anatomy of the Head and Neck. Dissection of the human head and neck, with lectures and recitations. 9 hours a week. 5 credits. Offered to pre-juniors. Prerequisites: Zoology 5-6-7, Anatomy 9. Enrolment limited to 90 students in the spring quarter, and 30 in the summer. Asst. Prof. Miller and assistants.
- 14w,su. Histology and Embryology. Minute structure and development of the tissues and organs of the body, with special emphasis upon the teeth and digestive tract. Lectures, recitations, and laboratory work. 12 hours a week. 6 credits. Offered to pre-juniors. Prerequisites: Zoology 5-6-7, Anatomy 9. Enrolment limited to 90 students in the winter quarter. Prof. Rasmussen and assistants.

BACTERIOLOGY AND IMMUNOLOGY

- 52w. Dental Bacteriology. Morphology; methods of staining; culture media; methods of identification; principles of sterilization and disinfection; concept of infection; pathogenic bacteria; the oral flora; bacteriology of the stomatitides, dental caries, alveolar abscess, and pyorrhea; systemic infections secondary to bacterial diseases of the mouth and teeth. 66 hrs. 4½ credits. Offered to pre-juniors. Prof. R. G. Green and assistants.

DENTISTRY

NOTE.—Courses numbered from 50 through 59 are pre-junior courses; those from 60 through 79 are junior courses; those from 80 through 101 are senior courses.

DIVISION OF CROWN AND BRIDGE WORK

- 70f-71w-72s. Crown and Bridge Work. A technic course. Lectures, demonstrations, and laboratory work including all the more important forms of crowns and bridges. 264 hours. 8 credits. Prerequisite: Oral Anatomy 50-51-52. Profs. Wells, Reynolds, Asst. Profs. A. B. Hall, E. A. Nelson, Dr. Peterka.

90f-91w-92s.† Crown and Bridge Work. A course of 33 lectures and 198 clinical hours, covering the entire field of crown and bridge work. 9 credits. Prerequisite: Crown and Bridge Work 70-71-72. Profs. Wells, Brekhus, Pagenkopf, Tinker, Vehe, Assoc. Profs. H. C. Nelson, Otto, Asst. Prof. McCarthy.

DIVISION OF ORAL ANATOMY

50f-51w-52s. Oral Anatomy. Lectures and recitations on anatomy and nomenclature of teeth, and such laboratory work as drawing, dissecting, modeling, and carving of the teeth. Special attention given the physiological function of tooth form and its practical application. 33 lecture and recitation hours, 132 laboratory hours. 7 credits. Profs. Damon, Rudolph, Assoc. Profs. Cooperman, Lawton, Asst. Prof. Harker.

DIVISION OF ORAL DIAGNOSIS

73w. Oral Diagnosis. A consideration of the methods in oral diagnosis with special emphasis on the application of the X-ray. 11 hours lecture. 1 credit. Profs. Brekhus, Knight, Waldron, Assoc. Prof. Wahlquist.

93f. Oral Diagnosis. (1) A study of patients entering the clinic to determine the conditions of the teeth and surrounding tissues and advise medical measures. (2) A study of selected cases from a medical point of view, aiming to correlate the condition of the teeth with the patient's state of health. 11 lecture hours, 33 clinical hours. 2 credits. Prerequisite: Oral Diagnosis 73. Prof. Brekhus, Knight, Waldron, Assoc. Prof. Wahlquist.

DIVISION OF OPERATIVE DENTISTRY

60f. Operative Dentistry. A course of lectures, recitations, demonstrations, and laboratory work. 143 hours. 5 credits. Prerequisite: Oral Anatomy 50-51-52. Prof. R. O. Green, Asst. Profs. Butter, Thom.

61w-62s.† Operative Dentistry. A course of 22 lecture and recitation hours and 231 clinical hours. 9 credits. Prerequisites: Operative Dentistry 60, Histology and Embryology 14. Prof. Shellman, Assoc. Profs. Cox, Maybury, Asst. Profs. Butter, Estes, Parker, Thom, Dr. Thiers.

80f-81w-82s.† Operative Dentistry. A course of 33 lecture and recitation hours and 363 clinical hours. 14 credits. Prerequisite: Operative Dentistry 60-61-62. Profs. Walls, Godfrey, R. O. Green, Vehe, Assoc. Profs. Little, Pattridge, Asst. Profs. Butter, Freiburg, Henry, Dr. Lundberg, Dr. Wittich.

DIVISION OF ORTHODONTIA

69s. Orthodontia. A course of lectures, recitations, and laboratory work in the making of regulating appliances. 33 hours. 1 credit. Assoc. Prof. Lawton, Asst. Prof. Wendell.

87f-88w-89s.† Orthodontia. A course of lectures, recitations, and clinical work. Every student is required to treat at least one case of irregular-

ity of the teeth. 33 lecture and recitation hours and 99 clinical hours. 6 credits. Prerequisites: Orthodontia 69, Operative Dentistry 60-61-62. Profs. O. A. Weiss, Flagstad, Lasby, Rudolph, Dr. Baker.

DIVISION OF ORAL HYGIENE AND PATHOLOGY

- 77s. Oral Hygiene. Lectures and recitations on general and oral hygiene. 11 hours. 1 credit. Prerequisite: bacteriology. Assoc. Prof. Wahlquist.
- 78w-79s.† Oral Histology and Pathology. Lectures and recitations on the special histology and pathology of the teeth and other oral tissues. 44 hours. 4 credits. Prerequisites: bacteriology and pathology. Prof. Waldron, Dr. Clark, Dr. Worman.
- 98f-99w.† Periodontia. An intensive demonstration and practice course in the causes, treatment, and prevention of gingivitis and dental periclasia and in the prevention of dental caries. Special attention is paid to diagnosis and to systemic complications. 66 hours. 2 credits. Prerequisite: Operative Dentistry 60. Prof. Waldron, Asst. Prof. R. E. Johnson, Dr. Clark, Dr. Radosch.

DIVISION OF ORAL SURGERY

- 74f-75w.† Oral Surgery. Principles underlying general surgical procedure; development and application of anesthesia chiefly as applied to face, mouth, and jaws. General considerations in the extraction of teeth, and the removal of foci of infection. 22 lecture and recitation hours and 11 clinical hours. 2 credits. Profs. Griffith, Maves, Waldron, Wiethoff, Assoc. Prof. MacGibbon, Asst. Profs. Hermann, E. W. Nelson, Dr. Hayes.
- 95f.† Oral Surgery. Diagnosis and treatment of surgical diseases of the face, mouth, and jaws. Practice in local and general anesthesia. Consideration of types of patients and complications. 22 lecture and recitation hours and 55 clinical hours. 3 credits. Profs. Griffith, Maves, Waldron, and assistants.
- 96w-97s. Oral Surgery. A course of lectures, recitations, and demonstrations covering the diagnosis, treatment, and dental relationship of diseases and conditions of the mouth, jaws, throat, eyes, ears, nose, and face. 33 lecture and recitation hours. 1 credit. Prerequisite: Oral Surgery 74-75. Prof. Waldron.

DIVISION OF PROSTHETIC DENTISTRY

- 53f-54w-55s. Prosthetic Dentistry. A course of lectures, recitations, and laboratory work covering the use of impression materials and the different processes of plate work. 33 lecture and recitation hours. 363 laboratory hours. 14 credits. Profs. Damon, Rudolph, Assoc. Prof. Cooperman, Asst. Profs. Harker, Wendell, Dr. Heckler.
- 63f-64w-65s.† Prosthetic Dentistry. A course of lectures and recitations covering the subject of prosthetic dentistry in preparation for clinical work. 33 hours. 3 credits. Prerequisite: Prosthetic Dentistry 53-54-55. Prof. O. A. Weiss.

- 67w-68s.† Prosthetic Dentistry. Clinical practice in denture work. 99 hours. 3 credits. Prerequisite: Prosthetic Dentistry 53-54-55. Profs. Lasby, Flagstad, Asst. Profs. Delton, Jernall.
- 83f-84w-85s.† Prosthetic Dentistry. A course of clinical work in prosthesis, cleft palate, and final restorations. 198 hours. 6 credits. Prerequisites: Prosthetic Dentistry 63-64-65 and 67-68. Profs. Lasby, Flagstad, O. A. Weiss, Asst. Profs. Delton, Jernall.

THESIS AND SEMINAR

- 100w-101s.† A thesis, seminar, and lecture course in the theory and practice of medicine and dentistry, applied economics, jurisprudence, psychology, ethics, etc. 22 hours. 2 credits. Profs. Lasby, F. E. Burch, George E. Fahr, A. S. Hamilton, T. B. Hartzell, J. C. Litzenberg, S. Marx White, Assoc. Profs. Boyd S. Gardner, E. L. Gardner, Asst. Prof. R. I. Rizer.

METALLOGRAPHY

- 159s. Dental Metallography. Lectures, recitations, and demonstrations, taking up the most important metals with special reference to those used in dentistry and the study of dental alloys from the standpoint of metallography. 33 hours. 2 credits. Offered to juniors. Prof. Dowdell.

MILITARY SCIENCE AND TACTICS

BASIC COURSE

A Basic Course in Military Science and Tactics is offered in the first year of the dental course. The course consists of subjects of a medical nature that were not taught during the two years military instruction prior to the enrolment of the student in the College of Dentistry. The course is designed to prepare the student to derive the maximum benefit from the practical work given in the advanced R.O.T.C. camp.

ADVANCED COURSE

The Advanced Course is offered in the junior and senior years to such students as have satisfactorily completed the Basic Course and have been selected by the professor of military science and tactics and the dean of the Dental College. A satisfactory completion of the Advanced Course is a requisite for graduation for all students who elect this course unless relieved by proper authority. All Advanced Course students are required to attend one summer camp. While in camp the student is subsisted, housed, and clothed at the expense of the government, and transportation is paid to and from camp. Students receive the pay of an enlisted man of the seventh grade for the period of the camp and commutation of rations throughout the two academic years of their Advanced Course and one vacation intervening. All students who satisfactorily complete the Advanced Course will be recommended for a commission as first lieutenant, Dental Section, Reserve Officers Corps.

SUBJECTS

In general terms, the course of instruction comprises subjects which are fundamental to the Medical Department of the Army in its functions as a branch and those subjects which are military specialties of the Dental Corps.

PATHOLOGY

- 4f. General and Special Pathology. Circulatory disturbances, metabolic changes in cells and tissues, pigment deposits, inflammations and tumors. Pathology of selected diseases, tumors, and lesions with reference to those affecting mouth and dental structures. Exercises in gross and microscopic diagnosis. 110 hours. 6 credits. Offered to juniors. Prerequisites: Gross Anatomy 9-10, Histology and Embryology 14. Prof. Clawson and assistants.

PHARMACOLOGY

- 4w. Pharmacology. The history, origin, nature, pharmacal preparations, and use of drugs, including the discussion of their physiologic, pharmacologic, and therapeutic actions. 44 hours. 4 credits. Offered to juniors. Assoc. Prof. Brown.
- 6w. Experimental Pharmacology. Laboratory exercises upon the chemical composition and mode of action of typical drugs upon man and animals, primarily for students in dentistry. One exercise a week. 22 hours. 1 credit. Offered to juniors. Prof. Hirschfelder, Assoc. Prof. Brown, Dr. Bieter.

PHYSIOLOGY

- 57f,su. Physiologic Chemistry. An intermediate course. 44 hours. 4 credits. Offered to pre-juniors. Prerequisites: Zoology 1-2 or 5-6-7; organic chemistry. Prof. McClendon.
- 60s. Physiology. An intermediate course. 99 hours. 6 credits. Offered to pre-juniors. Prerequisites: Zoology 1-2 or 5-6-7; Chemistry 1-2-3 or 4-5. Profs. Lyon, Scott, Asst. Prof. Greisheimer, Dr. Loucks or Dr. King and assistants.

SURGERY

- 52s. Principles of Surgery. A study of the various surgical inflammations and processes; pathology and treatment. Principles underlying general surgical procedure as applied in dental practice. 22 hours. 2 credits. Offered to seniors. Dr. Campbell, Dr. Peyton.

THE SCHOOL FOR DENTAL HYGIENISTS

GENERAL INFORMATION

PURPOSE

The School for Dental Hygienists has been established primarily to fill the need for workers in the public schools, hospitals, mercantile and industrial institutions, and dental offices to do dental prophylaxis work and to teach the hygiene of the mouth—in other words to do preventive dental work which has not been possible in the organization of dentistry up to the present and which is recognized to be one of the great physical needs of the times. As thoro a background of scientific and cultural subjects as is possible in the time of the course is included to give students that professional education and point of view without which they would be mere technicians and quite unsafe to turn loose on the public in the semi-independent capacity which the nature of their work demands. The course includes training in all branches of dental office assisting and should make graduates easily adaptable to the general and special needs of the private dental offices should that be the field of work selected.

The course requires two years of thirty-three weeks each and leads to the degree of graduate dental hygienist (G.D.H.). The incorporation of this work in the University makes it possible to give all the subjects of the curriculum in the appropriate departments of the University, thus assuring a university contact to the student and instruction under the best auspices.

The first year's work deals mostly with preliminary science courses and dental technique and corresponds to some extent with the year course given at other schools. The second year is designed to prepare the student particularly for work in the public schools and clinics where the worker must be largely on her own responsibility and must be able to take an active part in oral hygiene work with the public.

REGISTRATION

Applicants for admission may obtain credential blanks from the office of the registrar, University of Minnesota. These should be filled out and sent by the principal or superintendent of the high school or preparatory school to the registrar's office.

All applications should be filed before August 15.

Notification of acceptance or rejection will not be sent before August 15 but applicants will be informed whether their credentials are satisfactory as they come in. On receipt of notice of acceptance a preliminary fee of ten dollars (\$10) must be sent as a guaranty of the candidate's intention to enter and in order that a place may be held. This will be applied on the first quarter's tuition fee and is not refundable.

For further information in regard to registration and to the general requirements for admission to the University, application may be made for the bulletin of general information.

REQUIREMENTS FOR ADMISSION

The School for Dental Hygienists requires, for admission, graduation from an approved high school or other preparatory school on the accredited list and applicant must present the minimum requirements of a major and two minors. (See the general information bulletin for a complete statement of admission requirements.)

Preference will be given to women of superior preliminary training. Applicants must be not less than eighteen nor more than thirty-five years of age. They must be able to pass a satisfactory general physical examination by the school physician. The beginning class is limited to twenty-five students.

FEES

Preliminary fee (to be applied on tuition fee of first quarter).....	\$10.00
Tuition fee (per quarter)	25.00
Deposit (first quarter only).....	10.00
Incidental fee	6.00
Special fees:	
Examination for removal of condition.....	1.00
Examination for credit (after first six weeks in residence)....	5.00
Special examination	5.00
Graduation fee	10.00

Registration penalties.—A penalty fee for late registration, late change of registration, or late payment of fees shall be two dollars (\$2) and one dollar (\$1) additional for each day of delay after classes begin, provided that no student shall pay more than ten dollars (\$10) of penalty in any given quarter.

Part time fees.—Students not registered for the full course will be charged tuition at the rate of \$2 per credit.

ADVANCED STANDING

Graduates of approved training schools for nurses who are also graduates of accredited high schools will be admitted for advanced standing in the School for Dental Hygienists, and should be able to complete the remainder of the work required for the degree of graduate dental hygienist in one college year. Graduate nurses will be given permission to enter the school for one quarter's work to qualify them according to the law to take the state board examination for a license to practice dental hygiene. Such students will not be candidates for the degree of graduate dental hygienist and will be given university credit only in so far as it would apply if sufficient work to qualify for the degree were taken later.

INSTRUMENTS

The University will furnish the larger pieces of equipment needed for the work in the clinic and laboratories but the students must furnish their own uniforms, caps, operating instruments, and supplies. These instruments and supplies will be needed at the beginning of the freshman year. They will cost approximately sixty dollars. Some few textbooks will be required, also a manikin fee of \$7.

PRIZES

Alpha Kappa Gamma prize in dental hygiene.—The active chapter of Alpha Kappa Gamma Sorority offers an annual prize of ten dollars (\$10) in gold to that student graduating from the School for Dental Hygienists who has maintained the highest scholastic average and who has completed her entire course at the University of Minnesota.

The Louise C. Ball prize.—Annually Louise C. Ball, B.A., D.D.S., who founded the courses in oral hygiene in New York City, July 10, 1916, at Columbia University, will give a prize of forty dollars in gold to the student in the graduating class writing the best essay on "Preventive Dentistry in the Home."

COURSES OF STUDY IN THE SCHOOL FOR DENTAL HYGIENISTS

	Fall Quarter		Winter Quarter		Spring Quarter		Total	
	Crs.	Hrs.	Crs.	Hrs.	Crs.	Hrs.	Crs.	Hrs.
FIRST YEAR								
Anatomy, Oral	2	44	2	44	1	33	5	121
Anatomy, Elementary ....	..	..	3	33	..	..	3	33
Bacteriology, Elem.	4	66	..	..	..	..	4	66
Composition, Freshman ..	3	33	3	33	3	33	9	99
Hygiene, Preliminary	0	11	..	..	..	..	0	11
Physical Training, Elem..	0	33	0	33	0	33	0	99
Physiology and Physiologic Chemistry, Elem. ....	..	..	..	..	7	99	7	99
Prophylaxis, Dental	2	66	..	..	1	33	3	99
Prosthetic Dent. ....	..	..	..	..	2	44	2	44
Public Speaking .....	..	..	3	33	3	33	6	66
Zoology, General	4	77	4	77	..	..	8	154
	15	330	15	253	17	308	47	891
SECOND YEAR								
Dental Laboratory	1	33	..	..	..	..	1	33
Educational School Work.	2	44	2	44	2	44	6	132
Hygiene, Oral .....	..	..	..	..	1	11	1	11
Health Care of the Family	..	..	..	..	3	55	3	55
Office Practice .....	..	..	2	22	..	..	2	22
Pathology, General	1	11	..	..	..	..	1	11
Pathology, Oral .....	..	..	2	22	..	..	2	22
Principles of, and Clinical Dentistry	2	66	..	..	..	..	2	66
Prophylaxis, Dental	2	66	2	66	2	66	6	198
Prosthetic Dentistry	2	44	..	..	..	..	2	44
Psychology, General	3	33	3	33	..	..	6	66
Sociology, Introduction to	..	..	..	..	5	55	5	55
Thesis and Seminar .....	..	..	..	..	1	11	1	11
Electives	2	22	4	44	1	11	7	77
	15	319	15	231	15	253	45	803

DESCRIPTION OF COURSES

FIRST YEAR

ANATOMY

4f,w,s. Elementary Anatomy. A brief survey of human gross anatomy including a brief introduction to histology, followed by a more detailed study of the anatomy of the oral region. Recitations and demonstrations. Three hours a week for one quarter. Dr. Fisher.

BACTERIOLOGY AND IMMUNOLOGY

1f,w,s,su. Elementary Bacteriology. The principles and technic of general bacteriology. Studies of the morphologic and biologic characters of the common bacteria. Preparation of culture media. Disinfectants and disinfection. Bacteriology of water and food products. Six hours a week for one quarter. Dr. Skinner.

DENTISTRY

ORAL ANATOMY

7f,8w,9s.† Oral Anatomy. A course of lectures and recitations on the anatomy and nomenclature of the teeth and such laboratory work as drawing, dissection, modeling, and carving of the teeth. Special attention is given to the physiological function of tooth form and its practical application. Four hours a week for three quarters. Asst. Prof. Harker.

PROSTHETICS

6s. Prosthetic Dentistry. Course of lectures, recitations, and laboratory work covering impression materials and their manipulation; making of study models; and important laboratory phases of denture construction. Four hours a week for one quarter—one lecture hour and three laboratory hours per week. Asst. Prof. Harker.

ORAL HYGIENE AND PATHOLOGY

21f,w-22s. Dental Prophylaxis. Theory and practice in the technic and application of dental prophylaxis and oral hygiene. The work is introduced by practice on manikins, followed by practice on actual patients in the dental infirmary. Six hours a week in the fall or winter quarters and three hours a week in the spring quarter. Miss Jackson.

ENGLISH

4f-5w-6s. Freshman Composition. The study of the fundamental principles of composition and training in the art of writing. Three hours a week for three quarters. Arranged by Prof. Moore.

PHYSICAL EDUCATION FOR WOMEN

- 1f-2w-3s. Elementary Physical Training. Lighter forms of gymnastics, apparatus work, orthopedic exercise, folk dancing, indoor and outdoor games. Individual health consultations. Arranged by Prof. Norris and staff.
- 4f. Preliminary Hygiene. One lecture a week. The most essential aspects of the care of personal health. Prof. Norris.

PHYSIOLOGY AND PHYSIOLOGIC CHEMISTRY

- 1f,s. Elementary Physiology and Physiologic Chemistry. The functional properties of tissue cells; the material basis of the body; the nutritive media; the physiology of nerve and muscle, of the nervous system, the vascular mechanism, respiration, digestion, excretion, and metabolism. This course is preceded by a chemistry course which serves as a foundation for physiology. Nine hours a week for one quarter. Asst. Prof. Greisheimer.

SPEECH

- 41w-42s. Public Speaking. Fundamentals of effective speaking; breathing, voice production, enunciation, and action; delivery of extracts from the works of well-known writers and speakers; principles underlying speech making applied in both oral and written compositions. Three hours a week for two quarters. Arranged by Prof. Rarig and staff.

ZOOLOGY

- 5f-6w.† General Zoology. This course is designed to acquaint the student with the fundamental principles of general zoology. It deals especially with the structure, physiology, embryology, classification, and evolution of animals. Textbook, lectures, quizzes, and laboratory. Seven hours a week for two quarters. Arranged by Prof. Minnich.

SECOND YEAR

BUSINESS

- 95Nw. Office Practice. A study of the most approved practices relative to the conduct of an office; appliances, accounts, records, correspondence, filing systems. Two hours a week for one quarter. Arranged by Prof. Stevenson.

DENTISTRY

CROWN AND BRIDGE

- 29f. Dental Laboratory. A technic course in the manipulation of investments, waxes, metals, and porcelain including simple bridge construction as used in the dental office laboratory. Three hours a week for one quarter. Dr. Peterka.

ORAL HYGIENE AND PATHOLOGY

- 39f. General Pathology. A lecture course on the general pathological conditions. One hour a week for one quarter. Assoc. Prof. Wahlquist.
- 40w. Oral Pathology. A course on special pathology of teeth and oral tissues, including systemic manifestations of oral diseases. Two hours a week for one quarter. Dr. Radusch.
- 23f-24w-25s. Dental Prophylaxis. A continuation of Prophylaxis 21-22. The teaching of oral hygiene is emphasized. Six hours a week for three quarters. Miss Jackson.
- 10f-11w-12s. Educational School Work. A recitation course in the preparation and delivery of talks on oral hygiene for various groups and occasions followed by demonstrations and practical work in teaching oral hygiene in the public schools. Four hours a week for two quarters. Dr. White.
- 31s. Oral Hygiene. Lectures and recitations dealing with the causes and prevention of dental diseases especially as related to general physiology and hygiene. One hour a week for one quarter. Assoc. Prof. Wahlquist.

PROSTHETICS

- 7f. Prosthetic Dentistry. Continuation of 6s. Four hours a week for one quarter. One lecture and three laboratory hours per week. Asst. Prof. Harker.

THESIS AND SEMINAR, MISCELLANEOUS LECTURES, ETC.

- 43s. A thesis, seminar, and lecture course in the theory and practice of medicine and dentistry, applied economics, jurisprudence, psychology, and ethics. One hour a week for one quarter. Arranged by Prof. Lasby.
- 45f. Principles of, and Clinical, Dentistry. Lectures, demonstrations, and practical experience in surgical assisting, dental assisting, dental roentgenology, general anesthesia, operative dentistry, crown and bridge work, dental prosthesis, and orthodontia. Six hours a week for one quarter. Arranged by Miss Jackson.

PREVENTIVE MEDICINE AND PUBLIC HEALTH

- 52f,w,s. Health Care of the Family. First aid; communicable diseases; their transmission and prevention; hygiene of infancy, maidenhood, maturity. The care of the sick room; observation and care of the patient. Elementary symptomatology. Five hours a week for one quarter. Arranged by Assoc. Prof. Diehl.

PSYCHOLOGY

- 1f-2w.† General Psychology. An introductory survey of psychology; its material, fundamental laws, applications, and relations to other sciences. Two lectures, one recitation a week for two quarters. Arranged by Prof. Elliott and staff.

SOCIOLOGY AND SOCIAL WORK

1f,w,s. Introduction to Sociology. A study of the origin and development of human societies; various agencies which have determined the type of social life; social organization, institutions, and progress; bearing of sociology upon other social sciences and arts. Five hours a week for one quarter. Arranged by Prof. Chapin and staff.

The Bulletin of the University of Minnesota

*The School of Mines and Metallurgy
Announcements for the Years
1930-1932*



Vol. XXXIII No. 35 August 4 1930

*Entered at the post-office in Minneapolis as 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*

FACULTY

CHEMISTRY

Professor M. Cannon Sneed, Ph.D.; Associate Professors I. William Geiger, Ph.D., Everhart P. Harding, Ph.D.; Assistant Professor Hervey H. Barber, Ph.D.; Instructor J. Lewis Maynard, B.A.

DRAWING AND DESCRIPTIVE GEOMETRY

Professor William H. Kirchner, B.S.; Assistant Professors Leon Archibald, B.Sc., Henry C. T. Eggers, B.S.(E.E.), William S. Williams, B.S.(E.E.), Orrin W. Potter, E.M., M.S., Robert F. Schuck, B.S.(E.E.)

ELECTRICAL ENGINEERING

Professor John M. Bryant, M.S., E.E.; Assistant Professor Loyst C. Caverley, M.S.(E.E.)

EXPERIMENTAL ENGINEERING

Mathematics and Mechanics

Professor William E. Brooke, B.C.E., M.A.; Assistant Professor Forrest E. Miller, M.S.

Mechanical Engineering

Professors Frank B. Rowley, B.S., M.É., Charles F. Shoop, B.S., B.S.(M.E.); Instructor Herluf P. Nielsen, B.S.(M.E.), M.M.E.

GEOLOGY AND MINERALOGY

Professors William H. Emmons, Ph.D., Frank F. Grout, Ph.D., Clinton R. Stauffer, Ph.D.; Associate Professors John W. Gruner, Ph.D., George M. Schwartz, Ph.D., George A. Thiel, Ph.D.; Instructor Carl E. Dutton, M.S.

METALLURGY

Professors William R. Appleby, M.A., Peter Christianson, B.S., E.M., Ralph L. Dowdell, Met.E., Ph.D., Levi B. Pease, M.S.; Assistant Professor R. W. Allard, Met.E.; Instructors Arthur C. Forsyth, Met.E., M.S., Henry S. Jerabek, M.S., John N. Searles, E.M., M.S.

MILITARY SCIENCE AND TACTICS

Professor John H. Hester, Major, Infantry; Assistant Professors Willis Shippam, Major, Coast Artillery Corps, William G. Guthrie, Major, Medical Corps, William C. Webb, Jr., Major, Dental Corps, William A. Ellis, Captain, Infantry, Porter P. Wiggins, Captain, Infantry, William G. Walker, Captain, Infantry, Emil Krause, Captain, Infantry, Murray T. Davenport, Captain, Infantry, Hewitt W. Richmond, First Lieutenant, Coast Artillery Corps, Richard A. Ericson, First Lieutenant, Coast Artillery Corps, Vincent J. Conrad, First Lieutenant, Infantry, Harlan N. Hartness, First Lieutenant, Infantry, Rex W. Minckler, First Lieutenant, Signal Corps; Instructors Alfred Brandt,

Master Sergeant, Infantry, Retired, Harry E. Strider, Master Sergeant, Signal Corps, Aubrey R. Dunkum, Technical Sergeant, Coast Artillery Corps, John Coop, Sergeant, Infantry, Ernest R. Mylk, Sergeant, Coast Artillery Corps, Charles G. Sears, Sergeant, Infantry, Clayton A. Peterson, Sergeant, Infantry, Frank C. Esenther, Sergeant, Infantry.

MINE PLANT AND MECHANICS

Professor Elting H. Comstock, M.S.; Associate Professor Louis S. Heilig, E.M.; Assistant Professor James C. Sanderson, Ph.D.

MINING

Professor Walter H. Parker, E.M.; Instructor Stanley A. Trengove, E.M.

MINING ENGINEERING

Professor Edwin M. Lambert, M.E.

PHYSICS

Professors Henry A. Erikson, Ph.D., Anthony Zeleny, Ph.D., Louallen F. Miller, Ph.D.

GENERAL INFORMATION

The School of Mines and Metallurgy was established by the Board of Regents in 1888, upon recommendation of the general faculty of the University. The buildings and laboratories of the school are located on the main campus of the University. The mining districts of Minnesota are within a few hours, by rail, of Minneapolis. The heartiest co-operation exists between the various mine managements and the school, so that the mining properties are at all times open to parties from the school for observation and study trips. Practical surveying, geological field work, and underground work are carried on in one or more of the districts. Students in the School of Mines and Metallurgy have, therefore, all the advantages afforded by a large university combined with ample opportunity for field observation and experience.

The School of Mines and Metallurgy occupies the new building provided by the Legislature of 1913. In the basement are the assay and electrometallurgical laboratories, together with machinery room, instrument room, balance room, furnace rooms, and necessary storerooms. On the first floor are the administrative offices, the offices and lecture rooms of the departments of Metallurgy and Mine Plant and Mechanics. On the second floor are the offices, lecture rooms, and drafting rooms of the Department of Mining, the ore dressing laboratory, and the library of the school. On the third floor are the offices, laboratories, and lecture rooms of the Department of Metallography, Department of Mining Engineering, junior drafting room, dark rooms, blue printing room, and offices and computing rooms for the branch of the experiment station serving the Tax Commission.

DEGREES

In the School of Mines and Metallurgy there are four regular courses of study, viz., Mining Engineering, Mining Engineering specializing in Geology, Mining Engineering specializing in Petroleum, and Metallurgy, leading to the degrees of engineer of mines (E.M.), engineer of mines in geology (E.M.[Geology]), engineer of mines in petroleum (E.M.[Petroleum]), and metallurgical engineer (Met.E.) respectively.

Students in the College of Science, Literature, and the Arts, in the College of Engineering and Architecture, and in the School of Chemistry, who contemplate taking a degree in this school after completing their course, are recommended to select their electives with reference to as full a preparation as possible for the technical work of the course they propose to enter.

CLASSIFICATION OF SUBJECTS

The work falls under the following subdivisions, supplemented by thoro courses in mathematics, mechanics, surveying, physics, chemistry, and the necessary theory and practice of structural, mechanical, and electrical engineering.

(a) *Geology*—to determine the location of the ore. (b) *Mineralogy*—to determine its nature. (c) *Assaying*—to determine whether or not it has

value for treatment. (d) *Mining engineering*—to furnish material for treatment. (e) *Mine plant*—to provide the physical equipment for mining and treating the ore. (f) *Ore testing*—to determine best methods of treatment. (g) *Ore dressing*—to furnish products for metallurgical treatment. (h) *Metallurgy*—to smelt and refine ores and ore dressing products; reduction to metals. (i) *Metallography*—to study metals and their alloys.

EXPERIMENT STATION

The School of Mines and Metallurgy Experiment Station was established in 1911 and is maintained to promote the development of the mining and mineral resources of the state; to assay specimens of ores, rocks, clays, and minerals; to make such assays free of charge for private parties subject to such regulations as the Board of Regents may deem necessary; to make mining and metallurgical experiments in the treatment of such substances and in the utilization of mining and metallurgical by-products; to investigate methods of mining and the use of explosives; to undertake such other mining and metallurgical problems as may seem desirable; to make all ore estimates for the Tax Commission, and to do such other work along the lines above outlined as may be requested by other state departments. Co-operation has been effected with the United States Bureau of Mines, the United States Geological Survey, the Minnesota Geological Survey, and the School of Chemistry.

The experiment station is prepared to assist citizens interested in these lines of work and to assay specimens of ore, rocks, clays, and minerals found within the state, free of charge.

In submitting samples the sender must state the exact location in which each sample was found, giving all possible additional information. This information, together with results of any test or analysis, will be on file and available to the public at the office of the station. Citizens desiring free assay privileges must agree to give accredited representatives of the School of Mines and Metallurgy Experiment Station and of the Geological Survey access to the property should they desire to visit the same for purposes of examination and geological study.

Correspondence will receive prompt attention, but consultations generally prove more satisfactory.

Each sample should be numbered for identification and bear the name and address of the sender. All shipments must be delivered to the Minnesota School of Mines and Metallurgy, charges prepaid. Shipping tags will be furnished upon request.

Address all communications to William R. Appleby, Director, Minnesota School of Mines and Metallurgy Experiment Station, the University of Minnesota, Minneapolis, Minnesota.

ADMISSION

The courses leading to the degrees of engineer of mines, engineer of mines (in geology), engineer of mines (in petroleum), and metallurgical engineer may be completed in four years.

Freshmen will be divided into two sections as follows:

a. Those entering with credits in higher algebra and solid geometry.

b. Those entering without credits in higher algebra and solid geometry.

Students in section b will carry a special course in mathematics during their freshman year.

Details as to admission and entrance requirements, description of subjects accepted for admission, and list of fees and expenses will be found in the bulletin of general information, which will be sent to any address upon application to the registrar, the University of Minnesota, Minneapolis.

UNCLASSED STUDENTS

No unclassified students will be admitted to the School of Mines and Metallurgy.

ADMISSION TO ADVANCED STANDING

Students who desire to obtain advanced standing must present their applications and certificates to the department concerned, obtain a written statement from the department, showing the exact credit allowed, and present this to the Enrolment Committee of the School of Mines and Metallurgy.

CREDIT FOR OUTSIDE WORK

Credit for certain courses, as a result of work done outside of the regular classes, may be obtained by satisfactorily passing comprehensive examinations.

Work done outside of class includes work done by correspondence, by the aid of a private tutor, by individual study, through practical experience, or otherwise.

The comprehensive examination will be conducted by a committee appointed by the head of the department in which the course is given.

Permission to take the examination must be obtained from the Students' Work Committee, and the usual fee of \$5 for a special examination must be paid unless it be taken within six weeks after first entering the University.

FEEs

Tuition fee (per quarter)	
Residents of Minnesota.....	\$30.00
Non-residents	40.00
Incidental fee (per quarter).....	6.00
Deposit (first quarter only)	5.00
Military deposit (required of all students taking drill).....	10.00
Special fees	
Examination for removal of condition.....	1.00
Examination for credit (after the first six weeks in residence)	5.00
Special examination	5.00
Chemistry deposit	5.00
Graduation fee	10.00

Penalty Fees

Registration penalties.—A penalty fee for late registration, late change of registration, or late payment of fees shall be two dollars (\$2) and one dollar (\$1) additional for each day of delay after classes begin, provided

that no student shall pay more than twelve dollars (\$12) penalty in any quarter.

COST OF FIELD TRIPS

The approximate cost of the field trips is \$150 for the northern trip taken at the end of the sophomore year and \$225 for the western trip taken at the end of the junior year.

GRADUATION

Students completing courses of study to the satisfaction of the faculty are entitled to receive the appropriate degrees. Any person may undergo, at suitable times, examination in any subject. If such person pass in all the studies and exercises of a course, he is entitled to the appropriate degree, provided that at least the full year be spent at the University before such degree shall be granted, and provided the examination in every case be held before a committee of the faculty appointed for that purpose.

Seniors must be in regular attendance at all classes until after the final examination for the third quarter. Irregular attendance will debar a student from entering all final examinations.

THESIS

The thesis work is intended to bring in review and connect the work in mining and metallurgy, geology and mineralogy, mechanical and electrical engineering, mathematics and mechanics.

It has been found that this purpose is most satisfactorily accomplished by assigning to each student a project, embracing the prospecting, development, and equipment of a group of mining claims, for candidates for the degree of engineer of mines; the investigation of a problem in mining geology, for candidates for the degree of engineer of mines (in geology); the investigation of an oil field problem, for candidates for the degree of engineer of mines (in petroleum); and the investigation of a metallurgical or metallographic problem, for candidates for the degree of metallurgical engineer.

As much latitude as possible will be allowed the student in the choice of his problem. He must select a suitable problem during the summer preceding the senior year. Outlines are furnished setting forth the lines of investigation necessary to obtain the required data. The junior field work affords opportunity therefor.

Prior to October 25 each student is required to submit to the department concerned an outline embodying the principal features of the problem. Unless this outline is submitted when due and is accepted by the department, registration for the first semester, senior year, may be cancelled.

All preliminary work must be done and final work on the project must be under way by December 1. On April 7 the text of the thesis must be completed and submitted for final approval. Completed work (typewritten and bound) together with all tracings and one set of clear blue prints therefrom must be in and accepted not later than April 27. Theses will not be accepted or examined after these dates. Unless the above conditions are complied with no student can expect to graduate with his class.

These theses shall become the property of the school.

SPECIAL NOTES

Students failing to receive a quarter mark of 75 per cent in any subject shall have the privilege of a supplementary examination before the opening of the following year.

Each student must obtain from the registrar his average in all subjects and present himself for supplementary examinations, according to the program to be found in a booklet on examinations issued during the summer.

Failure of the registrar to notify a student of deficiencies will not be accepted as a reason for neglecting to report for necessary supplementary examinations. Students failing to report for supplementary examinations will be compelled to take work over in class as in case of failures.

Students having deficiencies in any subject will become members of the class in which such subject is a part of the program for the year and must register for all deficiencies. They may take in addition certain other subjects not more than one year in advance of their class. Students having deficiencies can be registered for mining, mining engineering, and metallurgical courses only by special vote of the faculty.

Students failing to receive a quarter mark of 65 per cent in any subject shall not be allowed to pursue any dependent subject except by permission of the faculty. A student may be permitted to take the dependent subject conditionally for six weeks, at the end of which time he must have a passing grade in the subject if he is to continue it for the remainder of the quarter.

The faculty may exclude students from attending classes in any subject upon recommendation of the department concerned.

All students must report in time to make suitable arrangements with departments concerned in case of conflicts in program.

Students failing to present themselves for final examination for any quarter will be given zero on the examinations.

Students whose absences in any quarter exceed 20 per cent of the scheduled class hours will not be permitted to take examinations without special permission of the faculty.

Sophomores and juniors who, at the end of the winter quarter, are deficient in 15 hours or more of any subject, or who, at the end of the spring quarter examination period for sophomores and juniors are deficient in any subject of the preceding year will not be eligible to take the spring field trip unless declared eligible by a special vote of the faculty. Sophomores who are deficient in one or more quarters of surveying will not be eligible for the sophomore field trip unless recommended for the trip by the Department of Mining Engineering and declared eligible by the faculty.

During the academic year students will be held responsible for the receipt of official communications sent to them through the university post-office. During the summer vacation they will be held responsible for the receipt of such communications sent to the home address given on registration blank for the preceding academic year, unless formal notification of their correct address is filed with the registrar and the dean.

COURSES OF STUDY

UNIFORM CURRICULUM TO END OF SOPHOMORE YEAR

The courses leading to the degrees of engineer of mines, engineer of mines (in petroleum), engineer of mines (in geology), and metallurgical engineer are uniform for the first two years.

Freshmen will be divided into two sections as follows:

- a. Those entering with credits in advanced algebra and solid geometry.
- b. Those entering without credits in advanced algebra and solid geometry.

Subjects with the prefix a are to be taken by freshmen in section a; those with the prefix b are to be taken by freshmen in section b; and those without prefix are to be taken by students of both sections.

FRESHMAN YEAR

First Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Chemistry	14f*	General Inorganic	3†	6†	.....
Drawing	11f	Eng. Drawing	..	10	.....
Geology	1f	General Geology	3	1	.....
a. Mathematics	2f	Algebra	6	..	.....
b. Mathematics	1f	Alg. and Solid Geom.	6	..	.....
Military Science	1	Basic Course, R.O.T.C.	3	..	.....

Second Quarter

Chemistry	15w	General Inorganic	3	6	Chem. 14f
Drawing	12w	Eng. Drawing	..	4	Draw. 11f
Geology	23w	Elements of Mineralogy	3	4	Geol. 1f
Mathematics	4w	Trigonometry	6	..	Math. 1f or 2f
Metallurgy	1w	Assaying	4	..	Chem. 14f, Geol. 1f
Metallurgy	2w	Assaying Laboratory	..	8	Chem. 14f, Geol. 1f
Military Science	1	Basic Course, R.O.T.C.	3	..	.....

Third Quarter

Chemistry	16s	Qualitative Analysis	3	6	Chem. 15w
Drawing	13s	Eng. Drawing	..	8	Draw. 12w
Geology	24s	Elements of Mineralogy	3	4	Geol. 23w
Mathematics	5s	Analytical Geometry	6	..	Math. 4w
b. Mathematics	3s	Algebra	4	..	Math. 1f
Military Science	1	Basic Course, R.O.T.C.	3	..	.....

* The suffixes f, w, or s, after the course number indicate the quarter in which a course is offered—fall, winter, or spring quarter, respectively. Two or three suffixes indicate that a course is offered in each of the corresponding quarters.

† Figures following the descriptive name of a course indicate number of hours per week. Course names following indicate prerequisite courses.

SCHOOL OF MINES AND METALLURGY

SOPHOMORE YEAR

First Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Drawing	14f	Descriptive Geome	3	..	Draw. 13s
Geology	105f	Rock Study	..	4	Geol. 24s
Mathematics	6f	Calculus	4	..	Math. 5s
Metallurgy	3f	General	3	..	Met. 1w, 2w, Chem. 16s
Mining Engineering	1f	Mine Surveying	3	..	Math. 4w
Physics	3f	Elements of Mechanics	..	..	Math. 5s
Physics	4f	Mechanics Laboratory	..	2	Math. 5s
or Mechanics	51f	Elementary Tech. Mech.	4	..	Math. 5s
Mil. Sci.	2a, 2b, or 2c	Basic Course, R.O.T.C.	3	..	.....

Second Quarter

Anal. Chemistry	9w	Quantitative Analysis	1	7	Chem. 16s
Drawing	15w	Drafting	..	4	With Draw. 14w
Geology	2w	Historical	3	..	Geol. 1f
Geology	106w	Petrography	..	4	Geol. 105f
Mathematics	7w	Calculus	3	..	Math. 6f
Metallurgy	4w	Met. of Pig Iron	3	..	Met. 3f
Mining Engineering	2w	Mine Surveying	3	..	Min. Eng. 1f
Physics	23w	Heat	3	..	Phys. 3f
Physics	24w	Heat Laboratory	..	2	Phys. 4f
or Mechanics	52w	Elementary Tech. Mech.	4	..	Mech. 51f
Mil. Sci.	2a, 2b, or 2c	Basic Course, R.O.T.C.	3	..	.....

Third Quarter

Geology	84s	Field Methods	..	4	Geol. 2w, 104f
Mathematics	8s	Calculus	6	..	Math. 7w
Metallurgy	5s	Wrought Iron and Steel	3	..	Met. 4w
Mining	21s	Introductory Mining	4	..	.....
Mining Engineering	3s	Mine Surveying	3	4	Min. Eng. 2w
Physics	43s	Magnetism & Electricity	3	..	Phys. 3f
Physics	44s	Magnetism & Elec. Lab.	..	2	Phys. 4f
or Mechanics	53s	Elementary Tech. Mech.	4	..	Mech. 52w
Mining Engineering	4s	Field Work beginning about May 1	7 weeks		Soph. year
Geology	85	Field Work beginning about June 20	2 weeks		Soph. year

JUNIOR AND SENIOR YEARS

COURSES LEADING TO THE DEGREE OF ENGINEER OF MINES

JUNIOR YEAR

First Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Exp. Eng., M.E.	35f	Elementary Lab.	..	4	With Mech. 112f
Geology	73f	Economics	3	..	Geol. 2s, 105f
Mechanics	109f	Mechanics	5	..	Math. 8s
Mechanics	112f	Mine Plant	6	..	Math. 8s
Metallurgy	106f	Base Metals	4	..	Met. 3f
Metallurgy	110f	Ore Dressing	3	..	Phys. 43s, Geol. 24s
Mining	131f	Exploration	5	..	Mining 21s

COURSES OF STUDY

11

Second Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Exp. Eng., M.&M.	144W	Materials Testing Lab.	..	4	With Mech. 110W
Mechanics	110W	Mechanics of Materials	5	..	Mech. 109f
Mechanics	113W	Mine Plant	6	..	Mech. 112f
Metallurgy	107W	Base Metals	4	..	Met. 106f
Metallurgy	111W	Ore Dressing	3	..	Met. 110f
Mining	132W	Development	5	..	Min. 131f
Mining Eng.	105W	Mine Mapping	..	6	Min. Eng. 48

Third Quarter

Mechanics	111S	Mechanics	5	..	Mech. 110W
Mechanics	114S	Mine Plant	6	..	Mech. 113W
Metallurgy	108S	Precious Metals	4	..	Met. 107W
Metallurgy	115S	Ore Dressing Lab.	..	6	Met. 111W
Mining	130S	First Aid and Mine Rescue	..	1 week	.....
Mining	134S	Mining Methods	5	..	Min. 132W
Mining Eng.	107S	Mine Mapping	..	6	Min. Eng. 105W
Metallurgy	116S	Field Work in Metallurgy beginning about May 1	..	10 days	Junior year
Mining	135S	Field Work in Mine Plant and Mining beginning about May 1	..	2 weeks	Junior year

SENIOR YEAR

First Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Electrical Eng.	41f	Electric Power	2	3	Phys. 43S, or Mech. 53S
Geology	111f	Ore Deposits	3	..	Geol. 73f, 106W
Mechanics	117f	Water Power	5	2	Mech. 111S
Mechanics	118f	Eng. Construction	..	8	Mech. 111S
Metallurgy	119f	Ore Testing	2	..	Met. 108S
Metallurgy	120f	Ore Testing Lab.	..	8	Met. 108S
Mining	141f	Mine Examinations	2	..	Min. 134S
Mining	142f	Contracts	3	..	.....
Mining	146f	Thesis	..	2	Min. 134S

Second Quarter

Exp. Eng., M.E.	147W	Advanced Lab.	..	4	Exp. Eng. 35f
Geology	112W	Petroleum	3	..	Geol. 111f
Geology	115W	Applied Geology	3	..	Geol. 73f, 111f
Mechanics	119W	Mine Plant Design	..	9	Mech. 118f
Metallurgy	121W	Special Problems	..	4	Met. 119f
Mining	143W	Coal Mining	3	..	Min. 141f
Mining	144W	Mining Law	2	..	Min. 141f
Mining	147W	Thesis	..	12	Min. 146f

Third Quarter

Geology	113S	Problems in Ore Dep's	..	4	Geol. 112W
Mechanics	120S	Mine Plant Design	..	12	Mech. 119W
Metallurgy	122S	Special Problems	..	8	Met. 121W
Mining	145S	Placers and Quarries	5	..	Min. 143W
Mining	148S	Thesis	..	12	Min. 147W

DEPARTMENT OF MINING

The department is well supplied with samples of the smaller mine equipment, models, drawings, photographs, lantern slides, and mine maps. The lectures treat of prospecting, development, support of excavations, mining methods, mine administration, mining law, and the necessary allied subjects. The courses in mining extend through the sophomore, junior, and senior years.

FIELD WORK IN MINING

JUNIOR YEAR

At the end of the junior year students are required to study mine plant and mining methods in one or more mining districts under the direction of members of the faculty. This work begins about May 15, and not over three weeks will be devoted to it. The work is carried on in the leading western metal mining districts, the exact location to be announced in April of each year. The expenses for the trip are estimated at \$225. A deposit of \$50 must be made before starting on the trip to cover board and lodging and necessary side trips. Any balance will be returned at the close of the work in the field.

All notes, data, and sketches, necessary for a complete report on the field work, must be fully and neatly recorded in notebooks. These notebooks will be collected at the close of the trip and returned to the student at the reopening of field work at the school. In judging the character of the student's field work, equal importance will be attached to the completed report and to the original field notes. The department reserves the right to reject notebooks considered below the standard that should be demanded of candidates for senior work. During the months of June, July, and August, the student is urged to spend at least six weeks in actual underground mining work in the West for which he may receive wages. The department will render all possible assistance in locating students in districts of their choice.

Field work will reopen at the School of Mines and Metallurgy on Monday of Freshman Week for a period of three weeks. No senior will be registered after that date. Electric Power and Ore Deposits will be carried in addition to field work after the regular university class work starts.

The final reports covering field work in mining and metallurgy must be prepared at the School of Mines and Metallurgy under the direct supervision of the department concerned. A typewritten report on field work, fully illustrated with drawings, to scale, made from the field sketches, covering mining, metallurgical and milling operations, and details of plant and equipment, must be submitted. These reports shall become the property of the school. Class work in the remaining subjects of the first quarter, senior year, will begin when the final field work reports are accepted.

The completion of sophomore and junior field work is a requisite for graduation, and satisfactory evidence thereof must be submitted to the department. Should a student, for sufficient reason, fail to complete this work in regular course, he may, with the consent of the department, be

permitted to pursue his regular studies. In all such cases, however, the degree will be withheld until all field work is completed.

DEPARTMENT OF MINING ENGINEERING

MINE SURVEYING

The work in surveying is given in the sophomore year and is designed primarily for mining engineers. The work begins with the elements of plane surveying, with special reference to the computations necessary, followed by the higher theoretical work in plane surveying and its application to the problems met in underground surveying. Beginning about May 1, the class devotes seven weeks to field work at some convenient point on the Mesabi, Cuyuna, or Vermilion Range. The exact location will be announced in March of each year. The expenses for this trip are estimated at \$150.

The students will be divided into squads of two to four. Each student will be required to complete satisfactorily a practical course in plane and underground surveying including exercises in chaining and taping; adjustment and use of surveying instruments, solar and stellar observations; laying out railroad tangents and curves; making earthwork estimates; solving three-point problem by use of a plane table; and other problems. In addition each squad will be required to make a yardage estimate of the stripping of an open-pit mine; to transfer a meridian, from the surface, underground and make a complete survey of an underground mine.

The data obtained will be used in the course in mine mapping during the winter quarter of the junior year, and credit for field work is withheld until maps of the underground survey are satisfactorily completed.

A full equipment of surveying instruments of the latest and best types is furnished each squad for this work.

COURSES LEADING TO THE DEGREE OF ENGINEER OF MINES IN GEOLOGY

JUNIOR YEAR

First Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Geology	61f	Blowpipe Analysis	2	4	Geol. 24s
	or 65f	or Crystallography	2	4	Geol. 24s
Geology	73f	Economic	3	..	Geol. 2s, 105f
Geology	131f	Advanced Petrology	3	3	Geol. 2s, 106w
Geology	151f	Advanced General	3	..	Geol. 73f
Mechanics	109f	Mechanics	5	..	Math. 8s
Mining	131f	Exploration	5	..	Min. 21s
Elective	....	.....	3	..	.....

SCHOOL OF MINES AND METALLURGY

Second Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Geology	124w	Struct. & Metamorphic	3	..	Geol. 73f, 105f
Geology	132w	Advanced Petrology	3	3	Geol. 2s, 106w
Geology	144w	Geologic Maps	..	6	Geol. 73f
Geology	152w	Advanced General	3	..	Geol. 73f
Mechanics	110w	Mechanics of Materials	5	..	Mech. 109f
Mining	132w	Development	5	..	Min. 131f
Mining Eng.	105w	Mine Mapping	..	6	Min. Eng. 4s
Elective	....	.....	3	..	.....

Third Quarter

Geology	125s	Struct. & Metamorphic	6	..	Geol. 73f, 105f
Geology	133s	Advanced Petrology	3	3	Geol. 2s, 106w
Geology	145s	Geologic Maps	..	12	Geol. 73f
Geology	153s	Advanced General	3	..	Geol. 73f
Mechanics	111s	Mechanics	5	..	Mech. 110w
Mining	134s	Mining Methods	5	..	Min. 132w
Geology	150s	Field Work beginning about May 1	6 weeks	Geol. 125s	

SENIOR YEAR

First Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Geology	91f	Paleontology	3	..	Geol. 2s
Geology	111f	Ore Deposits	3	..	Geol. 73f, 106w
Metallurgy	110f	Ore Dressing	3	..	Phys. 43s, Geol. 24s
Mining	141f	Mine Examinations	2	..	Min. 134s
Mining	142f	Contracts	3	..	.....
Thesis	....	.....	..	8	.....
Electives	....	.....	6	..	.....

Second Quarter

Geology	92w	Paleontology	3	..	Geol. 2s
Geology	112w	Petroleum	3	..	Geol. 111f
Geology	137w	Testing Econ. Materials	1	4	Geol. 73f
Geology	140w	Applied Petrography	1	4	Geol. 111f, 133s
Geology	166w	Mineralography	..	6	Geol. 111f
Metallurgy	111w	Ore Dressing	3	..	Met. 110f
Mining	143w	Coal Mining	3	..	Min. 141f
Mining	144w	Mining Law	2	..	Min. 141f
Thesis	....	.....	..	8	.....

Third Quarter

Geology	93s	Paleontology	3	..	Geol. 2s
Geology	113s	Prob. in Ore Deposits	..	4	Geol. 112w
Geology	141s	Applied Petrography	1	4	Geol. 111f, 133s
Geology	167s	Mineralography	..	6	Geol. 111f
Metallurgy	115s	Ore Dressing Lab.	..	6	Met. 111w
Thesis	....	.....	..	8	.....

FIELD WORK IN GEOLOGY

At the end of the sophomore year mining students are required to devote about two weeks to geologic mapping. This course usually comes after a seven-week course in surveying and the fields chosen are the Ver-

million and Mesabi iron ranges of Minnesota. This work is intended to train the students in the interpretation of field relations and the preparation of geologic maps and cross sections.

The second field course in geology is required only of those students who are candidates for the engineer of mines (in geology) degree. The course begins early in May and is completed in June. The course requires altogether about six weeks' work, and the field chosen is the Black Hills region of South Dakota or some other western region. The expenses of the trip are estimated at \$225. A deposit of \$50 must be made before starting on the trip to cover lodging and necessary side trips. Any balance will be returned at the close of the work in the field. The student is trained in interpretation of field data; in detailed mapping, underground and on the surface; in the preparation of geologic cross sections through mines; and he may gather material which will serve as a basis for future study in advanced courses the following year. The work conforms to the standards of official surveys as nearly as practicable. In preparation for the trip a lecture of one hour per week will be scheduled for part of the third quarter preceding the trip. At the close of the field season the students are expected to obtain positions with mining companies either as miners or as engineers, or if openings are available, they may enter geological surveys for the season's work.

Field work in geology for students having taken either of the above trips will reopen at the School of Mines and Metallurgy on Wednesday of Freshman Week. The final reports covering the field work must be prepared at the School of Mines and Metallurgy under the direct supervision of the Department of Geology. These reports are to be turned in to the department on the Monday following.

COURSES LEADING TO THE DEGREE OF ENGINEER OF MINES IN PETROLEUM

JUNIOR YEAR

First Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Exp. Eng.	35f	Elementary Laboratory	..	4	With Mech. 112f
Geology	73f	Economic	3	..	Geol. 2s, 105f
Geology	151f	Advanced General	3	..	Geol. 73f
Mechanics	109f	Mechanics	5	..	Math. 8s
Mechanics	112f	Mine Plant	6	..	Math. 8s
Pet. Eng.	131f	Oil Field Development	5	..	Min. 21s
Elective	....	.....	4	..	.....

Second Quarter

Geology	124w	Struct. & Metamorphic	3	..	Geol. 73f, 105f
Geology	152w	Advanced General	3	..	Geol. 73f
Mechanics	110w	Mechanics of Materials	5	..	Mech. 109f
Mechanics	113w	Mine Plant	6	..	Mech. 112f
Min. Eng.	106w	Mine Mapping	..	3	M.E. 4s
Pet. Eng.	132w	Oil Field Development	5	..	Pet. Eng. 131f
Elective	....	.....	4	..	.....

Third Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Geology	123s	Struct. & Metamorphic	6	..	Geol. 73f, 105f
Geology	133s	Advanced Petrology	3	3	Geol. 2s, 106w
Geology	153s	Advanced General	3	..	Geol. 73f
Mechanics	111s	Mechanics	5	..	Mech. 110w
Mechanics	114s	Mine Plant	6	..	Mech. 113w
Pet. Eng.	151s	Petroleum Refining	5	..	.....
Pet. Eng.	135s	Field Work	3 weeks		Junior year

SENIOR YEAR

First Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Geology	91f	Paleontology	3	..	Geol. 2s
Geology	111f	Ore Deposits	3	..	Geol. 73f, 106w
Mechanics	117f	Hydraulics	5	2	Mech. 111s
Mechanics	118f	Engineering Const.	..	8	Mech. 111s
Pet. Eng.	141f	Administration	5	..	Min. 134s
Pet. Eng.	144f	Thesis	..	6	Min. 134s
Electives	....	.....	5	..	.....

Second Quarter

Chemistry	168w	Petroleum & Pet. Prod.	1	4	.....
Geology	92w	Paleontology	3	..	Geol. 2s
Geology	102w	Micropaleontology	..	6	Geol. 91f or 111f
Geology	112w	Petroleum	3	..	Geol. 111f
Geology	144w	Geologic Maps	..	6	Geol. 73f
Mechanics	119w	Engineering Const.	..	9	Mech. 118f
Pet. Eng.	142w	Production Technology	5	..	Pet. Eng. 141f
Pet. Eng.	145w	Thesis	..	6	Pet. Eng. 144f

Third Quarter

Geology	93s	Paleontology	3	..	Geol. 2s
Geology	103s	Micropaleontology	..	6	Geol. 102w
Geology	145s	Geologic Maps	..	12	Geol. 73f
Pet. Eng.	143s	Production Technology	5	..	Pet. Eng. 142w
Pet. Eng.	146s	Thesis	..	12	Pet. Eng. 145w

FIELD WORK IN PETROLEUM ENGINEERING

JUNIOR YEAR

At the end of the junior year students are required to study petroleum production and refining in one or more districts under the direction of members of the faculty. This work begins about May 15 and not over three weeks will be devoted to it. The expenses for this trip are estimated at \$225. A deposit of \$50 must be made before starting on the trip to cover board and lodging and necessary side trips. Any balance will be returned at the close of the work in the field.

All notes, data, and sketches, necessary for a complete report on the field work, must be fully and neatly recorded in notebooks. These notebooks will be collected at the end of the trip and returned to the student at the reopening of field work at the school. In judging the character of the student's field work, equal importance will be given to the completed

report and to the original field notes. Notebooks considered below the standard that should be demanded of candidates for senior work may be rejected by the faculty members in charge. Upon termination of the field trip, candidates for the degree of engineer of mines (in petroleum) are urged to spend at least six weeks in practical work in one of the oil districts, for which they may receive wages. The faculty members in charge will render all possible assistance in locating students in suitable positions.

Field work will reopen at the School of Mines and Metallurgy on Monday of Freshman Week for a period of three weeks. No senior will be registered after that date. Paleontology and Ore Deposits will be carried in addition to field work after the regular university class work starts.

The final reports covering field work in petroleum production and refining must be prepared at the School of Mines and Metallurgy under the supervision of the departments concerned.

A typewritten report on field work, fully illustrated with drawings, to scale, made from the field sketches, covering production methods and details of plant and equipment, must be submitted. These reports shall become the property of the school.

The completion of sophomore and junior field work is a requisite for graduation, and satisfactory evidence thereof must be submitted to the department. Should a student, for sufficient reason, fail to complete this work in regular course, he may, with the consent of the department, be permitted to pursue his regular studies. In all such cases, however, the degree will be withheld until all field work is completed.

COURSES LEADING TO THE DEGREE OF METALLURGICAL ENGINEER

JUNIOR YEAR

First Quarter

Depr.	No.	Title	Lect.	Lab.	Prereq.
Geology	73f	Economic	3	..	Geol. 25, 105f
Mechanics	109f	Mechanics	5	..	Math. 8s
Mechanics	112f	Mine Plant	6	..	Math. 8s
Metallurgy	106f	Base Metals	4	..	Met. 3f
Metallurgy	110f	Ore Dressing	3	..	Phys. 43s, Geol. 24s
Metallurgy	112f	Ore Dressing Lab.	..	4	Phys. 43s, Geol. 24s
Metallurgy	153f	Metallography	3	4	Chem. 28w, Phys. 43s

Second Quarter

Mechanics	110w	Mechanics of Materials	5	..	Mech. 109f
Mechanics	115w	Metallurgical Plant	3	..	Mech. 112f
Metallurgy	107w	Base Metals	4	..	Met. 106f
Metallurgy	111w	Ore Dressing	3	..	Met. 110f, 112f
Metallurgy	113w	Ore Dressing Lab.	..	4	Met. 110f, 112f
Metallurgy	154w	Metallography	3	4	Met. 153f
Mining	133w	Elementary Mining	5	..	Min. 21s
Mining Eng.	106w	Mine Mapping	..	3	Min. Eng. 4s

Third Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Mechanics	111s	Mechanics	5	..	Mech. 110w
Mechanics	116s	Metallurgical Plant	3	..	Mech. 115w
Metallurgy	108s	Precious Metals	4	..	Met. 107w
Metallurgy	114s	Ore Dressing Lab.	..	6	Met. 111w, 113w
Metallurgy	155s	Metallography	3	4	Met. 154w
Mining	130s	First Aid and Mine Rescue, 1 week	..	..	.....
Mining Eng.	107s	Mine Mapping	..	3	Min. Eng. 4s
Metallurgy	116s	Field Work in Metallurgy beginning about May 1	10 days	..	Junior year
Mining	139s	Field Work in Mine Plant and Mining beginning about May 1	2 weeks	..	Junior year

SENIOR YEAR

First Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Electrical Eng.	41f	Electric Power	2	3	Phys. 43s or Mech. 53s
Mechanics	117f	Water Power	5	2	Mech. 111s
Metallurgy	119f	Ore Testing	2	..	Met. 108s
Metallurgy	120f	Ore Testing Lab.	..	8	Met. 108s
Metallurgy	124f	Thesis	..	8	.....
*Electives	....	.....	6	..	.....

Second Quarter

Metallurgy	117w	Advanced Metallurgy	4	6	Met. 108s
Metallurgy	121w	Special Problems	..	4	Met. 119f
Metallurgy	125w	Thesis	..	18	Met. 124f
*Electives	....	.....	6	..	.....

Third Quarter

Metallurgy	118s	Advanced Metallurgy	4	6	Met. 117w
Metallurgy	122s	Special Problems	..	8	Met. 121w
Metallurgy	126s	Thesis	..	18	Met. 125w
*Electives	....	.....	6	..	.....

* It is recommended that electives be taken from the following courses: Met. 123f, Electrometallurgy; Met. 130f, 131w, 132s, Special Problems; Met. 163f, 164w, 165s, Advanced Metallography; Mech. 118f, 119w, 121s, Engineering Construction.

DEPARTMENT OF METALLURGY

This department is well supplied with representative ores of all the most important metals, drawings of furnaces, and models and samples of all the different furnace products. The lectures treat of all the principal methods now in use. The practical work consists in visits to smelting and refining works which are accessible. The work in metallurgy extends through four years.

ASSAYING

The lectures treat of, and describe, apparatus, reagents, assay furnaces, fuels, etc., in connection with this subject. The principles of assaying and sampling are fully explained. A collection of representative ores of vari-

ous metals with a collection of corresponding slags is shown, and instruction is given as to nature and quality of fluxes. Special and rapid methods of testing slags and metallurgical products as employed in western smelting works are emphasized.

The laboratory course includes preparing and testing reagents, making cupels, etc., and assaying samples of ores, furnace and mill products, and bullion; different charges are tried and practical conclusions drawn.

Great importance is attached to the work of the laboratory. A large, well-ventilated furnace room in which are located muffle and crucible furnaces, and another room of similar dimensions equipped with desks, pulp and bead balances, afford accommodations to a large number of students. Ores of various metals of known value are given the students who are required to make up the necessary charges and submit their report in detail. This work is offered to students completing the necessary course in mineralogy and chemistry.

ORE DRESSING

The lectures and recitations in ore dressing extend through the junior year, and comprise a detail study of ore dressing and concentrating machinery, together with a study of typical combinations of dressing machines as found in the various mining districts of the United States. In connection with the theoretical work, the ore dressing laboratory and testing plant of the school are utilized for illustration, and practical use of ore dressing machinery.

ORE TESTING

The lectures treat of the problems in ore testing such as extraction and losses in roasting, concentration, and other milling operations. Both the ore dressing laboratory and the Mines and Metallurgy Experiment Station laboratory are available for working out practical problems. The Mines and Metallurgy Experiment Station laboratory is maintained to aid the mining interests of the state of Minnesota in solving problems connected with concentration and conservation of the iron and manganese ores in the state.

The School of Mines and Metallurgy laboratories therefore serve both educational and commercial needs.

Educational.—The student becomes familiar with the use of the various types of machines such as crushers, rolls, classifiers, concentration and flotation machinery.

Commercial.—The laboratories are used by the Mines and Metallurgy Experiment Station to determine the best methods of treatment to produce a commercial product at the lowest cost. Recently additional commercial machinery has been obtained and new appliances are constantly being developed. Commercial samples varying from 500 pounds to carload lots can be treated by various methods.

FIELD WORK IN METALLURGY

At the end of the junior year students are required to study practical operations at one or more smelters and mills. This begins about May 15.

The expenses for this trip are estimated at \$225. A deposit of \$50 must be made before starting on the trip to cover board and lodging and necessary side trips. Any balance will be returned at the close of the work in the field.

All notes, data, and sketches, necessary for a complete report on the field work, must be fully and neatly recorded in notebooks. These notebooks will be collected at the end of the trip and returned to the student at the reopening of field work at the school. In judging the character of the student's field work equal importance will be given to the completed report and to the original field notes. The department reserves the right to reject notebooks considered below standard.

Upon termination of the junior field work in metallurgy and two weeks in mining and mine plant, the members of the junior class who are candidates for the degree of metallurgical engineer are urged to spend at least six weeks in practical work in one or more of the smelters or mills, for which they may receive wages. The department will render all possible assistance in locating students in districts of their choice.

Field work will reopen at the School of Mines and Metallurgy on Monday of Freshman Week for a period of three weeks. No senior will be registered after that date. Electric Power and Ore Deposits will be carried in addition to field work after the regular university class work starts.

The final reports covering field work in metallurgy and mining must be prepared at the School of Mines and Metallurgy under the direct supervision of the departments concerned.

A typewritten report on field work, fully illustrated with drawings to scale, made from the field sketches, covering metallurgical and milling operations and details of plant and equipment must be submitted. These reports shall become the property of the school.

The completion of sophomore and junior field work is a requisite for graduation, and satisfactory evidence thereof must be submitted to the department. Should a student, for sufficient reason, fail to complete this work in regular course, he may, with the consent of the department, be permitted to pursue his regular studies. In all such cases, however, the degree will be withheld until all field work is completed.

METALLOGRAPHY

Courses in metallography are offered to candidates for the degree of metallurgical engineer in the School of Mines and Metallurgy, to students in the Colleges of Dentistry, Engineering and Architecture, Science, Literature, and the Arts, in the School of Chemistry, and in the Graduate School.

These courses deal with the study of metals and alloys. The lectures treat of, and describe, the apparatus used in connection with this subject, the method of preparing specimens, physical and metallographic principles involved, and the interpretation of the results of microscopic examination and thermal analysis. There is an elaborate file of references and abstracts

relating to the whole field of metallography, furnishing up-to-date information on the various phases of the work. A collection of specimens, photomicrographs, and lantern slides covering wrought iron, low carbon structural, rail, and tool steels, brasses, bronzes, and other industrial alloys is available for study and comparison. The laboratory course includes the microscopic and pyrometric study of metals and alloys. The laboratories are equipped with grinding and polishing apparatus, microscopes, photomicrographic apparatus, vacuum electric furnace, carbon resistance furnaces, nichrome and platinum resistance furnaces of various designs, gas furnaces, heat treating furnace, and pyrometers of the latest and improved type. This department has a special dark room for the preparation of photomicrographs.

DESCRIPTION OF COURSES

EXPLANATION OF COURSE NUMBERS

All undergraduate courses are numbered from 1 to 100. All courses open to undergraduates and graduates are numbered from 101 to 200. Strictly graduate courses are numbered from 201 up.

CHEMISTRY

9. Quantitative Analysis. A short 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. \$2 laboratory fee.
14. General Inorganic Chemistry. A study of the general laws of chemistry and of the non-metals, the metals, and their compounds. \$2 laboratory fee.
15. General Inorganic Chemistry. A continuation of Course 14. \$2 laboratory fee.
16. Qualitative Analysis. Laboratory work in systematic qualitative analysis with lectures on solutions, ionization, chemical and physical equilibrium, oxidation and reduction, etc. \$2 laboratory fee.
123. Advanced Analytical Chemistry. Analytical methods for the determination of the common constituents of iron ore, iron, and steel are discussed and compared, with emphasis upon the general principles involved. Typical problems are assigned for laboratory practice.
124. Advanced Analytical Chemistry. A survey of the methods of analytical chemistry applied to the analysis of minerals and ores. Typical procedures for laboratory practice serve as a basis for discussion of more general methods.

DRAWING

11. Engineering Drawing. Sketching, lettering, representation, elements of drafting, details of machines and structures, interpretation of working drawings.
12. Engineering Drawing. Continuation of Course 11. The elements of general drafting, mechanical drawing as a language. Lines, views, dimensions, standards, signs, abbreviations, and explanatory notes.
13. Engineering Drawing. Continuation of Course 12. The elements of general drafting. Maps and sketches. Brush and pen conventions.
14. Descriptive Geometry. Projection; central and special cases, principles and application, representation of lines, planes, and solids, and of their relations; tangencies, intersections, and developments. Recitations, lectures, and solution of problems.
15. Drafting. Graphics, machine drafting, and structural drafting. Instruction in drafting room methods.

ELECTRICAL ENGINEERING

41. Electric Power. Elementary principles of continuous currents. Continuous current generators and motors. Elementary principles of alternating currents. Alternating current generators, transformers, and motors. Measurement of power. Elementary principles of transmission and distribution. Lectures, recitation, laboratory work.

EXPERIMENTAL ENGINEERING

MATHEMATICS AND MECHANICS

144. Materials Testing Laboratory. Investigation of physical properties of metals and engineering materials; wood, cement, ropes, etc., supplemented by lectures and materials of construction and methods of testing. Mining and metallurgical engineers.

MECHANICAL ENGINEERING

35. Elementary General Laboratory. Calibration of gages, anemometers, and gas meters. Physical tests of lubricating oils. Calibration of transmission dynamometer. Properties of steam; separating and throttling calorimeters; indicator and planimeter practice; valve setting. Tests of simple steam engine and steam pump.
147. Advanced General Laboratory. Tests of steam engines, steam turbines, gas engines, air compressors, fans, and blowers. Steam boiler trial. Calibration of V-notch weir. Tests of centrifugal pump, Pelton wheel, and hydraulic reaction turbine.

GEOLOGY AND MINERALOGY

1. General Geology. A synoptical treatment of materials of the earth and of geological processes. Physiographic, dynamic, and structural geology.
2. Historical Geology. The sequence of events in geologic history, with special reference to North America.
19. Elements of Paleontology. An introduction to the study of fossil organisms. Lectures supplemented by field excursions.
- 23-24. Elements of Mineralogy. Morphological, physical, chemical characters of minerals; occurrence, genesis, and uses of minerals; classification and description of common minerals; rock minerals, and common rocks. Determinative work in the laboratory, blowpipe analysis, sight identification.
61. Blowpipe Analysis. The determination of minerals by systematic blowpipe analysis.
65. Crystallography. Study of crystal models and space groups. Crystal drawings and measurements. Projections and mathematical calculations.
73. Economic Geology. Study of non-metallic minerals of economic value, and discussions of geologic guides to prospecting for these deposits.

84. Field Methods. General methods of field work necessary for Course 85.
85. Field Work. About two weeks in June are spent in geologic mapping of selected areas in the iron district of Minnesota. Involves preparation of geologic maps and written reports.
- 91-92-93. Index Fossils of North America. A study of fossil forms with special reference to those of geologic importance; faunas and their correlation.
101. Sedimentation. Origin and structure of sedimentary deposits; the interpretation of these in relation to paleogeography. Lectures and assigned readings.
105. Rock Study. The occurrence and genesis of igneous, sedimentary, and metamorphic rocks; their mineral and chemical composition; their structure, texture, and alteration. The classification and methods of identification and description of rocks.
106. Petrography. The identification and study of minerals and rocks by optical methods; the study of igneous rocks, crystalline schists, and metamorphic rocks. The origin and classification of rocks.
111. Ore Deposits. The nature, distribution, and genesis of ore deposits of the United States; relations of ore deposits to geologic structure; the deformation and superficial alteration of ore deposits.
112. Geology of Petroleum. The nature, origin, and accumulation of petroleum; discussion of the various oil fields of the world.
113. Problems in Ore Deposits. Field excursions, map work, lectures on field and laboratory methods.
115. Applied Geology. The application of methods to laboratory, library, and field problems in geology.
- 124-125. Structural and Metamorphic Geology. A study of the principles and application of structural geology. The conditions, processes, and results of metamorphism.
127. Geology of the Lake Superior Region. Structure and correlation of districts. Interpretation of field notes and survey reports. Practical problems. The use of geologic bibliographies and literature.
- 131-132-133. Advanced Petrology. Advanced optical methods. Criteria for rapid identification of minerals and rocks. The uses of schedules and tables. Standard rock types. Regional and genetic studies. Petrographic reports.
137. Testing Economic Minerals. Methods of determining quality of mineral deposits, described and illustrated by laboratory tests of coal, clay, oil, building stone, and metallic ores.
- 140-141. Applied Petrography. Determination of ores and gangue minerals. Microscopic studies of paragenesis of ores and other mineral associations. Practical problem in mining and geology settled by microscopic and optical examinations.
- 144-145. Interpretation of Geologic Maps. Study and problems in construction and interpretation of geologic maps; recognition of structural and

- stratigraphic relations. Geology 124 should precede or accompany this course.
150. Field Geology. Detailed, systematic work conforming with standards of official surveys. Preparation of geologic maps, structure sections, reports; paragenesis of ores and their relations to geologic structures. Field, Black Hills, South Dakota. Reports to be written week before college opens in fall.
- 151-152-153. Advanced General Geology. Geologic processes and their results; development of the North American continent.
- 166-167. Mineralography. Methods of studying opaque minerals and the application of the methods to problems in ore genesis and history.
246. Pre-Cambrian Geology. The problems of pre-Cambrian correlation and structure; the pre-Cambrian stratigraphy of North America. (Given in alternate years.)

GERMAN

- 24-25-26. Beginning for Miners. Pronunciation, grammar, conversation; selected reading in easy prose.
27. Narrative Prose for Chemists. Reading, grammar review.
- 28-29. Chemical German. Selections from more difficult works on chemistry.

METALLURGY

1. Assaying. The determination of values of ores, metallurgical products by the fire method. Lectures and recitations.
2. Assay Laboratory. Practical determination of gold, silver, lead, and tin by the fire method.
3. General Metallurgy. Combustion, fuels, refractory materials, furnaces and fluxes. Lectures and recitations.
4. Metallurgy of Pig Iron. General principles of iron blast furnace practice. Construction of furnace, handling of stock, and products; principles of regulation. Lectures and recitations.
5. Metallurgy of Wrought Iron and Steel. General principles involved in the production of wrought iron and steel. Lectures and recitations.
9. Introductory Metallurgy. General principles of furnace practice.
106. Metallurgy of Base Metals. Lead, copper, zinc, and mercury. Consideration of smelting methods and principles involved in refining. Lectures and recitations.
107. Metallurgy of Base Metals. Continuation of Course 106.
108. Metallurgy of the Precious Metals. Principles involved in methods used in the extraction of gold, silver, and other precious metals. Lectures and recitations.
109. Metallurgy of Base Metals. Short course for mechanical engineers. Special consideration is given to the mechanical appliances.
109. Metallurgy of Base Metals. Short course for electrical engineers. Special consideration is given to electrical appliances. Lectures and recitations.

110. Ore Dressing. Crushing, sizing, classification, and concentration of ores. Lectures and recitations.
111. Ore Dressing. Continuation of Course 110.
112. Ore Dressing Laboratory. Practical examination of ores and the use of ore dressing machinery.
113. Ore Dressing Laboratory. Practical problems in ore dressing.
114. Ore Dressing Laboratory. Continuation of Course 113.
115. Ore Dressing Laboratory. Short course in the laboratory use of ore dressing machinery.
116. Field Work in Metallurgy. Study of metallurgical operations at smelters and mills. Detail reports are required covering plants visited.
117. Advanced Metallurgy. Metallurgical calculations to determine heat balance and heat distribution. Lectures and laboratory work.
118. Advanced Metallurgy. Design of furnaces; conferences; and laboratory work.
119. Ore Testing. General principles involved in determining the best method of extraction, including amalgamation, concentration, cyanidation, roasting, etc. Lectures and recitations.
120. Ore Testing Laboratory. Practical determination of extraction and distribution of values in mill and metallurgical products. Methods of calculation.
121. Special Problems in Ore Testing. Continuation of Course 120. Practical determinations for regulating metallurgical operations.
122. Special Problems in Ore Testing. Continuation of Course 121.
123. Electrometallurgy. Application of electricity to production of heat for smelting ores and refining metals. Costs of fuel and electricity for heating, relative efficiencies of electric and fuel furnaces. Construction of high temperature furnaces and commercial plants.
124. Thesis in Metallurgy. Conferences to select suitable problem together with preliminary laboratory work on problem selected.
125. Thesis in Metallurgy. Continuation of Course 124.
126. Thesis in Metallurgy. Continuation of Course 125.
- 130-131-132. Special Problems in Metallurgy. Seminar work on metallurgical problems. Credits and hours to be arranged.
150. Metallography for Electrical Engineers. Principles of metallography, including pyrometry, thermal analysis, constitution diagrams, microscopic and photomicrographic technique; study of typical alloys with special reference to electrical resistance, conductivity, magnets, etc. Laboratory work and demonstrations.
151. Advanced Metallography for Electrical Engineers. Continuation of 150. Study of iron and steel, alloy steels, metals and alloys used in electrical engineering practice. Special problems for outside reading and for research. Laboratory work.
152. Metallography for Senior Aeronautical Engineers. Principles of metallography; metallography of iron and steel with special reference to alloy steels, and light alloys used in airplane construction. Laboratory work and demonstrations.

- 153-154-155. Metallography. (Long course for metallurgical engineers.) Theory of metallic alloys. Metallographic technique. Properties of metals and alloys. Metallography of iron and steel and commercial alloys. Technical metallography. Laboratory work.
156. Metallography for Mechanical Engineers. Principles of metallography, including pyrometry, thermal analysis, constitution, diagrams, microscopic and photomicrographic technique; metallography and heat treatment of iron and steel. Laboratory work.
157. Advanced Metallography for Mechanical Engineers. Continuation of 156. Metallography of alloy steels, tool steels, high speed tool steels, and important non-ferrous alloys; metallography applied to engineering practice and specifications. Outside reading and special reports. Laboratory work.
159. Dental Metallography. Study of the dental alloys from the standpoint of metallography. Lectures, recitations, and demonstrations, taking up the most important metals and alloys, with special reference to those used in dentistry.
160. Metallography for Chemical Students. Metallography, including constitution diagrams, preparation and standardization of thermocouples, preparation and thermal analysis of alloys, their microscopic examination and making photomicrographs; typical alloy systems such as iron-carbon (steel and cast iron); some non-ferrous alloys. Laboratory work.
161. Advanced Metallography for Chemical Students. Metallography and heat treatment of iron and steel, including alloy steels, commercial uses of various steels, and engineering specifications. Laboratory work.
162. Advanced Metallography for Chemical Students. Metallography of the non-ferrous metals with a study of the constitution diagrams, properties, and uses of important commercial alloys. Laboratory work.
163. Advanced Metallography. Seminar work on recent advances in metallography. Lectures and recitations, with outside reading and special reports. May be accompanied by laboratory work.
164. Advanced Metallography. Advanced consideration of the structures, properties, and uses of metals and alloys. May be accompanied by laboratory work.
165. Advanced Metallography. Technical metallography as applied to the automotive industry. Lectures and special reports. May be accompanied by laboratory work.
- 166-167-168. Laboratory. Laboratory work on special problems in ferrous, non-ferrous, and X-ray metallography.
- 201-202-203. Advanced Metallography for graduate students. Intended primarily for research work.
- 204-205-206. Special Problems in Advanced Metallurgy. Intended primarily for research work. Credits and hours to be arranged.
- 210-211-212. Thesis courses for graduate students. Intended primarily for research work. Credits and hours to be arranged.

MILITARY SCIENCE AND TACTICS

1. First Year Basic Course, R.O.T.C.

2a, 2b. Second Year Basic Course, R.O.T.C., Infantry and Coast Artillery.

3a, 3b. First Year Advanced Course, R.O.T.C., Infantry and Coast Artillery.

4a, 4b. Second Year Advanced Course, R.O.T.C., Infantry and Coast Artillery.

Students who have completed the Basic Course, R.O.T.C., may be selected for advanced work by the professor of military science and tactics. Those who pursue the Advanced Course are required to sign an agreement with the government to continue the two years' course to completion. This includes attendance at a training camp, held normally during the summer following the first year's advanced work. The camp is conducted free of cost to the student, and in addition, while actually in camp, the student receives the pay prescribed for the seventh grade in the army. Students pursuing the Advanced Course are also furnished a special uniform and receive a fixed allowance per day. The total government compensation for the two years' advanced work amounts to something over \$200. Students who satisfactorily complete the Advanced Course will be commissioned in the Officers' Reserve Corps of the United States Army.

MINE PLANT AND MECHANICS

1. Algebra and Solid Geometry. Equations, involution and evolution, theory of exponents, surds, quadratic equations, theory of logarithms, determinants. Demonstrations of most important theorems of solid geometry. Volumes, approximate volumes, prismoidal formula, etc.
2. Algebra. Functions, functional notation, factor and remainder theorems, factors and values of functions, development of functions, progressions, series, theory of equations, permutations and combinations, theory of logarithms, determinants.
3. Algebra. Continuation of Course 1. Functions, functional notation, factor and remainder theorems, factors and values of functions, development of functions, progressions, series, theory of equations, permutations and combinations.
4. Trigonometry. Trigonometric ratios, right triangles, definitions of trigonometric functions, analytic relations, trigonometric equations, etc., solution of spherical triangles.
5. Analytical Geometry. Systems of co-ordinates, loci, equations, properties of straight lines, transformation of co-ordinates, equations and properties of conics, equations of second degree, higher plane curves, space co-ordinates, point, plane, quadric surfaces, etc., empirical equations, graphic algebra.
- 6-7-8. Calculus. Differentiation, elementary forms, geometric applications, rates, successive differentiation, maxima and minima, expansion of functions, intermediate forms, partial derivatives, change of vari-

- able, elementary integration, undetermined coefficients, rationalization, formulas of reduction, some differential equations of mechanics.
- 51, 52, 53. Elementary Technical Mechanics. Elementary principles of mechanics and their application to technical problems of mining.
- 109-111. Mechanics. Composition and resolution of forces, laws of equilibrium, practical applications, rectilinear motion, circular motion, curvilinear motion in general, dynamics of rigid bodies, impact, work, and energy.
110. Mechanics of Materials. Mechanical and elastic properties of materials of construction; beams, columns, shafts, hollow cylinders and spheres, rollers, plates; theory of internal stress; reinforced concrete.
- 112-113-114. Mine Plant. Discussion of the machinery and appurtenances employed in the equipment of mines. Air compression, rock drills, mechanical features of hoisting, pumping, ventilation, underground transportation. Electricity applied to mining.
- 115-116. Metallurgical Plant. Power, air, and water supply for metallurgical plants.
117. Hydraulics and Water Power. Laws of the equilibrium, pressure and flow of liquids, hydrographs and mass diagrams, estimate of power to be developed at a power site, design of dams and hydroelectric plants, theory of water wheels and turbines, speed control, power house equipment, transmission.
118. Engineering Construction. Theory of structures, loading, analytic and graphic resolution of stresses in framed structures, stresses in ore bins, headframes, etc.
119. Engineering Construction. Design of structures for mining and metallurgical plant.
120. Mine Plant Design. A study of power possibilities, costs, etc., and design of a power plant, surface equipment, and structures for a mine.
121. Metallurgical Plant Design. A study of power possibilities, costs, etc., and design of a power plant, and structures for a metallurgical plant.

MINING

21. Introductory Mining. Introductory mining course, preparatory to sophomore field trip.
130. First Aid and Mine Rescue. Course in first aid to the injured and mine rescue given by the staff of the United States Bureau of Mines car.
131. Exploration. Location of mineral lands, prospecting, exploration, boring, explosives, drilling, and blasting.
132. Tunneling. Tunneling, drifting, shaft sinking, raising, and mining methods.
133. Elementary Mining. Short course in mining for metallurgists.
134. Mining Methods. Underground mining methods and support of underground excavations.

- 135. Practical Mining. Study of mining operations. Mine plant and mining work in one or more mining camps.
- 139. Practical Mining. Study of mining operations, mine plant and mining work in one or more mining camps for metallurgists.
- 141. Mine Examination. Mine examinations, sampling, and mining reports. Amortization.
- 142. Contracts. Contracts and specifications. Corporations, capitalization, stocks and bonds.
- 143. Coal Mining. Coal mining methods. Mechanization and coal preparation. Mine gases. Accident prevention.
- 144. Mining Law. State mining codes. Compensation laws. Mining law and court interpretations. Taxation.
- 145. Placer and Quarries. Placer, hydraulic mining and dredging. Quarries.
- 146. Thesis. Preparatory work on the mining thesis.
- 147. Thesis. Preparation of an original thesis on some mining project, covering the exploration and development of a mining property.
- 148. Thesis. Completion of thesis project.
- 151-152-153. Special Problems in Mining. Seminar work on mining problems. Credits and hours to be arranged.

MINING ENGINEERING

- 1-2-3. Mine Surveying. Theory and problems in mine surveying, including land subdivision, stadia measurements, triangulation, railroad curves and cross sections, computation of areas by co-ordinates; differential leveling, plane table surveying, topographic map reading, solar observations, shaft plumbing, underground traversing and leveling.
- 4. Field Work. Practice in general plane surveying during the month of May. Practice in underground surveying during the first three weeks of June. This work is given on the iron ranges of Minnesota.
- 105-106-107. Mine Mapping. Mine mapping in accordance with prevalent practice in mining districts. Ore and stripping estimates and mine maps based on Mesabi Range practice.

PHYSICS

- 3. Elements of Mechanics and Sound. Mechanics of solids, fluids, wave motion, and sound. A study of the simpler fundamental principles. First part of the general course, 3, 23, 33, 43. Course 4 should be taken in conjunction with this course.
- 4. Elements of Mechanics and Sound Laboratory. Measurements in the mechanics of solids, fluids, wave motion, and sound; the laboratory part supplementing Course 3. One two-hour session in the laboratory a week.
- 23. Heat. A study of the principles underlying heat phenomena. Course 24 should be taken in conjunction with this course.
- 24. Heat Laboratory. The laboratory part supplementing Course 23. One two-hour session in the laboratory a week.

43. Magnetism and Electricity. A study of the principles underlying magnetic and electric phenomena. Course 44 should be taken in conjunction with this course.
44. Electrical Laboratory. The laboratory part supplementing Course 43. One two-hour session in the laboratory a week.

ROMANCE LANGUAGES

FRENCH

- 1-2. Beginning French.
- 3-4. Intermediate French.
- 21-22-23. General Survey of French Literature. Outline of French literature from 1600 to the present. Reading of representative texts.

SPANISH

- 1-2. Beginning Spanish.
- 3-4. Intermediate Spanish.
- 65-66-67. Spanish Literature. Outline of Spanish literature from 1500 to the present. Reading of representative texts.

The Bulletin
of the University of
Minnesota

The College of Pharmacy
Announcement for the Years
1929-1931



Vol. XXXII No. 32 May 20 1929

*Entered at the post-office in Minneapolis as 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*

ADMINISTRATIVE OFFICERS

Lotus Delta Coffman, Ph.D., LL.D., President

William Watts Folwell, LL.D., President Emeritus

Frederick J. Wulling, Phm.G., Phm.D., LL.M., Ph.M. *causa honoris*, D.Sc.,
causa honoris, Dean of the College of Pharmacy, Professor of Pharmacology, and Director of the University Medicinal Plant Gardens

GENERAL INFORMATION

The thirty-eighth course of the College of Pharmacy begins and ends as announced in the calendar in the bulletin of general information.

ADMISSION BY CERTIFICATE

Diplomas or other evidences of the completion of an accredited four-year high school course, or of its educational equipment, are required for admission. The high school course must have included:

1. English 4 units
 or English 3 units
 and a foreign language..... 2 units
2. Mathematics
 Elementary algebra 1 unit
 Plane geometry 1 unit
3. Latin 1 unit
4. Physics 1 unit
5. Enough additional work to make in all 15 units, of which not more than 4 may be in Group F.

Group F consists of high school, vocational, and miscellaneous subjects. The subjects are no longer designated by the University. The applicant is free to present in this division such subjects as are not listed in other groups, but which are certified by the superintendent or principal as being of acceptable nature and counted toward graduation.

Prospective students in pharmacy are advised to include in their high school courses, higher algebra and solid geometry, but not botany, chemistry, or physiology because these latter three subjects are included in the regular pharmacy course.

Owing to the limited capacity of the Pharmacy Building, not more than sixty new students can be admitted annually. Applications for admission should be in the registrar's office not later than July 1, by June 1, if possible.

ADMISSION BY EXAMINATION

Students may take examinations in subjects for which they have no certificates. A high school training covers a minimum of 15 units, a unit being a school year of standard work in a given subject. State High School Board certificates and College Entrance Examination Board certificates are accepted in lieu of examinations in respective high school subjects.

NEW STUDENTS

All applicants for admission and to advanced standing should request the high schools or colleges they attend to send complete transcripts of their records to the registrar of the University as early as possible and not later than July 1. Upon receipt of the credentia's, the registrar will

notify the applicant concerning his admission and will forward directions for registration.

New students are admitted only at the beginning of the fall quarter.

OLD STUDENTS

About September 1, the registrar will send a fee statement to the student's home address as it appears on the records of his office. Those who fail to receive the statement within a week should write to the registrar and ask for it.

FEES AND OTHER EXPENSES

The quarterly tuition fee of \$35 for resident students and \$45 for non-resident students includes all laboratory fees, except chemistry, and it is payable before the beginning of each quarter. Certificates entitling the student to admission to classes will not be issued until fees have been paid.

Tuition fee (per quarter)	
Residents of Minnesota	\$35.00
Non-residents	45.00
Incidental fee (per quarter)	6.00
Deposit (first quarter only)	10.00
Military deposit (required of all students taking military drill).....	10.00
Special fees:	
Examination for removal of condition.....	1.00
Examination for credits (after the first six weeks in residence).....	5.00
Special examination	5.00
Chemistry deposit	5.00
Graduation fee	10.00

REGISTRATION PENALTIES

A penalty fee for late registration, late change of registration, or late payment of fees shall be two dollars (\$2) and one dollar (\$1) additional for each day of delay after classes begin, provided that no student shall pay more than twelve dollars (\$12) of penalty in any given quarter.

Those desiring to take special work may pay fees on a clock hour basis, the rate being \$1.50 an hour for resident students and \$2 an hour for non-resident students.

GRADUATION REQUIREMENTS

Regular attendance at lectures, recitations, and laboratory exercises is required. Students will not be permitted to present themselves for final examinations unless they have been in attendance upon at least seven eighths of the total work of the course for which they have matriculated.

Every person upon whom any degree is conferred must be of good moral character; must have completed the required lecture and laboratory courses, the last year spent in this college; and must have passed examinations in the subjects required for graduation.

Drug store experience is not a requirement for graduation.

NEW PHARMACY LAW REQUIREMENTS

The latter part of March, 1929, the Minnesota Legislature passed an act requiring graduation from a college of pharmacy recognized by membership in the American Association of Colleges of Pharmacy as a prerequisite to application for examination by the Minnesota State Board of Pharmacy for license to practice pharmacy in the state of Minnesota. The act went into effect upon passage. Accordingly, all persons who will apply to the State Board of Pharmacy for examination must be graduates of recognized colleges of pharmacy. Many of the colleges of pharmacy are already on a minimum four-year graduation course basis and all others who are members of the American Association of Colleges of Pharmacy are required to be on a four-year minimum basis by January 1, 1932. Other colleges whose graduation requirements are less will not be among the recognized colleges and their graduates cannot be accepted for examination for license to practice.

The legislature passed another law abolishing the former examination for pharmaceutical assistants. Therefore all who desire to prepare themselves to practice pharmacy in the state of Minnesota must complete a minimum of four years of work at a recognized college of pharmacy. There is no lower standard in the state of Minnesota.

ADVANCED STANDING

Applicants for advanced standing must pass the entrance examinations or present the usual equivalents. They must furnish satisfactory evidence of time spent and subjects covered in previous professional studies at accredited institutions, and must pass the examinations of all departments in which they desire credit, if such examinations are deemed necessary by the professors in charge. Students will not be permitted to substitute private work in any branch for the regular course work.

UNCLASSED STUDENTS

Persons meeting the entrance requirements desiring to do less than the work of the regular course may be admitted as unclassified or special students provided there is laboratory room for them. Work completed satisfactorily will be credited should the students subsequently enter the regular course. Registered pharmacists who desire to take certain branches of study may avail themselves of any of the college facilities.

EXAMINATIONS AND STANDING

Examinations are held during the last week of each quarter, and are supplementary to the written and practical tests and quizzes that are held at frequent intervals during the year, and, with them, form largely the basis of final determination of fitness for promotion or graduation.

The standing of students is indicated by the letters A, B, C, D, (A highest, D lowest passing mark), E (condition), I (incomplete), and F (failure). Conditions may be removed as indicated below. An *incomplete* not removed before the end of the first month of the student's next quar-

ter in college becomes a *condition*. The Students' Work Committee may, in special cases, extend this time limit.

In order to become eligible for final examinations students are required to attend at least seven eighths of the lectures in each course. This does not apply to laboratory courses, which must be taken in full.

Students having conditions in more than two major or in more than three minor subjects of the first year cannot enter upon the second year's work. Candidates for graduation must have removed all conditions before entering upon the third quarter of the graduating year.

Examinations for the removal of conditions will be offered the week preceding the opening of the fall quarter. Similar examinations will also be given during the first thirty days of the winter and spring quarters. Announcement of these examinations will appear in the general information bulletin and the *Official Daily Bulletin*. Conditioned students are required to inform themselves as to these dates as soon as they learn that they are conditioned, as no other notice is given. A fee of one dollar is charged for a condition examination. Failure at the condition examination necessitates a repetition of the subject. Students who carry a condition into a succeeding year may find a conflict of lecture or laboratory hours. In such cases they are to give preference to the lower course.

Absences will not be excused unless satisfactory reasons are given. Habitual absence without a satisfactory excuse, continued indifference to study, or persistently poor scholarship may subject the student to probation or temporary or permanent suspension. Any of the facilities afforded by the University are open to the students of this college, subject to the approval of the dean. Opportunity is offered to do advanced work in all branches. Textbooks may be obtained after coming to the University.

Students find their time fully occupied with the regular curriculum.

MEDICINAL PLANT LABORATORY AND GARDEN

Students receive instruction in medicinal plant culture and in the harvesting, drying, preparing, and milling of drugs in the very representative medicinal plant garden and in the plant laboratory and conservatory. The garden and plant laboratory have been added to increase the educational facilities of the college. The college has no experience nor information concerning the commercial cultivation of medicinal plants.

DISPENSARY PRESCRIPTION PRACTICE

The seniors, under competent direction and supervision, dispense the prescriptions written by the physicians in the Out-Patient Department of the University Hospitals. During the past year upwards of twenty-five thousand prescriptions were filled, most of them formulated ones, only a negligible percentage calling for proprietaries.

ELECTIVES IN OTHER UNIVERSITY COLLEGES

Students may elect certain subjects in other university colleges, if such election does not interfere with their regular work. Subjects elected must be approved by the dean.

COLLEGE TRAINING FOR PHARMACISTS

The recognition of the need of substantial college training for pharmacists finds expression in many ways. In many states, including Minnesota, such training is now obligatory by law. In a number of other states credit is given for college work. Graduates of the four-year course need only one additional year of drug store experience before they become eligible for examination by the State Board of Pharmacy for full registration.

SUMMER SCHOOL

The College of Pharmacy offers no courses in purely pharmaceutical subjects but the summer school offers the following courses which are part of the pharmacy course: general chemistry, qualitative chemistry, organic chemistry, general botany, physiology, bacteriology, rhetoric, physics, modern languages, and zoology.

Requests for summer school bulletins should be made directly to the university registrar.

MINNESOTA STATE PHARMACEUTICAL ASSOCIATION SCHOLARSHIP

The Minnesota State Pharmaceutical Association awards annually \$105 in cash and a token to that student who is a citizen of the United States, who has resided in Minnesota for the last five years, and who has earned the highest general or average rating at the completion of the first two years of technical pharmaceutical work up to ten days before Cap and Gown Day and who is a candidate for the first degree in pharmacy from this college. If such student should discontinue attendance at the college, the said sum is to be awarded to the student next highest in standing who meets the other requirements.

THE FAIRCHILD SCHOLARSHIP

Mr. Samuel W. Fairchild offers a scholarship in the sum of \$300 to be awarded to the student in any of the colleges holding membership in the American Association of Colleges of Pharmacy who has had two years of drug store experience, is a high school graduate, who has completed one year in a recognized college of pharmacy, and who passes the best competitive examination to be conducted by or under the auspices of a committee made up of members appointed jointly by the American Pharmaceutical Association, the American Association of Colleges of Pharmacy, and the National Association of Boards of Pharmacy. Fuller particulars may be had from the dean of the college.

LEHN AND FINK GOLD MEDAL

Messrs. Lehn and Fink, of New York City, award annually a gold medal to that student in the College of Pharmacy who graduates with the highest general average rating from the four-year course leading to the degree of bachelor of science in pharmacy.

THE JACOBSON PRIZE

David L. Jacobson, '99, offers annually a gold medal to that student who graduates with the highest general average rating from the first graduate course in pharmacy leading to the degree master of science in pharmacy.

POSITIONS FOR GRADUATES

The demand for graduates of this college has always been greater than the supply and is continually growing. Practically all members of the senior class are engaged before graduation. This college is recognized in all states, including those in which state standards of efficiency have been established.

STATE BOARD OF PHARMACY

The State Board of Pharmacy meets at the college four times each year to examine candidates for registration. For information concerning the board or state examinations, address the secretary of the board, 2943 Twenty-seventh Ave. So., Minneapolis.

THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

This college is a member of the American Association of Colleges of Pharmacy, whose object is the promotion of higher pharmaceutical education. Through the influence of the association, higher standards of education are being adopted from time to time by its members and others, evidenced by the fact that several states by law or by board of pharmacy ruling recognize the standards set by the association. Member colleges must maintain certain minimum entrance and graduation requirements. This college exceeds these requirements.

THE NORTHWESTERN BRANCH OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

The Northwestern Branch of the American Pharmaceutical Association has its headquarters at the College of Pharmacy. About four meetings are held annually. Students of pharmacy are eligib'e to membership in the branch, but are privileged to attend the meetings without becoming members.

COMMUNICATIONS

Communications not relating to registration should be addressed to the dean, Professor Frederick J. Wulling, University of Minnesota, Minneapolis, Minnesota. Communications relating to registration or advanced standing should be addressed to the University Examiner, Registrar's Office, University of Minnesota.

For further information see general information bulletin.

COURSE OF STUDY

The College of Pharmacy has discontinued the three-year course leading to the degree pharmaceutical chemist and now offers only one undergraduate course of four years' duration, leading to the degree bachelor of science in pharmacy and including one year of work in certain subjects in the College of Science, Literature, and the Arts, or other colleges of equal standing. This was formerly the optional four-year course. It has become the obligatory minimum degree course by action of the university regents at their April, 1926, meeting. Graduate work in pharmacy, leading to the Master's and Doctor's degrees, respectively, is now under the direction of the Graduate School. The graduate work is open to graduates of the four-year course of this or other colleges of pharmacy of similar standing and who have the degree bachelor of science in pharmacy and who have shown exceptional scholarship and capacity in the undergraduate course and possess unquestioned ability to carry on independent or research work.

THE PRESENT REGULAR COURSE

This course extends over a period of four full university years. The curriculum is described in the following pages, but its division among the four years may be changed as necessity may warrant. All courses begin only with the fall or first quarter.

OUTLINE OF THE REGULAR FOUR-YEAR COURSE (Subject to change)

FIRST YEAR

This year includes a minimum total of 45 quarter credits among which must be a minimum of 10 of rhetoric, 9 of modern language, 10 of college physics or zoology. The 16 additional credits are electives. Students may complete this first year at the College of Science, Literature, and the Arts at the University, or at any junior college, or at any academic college of equal standing, in which case they will be admitted to the second year of the four-year course; or they may complete the 45 academic credits at the University by carrying them concurrently during the first two years with some of the technical pharmaceutical subjects. The first choice is recommended. If the student chooses to carry academic and professional work concurrently, the outline of the first two years would be as follows:

FIRST YEAR--COMBINED

<i>First Quarter</i>	<i>Second Quarter</i>	<i>Third Quarter</i>
General Chemistry	General Chemistry	Qualitative Chemistry
General Botany	General Botany	General Botany
Rhetoric* (5 credits)	Rhetoric* (5 cred.)	Rhetoric* (5 cred.)
Modern Language|| (3 or 5 cred.)	Modern Language|| (3 or 5 cred.)	Modern Language|| (3 or 5 cred.)
Military Drill	Military Drill	Military Drill
Personal Hygiene		

* Total of only 10 credits required.

|| Total of only 9 credits required.

THE COLLEGE OF PHARMACY

SECOND YEAR—COMBINED		
<i>First Quarter</i>	<i>Second Quarter</i>	<i>Third Quarter</i>
Physics or Zoology* (5 cred.)	Physics or Zoology* (5 cred.)	Physics or Zoology* (5 cred.)
Academic electives||	Academic electives||	Academic electives||
Didactic Pharmaceutical Chemistry	Didactic Pharmaceutical Chemistry	Didactic Pharmaceutical Chemistry
Pharmacy	Pharmacy	Pharmacy
Pharmacognosy	Pharmacognosy	Pharmacognosy
Military Drill	Military Drill	Military Drill

SECOND YEAR		
<i>First Quarter</i>	<i>Second Quarter</i>	<i>Third Quarter</i>
Botany	Botany	Botany
General Chemistry	General Chemistry	Qualitative Chemistry
Military Training	Military Training	Military Training
Pharmacy	Pharmacy	Pharmacy
Pharmac. Chemistry, Didactic	Pharmac. Chemistry, Didactic	Pharmac. Chemistry, Didactic
Pharmacognosy	Pharmacognosy	Pharmacognosy

THIRD YEAR

The third and fourth year curricula are the same for all students, as follows:

<i>First Quarter</i>	<i>Second Quarter</i>	<i>Third Quarter</i>
Materia Medica	Materia Medica	Materia Medica
Pharmacognosy	Pharmacognosy	Pharmacognosy
Pharmac. Chemistry, Practical	Pharmac. Chemistry, Practical	Therapeutics
Military Training	U. S. P. Testing	Operative Pharmacy
Organic Chemistry	Military Training	Military Training
	Organic Chemistry	Physiology

FOURTH YEAR		
<i>First Quarter</i>	<i>Second Quarter</i>	<i>Third Quarter</i>
Dispensing	Dispensing	Dispensing
U. S. P. Assay	U. S. P. Assay	U. S. P. Assay
Bacteriology	Drug and Food Analysis	Mineralogy and Crystallog.
Drug and Food Analysis	Physiology	Drug and Food Analysis
Dispensary Practice	Dispensary Practice	Law and Ethics
Organic Pharmacy		Dispensary Practice

CREDIT VALUE

The credit values of courses were changed September, 1918. Now a credit value covers one period of lecture or recitation or two, and in some laboratory subjects three, periods of laboratory work per week per quarter. The numbers expressing the credit value of courses are now fifty per cent greater than formerly, when the college was on the semester basis.

* Total of only 10 credits of either required.

|| Sufficient to make a total of 45 credits.

DESCRIPTION OF COURSES

STATEMENT OF COURSES

Following each course is a statement, in parentheses, of credits, classes of students eligible, prerequisites, days of the week, class hours, and location of class. Thus (3 cred.; jr., sr., grad.; prereq., 3-4; MTW II) means that the course carries three credits, is open to juniors, seniors, and graduates, demands Course 3-4 as a prerequisite, and meets on Monday, Tuesday, and Wednesday, at the second hour.

BACTERIOLOGY AND IMMUNOLOGY

Professors Winford P. Larson, M.D., Arthur T. Henrici, M.D.; Associate Professor Robert G. Green, M.A., M.D.; Assistant Professor H. Orin Halvorson, Ch.E., Ph.D.; Instructors Beryl S. Green, M.A., Charles E. Skinner, Ph.D.

51f,w,s,su. General Bacteriology. Lecture and laboratory course. The principles and technique of general bacteriology. Studies in the morphology and biologic characters of the common bacteria. Preparation of culture media. Disinfectants and disinfection. Bacteriology of water and food products. (5 cred.; sr.; prereq., 1 yr. biol., 1 yr. chem.) Prof. Henrici, Assoc. Prof. R. G. Green.

BOOK RESEARCH AND SEMINAR WORK

Throughout the year students are required to do book research and seminar work in the pharmaceutical library during certain hours released for the purpose from the pharmaceutical laboratory and other periods. Beginning with the coming year it is proposed to provide regularly in the college schedule one two-hour period a week for library and seminar work during the second quarter of the graduating year. A room has been reserved for this purpose in the Pharmacy Building.

BOTANY

Professors J. Arthur Harris, Ph.D., Head; Carl O. Rosendahl, Ph.D., Josephine E. Tilden, M.S.; Associate Professors Frederic K. Butters, Ph.D., William S. Cooper, Ph.D., Rodney B. Harvey, Ph.D.; Assistant Professors George O. Burr, Ph.D., Ned L. Huff, M.A.; Instructors Ethel Sue Horton, M.A., Ethel M. Mygrant, M.S., Henry Oosting, M.S., Abraham Stoesz, M.A., Vernon Young, M.A.; Teaching Assistants Helen Foot, B.A., Martin L. Grant, B.A., Borghild S. Gunstad, B.A.; Technician Esther H. Wilson.

17f,18w,19s. General Botany. Study of the external form and internal structure of the various organs of flowering plants; special study of the flower and the outline of the classification of flowering plants. Lec-

tures, laboratory work, and field work. (9 qtr. cred.; fr.; no prereq.)
Assoc. Prof. Butters and assistants.

Botany 1, 5, and 7 in the College of Science, Literature, and the Arts may be substituted for Courses 17, 18, and 19 respectively.

CHEMISTRY: INORGANIC

Professor M. Cannon Sneed, Ph.D.; Assistant Professor Henry N. Stephens, Ph.D.; Instructor J. Lewis Maynard, B.A.

- 14f-15w. Inorganic Chemistry. A study of the general laws of chemistry and of the non-metals and their compounds. (10 cred.; fr.; no prereq.) Mr. Maynard.
- 16s. Qualitative Chemical Analysis. Laboratory work in systematic qualitative analysis with lectures on solution, ionization, chemical and physical equilibrium, oxidation and reduction, and other subjects pertinent to qualitative analysis. (5 cred.; fr.; prereq., 5 or 15.) Mr. Maynard.

CHEMISTRY: ORGANIC

Professors William H. Hunter, Ph.D.; Professor Emeritus George B. Frankforter, Ph.D.; Associate Professor Lee I. Smith, Ph.D.; Assistant Professor Walter M. Lauer, Ph.D.

- 1f,s-2w. Elementary Organic Chemistry. (Pre-med., pre-dent., pharmacists.) A discussion of the important classes of organic compounds, both aliphatic and aromatic. The laboratory work includes the preparation of typical substances. (4 cred. per qtr.; prereq., Inorg. Chem. 11.) Asst. Prof. Lauer.
- 1w-2s,f. Elementary Organic Chemistry. (Pre-med., pre-dent., pharmacists.) A discussion of the important classes of organic compounds, both aliphatic and aromatic. The laboratory work includes the preparation of typical substances. (4 cred. per qtr.; prereq., Inorg. Chem. 11.) Assoc. Prof. Smith.

CLINICAL MICROSCOPY

Professor.....; Instructor.....

- 1s. Clinical Chemistry and Microscopy. Includes (a) the microscopic study of urine, its color, sediments, and finer chemical tests and (b) the microscopic study of urine sediments, blood, pus, epithelial cells, casts, etc. Optional. (1 cred.; sr.; no prereq.)

DISPENSARY PRESCRIPTION PRACTICE

Instructor Hallie Bruce, Phm.G.; Assistant Florence Schnell, Phm.C.

- 1f,w,s. Dispensary Prescription Practice. The prescription dispensing for the Out-Patient Department of the University Hospital is in charge of the College of Pharmacy. The senior students do the prescription

work under competent direction. (3 cred.; sr.; prereq., Pharm. 5.)
Miss Bruce, Mrs. Schnell.

FIRST AID TO THE INJURED

Lecturer Charles N. McCloud, Phm.D., M.D., and assistant.

- 1s. Emergency Cases. A series of lectures and demonstrations designed to qualify the pharmacists to administer upon emergency cases before the arrival of the physician. (1 cred.; sr.; no prereq.) Dr. McCloud.

MATERIA MEDICA

Professor Frederick J. Wulling, Phm.G., Phm.D., LL.M., Ph.M. *causa honoris*, D.Sc. *causa honoris*; Assistant Professor Earl B. Fischer, B.S.; Instructor Charles E. Smyithe, and assistants.

- 1f,w,s. Inorganic Materia Medica. This course runs concurrently and in close relationship with Pharmacy 8 and 11, and includes chiefly the medical properties and doses of inorganic official bodies. (3 cred.; fr.; no prereq.) Prof. Wulling and assistants.
- 2f,w,s. Organic Materia Medica. The identity, sources, botanical origins, families, constituents, preparations and doses of the U. S. P., and of some unofficial vegetable drugs are studied in this course. (6 cred.; fr.; no prereq.) Asst. Prof. Fischer, Mr. Smyithe, and assistants.

MILITARY SCIENCE AND TACTICS

Professor John H. Hester, Major, Infantry; Assistant Professors Kent Nelson, Colonel, Medical Corps; Willis Shippam, Major, Coast Artillery Corps; Earl L. Hering, Major, Dental Corps; Frederick S. Matthews, Captain, Infantry; Don F. Pratt, Captain, Infantry; Porter P. Wiggins, Captain, Infantry; William G. Walker, Captain, Infantry; Murray T. Davenport, Captain, Infantry; Richard A. Ericson, First Lieutenant, Coast Artillery Corps; Vincent J. Conrad, First Lieutenant, Infantry; Harlan N. Hartness, First Lieutenant, Infantry; John F. Cassidy, First Lieutenant, Coast Artillery Corps; Rex W. Minckler, First Lieutenant, Signal Corps; Instructors Alfred Brandt, Master Sergeant, Infantry; Harry E. Strider, Master Sergeant, Signal Corps; Aubrey R. Dunkum, Technical Sergeant, Coast Artillery Corps; John Coop, Sergeant, Infantry; Ernest R. Mylk, Sergeant, Coast Artillery Corps.

- 1f-2w. First Year Basic Course R.O.T.C. Infantry. Practical and theoretical instruction in school of soldier squad and company; elementary subjects of military training; infantry weapons and equipment. (No cred.; fr.; no prereq.; MWF IV; A.)
- 3s. First Year Basic Course. Same as 1f-2w. (No cred.; fr.; prereq., 1-2; W VII, VIII, IX; A.)

- 4f-5w. Second Year Basic Course R.O.T.C. Infantry. Practical instruction in school of platoon and company; military sketching and map reading; infantry weapons including machine gun and automatic rifle; minor tactics. (No cred.; fr., jr.; prereq., 1-2-3; MWF IV; A.)
- 6s. Second Year Basic Course R.O.T.C. Infantry. Same as 4f-5w. (No cred.; fr., jr.; prereq., 4-5; W VII, VIII, IX; A.)
- 51f-52w. First Year Advanced Course R.O.T.C. Infantry. Field engineering; infantry weapons, including trench mortars, 37 mm. gun, grenades, pistol; minor tactics and musketry. (No cred.; jr.; prereq., 1-2-3, 4-5-6; MWF II, III, IV, VI, VIII; TThS I, II, III, IV; TTh VI, VII, VIII, IX; A.)
- 53s. First Year Advanced Course R.O.T.C. Same as 51f-52w. (No cred.; jr.; prereq., 51-52; W VII, VIII, IX; A.)
- 54f-55w. Second Year Advanced Course R.O.T.C. Infantry. Minor tactics; administration; military law; military history and policy of the United States; rules of land warfare. (No cred.; sr.; prereq., 51-52, 53; MWF II, III, IV, VI, VIII; TThS I, II, III, IV; TTh VI, VII, VIII, IX; A.)
- 56s. Second Year Advanced Course R.O.T.C. Same as 54f-55w. (No cred.; sr.; prereq., 54-55; W VII, VIII, IX; TThS IV; A.)

PHARMACY

- Professors Frederick J. Wulling, Phm.G., Phm.D.; LL.M., Ph.M. *causa honoris*, D.Sc. *causa honoris*; Gustav Bachman, Phm.D., Phm.M., Charles H. Rogers, D.Sc. in Phm.; Instructors Ragnar Almin, Phm.C., Hallie Bruce, Phm.G., Charles V. Netz, Phm.C., M.S., Del D. Turner, Phm.C.; Assistant Florence Schneil, Phm.C.
- 1f. History of Pharmacy. This course embraces the study of the history of pharmacy, including the U. S. Pharmacopoeia through all of its revisions and the literature of pharmacy. ($\frac{3}{4}$ cred.; fr., jr.; no prereq.) Profs. Wulling, Rogers.
- 2f. This course includes the study and preparation of the active constituents of many vegetable drugs, scale salts of iron, plasters, soaps, oleoresins, collodions, effervescing salts, etc. ($6\frac{1}{2}$ cred.; jr.; prereq., 4f, 6w, 8s.) Prof. Bachman, Mr. Turner.
- 3f. Metrology. A critical study of weights and measures and balances; specific gravity, specific volume; allegation, etc. ($4\frac{1}{2}$ cred.; fr., jr.; no prereq.) Prof. Rogers, Mr. Netz.
- 5w. The Physics of Pharmacy. This course covers a review and more extended elucidation of such divisions of physics as apply to pharmaceutical processes. ($4\frac{1}{2}$ cred.; fr., jr.; prereq., 3.) Prof. Rogers, Mr. Netz.
- 7w,s. Pharmaceutical Processes. A study of the various laboratory processes employed in pharmaceutical manufacture. (5 cred.; fr., jr.; prereq., 5.) Prof. Rogers, Mr. Netz.

- 2w,s. Pharmacopoeial Preparations. This course includes the study and preparation of official bodies for which the Pharmacopoeia gives formulae and processes. (7½ cred.; fr., jr.; prereq., 7.) Prof. Rogers, Mr. Netz, and assistants.
- 4f,w,s. Pharmacy Quiz. A thoro review of the work covered in Courses 3f, 5w, 7s, and 2s. (4½ cred.; fr., jr.; prereq., 3, 5, 7, 2.) Prof. Rogers, Mr. Netz.
- 6w,s. Identification of Inorganic U. S. P. Preparations. The study of the appearance and physical properties of inorganic official preparations. (2 cred.; fr., jr.; prereq., 2.) Prof. Rogers, Mr. Netz.
- 9f. Pharmaceutical Chemical Philosophy. This course treats of the principles underlying chemistry and elucidates chemical facts and phenomena in their pharmaceutical aspects. (3 cred.; fr., jr.; no prereq.) Prof. Wulling.
- 11w. The Pharmaceutical Chemistry of the Non-Metals. A study of the description, properties, pharmacy, and manufacture of the non-metals used in pharmacy, including their U. S. P. preparations. (3 cred.; fr., jr.; prereq., 9.) Prof. Wulling.
- 8s. U. S. P. Inorganic Salts. Especial reference to sources, description, properties, and manufacture. (3 cred.; fr., jr.; prereq., 9.) Prof. Wulling, Mr. Almin.
- 13s. Classification of Pharmaceutical Organic Compounds. A preparation for Pharmacy 15. (1½ cred.; jr., sr.; prereq., Chemistry 31f and 32w.) Profs. Wulling, Rogers.
- 15f,w,s. Pharmaceutical Organic Compounds and Their Preparations. Includes the critical study of cellulin and its derivatives, destructive distillation products, starches, sugars, fermentation products, organic acids, fixed oils and fats, volatile oils, waxes and animal fats, alkaloids, glucocides, animal drugs and products, etc. (9 cred.; jr., sr.; prereq., 13, Chemistry 31f and 32w.) Prof. Rogers.
- 17w. Pharmacopoeial Qualitative Analysis. A critical study of the identity, purity, limit, and percentages tests of the Pharmacopoeia and their application either wholly or in part to practically every official organic and inorganic salt and compound (5½ cred.; jr.; prereq., 11w and Chem. 16s.) Prof. Bachman, Mr. Almin, Mr. Turner.
- 18w,s. Pharmacopoeial Quantitative Analysis. This course includes the gravimetric, volumetric, and gasometric determinations of the U. S. Pharmacopoeia, but not Pharmaceutical Assay (12w). (15 cred.; sr.; prereq., 17w.) Prof. Bachman, Mr. Almin, Mr. Turner.
- 19f,w,s. Prescription Incompatibility. Therapeutic, pharmaceutical, and chemical incompatibility is taken up in lecture and recitation work preliminary to Course 21. (2 cred.; sr.; prereq., 17w.) Prof. Bachman, Mr. Turner.
- 21f,w,s. Prescription Dispensing. This course runs concurrently and in cooperation with Dispensary Prescription Practice 1f,w,s, and includes the critical study of the prescription and practical work in dispensing a wide range of prescriptions taken from actual medical practice. (13

- cred.; sr.; prereq., 17w.) Prof. Bachman, Miss Bruce, Mr. Turner, Mrs. Schnell.
- 8a,w,s. Manufacture of Pharmaceutical Inorganic Salts. The preparation of upwards of forty pharmaceutical salts included in this course. (6 cred.; jr., sr.; prereq., 8s, Chemistry 16s.) Prof. Rogers, Mr. Netz, and assistants.
- 10f. National Formulary. This lecture and laboratory course includes a partial study of the National Formulary and the making of a number of its more important preparations. (1½ cred.; jr., sr.; prereq., 8a, 15.) Prof. Bachman, Mr. Almin, Mr. Turner.
- 12s. Pharmaceutical Assay. The quantitative determination of alkaloidal and other active constituents of a number of the potent U. S. P. organic drugs and preparations. (2 cred.; sr.; prereq., 17w.) Prof. Bachman, Mr. Almin, Mr. Turner.
- 14s. Synthetic Remedies. The study of the pharmaceutical chemistry of synthetic chemicals in medical use. (1 cred.; jr., sr.; prereq., 15f,w,s.) Prof. Rogers.
- 16w. Homeopathic Pharmacy. Exposition of principles underlying the preparation of homeopathic remedies, including some laboratory work. (1 cred.; jr.; no prereq.) Profs. Wulling, Bachman. Optional.
- 25w,s. Identification of U. S. P. Salts. The study of the physical identity of the more important official inorganic and organic salts. (2 cred.; jr., sr.; prereq., 8a, 15.) Prof. Bachman, Mr. Turner.
- 20s. Microchemistry. Work in the microchemistry of pharmacy is included in the work of a number of other courses, but will soon be offered as a separate course. (No cred.; no prereq.)
- 27f. Mathematics of Pharmacy. While students are required to have a preparation in arithmetic, algebra, and geometry, before entering, they receive frequent drills throughout the year. Examinations in the subject are required. (1 cred.; fr., jr.; prereq., 3.) Profs. Wulling, Bachman, Rogers, Miss Bruce.
- 29f,w,s. Drug and Food Analysis. A course designed to prepare students for commercial pharmaceutical analytical work. (24 cred.; sr.; prereq., Chemistry 31f and 32w.) Prof. Rogers, Mr. Netz, and assistant.
- 51f,w. Metrology, Elementary. For nurses. (1 cred.; fr., jr.; no prereq.) Prof. Wulling.

PHARMACEUTICAL AND BUSINESS LAW

Professor Frederick J. Wulling, Phm.G., Phm.D., LL.M., Ph.M. *causa honoris*, D.Sc. *causa honoris*.

- 1s. Law for Pharmacists. The lectures introduce the subjects of contracts, agency, commercial paper, insurance, etc., in their application to the practice of pharmacy, and discuss the liability of retail pharmacists. (2 cred.; sr.; no prereq.) Prof. Wulling.
- 2s. Minnesota Pharmacy Laws. Statute laws of Minnesota affecting practice of pharmacy. Lectures by special lecturers experienced in the application and operation of pharmacy laws. (1/3 cred.; sr.; no prereq.)

PHARMACEUTICAL MINERALOGY AND CRYSTALLOGRAPHY

Professor

- 1s. Mineralogy. A study of the occurrence and properties of minerals of pharmaceutical importance; ores of metals used in pharmacy; non-metallic minerals and mineral waters in their mineralogic and geologic relation. (1 cred.; sr.; grad.; no prereq.)
- 2s. Crystallography. A survey of form and more evident physical characters as a basis for practice in sight recognition of economic minerals and their distinction from common rocks. (1 cred.; sr., grad.; prereq., 1.)

PHARMACOGNOSY

Assistant Professor Earl B. Fischer, B.S.; Instructor Charles E. Smyithe and assistants.

- 1f. Medicinal Plant Study and Drug Preparations. The principles underlying the preparation of plant drugs, including the study of plants cultivated in the medicinal plant garden, and herbarium work. (1 cred.; fr.; no prereq.; ar.; ar.) Asst. Prof. Fischer, Mr. Smyithe, and assistants.
- 2w,s. The Pharmacognosy of the Thallophytes and Archegoniatcs. In this course some of the drugs and economic products obtained from the thallophytes and archegoniatcs are studied. (5 cred.; fr.; prereq., 1f.) Asst. Prof. Fischer, Mr. Smyithe, and assistants.
- 3f. Drug Collection and Preparation. Scientific methods of drug collection and preparation of about fifty drugs from plants grown in the medicinal plant garden. (3 cred.; jr.; prereq., 1f.) Asst. Prof. Fischer, Mr. Smyithe, and assistants.
- 4s,w. Pharmaco-Histology and Pharmacognosy of the Angiosperms. Includes micrometry and the detailed study of the inner structure of parts of the higher plants as illustrated by the study of the whole and powdered, vegetable and animal drugs, and their adulterants. (10 cred.; jr.; prereq., 2w,s, 3f. Botany 17f, 18w.) Asst. Prof. Fischer, Mr. Smyithe, and assistants.
- 5s. Field Work. The classes are taken on field searches for native medicinal plants. The study of the distinguishing characteristics of certain orders, families, and genera of medicinal plants is included in this work. (2 cred.; jr.; prereq., 4w.) Asst. Prof. Fischer.
- 6w. Physiological Drug Assay. Optional. The pharmacopoeial and the more important unofficial methods of biologic assay of drugs and their preparations are studied. (3 cred.; sr.; prereq., 4s,w.) Asst. Prof. Fischer.
- 7w,s. Advanced Pharmacognosy. Designed to give students a working knowledge of the use of the more important microscopical accessories in advanced pharmacognostic work. (3 cred.; sr.; prereq., 4s,w.) Asst. Prof. Fischer.

PHYSICAL EDUCATION FOR MEN

Professor Fred W. Luehring, Ph.M., Director; Associate Professor Louis J. Cooke, M.D., Assistant Director, Louis F. Keller, B.A.; Instructors Emil Iverson, Blaine McKusick, LL.B., Walter R. Smith, B.A., Director of Intramural Athletics, Niels Thorpe; Assistant Lloyd S. Boyce.

A physical examination is required of all new matriculants, and of all others using the department privileges, at the beginning of the year, and as often during their college course as their physical condition may indicate.

4f. Personal Hygiene. One hour per week; first quarter. Examination at close of course. (No cred.; all; no prereq.) Assoc. Prof. Cooke.

A *special lecture* on sex hygiene is given sometime during the first ten days of the autumn quarter, with required attendance on the part of all freshmen.

PHYSICAL EDUCATION FOR WOMEN

Professor J. Anna Norris, M.D., Director; Assistant Professors Gertrude M. Baker, M.A., May S. Kissock, M.A., Alice H. Tolg, M.D.; Instructors Grace E. Denny, B.A., Josephine Dickson, B.S., Winona Jones, B.A., Pauline L. Lane, B.A., Maud Moore, Alice Timberman, B.S., Florence Warnock, B.A.

This department aims to promote the physical efficiency of the women students. It gives physical examinations and advice to all on entrance; plans systematically to keep in close touch with them during their first two years of residence; conducts yearly consultations with, and examines when necessary, all upperclass students; gives courses in hygiene; organizes neuromuscular activity leading toward organic strength, nervous stability, conscious motor control, correct bodily mechanics, skill in handling the body and in physical recreation, and the development of that valuable social quality known as good sportsmanship; co-operates closely with the Woman's Athletic Association in encouraging and organizing athletic sports; holds regular office hours for the purpose of consultation with all students who desire its advice.

Work in this department is required of all newly entering students (see Course 4). Physical examinations or consultations required annually of all students.

For elective classes in gymnastics, dancing, swimming, field hockey, basket-ball, baseball, and other activities, see bulletin of the College of Science, Literature, and the Arts.

For requirements for a teacher's certificate, see bulletin of the College of Education.

4w. Preliminary Hygiene. One lecture a week. The most essential aspects of the care of the body. (No cred.; all new students; no prereq.) Prof. Norris.

PHYSIOLOGY

Professors Elias P. Lyon, Ph.D., M.D., LL.D., Frederick H. Scott, Ph.D., M.B., D.Sc., Jesse F. McClendon, Ph.D.; Associate Professor Karl W. Stenstrom, Ph.D.; Assistant Professor Esther M. Greisheimer, Ph.D., M.D.; Instructors Joseph T. King, M.D., Milo Loucks, Ph.D., Truman A. Pascoe, Ph.D.

4w,s,su. Human Physiology. Lectures and demonstrations. (4 qtr. cred.; S.L.A., H.E., pharmacy students, and others; prereq., elem. zool. and chem.) Prof. Lyon, Asst. Prof. Griesheimer, Dr. King, and others.
57f,su. Physiologic Chemistry. (4 qtr. cred.; dent. stud. and others; prereq., org. chem.) Dr. Pascoe and others.

For other courses see Medical School Bulletin.

THERAPEUTICS AND TOXICOLOGY

Associate Professor Edgar D. Brown, Ph.D., M.D.

1s. Therapeutics and Toxicology. Drugs are studied in groups as governed by their medicinal and toxic properties. Remedial measures other than those depending upon drugs are fully considered. Poisonous action and doses of drugs also receive consideration. (3 cred.; jr.; prereq., Pharmacognosy 5, Mat. Med. I.) Assoc. Prof. Brown.

The Bulletin
of the University of
Minnesota

The College of Education

Part I

Announcement of Courses for the Years
1930-1932



Vol. XXXIII No. 14 March 29 1930

Entered at the post-office in Minneapolis as 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

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William Anderson, Ph.D., Professor of Political Science
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Harriet I. Goldstein, Associate Professor of Home Economics
Florence L. Goodenough, Ph.D., Associate Professor, Institute of Child Welfare
J. Arthur Harris,¹ Ph.D., Professor of Botany

¹ Died April 24, 1930.

- Robert S. Hilpert, B.S., Assistant Professor of Art Education
Rewey Belle Inglis, M.A., Assistant Professor of Education
Albert Ernest Jenks, Ph.D., Sc.D., Professor of Anthropology
Archie N. Jones, B.S., Assistant Professor of Music
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Frederick Klaeber, Ph.D., Litt.D., Professor of Comparative and English Philology
August Charles Krey, Ph.D., Professor of History
Samuel Kroesch, Ph.D., Professor of German
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Fred W. Luehring, Ph.M., Professor of Physical Education for Men
Elias P. Lyon, Ph.D., LL.D., Professor of Physiology
Esther McGinnis, Ph.D., Associate Professor in charge of Parental Education, Institute of Child Welfare
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- Josephine Dickson, B.S., Instructor in Physical Education for Women
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- Gladys Nordeen, B.A., Instructor in Home Economics
- Victor E. Nylin, M.S., Instructor in Agricultural Education
- Guy O. Penwell, LL.B., Instructor in Physical Education for Men
- Lucile S. Robinson, B.S., Instructor in Art Education

¹ Died September 26, 1929.

Gertrude D. Ross, B.S., Instructor in Art Education
 Phillip J. Rulon, M.A., Instructor in Education
 I. Irene Sell, M.S., Instructor in Home Economics
 Randolph B. Smith, M.A., Instructor in Education
 Walter Ray Smith, B.A., Instructor in Physical Education for Men
 Florence L. Smythe, B.S., Instructor in Education
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 Helen Starr, B.S., Instructor in Physical Education for Women
 Myrtle V. Sundeen, M.A., Instructor in Education
 Niels Thorpe, Instructor in Physical Education for Men
 Alice Timberman, B.S., Instructor in Physical Education for Women
 Helen Topp, B.S., Instructor in Home Economics
 James G. Umstatted, M.A., Instructor in Education
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 Randolph B. Smith, M.A., Personnel Department
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Myrtle V. Sundeen, M.A., Instructor in French
 Mabel H. Wettleson, B.S., Instructor in English
 G. Katherine Whitney, B.S., Instructor in English
 Lucy Will, M.A., Instructor in German

EXTENSION SPECIALISTS

Theodore A. Erickson, B.A., Associate Professor of Agricultural Education
 Frank W. Peck, M.S., Associate Professor of Farm Management
 Marion L. Faegre, B.A., Assistant Professor and Extension Worker, Institute of Child Welfare

MEMBERS OF OTHER FACULTIES GIVING INSTRUCTION IN THE COLLEGE OF EDUCATION

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 William Anderson, Ph.D., Professor of Political Science and Chairman of the Department of Political Science
 R. Wilson Archibald, D.V.M., Assistant Professor of Preventive Medicine and Public Health
 Carlos V. Arjona, Ph.D., Associate Professor of Romance Languages
 Leon E. Arnal, Architecte Diplôme Government France, Professor of Architectural Design
 Elizabeth Atkins, Ph.D., Assistant Professor of English
 Clyde H. Bailey, Ph.D., Professor of Agricultural Biochemistry
 Bessie Baker, R.N., B.S., Assistant Professor of Nursing
 Gertrude M. Baker, M.A., Assistant Professor of Physical Education for Women
 Francis B. Barton, Docteur de l'Université de Paris, Professor of Romance Languages
 Joseph W. Beach, Ph.D., Professor of English
 William O. Beal,¹ Ph.D., Assistant Professor of Astronomy and Assistant Astronomer
 Richard O. Beard, M.D., Professor of Physiology, Emeritus
 Charles Bird, Ph.D., Associate Professor of Psychology
 Roy G. Blakey, Ph.D., Professor of Economics
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 Ralph H. Brown, Ph.D., Assistant Professor of Geography
 Bryng Bryngelson, M.A., Assistant Professor of Speech
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 Solon J. Buck, Ph.D., Professor of History
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17

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Gina Wangsness, B.A., Instructor in German
Edgar W. Weaver, B.A., Instructor in English
Robert B. Westbrook, M.A., Instructor in Economics
Isabel White, R.N., B.S., Instructor in Nursing
Henry J. Williams, Instructor in Harp
David H. Willson, Ph.D., Instructor in History
Harriet A. Wood, B.A., Instructor in Library Methods
Vernon Young, M.A., Instructor in Botany
Nina L. Youngs, B.A., Instructor in Economics

GENERAL INFORMATION

The College of Education is organized to offer professional courses in the field of education, to promote research in the problems of education, and to provide educational guidance for prospective teachers and other educational workers in the schools. The completion of satisfactory curricula in this college entitles graduates to receive certificates for school work from the Minnesota State Department of Education. Such certificates are issued only to those graduating from this college.

Among the important curricula offered by the college are those relating to teaching in the following fields: academic subjects in elementary and high schools, agriculture, art, business subjects, home economics, industrial arts, natural science, physical education, and public school music.

Work is also offered in the fields of educational administration and supervision, clinical psychology, educational psychology, library service, school health work, sociology, teaching of subnormal children, professional education of teachers, work of the visiting teacher, educational and vocational guidance, nursery school and kindergarten education, nursing education, and public health education.

ADMISSION

Admission as regular students.—Admission to regular standing in the College of Education may be effected in one of the following ways:

a. Completion of the requirements for admission to the College of Education as outlined below, or to the junior year of the College of Agriculture, Forestry, and Home Economics. This preparation involves the earning of 90 credits and 90 honor points exclusive of physical education and represents two years work in a junior college.

b. Graduation from the advanced graduate course of the Minnesota state teachers' colleges or of other fully accredited state teachers' colleges. The College of Education grants 90 credits to such graduates.

c. Registration in one of the following four- or five-year specialized curricula in the freshman year, provided the requirements for admission to the University have been completed:

Art Education	Physical Education for Men
Industrial Education	Physical Education for Women
Library Methods	Public School Music
Nursery School and Kindergarten Education	School Health Work

In all other cases of four- or five-year curricula as outlined in this bulletin, the prescribed work of the first two years is to be taken prior to the student's entrance to the College of Education.

ENTRANCE REQUIREMENTS

All students who desire to prepare for teaching must register in the College of Education beginning with the junior year. They should enroll

as pre-education students in the Junior College as early in their course as possible. Advisers for pre-education students will be members of the faculty of the College of Education. Entrance to the college will be conditioned upon a student's meeting the general and specific requirements outlined below:

1. Ninety quarter credits, exclusive of credit for physical education, carried with an average grade of C. The ninety credits thus indicated must be earned in the following groups of college courses:

- Group A English
- Group B Foreign languages: German, Greek, Latin, Romance Languages, Scandinavian
- Group C Social sciences: Anthropology, Economics, Geography, History, Political Science, Sociology
- Group D Natural sciences: Astronomy, Botany, Chemistry, Geology and Mineralogy, Human Physiology, Physics, Psychology, Zoology
- Group E Mathematics
- Group F Journalism, Philosophy, Speech, Fine Arts, or such courses in other colleges or departments of the University as are approved by the College of Education

2. Within the general requirements listed above the student during his high school and junior college years must have completed the required work indicated under A, B, C, and D below, and at least 20 credits in groups B, C, and D must be completed in college.

	When Taken	In High School	In College
A.	English	3 years	and 9 credits in composition
B.	Language	3 years in one language	or 20 credits in one language
		or	
		2 years in one language	and 10 credits in same language
		or	
		1 year in one language	and 15 credits in same language
C.	Social sciences	2 years	or 10 credits in one department
D.	Natural sciences	2 years	or 10 credits in one department

NOTE.—In lieu of the specific course requirements indicated in the language group a student may elect a comprehensive examination in an elected language to be conducted by a committee appointed by the dean of the College of Education.

3. Within the total credits stipulated under No. 1 a student must meet, in fields of study which are represented in prevailing high school curricula, the following requirement: at least 15 credits in a major field and at least 10 credits in each of two minor fields. The purpose of this requirement is to prepare the student for the study of the advanced courses necessary to the completion of satisfactory teaching majors and minors.

4. The student must have completed six credits in general psychology.

5. In the cases of certain specialized curricula described in this bulletin the above requirements may be modified in details. All courses of a special curriculum should be completed, altho it may not always be possible to complete them in the order listed.

6. Students with two years of college training who are short certain entrance requirements will make up all deficiencies after enrolling in the College of Education.

7. At the time of entrance a student must present a certificate from the Students' Health Service indicating that he is free from physical defects which would prevent him from the successful pursuit of educational work.

8. At the time of entrance to the College of Education the student will be given a general examination designed to show his capacities to pursue professional curricula in education.

9. In the freshman and sophomore years, men must complete three quarters of physical education and six quarters of military drill; women must complete six quarters of physical education. Five credits, to be counted toward graduation from the College of Education, will be granted for the completion of the requirement in physical education. The total number of credits required for graduation will be 185.

Admission as unclassified students.—Graduates of a five-year normal course, if individually recommended by the normal school president, are allowed sixty-three quarter credits and are admitted as unclassified students pending the completion of twenty-seven additional credits.

Teachers of experience who are unable to meet the regular requirements for admission are admitted to the College of Education as unclassified students.

Admission with advanced standing.—Graduates of the three-year course in the state teachers colleges of Minnesota may receive not more than one hundred thirteen quarter credits; credits earned in such three-year normal course shall be applied, in case they are deemed of equivalent merit, in the College of Education, to courses for supervisors in elementary grades, principals in state graded schools, teachers in junior high schools, or in normal school departments in high schools; students coming from such three-year course shall not receive certificates in high school subjects from the University without completing the prescribed courses of the University for such certificates.

Applicants for transfer from the third or fourth year of the degree course offered in Minnesota teachers colleges may receive credit for any part of their work in so far as such work is equivalent in subject-matter to courses offered in the College of Education.

Graduates of state teachers colleges will not be permitted to take for credit, Psychology 1 and 2, General Psychology.

GRADUATION—DEGREES—HONORS COURSE

The degree of bachelor of science.—Students graduating from the College of Education will receive the degree of bachelor of science. A total of 185 credits and 185 honor points are required for graduation. Candidates for this degree must (a) have met the requirements in a major and in a minor field and in professional subjects, or (b) they must have completed one of the specialized curricula. In addition they must have met the special scholarship requirements as stated on p. 23. Candidates may major in any department listed on pp. 25-26.

Graduation with high distinction.—All graduates of this college who have attained *special excellence* in scholarship as is evidenced by an honor point ratio¹ of 2.5 or more are candidates for the degree of bachelor of science *with high distinction*. This award is conditional upon favorable recommendation of the faculty and is conferred by faculty action only.

Graduation with distinction.—All graduates of this college who have attained *excellence* in scholarship to the extent of having earned an average honor point ratio¹ of 2.0 or more are candidates for the degree of bachelor of science *with distinction*. This award is conditional upon favorable recommendation of the faculty and is conferred by faculty action only.

Limited honors course.—A limited honors course will be offered on an experimental basis for the year 1930-31.

1. The purpose of this course will be to offer the students of ability the opportunity to direct their own training to a greater degree than is now afforded by the prevailing methods of class instruction.

2. The course will be open by choice to those students who by tests of general ability and previous scholastic achievement give evidence of the capacity for self-direction. Continuance in the course will be conditioned by continued evidence of worthiness of such enrolment.

3. The course will be in lieu of the present requirement of Educational Psychology, 3 credits; Technique of High School Instruction, 3 credits; and Special Methods in History, English, Science, Language, or Mathematics, 4 credits. The field of work to be covered will be approximately that now embraced in the three courses. Students who satisfactorily complete this honors course will be given ten credits and be relieved of the several course requirements named above.

4. Students electing the honors course will be relieved from certain formal requirements but not from the mastery of a minimum content.

GRADUATE WORK IN EDUCATION

Graduate work in education leading to the degree of master of arts or doctor of philosophy may be pursued in the Graduate School. Students who desire to undertake graduate work with education as a major must have had at least 6 credits in psychology, and in addition to this, a total of not less than 18 credits in education which shall include Ed.Psy. 55 and Ed. Psy. 60 or the equivalent. Students who desire to undertake graduate work with education as a minor must have at least 6 credits in psychology, and, in addition to this, a total of not less than 18 credits in education.

All courses bearing numbers of 100 and above are open for credit to graduate students. Before attempting to make out their programs, graduate students in education should consult the dean of the College of Education and the dean of the Graduate School.

Graduate courses may be pursued during summer sessions. The work for the Master's degree may ordinarily be completed in four summer sessions. For full statement of regulations, consult Graduate School bulletin.

¹ The honor point ratio is calculated by dividing the total number of honor points^{**} earned by the total number of credits earned. See pp. 24-25.

BUREAUS OF RECOMMENDATION AND RESEARCH

Bureau of Recommendations.—Graduates of the College of Education who have met the requirements for a state teacher's certificate will be recommended for positions for which they are qualified. Students on the Minneapolis campus should register with the Bureau of Recommendations, 208 Old Library Building.

Bureau of Educational Research.—The College of Education conducts a Bureau of Educational Research for the purpose of promoting investigations by faculty and students in problems of education. The bureau is under the direction of the dean of the college and the members of the faculty co-operate as their several interests dictate. Through the bureau opportunity is given for co-operation with public schools in studies bearing upon problems of school administration, classroom instruction, and related matters. The bureau is responsible for the publication of a series of studies under the general title of Educational Monographs.

SPECIAL FEES

All special methods and practice teaching courses carry a fee of \$1 per credit hour.

GENERAL REQUIREMENTS

Residence requirements.—The minimum term of residence in the College of Education is two years beginning as soon as the entrance requirements have been fulfilled.

Students may shorten the two years of residence only by meeting such additional requirements in quality and quantity of professional work as will make the training of such students equal to that of students regularly registered for two full years.

AMOUNT AND QUALITY OF WORK

a. Upon entering the College of Education the student should, under advisement, plan his program (a) to secure one academic major and one academic minor and the required professional courses;¹ or (b) he should plan his program in accordance with one of the specialized curricula.

b. During his entire course the student must earn (1) 185 credits including the required courses in drill, gymnasium, and physical education, or a smaller number of credits determined as follows: For every 5 honor points in excess of one honor point per credit the number 185 is diminished by one, but no student will be recommended for graduation who has not completed all of the courses required in his particular curriculum and who has not satisfied all the requirements of his curriculum; (2) 1½ honor points per credit in his major subject; and (3) an average of 1 honor point per credit in all other courses pursued during the junior and senior years.

c. Fifteen credits are regarded as the usual load. Students who wish to register for more than 17 hours must show a record of 1½ honor points per credit for the previous quarter. Students may not carry less than 13 hours without petition.

d. A maximum of 27 credits is elective from courses in agriculture and home economics except in the special curricula in those fields.

e. No student whose absences in any course exceeds one sixth of the scheduled meetings of the class shall be admitted to the final examination without permission of the dean of the college or of the Students' Work Committee.

f. Continued residence in the college is conditioned upon reasonable success in the student's work. Any student who does not make satisfactory progress in the course in which he is registered may be placed on probation by the Students' Work Committee. No student is considered to have a wholly satisfactory standing who fails to secure in the course of any year the normal advance of one honor point for each credit for which he is registered. A student who is found to be below passing in 50 per cent of his work either at the middle or at the end of the quarter will be placed on probation.

¹ For requirements in Education see p. 26.

g. All students registered in the College of Education shall maintain satisfactory standards of oral and written English. A Committee on Standards of English in Education will recommend ways of remedying deficiencies and will determine when satisfactory standards have been attained.

h. Students registered as freshmen and sophomores in the College of Education will be guided by the faculty regulations of the College of Science, Literature, and the Arts, but will be amenable to the Students' Work Committee of this college.

i. Honor points are computed on the basis of one and one-half times the number of credits required in the major subject, e.g., in case a major recommendation requires 36 credits, the number of honor points will be 54. From among the courses carried in a department the student may select those which he will present as meeting this requirement except that he must include all courses which are specified in the departmental announcement as required for the recommendation for the certificate.

Credits and honor points.—The Senate regulations governing the system of marks is as follows:

1. That there shall be four grades, A, B, C, and D, representing varying degrees of achievement, which shall be acceptable for the completion of a single course; but this definition shall not be construed as preventing any college or school from setting special standards of performance as a condition of registration in particular courses of study, of admission to the college or school, of promotion, of counting work toward a degree, or of continued residence in the college or school. Work merely acceptable for the completion of all his single courses of study does not constitute a satisfactory record for a student when his college specifies higher requirements for any purpose.

2. There shall be two grades indicating work of distinctly unsatisfactory quality. These grades shall be known as E (condition), which may be removed by examination or other means stipulated by the faculty of the college or school concerned, and F (fail) which may be removed only by a repetition of the work in the course, or, in exceptional cases, by examination by permission of the faculty concerned.

3. There shall be a Grade I (incomplete), which shall indicate that a student, for reasons satisfactory to the instructor in charge, shall have been unable to complete the work of the course. This grade shall be given only when the work already done has been of a quality acceptable for the completion of the course. Any student receiving this grade shall be given an opportunity to complete the said course within the first thirty days of his next quarter in residence.

4. There shall be a symbol, T (transferred), indicating the transfer of credit from another institution or from one college to another of the University of Minnesota. This symbol shall be provisional and subject to final evaluation by the faculty of the college or school to which the student is transferred.

The amount of work pursued by a student is estimated in credit hours; the quality or grade of his work, in honor points.

A *credit hour* is one hour per week of recitation or lecture work extending throughout one quarter, or three hours per week of laboratory work through one quarter. It is assumed that each credit hour will demand on the average three hours a week of the student's time for recitation or lecture, one hour in class and two hours of preparation; for laboratory courses, three hours in the laboratory.

Honor points are computed as follows: each credit hour with the grade of A entitles the recipient to 3 honor points; each credit hour with the

grade of B entitles the recipient to 2 honor points; each credit hour with the grade of C to 1 honor point; each credit hour with the grade of D to no honor points. Illustration: A student completing a one-quarter 3-credit course and receiving the grade of A would be entitled to 9 honor points; if receiving the grade of B, to 6 honor points; if receiving the grade of C, to 3 honor points; if receiving the grade of D, to no honor points.

Professional lectures.—From time to time during the year lectures of general interest to students of education will be given by members of the faculty and invited speakers. All students in the College of Education are expected to attend these lectures. Special announcements will appear in the *Official Daily Bulletin*.

CERTIFICATION OF TEACHERS

Employment in a professional capacity in the schools of Minnesota is conditioned upon the proper licensing of the person to be employed. By a recently enacted law (1929) all authority for such certification is conferred upon the State Department of Education. Certification by institutions and the university teacher's certificate have been discontinued. Within the scope of this law the University operates its program for those students who desire certification for teaching in the public schools.

The law provides that certification is automatic for the graduates of the College of Education who have completed specifically named curricula in this college. No provision is made for the certification of any other university graduates. Certificates may be issued only to those persons who are "physically competent and morally fit to teach." The various curricula in the College of Education provide the training necessary for any type of state certificate which is based upon four or five years of training beyond the high school.

Courses which provide the training necessary for holding positions in the public schools of Minnesota are offered in the following subjects:

Agriculture	Home Economics
Art Education	Industrial Education
Botany	Junior High School Education
Chemistry	Latin
Clinical Psychology	Library Methods
Commercial Education	Mathematics
Educational and Vocational Guidance	Natural Science
Educational Psychology	Nursery School and Kindergarten Education
Elementary Education	Nursing Education
Elementary School Supervision	Physical Education for Men
English	Physical Education for Women
French	Physics
Geography	Political Science
German	Professional Education of Teachers
History	Public Health Nursing

Public School Administration	Sociology
Public School Music	Spanish
Scandinavian	Speech
School Health Work	Teaching Subnormal Children
Social Studies	Zoology

Students who desire certification upon graduation shall be registrants in the College of Education beginning with the junior year. Students in home economics and agriculture will also be registrants in the College of Agriculture, Forestry, and Home Economics. They shall have satisfied the prescribed requirements for a major and a minor in secondary school subjects or the specific requirements of a specialized curriculum as outlined in this bulletin. Such students will also be required to complete the two years' work leading to the degree of bachelor of science. No certificate is granted without a degree from the University of Minnesota.

By a proper selection of courses students qualifying for the degree of bachelor of science may qualify for teaching in more than one field. This is desirable since most beginning teachers in public schools are required to teach more than one subject.

PREScribed COURSE OF STUDY FOR TEACHERS OF SECONDARY SCHOOL SUBJECTS

In order to receive the bachelor's degree and to qualify for the state general high school certificate in secondary school subjects, students not completing a specialized curriculum as set forth in this bulletin will be required to pursue in addition to one academic major and one academic minor the following professional courses, totaling 26 credits.

A. *Required courses—General.*

Course No.	Title	Credits	Prerequisite Courses
Ed.Psy. 55	Educational Psychology	3	Psy. 1-2
Ed.T. 15	Technique of High School Instruction	3	Ed.Psy. 55
Ed.Ad. 65	The High School	3	Ed.Psy. 55

B. *Methods and practice teaching.*—In addition the student must complete a *Special Methods and Practice Teaching Course* (9 credits, prerequisite, Ed.T. 15) in his major field and a course in *Special Methods* in his minor field (3 credits, prerequisite, Ed.T. 15).

C. *Education electives.*—To complete the professional requirement of 26 quarter credits required for this degree and the teacher's certificate the candidate will elect additional credits, under faculty advisement, from among the following subjects:

GENERAL REQUIREMENTS

27

Course No.	Title	Credits	Prerequisite Courses
H.Ed. 1	Brief Course in History of Education ..	5	Psy. 1-2
H.Ed. 3	Educational Sociology	3	Psy. 1-2
H.Ed. 5	Public Education in the U. S.	3	Psy. 1-2
H.Ed. 101	Historical Foundations of Modern Education	3	Psy. 1-2
H.Ed. 102	History of Modern Secondary and Higher Education	3	Psy. 1-2
H.Ed. 103	History of Modern Elementary Education	3	Psy. 1-2
Ed.Ad. 75	The Elementary School	3	Ed.Psy. 55
Ed.Ad. 113	The High School Curriculum	3	10 hrs. in ed.
Ed.Ad. 121	Educational Advising of Women and Girls	3	15 hrs. in ed. and psy.
Ed.Ad. 124	Public School Administration	3	10 hrs. in ed.
Ed.Ad. 133-134	Guidance in Secondary Schools	4	10 hrs. in ed.
Ed.Ad. 167-168	The Junior High School	4	10 hrs. in ed.
Ed.Ad. 169	Extra-curricular Activities	2	10 hrs. in ed.
ArtEd. 189	Application of Esthetic Theory to Art Education	3	See departmental statement
Ind. 105	Industrial Education	3	See departmental statement
Ind. 110	Guidance in the Schools	2	Ed.Psy. 55
H.E.Ed. 143	Home Economics Curricula	2	H.E. 42
Ed.T. 110	Educational Diagnosis in Secondary Education	2	Ed.Psy. 55
Ed.T. 122	Literature for Adolescents	3	See departmental statement
Ed.T. 193	Foundations of Secondary School Methods	3	Ed.T. 15
Ed. Psy. 134	Mental Tests	2	Ed.Psy. 55 and 60
Ed.Psy. 146-147	Child Guidance	4	15 hrs. in psy. and ed.
Ed.Psy. 157	Psychology of Child Development	2	6 hrs. in psy.
Ed.Psy. 158	Psychology of Adolescence	3	Ed.Psy. 55 or equiv.
Ed.Psy. 159	Psychology of Personality	3	Ed. Psy. 55 and 60 or 134 or equiv.
P.M.&P.H. 80	Health Supervision of the School Child	3	P.M.&P.H. 50 or 52 or 53

PRACTICE TEACHING¹

Special methods and practice teaching are normally combined into a one-year course extending throughout the senior year. Failure to register for such course for the fall quarter of the senior year may result in delay in graduation. All courses prerequisite to special methods and practice teaching should have been completed by the beginning of the senior year. In addition to the special methods and practice teaching course in the subject which the student wishes to teach he must satisfy the requirements for a major or minor in that subject according to his curriculum. By the beginning of his senior year he should have completed courses in his academic field which will enable him to do practice teaching satisfactorily.

Arrangements for practice teaching should be made at the close of the junior year and before the student registers for other courses. In the academic subjects arrangements should be made through Mr. Charles W.

¹ See departmental statement.

Boardman, principal of the University High School, and in the special subjects through the major advisers, as follows:

Agricultural Education	A. V. Storm
Art Education	Ruth Raymond
Commercial Education	Ellen A. Davidson
Home Economics	Ella J. Rose
Industrial Education	Homer J. Smith
Nursery School and Kindergarten Education ...	John E. Anderson
Physical Education for Men	L. F. Keller
Physical Education for Women	J. Anna Norris
Public School Music	Carlyle Scott, A. Pepinsky
Teaching of Subnormal Children	John G. Rockwell

The teachers' courses in methods of teaching and in practice teaching are combined into a one-year course in the following subjects:

English	German
Mathematics	Latin
Secondary school science	Romance languages (French and Spanish)
History and social science	Commercial subjects

SPECIALIZED CURRICULA AND MAJOR SEQUENCES

SPECIALIZED CURRICULA IN ADMINISTRATION OR SUPERVISION

The following specialized curricula are prescribed for prospective superintendents of schools, elementary school principals or supervisors, and high school principals. These curricula require five years for completion, two years in the Junior College, two years in one of the three special curricula in the College of Education, and one year in the Graduate School. The satisfactory completion of four years of work entitles the student to the degree of bachelor of science and to the state high school or elementary school teacher's certificate. The satisfactory completion of the fifth year's work entitles the student to the Master's degree and provides the training for the university certificate in administration or supervision.

1. *Students from other institutions.*—Students entering from other institutions may qualify for the certificate in administration or in supervision, either by meeting the requirements set forth below or by making such substitutions or modifications as their previous education and training shall warrant. All substitutions or modifications of these requirements must meet with the approval of the student's major adviser and the faculty.

2. *Extra-curricular activities.*—The student who is anticipating the field of public school administration as his life work should avail himself of the opportunities which the University offers for the development of leadership and those personal qualities essential to success in the administrative field. Under guidance, he should select for active participation those extra-curricular activities which offer the best training and experience suitable to his individual needs.

3. *Teaching minors.*—Students anticipating the state high school certificate must complete two teaching minors during the four years of undergraduate work, and a course in special methods and practice teaching in one of these minors. A third teaching minor is desirable. Students should have these requirements in mind when planning their junior college work. The teaching minors¹ may be selected from any two of the following fields: English, foreign language, history and social science, mathematics, science. Other teaching minors may be selected on the approval of the major adviser and the faculty.

¹ See departmental course outlined for minor requirements.

CURRICULA IN ADMINISTRATION OR SUPERVISION

A. GENERAL JUNIOR COLLEGE CURRICULUM

FOR ALL STUDENTS ANTICIPATING A FOUR- OR FIVE-YEAR SPECIALIZED CURRICULUM IN ADMINISTRATION OR SUPERVISION

Freshman Year

Course No.	Title	Credits
Eng. A-B-C or Comp. 4-5-6	Freshman English	15
Hist. 1-2	Freshman Composition (or exemption)	9
Pol.Sci. 1	Modern World	10
	American Government	5
	Natural Science	10
	French or German ¹	5
	Physical Education	
	Military Science	

Sophomore Year

Course No.	Title	Credits
Psy. 1-2	General Psychology	6
Soc. 1	Introduction to Sociology	5
Econ. 8-9	Principles of Economics ²	6
	Electives ³	28
	Physical Education	
	Military Science	

B. CURRICULA IN COLLEGE OF EDUCATION--SPECIALIZED CURRICULA IN ADMINISTRATION OR SUPERVISION

I. THREE-YEAR CURRICULUM FOR SUPERINTENDENTS OF SCHOOLS AND ELEMENTARY SCHOOL PRINCIPALS

Major Adviser: Fred Engelhardt

Junior Year

Course No.	Title	Credits
Ed.Psy. 55	Educational Psychology	3
Ed.Psy. 60	Statistical Methods	2
Ed.T. 15	Technique of High School Instruction	3
Ed.Ad. 75	The Elementary School	3
Ed.Ad. 65	The High School	3
	Electives ^{3,4}	31

¹ Twenty credits must be secured in either French or German in the University if no work in these languages was presented for entrance. (See General Information p. 19.)

² See College of Engineering bulletin.

³ The electives should be selected in view of the teaching minor requirements.

⁴ Selection under guidance from the following additional courses is recommended: Ind. Ed. 105, Industrial Education; Public Health 53, Elements of Preventive Medicine; Speech and Journalism; Phys. Ed. 97, Organization and Administration of Physical Education; Agricultural Administration 151; Ed.Ad. 158, Organization for Supervision; H.Ed. 3, Educational Sociology; H.Ed. 103, History of Education.

Senior Year

Course No.	Title	Credits
Ed.T.	Special Methods and Practice Teaching	9
Ed.Ad. 124	Public School Administration	3
Ed.Ad. 125	Techniques in Administration	3
Ed.Ad. 150	Supervision and Improvement of Instruction	2
Ed.Ad. 156	Practice Supervision	3
Ed.Ad. 123	Supervision of High School Instruction	3
Ed.Psy. 134	Mental Tests	2
	Electives ¹	20

II. THREE-YEAR CURRICULUM FOR HIGH SCHOOL PRINCIPALS

Major Adviser: Harl R. Douglass

Junior Year

Course No.	Title	Credits
Ed.Psy. 55	Educational Psychology	3
Ed.Psy. 60	Introduction to Statistical Methods	2
H.Ed. 102	History of Modern Secondary and Higher Education	3
Ed.T. 15	Technique of High School Instruction	3
Ed.Ad. 75	The Elementary School	3
Ed.Ad. 65	The High School	3
	Electives ^{1,2}	28

Senior Year

Course No.	Title	Credits
Ed.T.	Special Methods and Practice Teaching	9
Ed.Ad. 124	Public School Administration	3
Ed.Ad. 150	Supervision and Improvement of Instruction	2
Ed.Ad. 133-134	Guidance in Secondary Schools	4
Ed.Ad. 113	High School Curriculum	3
Ed.Ad. 123	Supervision of High School Instruction	3
Ed.Psy. 134	Mental Tests	2
Ed.Psy. 111	Educational Measurements in the Elementary School	3
Ind. 105	Industrial Education	3
	Electives ²	13

¹ Selection under guidance from the following additional courses is recommended: Ind. Ed. 105, Industrial Education; Public Health 53, Elements of Preventive Medicine; Speech and Journalism; Phys. Ed. 97, Organization and Administration of Physical Education; Agricultural Administration 151; Ed.Ad. 158, Organization for Supervision; H.Ed. 3, Educational Sociology; H.Ed. 103, History of Education.

² The electives should be selected in view of the teaching minor requirements.

III. THREE-YEAR CURRICULUM FOR ELEMENTARY SCHOOL SUPERVISORS

The completion of the first two years of this curriculum entitles one to the advanced elementary school certificate for teaching in the elementary and not in the high school.

Major Adviser: Leo J. Brueckner

Required Courses

Course No.	Title	Credits
Ed.Psy. 56	Educational Psychology	3
Ed.Psy. 60	Introduction to Statistical Methods	2
Ed.Psy. 111	Educational Measurements in the Elementary School	3
Ed.Psy. 134	Mental Tests	2
Ed.Ad. 75	The Elementary School	2
Ed.Ad. 119	Elementary School Curriculum	3
Ed.Ad. 124	Public School Administration	3
Ed.Ad. 125	Techniques in Administration	3
Ed.Ad. 150	Supervision and the Improvement of Instruction	2
Ed.Ad. 151	Uses of Tests in Improving Instruction	2
Ed.Ad. 156	Practice Supervision	3
	Elective in Supervision	2
Ed.T. 181	Technique of Elementary Instruction	3
Total		33

Eleven hours of electives from courses listed below

Course No.	Title	Credits
H.Ed. 3	Educational Sociology	3
H.Ed. 103	History of Modern Elementary Education	3
Ed.T. 23	Teachers Course in Geography	3
Ed.T. 45	Teaching of Geography and History in the Elementary School	2
Ed.T. 143-144	Teaching of Reading in Elementary School	3 or 4
Ed.Ad. 152	Supervision—Adjustment of Schools to Individual Differences	2 or 3
Ed.Ad. 153	The Supervision of English	2 or 3
Ed. Ad. 154	The Supervision of Social Studies	2
Ed.Ad. 155	The Supervision of Arithmetic	2
Ed.Ad. 157	Practice in Supervision	3
Ed.Ad. 158	Organization for Supervision	2
Ed.Ad. 159	Supervision of Reading	2
Ed.Ad. 160	Supervision of Elementary Subjects	2
Ed.Ad. 167-168	The Junior High School	4
	Special methods courses in elementary and junior high school teaching.	
	Total required credits	44
	18 credits in each of two of the following fields or such others as may be approved: English literature, history, languages, political science, natural science, social science, mathematics, geography, art, music, or physical education	36
	General electives	10
Total credits required		90

C. GRADUATE SCHOOL CURRICULUM

*Fifth Year*FOR STUDENTS ANTICIPATING A CERTIFICATE IN ADMINISTRATION
OR SUPERVISION

The candidate for the certificate of administration or supervision in any one of the following fields (superintendent of schools, elementary principal, elementary supervisor, and secondary school principal) must satisfactorily complete the requirements for the Master's degree (see Graduate School bulletin). The language requirement may be waived in all cases where a language is not essential in the thesis or the work to be pursued.

The work of the student shall constitute a major in educational administration and supervision and a minor in educational psychology.

AGRICULTURAL EDUCATION

PREPARATION FOR TEACHING AGRICULTURE

Students who have completed the required work of the freshman and sophomore years of the College of Agriculture, or equivalent, may prepare to teach agriculture in the public schools by completing the junior and senior years in a combined curriculum of the College of Education and the College of Agriculture.

The agriculture requirements can be fulfilled by the major, minor, and elective plan (Method I) as shown below, or by completing the suggested curriculum under Method II shown later.

The education requirements can be fulfilled by completing satisfactorily 24 quarter hours in Agricultural Education courses some of which are required courses. The courses now required are 11, 42, 181, 182, 183.

FRESHMAN AND SOPHOMORE COURSES

The courses during the freshman and sophomore years are the same as are required of all agriculture students in the College of Agriculture. Every student should, if possible, complete these subject courses before the end of the sophomore year. Any subjects that cannot be taken in the freshman or sophomore years must take precedence the following year. Care should be taken in registration to give precedence to courses offered only one quarter. See bulletin, College of Agriculture, Forestry, and Home Economics.

JUNIOR AND SENIOR YEARS

METHOD I. ELECTIVE CURRICULA

Under this method the student, with the approval of his adviser, may select any curriculum which complies with the following requirements:

- a. A major of from 24 to 36 credit hours.
- b. A minor of 18 credit hours.

- c. Limited electives 18 credit hours, which must be selected outside of the groups from which the major and minor have been chosen, and
- d. Free electives, sufficient to meet the number of credit hours required for graduation chosen from any of the courses offered in the University.

The major and minor must be selected from different elective groups, except that students whose major is chosen from Group 3 (see below), Agricultural Sciences and Plant Industry, may select their minor from a different field of work in the same group.

Elective Groups

A. Groups from which major, minor, or electives may be chosen

1. Agricultural Economics and Farm Management
2. Agricultural Education
3. Animal Industry, including
 - Animal Husbandry
 - Dairy Husbandry
 - Poultry Husbandry
 - Veterinary Medicine
4. Agricultural Sciences and Plant Industry, including
 - Agricultural Biochemistry
 - Agricultural Education
 - Agronomy and Plant Genetics
 - Entomology and Economic Zoology
 - Horticulture
 - Plant Pathology and Botany
 - Soils
5. Agricultural Engineering

B. Groups from which electives only may be chosen

1. Bee Culture
2. Forestry
3. Home Economics
4. Military Science and Tactics
5. Physical Education
6. Rural Publications and Journalism
7. Courses in departments of other schools and colleges of the University

METHOD II. SUGGESTED CURRICULUM

Below is found a suggested curriculum which, tho not required, may serve as a guide to students desiring a well-balanced preparation for teaching agriculture and the sciences, for serving as county agent or for practical farming, and will facilitate making a program that will avoid conflicts.

JUNIOR YEAR

Fall Quarter

Agron. 121f, Grain Crops, 3 (Agron. 1, Bot. 9 cred.)
An. Husb. 2f, Types and Breeds of Livestock, 3 (An. Husb. 10-11)
Dy. Husb. 101f, Milk Production, 5 (Dy. Husb. 1)
Hort. 6f, Fruit Growing, 3 (May be omitted if completed as a part of the general requirements)
Electives, 3 or 6

SENIOR YEAR

Agr. Econ. 40f,s, Principles of Marketing Organization, 3 (Agr. Econ. 2)
Agron. 102f,w, Farm Management Organization, 3 (Agron. 1, Agr. Econ. 2, Soils 4)
Dy. Husb. 6f, Judging Dairy Cattle, 1 (An. Husb. 1)
Pl. Path. 1f, Plant Pathology, 5 (Bot. 9 cred.)
Electives, 5

Winter Quarter

Agron. 131f,w, Principles of Genetics, 3 (Bot. or Zool. 9 cred.)	Agron. 103w,s, Farm Management Opera- tion, 3 (Agron. 102)
An. Husb. 3w, Types and Breeds of Livestock, 3 (An. Husb. 2)	Sociol. 14f,w,s, Rural Sociology, 3 (Sociol. 1 or sr. class.)
Ent. 3f,w, Economic Entomology, 3 (Zool. 16)	Electives, 11
Vet. 9w, Veterinary Studies, 3	
Electives, 5	

Spring Quarter

Agr. Eng. 40f,s, Mechanical Training I, 3	Electives, 17
Agron, 123s, Forage Crops, 3 (Agron. 1, Bot. 9 cred.)	
An. Husb. 8s, Fundamentals of Feed- ing and Management, 5	
Vet. 10s, Veterinary Studies, 3 (Vet. 9)	
Electives, 3	

It is recommended that electives be chosen from the courses in Agricultural Education or from such of the subject-matter courses as will best complete a well-balanced and well-distributed preparation. In addition to those found in the suggested curriculum above may be mentioned Agricultural Engineering 12; Agronomy 122, 132, 133; Forestry 37; Plant Pathology 9; Poultry 1; Publications and Rural Journalism 19. Recommended electives in education: Agr.Ed. 141, 161; Ed.Ad. 65T.

Graduates of the University of Minnesota completing these agriculture and education requirements will be eligible for the Minnesota "high school standard special" certificate for teaching agriculture and the sciences in high schools or elementary schools of this state.

Students desiring to obtain the teacher's certificate should consult the head of the Division of Agricultural Education, preferably during the freshman year, to avoid difficulties that may arise in program making.

ART EDUCATION

Major Adviser: Ruth Raymond

The following special curriculum leads to the degree B.S. and provides the training necessary for the Minnesota "high school standard special" certificate for teaching art in elementary or high school. Teachers with experience in other subjects and with talent and taste for art are especially recommended to qualify for art supervision. A minor is provided with especial reference to graduates of state teachers colleges who have taste in art and some teaching experience, that they may meet our state's need for teachers of art in combination with other elementary or high school subjects. For the statement of requirements in this art minor see below.

Students preparing for the university degree and a teacher's certificate in art may register in the Department of Art Education at the beginning of their freshman year.

FOUR-YEAR CURRICULUM IN ART EDUCATION

1. In Art, the following is the minimal requirement for the art major:
 - 18 credits in design
 - 18 credits in drawing
 - 12 credits in handicrafts¹
 - 5 credits in art history and appreciation²
 - 3 credits in theory of art teaching
 - 9 credits in practice teaching and special methods in art
2. In professional education courses:
 - 3 credits in Educational Psychology, Ed.Psy. 55 or 56
 - 3 credits in Technique of High School Instruction, Ed.T. 15
 - 12 credits selected from the list of options on page 27
3. A minor group: a minimum of 18 credits, chosen, in accordance with the individual student's interest and ability, from any one of the departments offering courses through the College of Education bulletin.³
4. Required supporting courses: a minimum of
 - 19 credits in English composition and literature
 - 10 credits in history, if a minor of high school history has not been presented for entrance
 - 6 to 10 credits in a natural science, if a minor of a laboratory science has not been presented for entrance
 - 6 credits in general psychology
 - 5 credits in sociology
 - 3 credits in textiles
5. Electives. Recommended electives: continuation of a language begun in high school (French especially recommended); speech arts, for use in teaching, and to lead to the play production courses; courses in philosophy, history, sociology, and psychology; courses for the appreciation of music, literary classics, and the stage, (attendance upon concerts, exhibitions, and plays is urged as part of an art education). A large number of the 40 electives may be spent profitably for art courses beyond the minimal requirement listed above.

Requirements for a Minor in Art

- 9 credits in design
- 9 credits in drawing
- 6 credits in handicrafts
- 3 credits in art history and appreciation
- 3 credits in special methods and practice teaching

¹ Course 11 in Industrial Education may be chosen as a handicraft.

² Art.Ed. 55, 56, 57, 70, 153, and 154, and the various courses offered in English by the Greek Department may fulfill this requirement as well as those courses specifically designated Art History or Art Appreciation.

³ This requirement is waived for graduates from state teachers colleges.

BOTANY

Botany as a major subject:

	Credits
Bot. 1 General Botany	4
Bot. 2 Elementary General Morphology of Plants	3
Bot. 7 Taxonomy of Flowering Plants	3
Bot. 21 Elementary Ecology	3
Bot. 22 Elementary Plant Physiology	3
Bot. 12 Morphology of Algae and	
Bot. 13 Morphology of Fungi	6
or	
Bot. 23 Bryophytes and Pteridophytes and	
Bot. 63 Gymnosperms and Angiosperms	6
Additional courses	9
Bot. 51 Histological Methods, advised	
Total credits	31

Botany as a minor subject:

Bot. 1, 2, 7, 21 or 22 Bot. 51 advised (see above)	
Total credits	20
For specialized curriculum in natural science, see p. 54.	

CHEMISTRY

Major Adviser: H. O. Jackson

Chemistry as a major subject:

	Credits
Inorg.Chem. 9-10 General Inorganic Chemistry	10
Inorg.Chem. 12-13 Qualitative Chemical Analysis	10
Anal.Chem. 1-2 Quantitative Analysis	10
Org.Chem. 51-52 Organic Chemistry	10
Total credits	40

Chemistry as a minor subject:

Inorg.Chem. 9-10, 12-13; Anal. Chem. 1-2 or 7 and six additional credits in chemistry	
Total credits	30

Students without entrance credits in chemistry must take Inorg.Chem. 6-7-8 (15 credits) instead of Inorg.Chem. 9-10 (10 credits).

For specialized curriculum in natural science, see p. 54.

COMMERCIAL EDUCATION

Major Adviser: Ellen A. Davidson

The curriculum in commercial education is designed to prepare teachers of commercial subjects in secondary schools. It is purposely made much broader in its scope than the present program of the typical high school commercial department, with the idea of paving the way for meeting more effectively than at present the needs of high school students who enter business. Satisfactory completion of this curriculum leads to the bachelor

of science degree and provides the training necessary for the Minnesota "high school standard special" certificate for teaching commercial subjects.

The first two years' work, taken in the Junior College, Science, Literature, and the Arts, consists of the regular academic requirements of that college, with the foreign language requirement omitted and foundation courses in psychology, economics, statistics, and accounting added.

Students who enter the College of Education from other institutions must substitute for some of their electives such of the junior college requirements as they have not fulfilled. Graduates from the two-year course in state teachers colleges may find it necessary to attend an extra summer session in order to meet all requirements.

FOUR-YEAR CURRICULUM IN COMMERCIAL EDUCATION

JUNIOR COLLEGE¹

1. 9 credits in English (Composition 4-5-6 or Eng. A-B-C or exemption)
2. 10 credits in one natural science
3. 10 credits in one social science, other than economics
4. 5 credits in Mechanism of Exchange (Economics 3)
5. 10 credits in Principles of Economics (Economics 6-7)
6. 6 credits in General Psychology (Psychology 1-2)
7. 3 credits in Elements of Accounting (Econ. 20)²
8. 6 credits in Principles of Accounting (Economics 25-26)
9. 5 credits in Elements of Statistics (Economics 14)
10. 1 credit in Typewriting (Econ. 32)³
11. 26 credits of electives, for which the following are especially recommended: continuation of a language begun in high school, speech, philosophy, additional social science

COLLEGE OF EDUCATION

Junior Year

Course No.	Title	Credits
Econ. 51-52-53	Business Law	9
Econ. 37-38-39 ⁴	Secretarial Training	9
Econ. 33-34 ³	Secretarial Training	2
B.A. 139	Advanced General Accounting	3
Ed.Psy. 55	Educational Psychology	3
Ed.T. 15	Technique of High School Instruction	3
Ed.Ad. 65	The High School	3
	Electives	

¹ During the freshman and sophomore years students must secure the required credits in physical education. Men must also register for military science.

² Students who have had a high school course or experience in bookkeeping may be exempt from this course and admitted to Economics 25 by passing a placement test.

³ Students who have had one year of high school typewriting are admitted to Econ. 33; those who have had two years of high school typewriting are admitted to Econ. 34.

⁴ Students who have had two years of high school shorthand are admitted to Econ. 40 and are exempt from Econ. 37-38 39.

Senior Year

Course No.	Title	Credits
Ed.T. 80-81-82	Special Methods and Practice Teaching	9
Econ. 40-41-42	Secretarial Training	9
Econ. 85	Economics of Marketing	3
Econ. 141	Monetary and Banking Policy	3
Econ. 161	Labor Problems	3
B.A. 86	Office Management	3
Geog. 41	Geography of Commercial Production	5
Geog. 102	Trade Routes and Trade Centers	3
	Electives	

Recommended Electives

	Credits
History of Education (H.Ed. 1)	5
Educational Sociology (H.Ed. 3)	3
Advertising (Psychology 56 and B.A. 88)	6
Introduction to Economic History (History 80-81)	6
Personnel Management (B.A. 167)	3
Additional English Composition	6
The Modern Corporation (Economics 160)	3
Survey of Cost Accounting (B.A. 130)	3
Economics of Transportation (Economics 172)	3

EDUCATIONAL PSYCHOLOGY

UNDERGRADUATE CURRICULA IN EDUCATIONAL PSYCHOLOGY,
CLINICAL PSYCHOLOGY, AND EDUCATIONAL AND
VOCATIONAL GUIDANCE

Students who are planning on assuming certain specialized duties in connection with their high school teaching or who are interested in securing a basis for graduate work may elect an undergraduate major or minor in the above fields.

These curricula are intended particularly for students who may perform the duties of counselor, dean, clinical psychologist, or specialist in tests and measurements in connection with teaching duties in the high school. It is not their purpose to produce a person with highly specialized training in those fields, but to supply a basis for later professional growth as well as some immediate background for handling the problems involved in the several positions indicated. Students with a real interest in these fields are advised to procure training on the graduate level.

Three general programs have been set up. The first constitutes a major or minor in general educational psychology; the second is a major in clinical educational psychology; and the third is a major or minor in educational and vocational guidance. It is expected that students who secure a major in one of these curricula will also secure two teaching minors in meeting the requirements for the state teacher's certificate. If the curricula are elected as minors, it is expected that the student will secure a major in an academic subject in order to meet the requirements for the certificate.

Permission of the adviser must be secured to elect one of these curricula.

I. UNDERGRADUATE CURRICULUM IN EDUCATIONAL PSYCHOLOGY

Major Advisers: W. S. Miller, A. C. Eurich

For a Major

Course No.	Title	Credits
Psy. 1-2 ¹	General Psychology	6
Psy. 4-5	Introductory Laboratory Psychology	4
Ed.Psy. 55	Educational Psychology	3
Ed.Psy. 60	Introduction to Statistical Methods	2
Ed.Psy. 134	Mental Tests	2
Ed.Psy. 157	Psychology of Child Development	
	or	
Ed.Psy. 158	Psychology of Adolescence	3
Ed.Psy. 159	Psychology of Personality	3
	Electives in Educational Psychology	7
	Total	30

For a Minor

Course No.	Title	Credits
Psy. 1-2 ¹	General Psychology	6
Psy. 4-5	Introductory Laboratory Psychology	4
Ed.Psy. 55	Educational Psychology	3
Ed.Psy. 60	Introduction to Statistical Methods	3
Ed.Psy. 134	Mental Tests	2
Ed.Psy. 157	Psychology of Child Development	
	or	
Ed.Psy. 158	Psychology of Adolescence	3
	Total	21

In addition to the above major or minor requirements students will take Ed.Ad. 65, The High School, 3 credits; Ed.T. 15, Technique of High School Instruction, 3 credits; and practice teaching and special methods, 9 credits.

II. CLINICAL PSYCHOLOGY

Major Adviser: J. G. Rockwell

The following courses are considered basic for the training of the clinical psychologist. The student should plan on pursuing training for an advanced degree. He may secure an undergraduate major by electing a total of 45 credits from the courses listed below.

Course No.	Title	Credits
Psy. 1-2 ¹	General Psychology	6
Psy. 4-5	Introd. Lab. Psychology	4
Psy. 144-145	Abnormal Psychology	6
Soc. 1	Introduction to Sociology	5
Soc. 49	Occurrence of the Socially Inadequate	3
Soc. 52	Elementary Case Work	3
Soc. 53	Elements of Criminology	3
Soc. 60	Social Protection of the Child	3
Soc. 90-91-92	Elementary Field Training	6
Ed.Psy. 55	Educational Psychology	3
Ed.Psy. 60 or 116-117	Statistical Methods	2 or 4

¹ To be taken during the sophomore year. Graduates of normal schools are not permitted to take Psy. 1 or 2 for credit.

CURRICULA

41

Course No.	Title	Credits
Ed.Psy. 134	Mental Tests	2
Ed.Psy. 143-144	Individual Mental Examination	4
Ed.Psy. 146-147	Child Guidance	4
Ed.Psy. 149-150-151	Psycho-Educational Clinic	6
Ed.Psy. 184	Mental Deficiency	2

In addition to the above, major students will take Ed.Ad. 65, The High School; Ed.T. 15, Technique of High School Instruction, 3 credits; and practice teaching and special methods, 9 credits.

III. EDUCATIONAL AND VOCATIONAL GUIDANCE

Major Advisers: M. E. Haggerty, Ruth A. Merrill

For a Major

Course No.	Title	Credits
Psy. 1-2 ¹	General Psychology	6
Psy. 4-5	Introd. Lab. Psychology	4
Ed.Psy. 55	Educational Psychology	3
Ed.Psy. 60	Introduction to Statistical Methods	3
Ed.Psy. 134	Mental Tests	2
Ed.Psy. 187	Practice in Personnel Work	2
Ed.Ad. 65	The High School	3
Ed.Ad. 169	Extra-curricular Activities	2
Soc. 1	Introduction to Sociology	5
Soc. 49	Occurrence of the Socially Inadequate	3
Soc. 52	Elementary Case Work	3
Soc. 90	Elementary Field Training in Case Work	2
Fd.Ad. 133	Guidance in Secondary Schools, or	} 2 or 3
Ind.Ed. 110	Guidance in the Schools, or	
Ed.Ad. 121	Educational Advising of Women and Girls	
	Electives	5
Total		45 or 46

For a Minor

Course No.	Title	Credits
Psy. 1-2 ¹	General Psychology	6
Psy. 4-5	Introd. Lab. Psychology	4
Ed.Psy. 55	Educational Psychology	3
Ed.Psy. 60	Introduction to Statistical Methods	3
Ed.Psy. 134	Mental Tests	2
Soc. 1	Introduction to Sociology	5
Soc. 49	Occurrence of the Socially Inadequate	3
Ed.Ad. 65	The High School	3
Ed.Ad. 133	Guidance in Secondary Schools, or	} 2 or 3
Ind.Ed. 110	Guidance in the Schools, or	
Ed.Ad. 121	Educational Advising of Women and Girls	
Total		28 or 29

In addition to the above major or minor requirements students will take Ed.T. 15, Technique of High School Instruction, 3 credits; and practice teaching and special methods, 9 credits.

¹To be taken during the sophomore year. Graduates of normal schools are not permitted to take Psy. 1 or 2 for credit.

ELEMENTARY EDUCATION

PRESCRIBED CURRICULUM FOR THE ADVANCED CERTIFICATE
FOR ELEMENTARY SCHOOL TEACHERS

Major Advisers: L. J. Brueckner, W. E. Peik

Students who have been graduated from a two-year teachers college or normal school course or its equivalent and who wish to work for the Bachelor's degree in education and the Minnesota "elementary school advanced" certificate for teaching in elementary schools should enroll in this curriculum. By substituting certain courses in the junior high school field the certificate can be made legal for junior high schools. The courses listed below as required presuppose a full two-year normal training course.

Course No.	Title	Credits
Ed.Psy. 56	Educational Psychology	3
Ed.Psy. 60	Educational Statistics	2
Ed.Psy. 111	Educational Measurements in the Elementary School	3
Ed.Ad. 119-120	Elementary School Curriculum	4
Ed.Ad. 124	Educational Administration	3
Ed.Ad. 150	Supervision and Improvement of Instruction	3
Ed.T. 143	The Teaching of Reading in the Elementary School	2
Ed.T. 181	Technique of Elementary Instruction	3

Thirteen hours to be elected from courses listed below

Ed.Ad. 75	The Elementary School	3
Ed.Ad. 151	Use of Tests in Improvement of Instruction	2
Ed.Ad. 152	Supervision—The Adjustment of Schools to Individual Differences	2
Ed.Ad. 153	Supervision of English in the Elementary Schools	2
Ed.Ad. 155	Supervision of Arithmetic in the Elementary Schools.....	3
Ed.Ad. 159	The Supervision of Reading	2
Ed.Ad. 160	Supervision of Elementary Subjects	2
Ed.Ad. 167-168	The Junior High School	4
Ed.Soc. 3	Educational Sociology	3
H.Ed. 103	History of Modern Elementary Education	3
Ed.T. 23	The Teaching of Geography	3
Ed.T. 44	Children's Literature	3
Ed.T. 45	Teaching of History and Geography	2
Ed.Psy. 134	Mental Tests	2
Ed.Psy. 159	Psychology of Personality	3
	Special methods courses in elementary and junior high school subjects	
	Total required credits	36
	18 credits in each of two of the following fields or such others as may be approved: English, history, social studies, languages, political science, science, mathematics, geography, art, music, physical education, library methods	36
	General electives	18
	Total credits required for certificate	90

CURRICULA

43

ENGLISH

Major Advisers: C. W. Nichols, Rewey B. Inglis, Dora V. Smith

English as a major subject:

	Credits
English 22-23 Introduction to Literature	10
English 55-56 Shakespeare	6
English 73-74 American Literature	6
Composition 11-12 or 18-19	6
Speech	6
Additional credits, all of which must be secured in courses numbered 100 or above	6
Total credits	40

English as a minor subject:

English 22-23 Introduction to Literature	10
English 55-56 Shakespeare	6
English 73-74 American Literature	6
Composition 11-12 or 18-19	6
Total credits	28

GEOGRAPHY

Major Adviser: D. H. Davis

Geography as a major subject:

Twenty-eight credits from the following courses:

	Credits
Geog. 11 Human Geography	5
Geog. 41 Geography of Commercial Production	5
Geog. 43 Political Geography	5
Geog. 53 Historical Geography of the U.S.	3
Geog. 71 Geography of North America	3
Geog. 101 Geography of Europe	3
Geog. 102 Trade Routes and Trade Centers	3
Geog. 110 Geography of South America	3
Geog. 111 Cartography	3
Geog. 120 Geography of Asia	3
Geog. 133 Climatology	3
Geog. 235 Geography of Minnesota	3
Geog. 251-252-253 Seminar in Geography	3

Five additional credits from the following courses in geology:

Geol. 1-2 General Geology (Dynamic and Historical)	10
Geol. 1-3 General Geology (Dynamic and Economic)	10
Geol. 8 Introductory Geology	5
Geol. 29 General Physiography	5
Total credits	33

Geography as a minor subject:

Eighteen credits selected from the following courses:

Geog. 11, 41, 71, 101, 102, 110, 120	
Total credits	18

GERMAN

Major Adviser: S. Kroesch

German as a major subject:

	Credits
Ger. 50-51-52 Composition ¹	6
Ger. 56-57 Essay Writing	6
Ger. 65 Survey through Reformation	3
Ger. 66 Eighteenth Century Survey	3
Ger. 67 Nineteenth Century Survey	3
Ger. 108 Phonetics	3
Additional credits in courses numbered above 50	11
Total credits	35

German as a minor subject:

Ger. 50-51-52 Composition	6
Ger. 108 Phonetics	3
Additional credits in courses numbered above 50	8
Total credits	17

HISTORY

History as a major subject:

	Credits
Total number of credits	45
At least 15 credits must be in senior college courses and of these one course (5 credits) must be numbered from 151 to 200.	

History as a minor subject:

Total number of credits	18
Recommended Hist. 1-2, Hist. 7-8.	

No major recommendation to teach history will be given unless the student has taken at least the general course in American History, Hist. 7-8.

HOME ECONOMICS EDUCATION

Major Adviser: Wylle B. McNeal

For the junior and senior years the following courses have been approved by the College of Agriculture, Forestry, and Home Economics, and by the College of Education. All students who are candidates for the degree of bachelor of science and for the Minnesota "high school standard special" certificate for teaching home economics in elementary or high schools are required to pursue one of the following curricula.

Such students become registrants in both colleges during the junior and senior years but register for their freshman and sophomore work in the College of Agriculture, Forestry, and Home Economics. Every student who expects to teach home economics and to obtain the state certificate must meet the following requirements: (a) a minimum of 22 credits in professional work, (b) the special scholarship requirement, (c) home practice in foods and cookery, and (d) completion of all of the subjects

¹ Prerequisite, Ger. 4 or four years of preparatory German.

listed under any one of the five lines of specialization described below. When a student has acquired 90 credits and 90 honor points and indicates her specialization as the teachers' or the extension course she becomes also a registrant in the College of Education.

REQUIREMENTS OF TEACHERS' CURRICULA IN HOME ECONOMICS

Students in the Home Economics Course desiring to qualify as teachers must comply with the following requirements:

A. Completion of 22 credits of professional work, including

JUNIOR YEAR

Ed.Psy. 55f,w,s, Ed.Psy., 3 (Psy. 1-2)
or Agr.Ed. 11f,w,s, Principles of Vocational Education, 3

H.E.Ed. 40f,w,s, Child Training, 3 (Psy. 1-2)

Hist. of Ed. 1f,w,s, Brief Course in the Hist. of Ed., 5 (6 cred. in Psy.) or Hist. of Ed. 5s, Public Ed. in U. S., 3 (Psy. 1-2) or Hist. of Ed. 101f, Foundations of Modern Ed., 3 (6 cred. in Psy. and 6 cred. in Hist.) or Ed. Ad. 65f,w,s, The High School, 3 (Ed. Psy. 55)

H.E.Ed. 42f,s, Special Methods of Teaching Home Economics, 3 (H.E. 13, 83, Psy. 1-2, Agr.Ed. 11 or Ed.Psy. 55)

H.E.Ed. 143f,w,s, Home Economics Curricula, 2 (H.E.Ed. 42 or parallel)

SENIOR YEAR

H.E.Ed. 49f,w,s, Observation and Teaching, 8 (H.E.Ed. 42)

B. Satisfaction of special scholarship requirement

Prior to registration for Observation and Teaching the student must have a grade of C in each of the following home economics courses: Clothing Planning and Construction A and B, Textiles, Foods and Cookery, Food Management, Color and Design I and II, and Advanced Design.

C. Home practice in foods and cookery following H.E. 83 is required as a prerequisite to Observation and Teaching. A conference with a home economics instructor should precede this work and an examination must be passed.

D. Completion of one of the following subject-matter courses.

GENERAL REQUIREMENTS

Junior Year

1. *General courses.*—The following courses may be registered for any quarter that they are offered except that the proper sequence of continuation courses and prerequisites must be observed.

Agr.Econ. 1f,w,s, Principles of Economics, 5

H.E. 83f,w,s, Food Management, 3 (H.E. 70, 80)

H.E. 85f,w,s, Food Marketing, 2 (Agr. Econ. 1 or parallel H.E. 80 or 81)

H.E. 131f,w,s, Home Management: House Planning and Equipment, 5 (H.E. 53)

H.E.Ed. 40f,w,s, Child Training, 3 (Psy. 1-2)

Physiol. 4f,w,s, Human Physiology, 4 (Chem. 4 cred., Zool. 3 cred.)
 Prev.Med. 52f,w,s, Health Care of the Family, 3 (Bact. 41, Physiol. 4)
 Rhet. 11f,w,s, Argumentation, 3 (Rhet. 3, 22 advised) or Rhet. 31f,w,s, Survey of
 English Literature 1, 5 (Rhet. 3)

2. *Additional courses* as prescribed by the curriculum of the line of specialization selected. See special requirements on pages 46-49.

3. *Electives*.—Enough electives should be selected to make from 15 to 17 credit hours each quarter.

Senior Year

1. *General courses*.—The following courses may be registered for any quarter that they are offered except that the proper sequence of continuation courses and prerequisites must be observed.

H.E. 34f,w, Home Management: Operation and Maintenance, Lectures, 3 (H.E. 40 or parallel, H.E. 83, Agr.Econ. 1 or parallel, Prev. Med. 52)

H.E. 35f,w,s,¹ Home Management: Operation and Maintenance, Laboratory, 6 (H.E. 83, H.E.Ed. 40, Prev.Med. 52, home practice in foods and cookery; H.E. 34 or parallel)

H.E. 170f,w,s, Nutrition of the Family, 3 (Agr. Biochem. 4, H.E. 70 and 80 or 81)

H.E. 171f,w,s, Child Nutrition, 3 (H.E. 170 or parallel, H.E.Ed. 40)

2. *Additional courses* as prescribed by the curriculum of the line of specialization selected. See special requirements on pages 46-49.

3. *Electives*.—Enough electives should be selected to make, with those listed above, from 15 to 17 credit hours each quarter.

TEACHERS' CURRICULUM IN GENERAL HOME ECONOMICS

To those courses listed under *Requirements of Teachers' Curricula* in Home Economics and *General Requirements* add the following:

a. *Required courses.*

Agr.Econ. 126s, Economics of Consumption, 3 (Agr.Econ. 1)

H.E. 11f,w,s, Clothing Planning and Construction, A, 3

H.E. 13f,w,s, Clothing Planning and Construction, B, 3 (H.E. 3, 11, 51, home practice in garment making)

H.E. 17w,s, Advanced Clothing, 3 (H.E. 13, 53)

or

H.E. 18f,s, Commercial Clothing Manufacture, 3 (H.E. 13, 53)

H.E. 150f,w,s, Art History and Appreciation, 3 (H.E. 51 or equivalent)

H.E.Ed. 142(a)f,w,s, Educational Measurement in Home Economics (H.E.Ed. 42)

b. *Elective courses*.—Five to ten credits must be elected from Group A and enough credits from Group B to make a total of fourteen credits.

Group A

Anthrop. 41

Hist. 1-2

Pol.Sci. 1

Group B

Astron. 11

Bot. 1

Child Wel. 60, 80, 90, 120

Ed.Psy. 60

¹A special project in the field of home management may be substituted or required at the discretion of the Division of Home Economics.

Eng. 31-32, 33, 73-74
 H.E. 55, 57, 61, 182, 195, 154, 73, 75, 179, 173, 136, 186, 102, 175
 H.E.Ed. 147
 HumanGeog. 11
 Jour. 13, 41, 55, 69, 73-74, 82
 Lib.Meth. 1
 Psy. 3, 56
 Rhet. 28, 32, 33, 34
 Zool. 183.

TEACHERS' CURRICULUM IN HOME ECONOMICS EXTENSION

To those courses listed under *Requirements of Teachers' Curricula in Home Economics and General Requirements* add the following:

a. *Required courses.*

Agr.Econ. 126s, Economics of Consumption, 3 (Agr.Econ. 1)
 H.E. 11f,w,s, Clothing Planning and Construction, A, 3
 H.E. 13f,w,s, Clothing Planning and Construction, B, 3 (H.E. 3, 11, 51, home practice in garment making)
 H.E. 17w,s, Advanced Clothing, 3 (H.E. 13, 53)
 or
 H.E. 18f,s, Commercial Clothing Manufacture, 3 (H.E. 13, 53)
 H.E. 44w, Home Economics Extension Work, 3 (H.E.Ed. 42, 49 or parallel)
 H.E. 150f,w,s, Art History and Appreciation, 3 (H.E. 51 or equivalent)

b. *Elective courses.*—The credits must be elected from the following courses:

Agr.Ed. 75
 Agr.Eng. 34
 ChildWel. 60
 Agr.Econ. 25
 H.E. 57, 61, 75, 173, 179, 182, 195
 Jour. 13, 41, 65, 69
 Psy. 56
 Rhet. 24
 Soc. 110

TEACHERS' CURRICULUM IN FOODS AND NUTRITION

To those courses listed under *Requirements of Teachers' Curricula in Home Economics and General Requirements* add the following:

a. *Required courses.*

Agr.Econ. 126s, Economics of Consumption, 3 (Agr.Econ. 1)
 H.E. 73f,s, Nutrition I, 4 (Agr. Biochem. 4, H.E. 80 or 81, Physiol. 4)
 H.E. 173s, Nutrition in Disease, 3 (H.E. 170, 175)
 or
 H.E. 175f,w, Nutrition II, 4 (H.E. 73)
 or
 H.E. 75f, Dietetics Laboratory, 2 (H.E. 182)
 and
 H.E. 179w,s, Readings in Nutrition, 2 (H.E. 170)
 H.E. 182f,w,s, Experimental Cookery, 3 (H.E. 80)
 H.E. 186f,s, Special Food Problems, 3 (H.E. 182)
 or
 H.E. 187f,s, Special Food Problems, 5 (H.E. 182, Agr. Biochem. 2)
 H.E.Ed. 142(a)f,w,s, Educational Measurement in Home Economics (H.E.Ed. 42)

b. *Elective courses.*—Thirteen additional credits must be elected from the following courses:

Agr.Biochem. 2, 106, 108
 Agr.Eng. 34, 35
 Phys.Chem. 110
 Eng. 31-32, 33, 73-74
 French 1-2-3, 8-9-10
 German 1, 2, 3, 4, 24-25-26, 27, 28-29
 Hist. 1-2
 H.E. 11, 13, 17, 18, 60, 61, 63, 65, 136, 150, 163
 Jour. 13, 41, 65, 69
 Lib.Meth. 1
 Math. 3, 4, 5, 6, 7
 Phys. 3, 4, 23, 24, 43, 44
 Pol.Sci. 1
 Rhet. 28, 32, 33, 34

TEACHERS' CURRICULUM IN TEXTILES AND CLOTHING

To those courses listed under *Requirements of Teachers' Curricula in Home Economics* and *General Requirements* add the following:

a. *Required courses.*

Agr.Econ. 126s, Economics of Consumption, 3 (Agr.Econ. 1)
 H.E. 11f.w.s, Clothing Planning and Construction, A, 3
 H.E. 13f.w.s, Clothing Planning and Construction, B, 3 (H.E. 3, 11, 51, home practice in garment making)
 H.E. 17w.s, Advanced Clothing, 3 (H.E. 13, 53)
 or
 H.E. 18f.s, Commercial Clothing Manufacture, 3 (H.E. 13, 53)
 H.E. 102f.s, Advanced Textiles, 3 (H.E. 3, Agr. Biochem. 3-4, Agr.Econ. 1 or parallel)
 H.E. 115f.w, Clothing Economics, 2 (H.E. 13, Agr.Econ. 1)
 H.E. 150f.w.s, Art History and Appreciation, 3 (H.E. 51)
 H.E.Ed. 142(a)f.w.s, Educational Measurement in Home Economics (H.E.Ed. 42)

b. *Elective courses.*—Nine additional credits must be added from the following courses:

Agr.Biochem. 2
 Bot. 1
 H.E. 17 or 18, 55, 57, 107, 154, 195

TEACHERS' CURRICULUM IN RELATED ART

To those courses listed under *Requirements of Teachers' Curricula in Home Economics* and *General Requirements* add the following:

a. *Required courses.*

H.E.Ed. 147w, Organization and Methods for Related Art Teaching, 3 (H.E.Ed. 42 or parallel, H.E. 53, 131 or parallel) (Omit H.E.Ed. 143 as listed under requirements for university teacher's certificate)
 ArtEd. 4f-5w-6s, Still Life, 3
 ArtEd. 7f-8w-9s, Sketch, 3
 ArtEd. 29f-30w-31s, Sketch, Course II, 3 (ArtEd. 7, 8, 9)
 H.E. 11f.w.s, Clothing Planning and Construction, A, 3
 H.E. 13f.w.s, Clothing Planning and Construction, B, 3 (H.E. 3, 11, 51, home practice in garment making)
 H.E. 55f, Decorative Needlework and Other Crafts, 3 (H.E. 53 or parallel)

- H.E. 57s, Batik and Other Crafts, 3 (H.E. 3, 53, or parallel)
- H.E. 150f,w,s, Art History and Appreciation, 3 (H.E. 51)
- H.E. 152w, Advanced Interior Design, 3 (H.E. 53, 131, 150)
- H.E. 154s, Advanced Costume Design, 3 (H.E. 13, 53, 55 recommended)

b. *Elective courses.*—Electives should be chosen following consultation with adviser.

INDUSTRIAL EDUCATION

Major Adviser: H. J. Smith

The following curriculum has been designed for young men who desire to prepare for teaching and administrative positions in the fields of the manual arts and trade education. The satisfactory completion of the four years of work here specified entitles a student to the bachelor of science degree and provides the training necessary for the Minnesota "high school standard special" certificate.

Minnesota Standards for Graded Elementary and High Schools, p. 35 contains the following provision:

From and after July 1, 1929, a certificate to teach general industrial education may be issued only upon a Bachelor's degree in industrial education from an institution accredited for the training of teachers of industrial arts, but the status of industrial teachers holding certificates prior to that date shall not be affected.

Certain courses of the curriculum are acceptable for Smith-Hughes certification, for service in trade schools and classes—day, evening, and part time. These should be enrolled for only upon recommendation of the departmental adviser or the state supervisor of trade and industrial education.

A bulletin descriptive of the plan and work of this special department will be furnished upon request. Those interested in credit transfer, graduate work, etc., should confer with the major adviser.

FOUR-YEAR CURRICULUM IN INDUSTRIAL EDUCATION¹

*Freshman Year*²

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
Comp. 4-5-6	Freshman Composition ³	3	3	3	None
Ind. 1-2	General Shopwork	2	2	..	None
Ind. 5	Wood Finishing . . . . .	..	..	2	
Ind. 20	Industrial History . . . . .	..	2	..	None
Ind. 25	Literature of Industrial Education . . . . .	..	..	2	None
	Mathematics or Physical Science	5	5	5	
	Drawing	2	..	..	None
	Electives	3	3	3	
	Totals	15	15	15	

¹ Part II of the College of Education bulletin lists some courses of this department which are not a part of this curriculum. Examples, Ind. 11, Ind. 65, Ind. 105, and Ind. 150-151-152.

² During the freshman and sophomore years students must secure the required credits in physical education. Men must also register for military science.

³ Or Eng. A-B-C or exemption from the requirement.

COLLEGE OF EDUCATION

*Sophomore Year*¹

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
Econ. 6-7	Principles of Economics	5	5	..	None
Soc. 1	Introduction to Sociology .....	..	..	5	None
Psy. 1-2	General Psychology	3	3	..	None
Ed.Psy. 55	Educational Psychology .....	..	..	3	Psy. 1-2
Ind. 60	Philosophy of Vocational Education	2	..	..	None
Ind. 61	Practices in Vocational Education .....	..	2	..	Ind. 60
Ind. 40	Analysis .....	..	..	2	None
	Shopwork	3	3	3	
	Drawing .....	..	2	2	
	Electives	2	..	..
	Totals	15	15	15	

Junior Year

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
Ed.T. 15	Technique of High School Instruction	3	..	..	Ed.Psy. 55
H.Ed. 3	Educational Sociology .....	..	3	..	Psy. 1-2
Ed.Psy. 134	Mental Tests	2	..	..	Ed.Psy. 55
Ind. 70	Methods in Shop Subjects	2	..	..	Ind. 40
Ind. 44	Equipment and Management .....	..	2	..	
Ind. 90	Tests in Industrial Subjects .....	..	2	..	Ed.Psy. 55
Ind. 30	Graphic Presentation .....	..	..	2	None
Ind. 42	Course Organization .....	..	..	2	Ind. 40
Ind. 66	Methods in Related Subjects .....	..	..	2	Ind. 40
Ind. 14	Methods in Drawing .....	..	..	2	10 cr. in drawing
	Mathematics or Physical Science .....	..	..	5	
	Shopwork	3	2	..	
	Drawing	2	2	..	
	Electives	3	4	2	
	Totals	15	15	15	

Senior Year

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
Ind. 50-51-52	Practice Teaching	2	2	2	Ind. 80; either Ind. 14, 66 or 70 and consent of inst.
Ed.Ad. 124	Public School Administration ..	3	..	..	10 hrs. in ed.
Ed.Ad. 167-168	Junior High School .....	..	2	2	10 hrs. in ed.
Ind. 80	General Industrial Training ..	2	..	..	None
Ind. 170-171-172	Administration of Industrial Education (Day, Evening, Part-time)	2	2	2	
Ind. 110	Guidance in the Schools .....	..	2	..	Ed.Psy. 55
Psy. 130	Vocational Psychology .....	..	..	2	10 hrs. in Psy. and Educ.
	Electives	6	7	7	
	Totals	15	15	15	

¹ During the freshman and sophomore years students must secure the required credits in physical education. Men must also register for military science.

Requirements above are classified as follows: 52 academic, 18 education, 40 industrial education, 30 shopwork and drawing, 40 elective. Total 180 quarter credits required for the bachelor of science degree, exclusive of physical education.

The 20 credits in shopwork and 10 credits in drawing (30 total) may be increased by election to a maximum of 45 credits. Such additional courses should be elected under advice and may be either extensive or intensive in resultant preparation for teaching.

The 20 credits in mathematics and physical science may be earned in any selected courses within these two fields and in any ratio. Students are hereby presented opportunity to attain certification in an academic subject in addition to the major field, at the same time pursuing subject-matter extremely useful in the major.

Art, physical education, and athletic coaching are appropriate elective fields.

Several of the required courses and numerous others acceptable as electives may be carried in extension or by correspondence. All courses are brought into the summer sessions by rotation.

See College of Education bulletin, Part II, for days, hours, rooms, lecturers, prerequisites, etc.

LATIN

Major Adviser: J. B. Pike

Latin as a major subject:

Course No	Title	Credits
Latin 73	Advanced Grammar and Composition	3
Any two of the following:		
Latin 51	Pliny's <i>Letters</i> ¹	3
Latin 52	Horace's <i>Satires</i> and <i>Epistles</i>	3
Latin 53	Suetonius, <i>Selected Lives</i>	3
Latin 62	Horace's <i>Odes</i> and <i>Epodes</i>	3
Latin 63	Apuleius	3
Latin 71	Cicero's <i>De Amicitia</i> and <i>De Senectute</i>	3
Three courses in the hundred sequence		9
Total credits (senior college courses)		18

Latin as a minor subject:

Course No	Title	Credits
Latin 73	Advanced Grammar and Composition	3
Any two of the following:		6
Latin 51, 52, 53, 62, 63, 71 (see above).		—
Total credits (senior college courses)		9

Students entering the University with one year of Latin will take 3, or 2 and 3. Students entering with two years of Latin will take any two of 11, 12, and 13 in their first year and any two of 21, 22, 23 in their second year. Students entering with three years of Latin will take any two of 21, 22, 23. Students entering with no Latin will take 1-2 and 3 in their first year; any two of 11, 12, and 13, in their second year; and any two of 21, 22, and 23 in their third year.

¹ Prerequisite any two of courses 21, 22, 23 or equivalent.

LIBRARY METHODS

Major Adviser: F. K. Walter

The following curriculum has been arranged in co-operation with the Division of Library Instruction. It is designed to offer professional library training to prospective teachers who desire such work.

The successful completion of this four-year curriculum will entitle the student to the degree of bachelor of science. Students will also qualify for the Minnesota high school general certificate for teaching academic subjects in junior and senior high schools by completing requirements for a teaching major or for two teaching minors. It will usually be wisest to choose majors and minors in the fields of English and history.

Minor.—The requirements for a minor in library training will be satisfied upon the completion of Courses 102f, 104f, 107s, 108s, 112w, 114s.

FOUR-YEAR CURRICULUM FOR SCHOOL LIBRARIAN¹*Freshman Year*²

Course No.	Title	Credits
Eng. A-B-C or Comp. 4-5-6 Hist. 1-2	Freshman English	15
	Freshman Composition or exemption from the requirement ..	9
	Modern World	10
	History	5
	Language	15
	Totals	45

*Sophomore Year*²

Course No.	Title	Credits
Psy. 1-2	General Psychology	6
	Natural Science	10
	Language	5
	Electives ³	24
	Totals	45

¹ Prospective students who are interested in the curriculum should obtain the special bulletin issued by the Division of Library Instruction.

The tuition fees for full time students who are enrolled in this specialized curriculum are \$40 per quarter for residents of Minnesota and \$45 per quarter for non-residents. Unclassed students, auditors, and others carrying less than full work in library instruction (15 credits per quarter) pay a tuition fee of \$3 per credit hour for all courses under the supervision of the Division of Library Instruction, irrespective of their registration in courses in other subjects.

² During the freshman and sophomore years students must secure the required credits in physical education. Men must also register for military science.

³ Electives should be selected to meet the requirement of one teaching major or two teaching minors.

Junior Year

Course No.	Title	Credits
Lib.Meth. 102	Cataloging	3
Lib.Meth. 104	Classification	3
Lib.Meth. 112	Reference	3
Lib.Meth. 107	Library Administration	} Any two..... 6
Lib.Meth. 108	Public Library Administration	
Lib.Meth. 114	Selection of Books for Adolescents	
Lib.Meth. 121	Library Work with Children	3
Ed.Psy. 55	Educational Psychology	3
Ed.T. 15	Technique of High School Instruction	3
Ed.Ad. 65	The High School	3
	Continuation of required academic courses ¹	18
Totals		45

Senior Year

Title	Credits
Special Methods and Practice Teaching	9
Library Methods	27
Electives ¹	9

MATHEMATICS

Major Adviser: R. W. Brink

Mathematics as a major subject:

Prerequisite courses: Solid Geometry (entrance credit or its equivalent);² Higher Algebra taken either in high school or college; Trigonometry; College Algebra; Analytic Geometry.

Senior college courses:

Course No.	Title	Credits
Math. 50	Calculus I	5
Math. 51	Calculus II	5
Additional credits in courses numbered above 49		8
Total credits, senior college courses		18

Mathematics as a minor subject:

Prerequisite courses: Solid Geometry (entrance credit or its equivalent);² Higher Algebra taken either in high school or college.

Math. 6	Trigonometry	5
Math. 7	College Algebra	5
Math. 30	Analytic Geometry	6
Additional credits in courses numbered above 49		8

Total credits

24

¹ Electives should be selected to meet the requirement of one teaching major or two teaching minors. Electives should also include two credits selected from the list on p. 27.

² Those who did not present solid geometry for entrance may meet this requirement in one of the following ways: (1) By taking the subject in the summer school or in the General Extension Division by correspondence; (2) By passing a college entrance examination or a special examination given by the Department of Mathematics.

NATURAL SCIENCE

Advisers: H. A. Erikson, H. O. Jackson

Students preparing to teach science in Minnesota high schools should qualify to give instruction in two or more sciences, since almost all positions open to graduates require teaching in at least two fields. As a matter of fact most Minnesota schools now require instruction in general science for which the teacher should be trained in both biological and physical sciences. While it is possible to meet the major or minor sequences in one or more of the sciences as in other academic subjects, the following special curriculum in natural science is recommended for those persons desiring to secure the best preparation for the teaching of high school science. It requires:

1. Completion of 30 hours of work in one of the four natural sciences: chemistry, botany, zoology, physics. (On account of mathematics requirements, students majoring in physics may satisfy the requirement by offering but 25 hours.) In the statement below the word *major* means any one of these four subjects.
2. Completion of 15 hours in one of the five natural sciences: chemistry, physics, botany, geology, zoology. This course is designated a *minor*.
3. Completion of introductory courses in two of three of the subjects named under (2) not major or minor.
4. Completion of ten hours in chemistry.

The above curriculum should be elected at the beginning of the freshman year. In general it permits a student to meet the requirements for admission to the College of Education except in the case of students majoring in physics. Such students should take Mathematics 6, 7, and 30 during the first four quarters of their course, 10 hours of natural science (instead of 15), begin foreign language during the third quarter, and postpone work in social science until after entering the College of Education at the beginning of the junior year. Students are advised to continue work in their major science through the senior year. Students finding it necessary to modify their programs to meet this schedule will be relieved from meeting other admission requirements of the College of Education by the beginning of the junior year. The following sample curricula are offered to show the distribution of courses:

FOUR-YEAR CURRICULUM FOR THOSE MAJORING IN NATURAL SCIENCE
ASIDE FROM PHYSICS

JUNIOR COLLEGE

Freshman Year

Title	Credits
Freshman English or Composition	15 or 9
Foreign Language ¹	15
Natural Science	15
Physical Education ²	

¹ See foreign language requirements, p. 19.

² In addition men must register for the required military science.

Sophomore Year

Title	Credits
Foreign Language ¹	5
Social Science	10
Psychology	6
Major	15
Natural Science	5
Physical Education ²	

COLLEGE OF EDUCATION

Junior Year

Title	Credits
Major	10
Natural Science	5
Educational Psychology	3
Technique of High School Instruction	3
Electives ³	24

Senior Year

Title	Credits
Natural Science	10
The High School	3
Special Methods and Practice Teaching	9
Electives ³	23

NATURAL SCIENCE WITH A MAJOR IN PHYSICS

JUNIOR COLLEGE

Freshman Year

Course No.	Title	Credits
Eng. A-B-C	Freshman English	15
or		
Comp. 4-5-6	Freshman Composition (or exemption)	9
Math. 6	Trigonometry	5
Math. 7	College Algebra	5
Math. 30	Analytic Geometry	6
	Natural Science	10
	Foreign Language ¹	5
	Physical Education ²	

Sophomore Year

Course No.	Title	Credits
Phys. 3,4	Elements of Mechanics	4
Phys. 23,24	Heat	4
Phys. 43,44	Electricity	4
Math. 50-51-52	Calculus	15
Psy. 1-2	General Psychology	6
	Foreign Language ¹	15
	Electives	
	Physical Education ²	

¹ See foreign language requirements p. 19.

² In addition men must register for the required military science.

³ Electives should include the 8 credits of required education electives as listed

COLLEGE OF EDUCATION

COLLEGE OF EDUCATION

Junior Year

Course No.	Title	Credits
Phys. 33.34	Optics	4
Phys. 134	Experimental Optics	3
Phys. 124	Pyrometry and Heat	3
Ed. Psy. 55	Educational Psychology	3
Ed. T. 15	Technique of High School Instruction	3
	Natural Science	3
	Electives ¹	15

Senior Year

Course No.	Title	Credits
Phys. 144	Electricity Measurements	3
Ed. T. 62 63-64	Special Methods and Practice Teaching	9
Ed. Ad. 65	The High School	3
	Natural Science	3
	Electives ¹	8

FIVE-YEAR COURSES LEADING TO THE DEGREE OF MASTER OF ARTS
GRADUATE SCHOOL

Many students will find it difficult to secure all of the training they desire within the limits of a four-year period. For those who find it possible to continue their training for an additional year, it is recommended that they pursue work in either of two majors—(1) they may continue their natural science major in the Graduate School and minor in education or (2) they may major in education and carry natural science as a minor. Programs should be made out in consultation with a major adviser.

NURSERY SCHOOL AND KINDERGARTEN EDUCATION

Major Advisers: J. E. Anderson, Josephine C. Foster

The following curriculum is arranged for persons who are preparing to teach or direct nursery schools and for persons who wish to enter the field of kindergarten teaching. Followed by a year of graduate work, it also offers excellent basic preparation for those wishing to enter the field of parental education. Students taking this curriculum should be able to play simple piano music.

This curriculum is offered in co-operation with the Institute of Child Welfare, an organization established in the University for the scientific study of the development of the child. Co-operating with the institute are a number of university departments: Anatomy, Education, Home Economics, Nervous and Mental Diseases, Pediatrics, Psychology, Public Health, and Sociology.

The institute maintains a nursery school and an experimental kindergarten for the observation and study of young children which will, in conjunction with the public schools, be used for observation and practice for students undertaking this curriculum.

¹ Electives should include the 8 credits of required education electives as listed on p. 27.

FOUR-YEAR NURSERY SCHOOL AND KINDERGARTEN CURRICULUM

Freshman Year

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
Zool. 1-2	General Zoology	5	5	..	None
Comp. 4-5-6	Freshman Composition	3	3	3	None
Hist. 1-2	Modern World	5	5	..	None
Pol.Sci. 1	American Government .....	}	..	..	5
or					
Geog. 11	Introduction to Human Geography				None
Phys.Ed. 1-2-3	Elem. Phys. Training	1	1	1	None
	Electives	2	2	7	
		<hr/>	<hr/>	<hr/>	
		16	16	16	

Sophomore Year

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
Psy. 1-2	General Psychology	3	3	..	None
Psy. 4-5	Introductory Lab. Psy. ....	..	..	4	Psy. 1-2
Ed.Psy. 55	Educational Psychology .....	..	..	3	Psy. 1-2
Soc. 1	Introduction to Sociology	5	..	3	None
Soc. 49	Occurrence of the Socially Inadequate .....	..	..	3	Soc. 1
Art.Ed. 1-2-3	Fundamental Principles of Design	3	3	3	None
Art.Ed. 7-8-9 ¹	Sketch	1	1	1	None
Ind.Ed. 11	Special Class Woodwork .....	..	2	..	None
Speech 41-42	Fundamentals of Speech	3	3	..	Comp. 4-5-6
Phys.Ed. 16-17	Sophomore Games and Folk Dancing	$\frac{3}{2}$	$\frac{3}{2}$..	
	One other course in Physical Education .....	..	..	$\frac{3}{2}$	
	Electives	0	3	1	
		<hr/>	<hr/>	<hr/>	
		15 $\frac{1}{2}$	15 $\frac{1}{2}$	15 $\frac{1}{2}$	

¹ For ArtEd. 7-8-9 3 hours selected from Courses 4-5-6, 32, 35, 37, 38, or 41 may be substituted.

COLLEGE OF EDUCATION

Junior Year

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
Ed.Ad. 75	The Elementary School .....	..	..	3	Ed.Psy. 55 or 56 or equiv.
Phys.Ed.43-44	Theory and Function of Play ..	4	3	..	6 qtrs. phys. ed.
P.M.&P.H. 50	Public and Personal Health ..	3	..	..	Zool. 1-2, Psy. 1-2
Soc. 52	Elementary Case Work .....	..	3	..	Soc. 49
Soc. 90-91	Elementary Field Training in Case Work .....	..	3	3	Soc. 49 and 52
Ed.T. 30	Principles of Kindergarten and Nursery School Education ..	3	..	..	6 cred. psy.
Ed.T. 31	Permanent Play Materials .....	..	2	..	6 cred. psy.
Ed.T. 32	Plastic Materials .....	..	2	..	with Ed.T. 30
Ed.T. 33	Rhythms, Games, and Music for the Young Child .....	..	..	2	Ed.T. 30
Ed.T. 34	Story Telling for Young Children .....	..	..	2	Ed.T. 30
Ed.T. 85-86-87	Methods and Observation	1	1	1	6 cred. psy.
C.W. 80	Child Psychology	3	..	..	6 cred. psy.
Ed.Psy. 60	Introduction to Statistical Methods .....	..	..	2	6 cred. in Psy.
	Electives	5	2	2	
		15½	16	15	

Senior Year

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
Ed.Ad. 119	Elementary School Curriculum	3	..	..	Ed.Psy. 55 or equiv.
Ed.Psy. 134	Mental Tests	2	..	..	Ed.Psy. 55 or equiv.
Ed.Psy. 146-147	Child Guidance .....	..	2	2	15 cred. psy. and ed.
C.W. 90	Physical Development of the Child .....	..	2	..	Zool. 1-2, Psy. 1-2
C.W. 120	Health Care of Young Child .....	..	..	2	C.W. 90
H.E. 70	Nutrition Survey	3	..	..	10 cred. lab. science
Ed.T. 88-89-90	Practice Teaching in Kindergarten or Nursery School	3	3	3	Ed.T. 30-34, 85-87
Ed.T. 143-144	The Teaching of Reading	2	2	..	9 cred. ed.
	Electives	2	6	8	
		15	15	15	

NURSING EDUCATION AND PUBLIC HEALTH NURSING

Major Adviser: Eula B. Butzerin

REGULAR CURRICULUM

(Open to high school graduates)

The following curriculum leads to degrees of bachelor of science and graduate in nursing. In the case of those who choose proper subjects in the College of Education it entitles graduates to receive also a high school teacher certificate. In the case of those electing public health nursing, Part III A, it also leads to a certificate of public health nursing. It is planned to prepare students for such public health work as visiting nursing, school nursing, and health teaching, infant welfare, rural and industrial nursing; for administrative, supervising, and teaching positions in hospitals and

schools of nursing, and for combined positions in secondary schools involving both nursing and teaching.

Part I. During the first five quarters of the course the student is registered in the College of Science, Literature, and the Arts, during which time the following required subjects must be completed:

- English A-B-C or 4-5-6 or exemption from the requirement
- Zoology 1-2
- History 10 cred.
- Physiology 1 and 2 or 4
- Psychology 1-2
- Home Economics 70
- Sociology 1
- Botany 10 cred.
- Physical Education
- Electives to make a total of 75 credits exclusive of physical education

Part II. During the next 10 quarters, the student is registered in the School of Nursing taking required subjects and practical work as listed in the School of Nursing bulletin.¹ Sixty credits are granted for the nursing work if taken at the University of Minnesota.

During the last three quarters, the student is registered in the College of Education majoring either in nursing education or in public health nursing.

Part III A. The Public Health curriculum is as follows:

Course No.	Title	Credits
P.M.&P.H. 53	Elements of Preventive Medicine	3
P.M.&P.H. 58	Maternal and Child Hygiene	2
P.M.&P.H. 61	Mental Hygiene	3
P.M.&P.H. 62-63	Principles of Public Health Nursing and Special Fields	5
P.M.&P.H. 64	Field Practice in Infant Welfare Nursing	4
P.M.&P.H. 65	Field Practice in School Nursing	2
P.M.&P.H. 66	Field Practice in County Nursing	2
P.M.&P.H. 67	Field Practice in a Tuberculosis Sanatorium	2
P.M.&P.H. 68	Field Practice in Visiting Nursing	5
Soc. 52	Elementary Case Work	3
Soc. 90	Elementary Field Training in Case Work	2
Soc. 60	Social Protection of the Child	3
or		
H.E. 40	Child Training .....	..
Ed.T. 15	Technique of High School Instruction	3
	Electives	6
Total		45

Part III B. The Nursing Education curriculum is as follows:

Course No.	Title	Credits
Ed.T. 15	Technique of High School Instruction	3
Ed.T.	Special Methods and Practice Teaching	12
Ed.Ad. 65	The High School	3
	Hospital Administration	4
	Electives	23 ²
Total		45

¹ All five-year nursing students are allowed to take Educational Psychology in their preliminary quarter in the School of Nursing.

² Electives must be chosen so as to complete the professional requirement of 26 quarter credits for the teacher's certificate. See p. 27.

CURRICULUM FOR IRREGULAR STUDENTS

(Open to those who have already graduated in nursing)

In the case of graduate nurses from accredited nursing schools whose records are such as to warrant special consideration, the following arrangements can be made for earning the B.S. degree. Candidates must have their nursing school credits evaluated by the Nursing Committee, and must complete any necessary additional hospital services required in accordance with the decision of the committee before credit is granted. Forty-five credits represent approximately the average advanced standing given for a satisfactory three-year nursing school education.

For additional studies for the B.S. degree candidates pursuing this curriculum will register in the College of Education.

The amount and type of college work to be required of each candidate is to be decided by her major adviser after consideration of candidate's general education and experience. Any junior college courses specified as essential for a particular student may be taken either previous to or combined with the work in Nursing Education or Public Health Nursing.

The senior college courses of these students will correspond in general with Part III A for those specializing in Public Health or Part III B for those desiring Nursing Education, with such additional electives in either case as may be needed to fulfill the total credit and honor point requirements.

General Regulations

Electives in the Nursing Education sequence and those in the Public Health sequence whether of regular or irregular students are to be chosen with the approval of the respective advisers in these courses. All programs must also be approved by the Students' Work Committee and dean of the College of Education.

Candidates for the B.S. degree in the curriculum for either regular or irregular students must conform to the College of Education regulation relative to total credits and honor points and are entitled to the privileges of the quality credit rule. Candidates must also meet the physical education requirement.

The lists of studies here printed have been selected as suitable for a majority of the students working in the fields of nursing education and public health nursing respectively. Advisers may deviate from these recommendations when the objective of particular students would be favored by substituting other courses. Such substitutions are to be made on petition, duplicate copies of which shall be filed with the registrar.

Required and Recommended Subjects

a. Students in either group wishing to secure the high school teacher's certificate for secondary schools must complete the following, and 10 credits in botany or accepted sciences in addition to the special requirements of their respective groups.

Course No.	Title	Credits
Ed.Ad. 65	The High School	3
	Special Methods and Practice Teaching Course in Major Field	9
	Education electives ¹	2

Suggested electives:

Ed.Ad. 75	The Elementary School	3
Ed.Ad. 152	Supervision	2

b. Students preparing for general community health work must complete:

Course No.	Title	Credits
P.M.&P.H. 70	Methods and Materials in Teaching Home Nursing and Child Care	3
P.M.&P.H. 71	Supervision of Public Health Nursing	2
P.M.&H. 107	Sanitary Surveys	3

and select 10 credits from the following group:

Soc. 122-123	Methods of Social Investigation	6
Soc. 119	The Family	3
Bot. 101	Elementary Biometry	3
Psy. 130	Vocational Psychology	2
C.W. 80	Chi'd Psychology	3
C.W. 130	Development of Young Child	3
C.W. 170	Parental Education	3
H.E. 33	Home Management Problems for Social Workers	3
H.E. 171	Child Nutrition	3

c. Further suggested public health electives:

Course No.	Title	Credits
P.M.&P.H. 59	Social Hygiene	1
P.M.&P.H. 60	Tuberculosis and Its Control	2
P.M.&P.H. 69	School Nursing Procedures	3
P.M.&P.H. 73	Occupational Hygiene and Disease	2
P.M.&P.H. 74	Health Instruction Methods and Materials	3
P.M.&P.H. 75	Practice Teaching in Health Subjects	Ar
P.M.&P.H. 80	Health Supervision of the School Child	3

GRADUATE WORK LEADING TO THE DEGREE OF MASTER OF ARTS

Graduate work may be carried and a Master's degree earned by students who meet the requirements of the Graduate School. Programs should be made out in consultation with a major adviser in the department.

PHYSICAL EDUCATION FOR MEN

A physical examination is required of all new matriculants, and of all others using the department privileges, at the beginning of the year, and as often during their college course as their physical condition may indicate. Students taking the required work in physical education are examined at the close of the year.

Courses 1-2-3 and 4 are prescribed for all freshmen and must be taken in the first year of residence. Those students, taking the required course in physical education, who cannot swim must make a reasonable effort, as

¹ Electives must be chosen so as to complete the professional requirement of 26-quarter credits for the teacher's certificate. See p. 27.

determined by the department to pass the swimming and life-saving requirements and will be assigned special hours for instruction.

The following curriculum has been outlined for a special four-year professional course in physical education and athletic coaching. Satisfactory completion of this curriculum entitles the graduate to the bachelor of science degree and provides the training necessary for the Minnesota "high school standard special" certificate for teaching physical education in elementary and high schools.

CURRICULUM FOR MEN MAJORING IN PHYSICAL EDUCATION

Major Adviser: L. F. Keller

Freshman Year

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
Comp. A-B-C or Comp. 4-5-6	Freshman English	5	5	5	None
	Freshman Composition or exemption from requirement	3	3	3	
Chem. 14, 15	General Inorganic Chemistry ..	5	5	..	None
Sociol. 1	Introduction to Sociology ....	..	..	5	None
P.M.&P.H. 3	Personal Hygiene and Elementary Sanitation .....	..	..	2	None
Mil.Sci. 1,2,3	First Year Basic Course .....	..	..	..	None
Phys.Ed. A,B,C	Elementary Physical Education	1	1	1	None
	Approved electives	5	5	3	
		16	16	16	

Sophomore Year

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
Zool. 1-2	General Zoology	5	5	..	None
Psy. 1-2	General Psychology	3	3	..	None
Anat. 3	Human Anatomy .....	..	..	4	Zool. 1-2
Phys.Ed. 10-11-12	Minor Sports	2	2	2	Phys.Ed. 1,2,3
Phys.Ed. 7-8-9	Advanced Leaders	1	1	1	Phys.Ed. 1,2,3
Mil.Sci. 4-5-6	Second Year Basic Course ....	..	..	..	Mil.Sci. 1,2,3
	General electives	4	4	8	
		15	15	15	

Junior Year

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
Physiol. 57,4,10	Human Physiology .....	..	4	4	Zool. 1 qtr., chem. 1 qtr.
Phys.Ed. 19-20-21	Gymnastics	1	1	1	Phys.Ed. A,B,C
Phys.Ed. 22-23	Kinesiology	2	2	..	Anat. 4
Phys.Ed. 24-25	Methods in Physical Education	..	2	2	Phys.Ed. 22-23
Phys.Ed. 30	Athletic Training and First Aid	..	..	2	None
P.M.&P.H. 53	Elements of Preventive Medicine	3	..	..	Psy. 1-2, Bact. 51
or P.M.&P.H. 50	Public and Personal Health ...	3	..	..	Zool. 1-2, Psy. 1-2
Ed.Psy. 55	Educational Psychology .....	..	3	..	Psy. 1-2
Ed.Ad. 65	The High School .....	..	..	3	Ed. 55
	General electives ¹	7	3	3	
		13	15	15	

¹ At least 8 credits of elective work in the junior and senior years must be selected from the list on p. 27.

Senior Year

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
P.M.&P.H. 80	Educational Hygiene .....	..	3	..	Prev. Med. 50 or 52 or 53
Phys.Ed. 28	Physical Examination and Normal Diagnosis	2	..	..	Physiol. 58,59
Phys.Ed. 29	Adaptation of Activities in Orthopedic Procedures .....	..	2	..	Phys.Ed. 22-23-24
Phys.Ed. 31	History of Physical Education	2	..	..	Ed. 1
Phys.Ed. 32	Principles of Physical Education .....	..	3	..	Phys.Ed. 10-11-12, 23-24
Phys.Ed. 33	Organization and Administration of Physical Education .....	..	..	3	Phys.Ed. 32 None
Phys.Ed. 37	Football .....	..	..	3	None
Phys.Ed. 38	Basket-Ball .....	..	2	..	None
Phys.Ed. 39	Track .....	..	..	2	None
Phys.Ed. 42	Baseball	2	..	..	Phys.Ed. 10-11-12, 24, Ed. 55
Phys.Ed. 43-44-45	Practice Teaching	2	2	2	Psy. 1-2
	General electives ¹	7	3	5	
		15	15	15	

COURSES FOR MEN MINORING IN ATHLETIC COACHING

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
Phys.Ed. A,B,C	Elementary Physical Education	1	1	1	
Phys.Ed. 10-11-12	Minor Sports	2	2	2	
Phys.Ed. 19-20 21	Gymnastics	1	1	1	Phys.Ed. A,B,C
Phys.Ed. 24-25	Methods in Physical Education .....	..	..	2	Phys.Ed. A,B,C
Phys.Ed. 30	Athletic Training .....	..	..	2	
Phys.Ed. 33	Organization and Administration of Physical Education .....	..	..	3	
Phys.Ed. 37	Football	3	..	..
Phys.Ed. 38	Basket-Ball .....	..	2	..	
Phys.Ed. 39	Track Athletics .....	..	..	2	
Phys.Ed. 42	Baseball .....	..	..	2	

NOTE.—All candidates for teacher's certificate with minor recommendation in athletic coaching must take Physical Education 19, 20, 21, 24, 30, and 33. The balance of nineteen credit hours may be secured from any of the courses listed above.

PHYSICAL EDUCATION FOR WOMEN

This department aims to promote the physical efficiency of the women students. It gives physical examinations and advice to all on entrance, plans systematically to keep in close touch with them during their first two years of residence; conducts yearly consultations with, and examines when necessary, all upper class students; gives courses in hygiene; organizes neuromuscular activity leading toward organic strength, nervous stability, conscious motor control, correct body mechanics, skill in handling the body and in physical recreation, and the development of that valuable social quality known as good sportsmanship; co-operates closely with the Women's

¹ At least 8 credits of elective work in the junior and senior years must be selected from the list on p. 27.

Athletic Association in encouraging and organizing athletic sports; holds regular office hours for the purpose of consultation with all students who desire its advice.

Work in this department must be taken for six consecutive quarters in the Junior College. Every student must complete Courses 1, 2, and 3 in the order indicated. All sophomore students are allowed as free a choice as their physical condition permits (see Courses 7 to 31); except that students who cannot swim must register for Course 22-23 during the sophomore year. Physical examinations or consultations are required annually of all students. Additional six credits toward graduation can be gained by taking the following courses: 41, 42, 43, 44, 45, 66-67-68, 69-70-71.

Statement of fees.—Elementary physical training, \$2.50 a quarter. All other exercise courses, including swimming, for which registration is required, except Phys.Ed. 24f,s, \$2 a quarter. Maximum fee paid by a student in physical education, \$3.50 a quarter.

REQUIREMENTS FOR TEACHING PHYSICAL EDUCATION

The special four-year professional course described below is designed to prepare graduates for the responsible direction of physical education activities and provides the training necessary for the Minnesota "high school standard special" certificate for teaching physical education in elementary and high schools. Students desiring to enter the course should consult with the head of this department. They should be without organic diseases or serious functional disorder, should have a keen sense of rhythm, and should possess qualities of personality which will win the co-operation of others. They should have a voice adapted to speaking in public. They should have training in the sciences and should, if possible, have had a unit of physics in high school.

FOUR-YEAR CURRICULUM IN THE COLLEGE OF EDUCATION FOR
WOMEN STUDENTS MAJORING IN PHYSICAL EDUCATION

Major Adviser: J. Anna Norris

Freshman Year

Course No.	Title	Credits			Prerequisite Courses	
		F	W	S		
Eng. A-B-C or	Freshman English ¹	5	5	5	None	
Comp. 4-5-6	Freshman English ¹	3	3	3	None	
Chem. 14-15	Gen. Inorg. Chemistry ²	5	5	..	None	
Agr. Eng. 23 ³	General Physics ³ .....	..	..	5	None
Hist. 1-2	Modern World ³	5	5	..	None	
Soc. 1	Introduction to Sociology ¹ .....	..	..	5	None
Phys. Ed. 25 ⁵	Intermediate Swimming .....	..	..	$\frac{1}{2}$	None
Phys. Ed. 34 ⁶	Elementary Swimming for Ma- jors .....	..	..	..
Phys. Ed. 37-38-39 ⁴	Freshman Hockey, Basket-Ball, Baseball	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	None	
Phys. Ed. 40	Personal Hygiene .....	..	..	2	None
Phys. Ed. 48f-49w- 50 ⁵	Tennis and Posture Training, Danish Gymnastics, Track, Soccer, Archery	1	1	1	None	
		16 $\frac{1}{2}$ 16 $\frac{1}{2}$ 19 or or or 14 $\frac{1}{2}$ 14 $\frac{1}{2}$ 17				

¹ No exemption from the requirement. For description of course see bulletin of College of Science, Literature, and the Arts, Part I.

² For description of course see bulletin of School of Chemistry.

³ For description of course see bulletin of College of Agriculture.

⁴ The second and third quarters are open to students who have not taken the preceding quarters.

⁵ If one year of physics is presented at entrance no physics will be required.

⁶ Required only of those major students who cannot pass the elementary swimming test.

Sophomore Year

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
Zool. 1-2 ²	General Zoology ¹	5	5	..	None
Anat. 5s	Human Anatomy ³ .....	..	..	3	Zool. 1-2
Psy. 1-2 ²	General Psychology	3	3	..	None
P.M.&P.H. 2w ⁴	First Aid ⁵ .....	..	1	..	Zool. 9 cred.
Speech 41f-42w	Fundamentals of Speech	3	3	..	Comp. A-B-C or 4-5-6
Phys.Ed. 25f or 28f	Int. or Advanced Swimming ..	0	..	..	Phys.Ed. 34 or equivalent
Phys.Ed. 51-52	Soph. Major Gymnastics	$\frac{1}{2}$	$\frac{1}{2}$	..	Phys.Ed. 48-49-50
Phys.Ed. 56w-57s	Swim. with Technique and Methods .....	..	1	1	Phys. Ed. 28 or equivalent
Phys.Ed. 63-64-65	Hockey, Basket-Ball, Baseball with Technique and Methods ..	1	1	1	Phys.Ed. 7-38-39
Ed.Psy. 55	Educational Psychology .....	..	..	3	Psy. 1-2
Phys.Ed. 75	History of Physical Education ..	1	..	..	None
	Elective	3	..	6	
		16 $\frac{1}{2}$	14 $\frac{1}{2}$	14	

Junior Year

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
Physiol. 57f	Physiological Chemistry ³	4	..	..	Zool. 1-2, 10 cred., Chem. 10 cred.
Physiol. 4w	Human Physiology .....	..	4	..	See Physiol. 57f
Physiol. 60s	Physiology of Exercise .....	..	..	4	Physiol. 4
P.M.&P.H. 2 ⁴	First Aid ⁵	1	..	..	Zool. 10 cred.
P.M.&P.H. 53	Elements of Preventive Medicine .....	..	..	3	Psy. 1-2
Phys.Ed. 43-44-45	Theory and Function of Play ..	$\frac{1}{2}$	3	$\frac{1}{2}$	Phys.Ed. 6 qtrs., Psy. 1-2.
Phys.Ed. 54-55	Gymnastics for Junior Majors..	$\frac{1}{2}$	$\frac{1}{2}$	..	Phys.Ed. 51-52
Phys.Ed. 58-59	Adv. Folk Dancing with Technique and Methods .....	..	1	1	Phys.Ed. 6 qtrs.
Phys.Ed. 60-61	Minor Sports with Technique and Methods	1	..	1	Phys.Ed. 6 qtrs.
Phys.Ed. 66-67-68	Elementary Inter. Dancing	1	1	1	Phys.Ed. 6 qtrs.
Phys.Ed. 80-81	Anatomy and Kinesiology	3	3	..	Anat. 4 Agr. Eng. 23 Phys.Ed. 79-80-81
Phys.Ed. 82	Physical Examination .....	..	2	..	Phys.Ed. 54-55, 79-80-81
Phys.Ed. 83	Technique of Teaching and Principles of Gymnastics ....	..	..	4	
	Electives ⁶	5	..	2	
		16	14 $\frac{1}{2}$	15 $\frac{1}{2}$	

¹ For description of course see bulletin of College of Science, Literature, and the Arts, Part I.

² The entire course must be completed before credit is received for any quarter.

³ For description of course, see bulletin of Medical School.

⁴ Course must be taken junior year if not taken sophomore year.

⁶ Eight credits must be elected from among educational subjects listed on p. 27 of this bulletin.

Senior Year

Course No.	Title	Credits			Prerequisite Courses
		F	W	S	
Ed.Ad. 65	The High School .....	..	..	3	Ed.Psych. 55
Phys.Ed. 69-70-71	Advanced Int. Dancing with Technique	1	1	1	Phys.Ed. 66-67-68
Phys.Ed. 72-73	Senior Gymnastics	½	½	..	Phys.Ed. 54-55
Phys.Ed. 85-86	Principles of Physical Education ..	..	2	1	Phys.Ed. 44, 84, 91
Phys.Ed. 87	School Hygiene and Technique of Teaching Personal Hygiene	3	..	..	Physiol. 58-59 and Prev. Med. 53
Phys.Ed. 88-89-90	Orthopedic and Remedial Gymnastics	1	1	1	Phys.Ed. 82
Phys.Ed. 91	Principles of Dancing	2	..	..	Phys.Ed. 59, 67-68
Phys.Ed. 92-93-94	Practice Teaching	2	2	2	Phys.Ed. 56-57, 60-61, 63-64-65, 69-70, 83, 91
Phys.Ed. 97	Administration of Physical Ed. ..	..	3	..	
	Electives	5	5	5	
		14½	14½	13	

Some electives which are permitted by program hours.

- Anthropology, 41 (Introduction)
- Art Education, 1 (Appreciation)
- Astronomy, 11 (Descriptive)
- English, 55-56 (Shakespeare)
- Greek, 42 (Sculpture), 44 (Literature and Life), 45 (Mythology)
- Human Anatomy, 135 (Physical Development of Childhood)
- Philosophy, 1 (Problems), 2 (Logic), 3 (Ethics)
- Political Science, 1 (American Government)
- Preventive Medicine and Public Health, 59 (Social Hygiene), 61 (Mental Hygiene)
- Sociology, 6 (Social Interaction), 14 (Rural Sociology)
- Home Economics, 70, Nutrition Survey (Freshmen or Sophomores)
- Home Economics, 170, Nutrition of the Family
- Home Economics, 171, Child Nutrition
- Bacteriology 41
- Art Ed. 37f, Basketry
- Art Ed. 38f, Elementary Weaving and Allied Crafts
- College of Engineering and Architecture 18f,w,s, General Woodworking

COLLEGE OF EDUCATION

REQUIREMENTS FOR WOMEN STUDENTS MINORING IN
PHYSICAL EDUCATION

Course No.	Title	Credits	Prerequisite Courses
Phys.Ed. 1-2-3 ¹	Elem. Physical Training	3	None
Phys.Ed. 20	Basket-Ball	3	
Phys.Ed. 21	Baseball	3	
Phys.Ed. 22-23	Elementary Swimming	1½	None
Phys.Ed. 43-44-45	Theory and Function of Play	4	Phys.Ed., 6 qtrs.
Phys.Ed. 51-52	Soph. Major Gymnastics	½	Phys.Ed. 1-2-3
Phys.Ed. 54-55	Junior Major Gymnastics	1	Phys.Ed. 51-52
Phys.Ed. 64-65	Basket-Ball, Baseball with Technique and Methods	2	Phys.Ed. 20w-21s
Zool. 1-2	General Zoology	10	No prereq.
Anatomy 5	Human Anatomy	3	Zool. 1-2
Phys.Ed. 80-81	Anatomy and Kinesiology	6	Zool. 1-2, Anat. 4s
Phys.Ed. 83	Technique of Teaching and Principles of Gymnastics	4	Phys.Ed. 79-80-81, 54-55
Prev.Med. 50	Public and Personal Health	3	Zool. 1-2, Psy. 1-2

PHYSICS

Major Adviser: H. A. Erikson

Physics as a major subject:

Course No.	Title	Credits
Phys. 3,4	Elements of Mechanics	4
Phys. 23,24	Heat	4
Phys. 33,34	Optics	4
Phys. 43,44	Electricity	4
Phys. 9	Acoustics	3
Phys. 52	Laboratory Arts	3

Six credits to be elected from the following:

Course No.	Title	Credits
Phys. 104	Precision Mechanics	3
Phys. 124	Pyrometry and Heat	3
Phys. 134	Experimental Optics	3
Phys. 136	Spectrum Analysis	3
Phys. 144	Electricity Measurements	3
Phys. 148	Radioactivity	3
Phys. 150	Conduction through Gases	3
Phys. 152	X-Rays	3

Total credits 28

Physics as a minor subject:

Twenty-two credits consisting of the following courses: 3 and 4, 23 and 24, 33 and 34, 43 and 44, 9, 52.

For specialized curriculum in natural science see p. 54.

¹ Transfer students who have not completed the requirement in preliminary hygiene may register for Phys.Ed. 4f,s or for P.M.&P.H. 3.

POLITICAL SCIENCE

Major Adviser: W. Anderson

Political Science as a major subject:

Thirty-six credits including:

Course No.	Title	Credits
Pol.Sci. A-B	Introd. to Government and Politics	10
or		
Pol.Sci. 1	American Government	5
and		
Pol.Sci. 15	Elements of Pol.Sci.	5

Additional courses in Political Science to the extent of 26 credits, of which 12 must be in senior college courses exclusive of Courses 51-52-53.

Political Science as a minor subject:

Eighteen credits including:

Course No.	Title	Credits
Pol.Sci. A-B	Introd. to Government and Politics	10
or		
Pol.Sci. 1	American Government	5
and		
Pol.Sci. 15	Elements of Pol.Sci.	5

Additional courses in Political Science to the extent of 8 credits, of which at least 3 credits must be in senior college courses, exclusive of Courses 51-52-53.

PROFESSIONAL EDUCATION OF TEACHERS

Major Adviser: W. E. Peik

This special curriculum is planned for persons who expect to enter the field of teacher training in elementary education. The demand at the present time comes from normal schools, teachers colleges, and high school or county normal departments for directors, supervisors, and critic teachers. The Master's degree is usually but not always required for normal school and teachers college positions. Rural teaching experience and the Bachelor's degree are required in Minnesota to qualify for positions in high school normal departments.

The curriculum listed below presupposes two years of teachers college or junior college work. The completion of two additional years entitles students to the degree of bachelor of science and to the teacher's certificate in elementary education in Minnesota. The satisfactory completion of a third year in the Graduate School entitles the student to the Master's degree and to a university certificate in teacher training.

Adjustments in the prescribed courses to meet the requirements of state departments or the specific needs of a student may be made with the approval of the major adviser and the faculty.

A. REQUIRED COURSES IN EDUCATION

Course No.	Title	Credits
Ed.Psy. 56	Educational Psychology	3-4
Ed.Psy. 60	Introduction to Statistical Methods	2
Ed.Psy. 134	Mental Tests	2
Ed.Ad. 124	Public School Administration	3
Ed.Ad. 75	The Elementary School	3
Ed.Ad. 119	The Elementary School Curriculum	3 or 4
Ed.Ad. 150w	Supervision and Improvement of Instruction	2
Ed.Ad. 151	Supervision: Uses of Educational Tests in Improving Instruction	2
Ed.Ad. 156	Practice Supervision (Field Work and Observation)	3
Ed.Ad. 172	Elementary Curriculum and Course of Study Construction ..	2
Ed.T. 181	Technique of Elementary School Instruction	3
Ed.Ad. 185	The Professional Education of Teachers	2

31

In addition 13 hours to be elected from the courses below

Course No.	Title	Credits
Ed.T. 45	The Teaching of Geography and History in the Elem. School	2
Ed.T. 143-144	The Teaching of Reading	3-4
Ed.Ad. 152	Adjustment of Schools to Individual Differences	2
Ed.Ad. 153	The Supervision of English	2
Ed.Ad. 154	The Supervision of Social Studies	2
Ed.Ad. 155	The Supervision of Arithmetic	2
Ed.Ad. 157	Practice in Supervision	3
Ed.Ad. 159	The Supervision of Reading	2
Pub.Sch.Mus.	Courses in Music Education (with approval only)	2-5
Art.Ed.	Courses in Art Education (with approval only)	2-5
Phys.Ed.	Courses in Physical Education (with approval only)	2-5
Ed.Psy. 113-114-115	Psychology of Elementary School Subjects	6
Ed.Psy. 157	Psychology of Child Development	3
Ed.Ad. 184	Supervision of Practice Teaching	2
Ed.A. 186	Special Problems in Teacher Training	2
	Other courses on approval	13
Total credits in education		45

B. REQUIRED COURSES IN ACADEMIC SUBJECTS

Nine or ten credits in each of four of the following academic fields including English and social studies, or eighteen credits in each of two of the following fields or such others as may be approved:

English, English literature, history, geography, political science, social studies, languages, mathematics	36
General electives (recommended to be in academic subjects)	9

Total	45
Total credits required for the teacher's certificate and the bachelor of science degree	90

ADDITIONAL YEAR IN THE GRADUATE SCHOOL

For the work of the fifth year, the candidate for the Master's degree and for the university certificate in teacher training must satisfy the requirements of the Graduate School (see Graduate School bulletin). The language requirement may be waived in all cases where a language is not necessary in the thesis or the special work to be pursued.

PUBLIC SCHOOL MUSIC

Major Advisers: C. Scott, A. Pepinsky, A. N. Jones

The curriculum in Public School Music is designed to prepare supervisors and teachers of music in the elementary and secondary schools, and leads to the degree of bachelor of science and the Minnesota "high school standard special" certificate for teaching music in elementary and high schools.

In addition to the practical and theoretical studies in music this course includes such cultural subjects as English, psychology, and history, and the professional courses which are prescribed by the College of Education. The music studies are equally distributed between the instrumental and vocal departments so that, on graduation, a student is capable of being an instrumental, vocal, or general supervisor.

Observation and practice teaching are required in the Minneapolis and Saint Paul grade schools, and in the Minneapolis, Saint Paul, and University high schools.

Following are the specific regulations and requirements applying to this course:

For entrance.—All students wishing to register for the course in Public School Music must, upon matriculation, choose a major instrument, and pass an entrance examination in that instrument, before a committee of the faculty of the Music Department. Entrance requirements for a major, according to instruments are:

Piano—Any minor or major scale in octaves, thirds, sixths, or tenths, M.M. quarter notes—108; Bach Invention, or dances from one of the suites; a sonata by Haydn or Mozart; a modern composition of equal difficulty with the sonata.

Voice—Good natural equipment.

Violin—Major and minor scales, arpeggios; the simpler Kreutzer *Etudes*; a sonata by Handel, Haydn, Mozart, or Schubert; a more modern work displaying special technique peculiar to the violin.

Organ—Same as piano.

Students not majoring in piano, will be examined concerning requirements to be met in piano. (See below.)

For graduation.—Students must earn 180 credits and 180 honor points exclusive of physical education. They must earn 30 credits in practical music, 18 of which shall be the minimum requirement for their major instrument. Students who are not majoring in voice shall be required to take one year of voice, two credits per quarter, and must take this subject during the freshman year. Students not majoring in piano shall be required to take one year of piano, A-B-C, two credits per quarter, exemption dependent upon entrance examination. (The credits in this subject cannot apply to a major in piano.)

COLLEGE OF EDUCATION

FOUR-YEAR CURRICULUM IN PUBLIC SCHOOL MUSIC

*Freshman Year*¹

Course No.	Title	Credits
Comp. 4-5-6 or Eng. A-B-C	Freshman Composition	9
Mus. 1-2-3	Freshman English or exemption from the requirement	15
Mus. 7-8-9	Harmony	9
Mus.Ed. 1-2-3	Ear Training and Solfeggio	3
Mus. Ed. 7-8-9	Orchestral Instruments	3
	Music Appreciation	3
	Practical Music	12
	Electives	6

*Sophomore Year*¹

Course No.	Title	Credits
Psy. 1-2	General Psychology	6
Mus. 103-104-105	Analysis	3
Mus.Ed. 29-30-31	Elementary and Junior High School Methods ²	9
Mus.Ed. 4-5-6	Orchestral Instruments	3
Mus. 02	Technique of Vocal Instruction (Spring quarter)	2
Mus. 106-107-108	History of Music	9
Ed.Psy. 55	Educational Psychology	3
	Practical Music	6
	Orchestra or Chorus ³	3

Junior Year

Course No.	Title	Credits
Mus.Ed. 32-33-34	High School Methods ⁴	9
Mus.Ed. 51-52-53	Instrumentation	6
Mus. 112-113-114	Ensemble	6
	Practical Music	6
	Orchestra or Chorus ³	3
	Electives	15

Senior Year

Course No.	Title	Credits
Mus.Ed. 64-65-66	Orchestra Conducting	6
Ed.Ad. 65	The High School	3
Mus.Ed. 81-82-83	Supervision and Teaching	6
	Practical Music	6
	Education Electives ⁵	6
	General Electives	18

¹ During the freshman and sophomore years students must secure the required credits in physical education. Men must also register for military science.

² First two quarters Elementary School Methods; third quarter Junior High School Methods.

³ Except for students majoring in piano.

⁴ First two quarters, High School Methods; third quarter, Operetta Conducting.

⁵ To be selected from the list on p. 27.

Minor in Public School Music

Students in other departments who wish to earn a minor in Public School Music may do so by completing the following courses:

Course No.	Title	Credits
	Practical Music	6
Mus. 7-8-9	Ear Training and Solfeggio	3
Mus.Ed. 1	Orchestral Instruments	1
Mus.Ed. 7-8-9	Music Appreciation	3
Mus.Ed. 32-33	High School Methods	6

ROMANCE LANGUAGES

Major Adviser: F. B. Barton

French as a major subject:

Thirty-six credits in courses numbered above 4 including:

Course No.	Title	Credits
French 21-22-23	Survey of French Literature (or 24-25)	9 or 10
	and	
	One other literary course	3 to 9
French 49	French Pronunciation	3
French 53	French Composition	3
	and	
French 54-55	French Conversation	4
	or	
French 20	Oral and Written French	5
French 63	Advanced French Composition	3
French 103-104-105	French Syntax and Composition	3

French as a minor subject:

Eighteen credits in courses numbered above 4.

SCHOOL HEALTH WORK

Major Adviser: H. S. Diehl

This course is designed to prepare students to develop comprehensive health programs in school systems. In the smaller systems such persons may teach health education and allied subjects, such as biology, in high school and supervise the health work in the elementary schools. Since the responsibility of persons in these positions will cover all phases of school health work such as physical inspections, control of contagious diseases, correction of physical defects and the teaching of health and physical education, the aim has been to provide a broad background in the whole field of health education, rather than a high degree of specialization in any one aspect of the problem.

Teachers of experience who are graduates of two-year courses in teachers colleges will be allowed the usual 90 credits toward the completion of the course. Graduates or students in nursing, physical education, home economics, elementary education, and others will be allowed advanced credit, determined in each case by their previous training. The work of all students desiring advanced credit toward the completion of the course

will be evaluated and a program of studies worked out for each student on an individual basis.

Provision also is made whereby those who have completed the course and have had experience in the field may pursue a fifth year of graduate work, specializing in some phase of the school health problem such as physical education, school nursing, health instruction, etc.

Students in this course will be selected by the advisory committee on the basis of their ability and qualifications for the work.

Certification for teaching will be made in a minor field such as natural science or physical education.

FOUR-YEAR CURRICULUM IN SCHOOL HEALTH WORK¹

Freshman-Sophomore Years

Course No.	Title	Credits
Comp. A-B-C or 4-5-6	Freshman English or Composition	15 or 9
Hist. 1-2	Modern World	10
Bot. 1	General Botany	4
Chem. 1,2,3 (or 4-5)	General Inorganic Chemistry	12 or 8-
P.M.&P.H. 3	Personal Hygiene and Elementary Sanitation	2
Soc. 1	Introduction to Sociology	5
Psy. 1-2	General Psychology	6
Zool. 1-2	General Zoology	6
Anat. 3	Human Anatomy	5
Physiol. 4	Human Physiology	4
Bact. 41	General Bacteriology	5
Rhetoric 22(UF)	Public Speaking (UF)	3
H.E. 70	Nutrition Survey	2
P.M.&P.H. 2	First Aid	1
Phys.Ed. 1-2-3	Freshman Physical Education ¹	3
Phys.Ed. 22(23)	Elementary Swimming }	2
Phys.Ed. 20	Sophomore Basket-Ball }	
Phys.Ed. 21	Sophomore Baseball }	
Total required credits		81 to 83.

Approved electives to total 90 credits exclusive of required physical education courses are required.

¹ Men interested in this curriculum may take the required number of credits in physical education in their minor course in athletic coaching. Selection of the proper courses will be made in consultation with an adviser in the Department of Physical Education for Men.

Junior-Senior Years

Course No.	Title	Credits
Phys.Ed. 43-44-45	Theory and Function of Play ¹	4
Phys.Ed. 64	Basket-Ball with Methods and Technique	1
Phys.Ed. 79-80-81	Anatomy and Kinesiology	6
P.M.&P.H. 53	Elements of Preventive Medicine	3
P.M.&P.H. 59	Social Hygiene	1
P.M.&P.H. 61	Mental Hygiene	3
P.M.&P.H. 69	School Nursing—Principles, Techniques and Practices	4
P.M.&P.H. 74	Health Instruction Methods and Materials	4
P.M.&P.H. 75	Practice Teaching in Health Education	Ar
P.M.&P.H. 80	Health Supervision of School Child	3
P.M.&P.H. 106	School in Relation to Public Health Organizations	2
Ed.Psy. 55	Educational Psychology	3
Ed.Ad. 65	The High School	3
Ed.Ad. 75	The Elementary School	3
or		
Ed.T. 181	Technique of Elementary Instruction	3
Ed.Ad. 124	Public School Administration	3
Ed.Ad. 150	Supervision and Improvement of Instruction	2
Ed.T. 15	Technique of H. S. Instruction	3
Ed.T. 62-63-64	Special Methods and Practice Teaching	9
H.E. 171	Child Nutrition	3
Soc. 49	Occurrence of the Socially Inadequate	3
Soc. 52	Elem. Case Work	3
Soc. 90-91	Elem. Field Work	4
C.W. 130	Development of Young Child	3
C.W. 170	Parental Education	3
Bot. 101	Elementary Biometry	3
	Total required credits	75
	Approved electives	15
		90

Recommended Electives

Course No.	Title	Credits
Ed.Ad. 133-134	Guidance in Secondary Schools	4
or		
Ed.Ad. 169	Extra-Curricular Activities	2
Ed.Psy. 134	Mental Testing	
or		
Ed.Psy. 143-144	Individual Mental Examination	4
Ed.Psy. 159	Psychology of Personality	2
Ed.Psy. 146-147	Child Guidance	4
H.E. 170	Nutrition of Family	3
Bact. 101	Special Bacteriology	4
Bact. 116	Immunity	3
Anat. 135	Physical Development of Child	2

¹ Men interested in this curriculum may take the required number of credits in physical education in their minor course in athletic coaching. Selection of the proper courses will be made in consultation with an adviser in the Department of Physical Education for Men.

Graduate Work

Graduate work, leading to specialization along the lines of supervision in physical education, school nursing, or health education, may be followed by properly qualified students, preferably after some actual experience in the field of school health work. Permission to pursue graduate work in this field must be obtained from the advisory committee on school health work. Students who register in the Graduate School and fulfill its various requirements will receive appropriate graduate degrees.

SOCIAL STUDIES

Students who desire to specialize in the group of Social Studies are advised to follow either of the following options:

1. Major in history, minor in social science. Students majoring in history who expect to prepare themselves to handle high school courses in social science should, in addition to meeting other requirements for graduation from the College of Education, secure credits as follows: History at least 45 credit hours (see statement under History). Political Science 1, 2, and 11 or 15. Economics 6-7. Sociology 1, 6, and 14. Geography 11 and 41 are strongly urged. A minimum of 15 credits in one and 10 credits in two of these departments is required.

2. Major in social science, minor in history. Students desiring to secure a major in social science with a minor in history should take the following courses: Economics 6-7, and more advanced work. Political Science 1, 2, 11 or 15 and one course in foreign governments or relations. Sociology (see departmental statement). History 7-8 and enough more to constitute a minor. Enough additional credits should be earned in one of these departments to satisfy major requirements in that department. Geography 11, 41, 43 or 71 are strongly urged.

FIVE-YEAR COURSE LEADING TO THE DEGREE OF MASTER OF ARTS

Since in many cases students will find it difficult to secure adequate general training and at the same time pursue all of the special courses in history and social science which are desirable to follow, a five-year course leading to the degree of bachelor of arts and master of arts is recommended.

JUNIOR COLLEGE

*Freshman Year*¹

Course No.	Title	Credits
Comp. 4-5-6	Freshman Composition	9
or		
English A-B-C	Freshman English (or exemption from requirement)	15
	Language (see requirements)	10
	Science	10
Hist. 1-2	Modern World	10

¹ During the freshman and sophomore years the student must secure 5 credits in physical education. Men must also register for military science.

CURRICULA

77

*Sophomore Year*¹

Course No.	Title	Credits
Hist. 7-8	American History	10
Psy. 1-2	General Psychology	6
Pol.Sci. 1	American Government	5
Pol.Sci. 2	State Government	5
	Social studies group and electives	15

COLLEGE OF EDUCATION

Junior Year

Course No.	Title	Credits
Econ. 6-7	Principles of Economics	10
Hist. 105	History of Rome	5
or		
Hist. 133	Near East: Old Orient	3
Hist. 119	Renaissance and Reformation	5
or		
Hist. 120	Medieval Civilization	5
Soc. 1	Introduction to Sociology	5
Soc. 6	Social Interaction	3
Soc. 14	Rural Sociology	3
Ed.Psy. 55	Educational Psychology	3
Ed.T. 15	Technique of High School Instruction	3
Ed.Ad. 65	The High School	8
	Electives ²	

Senior Year

Course No.	Title	Credits
Ed.T. 66-67-68	Special Methods and Practice Teaching	9
Econ. 3	Mechanics of Exchange	5
Econ. 141	Monetary and Banking Policy	3
Pol.Sci. 11	Municipal Government	5
Pol.Sci. 15	Elements of Political Science	5
	History (Intensive course, see departmental statement)	5
	Sociology (See departmental statement)	9

GRADUATE SCHOOL

Fifth Year in the Graduate School

Students who satisfactorily meet the requirements of the Graduate School (see Graduate School bulletin) may secure the Master's degree with a major in social studies and a minor in education. Programs should be arranged in consultation with a major adviser in the department.

¹ During the freshman and sophomore years the student must secure 5 credits in physical education. Men must also register for military science.

² Electives totaling 8 credits should be selected from the list of education courses on p. 27.

SOCIOLOGY AND SOCIAL WORK

Major Adviser: F. S. Chapin

*Sociology As a Major Subject¹**a. Major in Social Theory:²*

Course No.	Title	Credits	Course No.	Title	Credits
Soc. 1	Introduction to Sociology ..	5	Soc. 100	Social Psychology	3
Soc. 6	Social Interaction	3	Soc. 101 ³	Social Organization	3
Soc. 14	Rural Sociology	3	Soc. 102 ³	Social Control	3
Soc. 53	Elements of Criminology ..	3	Soc. 110	Rural Organization	3
or			Soc. 114	Rural Social Institutions	3
Soc. 45	Social Statistics	5	or		
Soc. 49	Occurrence of the Socially Inadequate	3	Soc. 140	History of Social Theory	3
Soc. 119	The Family	3	Soc. 121	Advanced Statistical Methods	3
or			or		
Soc. 120	Social Progress	3	Soc. 141	Contemporary Social Theory	3

Total 36 or 37 credits.

b. Major in Applied Sociology:⁴

Course No.	Title	Credits	Course No.	Title	Credits
Soc. 1	Introduction to Sociology ..	5	Soc. 119	The Family	3
Soc. 14	Rural Sociology	3	or		
Soc. 45	Social Statistics	5	Soc. 134	Legal Protection of the Child	3
Soc. 49	Occurrence of the Socially Inadequate	3	Soc. 110	Rural Organization	3
Soc. 52 ⁴	Elementary Case Work ...	3	or		
Soc. 60	Legal Protection of the Child	3	Soc. 114	Rural Social Institutions	3
Soc. 90	Elementary Field Work ...	2	or		
Soc. 91	Elementary Field Work ...	2	Soc. 128 ⁵	Principles of Administration Applied to Social Work	2
Soc. 100	Social Psychology	3	or		
Soc. 112	The Rural Social Survey..	2	Soc. 130 ⁵	Advanced Case Work ...	2
or					
Soc. 122-123	Methods of Social Investigation	6			

Total 36 or 37 credits.

¹ Students are advised to take Psy. 4-5 or 7. Students expecting to major in Speech should consult a major adviser as early as possible in their junior college course.

² Soc. 116, The Newspaper As a Social Institution; or Soc. 160, Population Problems, may be substituted, upon the recommendation of the adviser, for any three-credit course which appears in this curriculum.

³ Soc. 103, Sociology of Conflict, may be substituted for this course.

⁴ Soc. 70, Group Work in the Community, and Soc. 71, Elementary Field Training in Group Work, may be substituted for Soc. 52, Soc. 90, and Soc. 91.

⁵ Soc. 126, Technique of Leadership, may be substituted for this course.

Sociology As a Minor Subject

Course No.	Title	Credits.
Soc. 1	Introduction to Sociology	5
Soc. 6	Social Interaction	3
or		
Soc. 14,	Rural Sociology, and 4 other courses	11 or 12
		Total 19 or 20 credits.

NOTE.—Students majoring in sociology must complete two teaching minors in addition to the required professional courses. Teachers who already hold a teacher's certificate may be relieved of this requirement upon petition.

SPEECH

Major Adviser: F. M. Rarig

Speech as a major subject:¹

Course No.	Title	Credits.
Comp. 11-12	Description; Narration	6
Speech 41-42-43	Fundamentals of Speech	9
or		
Speech 45-46	Fundamentals of Speech	10
Speech 55-56	Argumentation and Debate	6
Speech 61	Speech Correction	4
Speech 67	Phonetics	3
Speech 71-72	Elements of Play Production	6
Speech 81-82	Interpretative Reading	6
Total		43 or 44

Speech as a minor subject:

A minimum of 25 credits including Speech 41-42-43 or 45-46; 61 and 67; 55-56-57 or 71-72-73 or 81-82-83.

Speech Correction as a minor subject:²

Course No.	Title	Credits.
Speech 41-42-43	Fundamentals of Speech	9
or		
Speech 45-46	Fundamentals of Speech	10
Speech 61	Speech Correction	4
Speech 67	Phonetics	3
Speech 162-163	Advanced Speech Correction	6
Psy. 144-145	Abnormal Psychology	6
Total		28 or 29

All students majoring or minoring in speech must present satisfactory evidence of interest and effective participation in one or more activities, such as debating, dramatics, oratory, public reading, or public speaking.

Because of the close relation between English and speech in the high schools of Minnesota, students majoring in speech should have one of their minors in English.

¹ Students are advised to take Psy. 4-5 or 7. Students expecting to major in Speech should consult a major adviser as early as possible in their junior college course.

Students intending to take further work in speech correction, specializing in that field of speech alone, should include in their undergraduate course Physiology 4.

Students majoring in speech register for practice teaching in Ed.T. 52-53-54.

TEACHERS OF SUBNORMAL CHILDREN

Major Adviser: J. G. Rockwell

Students will complete the first two years of this course in the Junior College.

Students who complete the freshman and sophomore years of this course, who have had two years of teaching experience in elementary schools, and who complete a minimum of six credits in approved courses of the junior and senior years, will qualify for a special teaching certificate required of teachers of subnormal children in special classes for which state aid is received. All students who have not had the equivalent previously must take the courses in practice teaching and handwork to qualify them for this special certificate.

Unclassed students with proper prerequisites may pursue courses for which they are qualified in the junior and senior years, on the basis of previous training and experience.

FOUR-YEAR CURRICULUM FOR THE TEACHERS OF SUBNORMAL CHILDREN

JUNIOR COLLEGE

Freshman Year

Course No.	Title	Credits
Eng. A-B-C	Freshman English	15
or		
Comp. 4-5-6	Freshman Composition or exemption from the requirement ...	9
ArtEd. 1-2-3	Fundamental Principles of Design	9
Zool. 1-2	General Zoology	10
Soc. 1	Introduction to Sociology	5
	Electives	6
	Physical Education	

Sophomore Year

Course No.	Title	Credits
Psy. 1-2	General Psychology	6
Psy. 4-5	Psychology Laboratory	4
Hist. 1-2	Modern World	10
Ed.Psy. 55	Educational Psychology	3
Ind. 11	Special Class Woodwork	2
ArtEd. 37	Basketry	2
ArtEd. 32	Cardboard and Paper Construction	1
H.E. 57	Weaving on Table Looms	3
	Electives	12
	Physical Education	

COLLEGE OF EDUCATION

Junior Year

Course No.	Title	Credits
Ed.Psy. 134-135-136	Mental Tests and Problems in Mental Testing	6
Ed.T. 131	Technique of Elementary Instruction	3
Ed.T. 143-144	Teaching of Reading in Elementary School	4
Ed.Ad. 155	Supervision of Arithmetic in the Elementary School	2
Phys.Ed. 43-44-45	Theory and Function of Play	4
Ed.Psy. 184	Mental Deficiency	2
	Electives	

Senior Year

Course No.	Title	Credits
Ed.T. 17	Practice Teaching	5
Ed.Psy. 111	Measurements in the Elementary School	3
Soc. 49	The Occurrence of the Socially Inadequate	3
	Elementary Case Work	3
	Child Welfare	3
	Electives	

THEORY AND PRACTICE OF TEACHING

Major Advisers: Dora V. Smith, J. G. Umstattd

GRADUATE WORK

FIFTH YEAR FOR ENGLISH TEACHERS IN THE THEORY AND PRACTICE OF TEACHING

English teachers may secure a Master's degree with a major in the department of theory and practice of teaching and a supporting minor in English. Courses applicable to the teaching of English from which the student may profitably choose are as follows: Ed.T. 193, 195, 110, 122, and 196-197-198; Ed. 208; Ed.Ad. 113 and 169; Ed.Psy. 133 and 158. The seminar, Ed.T. 222-223-224, is required without credit for all students with a major or minor in theory and practice of teaching. Programs should be arranged in consultation with a major adviser in the department.

VISITING TEACHERS

Major Adviser: F. S. Chapin

JUNIOR COLLEGE

Freshman Year

Course No.	Title	Credits
Eng. A-B-C	Freshman English	15
or		
Comp. 4-5-6	Freshman Composition	9
Hist. 1-2	Modern World	10
	or	
	Foreign Language	10
Zool. 1-2	General Zoology	10
Soc. 1	Introduction to Sociology	5
Pol.Sci. 1	American Government	5
Phys.Ed. 1-2-3	Physical Education	5

COLLEGE OF EDUCATION

Sophomore Year

Course No.	Title	Credits
Hist. 7-8	American History	10
Econ. 6-7	Principles of Economics	10
Psy. 1-2	General Psychology	6
Pol.Sci. 2	State Government	5
Soc. 6	Social Interaction	3
Soc. 43	Social Statistics	5
Soc. 49	Occurrence of the Socially Inadequate	3
	Physical Education	2

COLLEGE OF EDUCATION

Junior Year

Course No.	Title	Credits
Ed.Psy. 55	Educational Psychology	3
Ed.T. 15	Technique of High School Instruction	3
Soc. 52	Elementary Case Work	3
Soc. 53	Elements of Criminology	3
Soc. 70	Group Work in the Community	3
Soc. 90-91	Elementary Field Training	3
H.E. 70-71-72	Nutrition	9
	or	
	Courses in Child Welfare	9
	Education Electives ¹	5 or 6

Senior Year

Course No.	Title	Credits
	Education Electives ¹	11 or 12
Econ. 161-162	Labor Problems and Labor Movements	6
	or	
Psy. 144-145	Abnormal Psychology	6
Soc. 60	Social Protection of the Child	3
Soc. 92	Elementary Field Training	2
Soc. 128	Principles of Administration Applied to Social Work	2
Soc. 130	Advanced Case Work	2
Soc. 134	Legal Protection of the Child	2
Soc. 138-139	Mental Case Work	6
Soc. 153-154-155	Advanced Field Training	9

ZOOLOGY

Major Adviser: J. E. Wodsedalek

Zoology as a major subject:

Zool. 1-2, General Zoology, 10 credits and a minimum of 20 additional credits in the department. Medical Physiology (Course 4) is included among the electives.

Zoology as a minor subject:

Zool. 1-2, General Zoology and at least 10 additional credits chosen from the following: Genetics and Eugenics, General Physiology, General Ecology, Histology, Entomology, General Embryology, Ornithology, and Human Physiology (Medical Physiology, 4).

¹ Electives should be selected under advisement.

DESCRIPTION OF COURSES

GENERAL COURSES

- Ed.50. Art Appreciation. The enjoyment of the visual arts. Illustration of governing principles by practical experience. No technical requirements. Contact for superintendents and supervisors and teachers in the general field with this so-called "special subject."
- Ed.208. Methods in Educational Research. A study of the methods employed in the investigation and report of educational problems. Designed to aid students in the preparation of theses. Suggested for all candidates for graduate degrees.
- Ed.228-229-230. Problems of College Education:
Ed.228. Problems of Student Personnel.
Ed.229. Problems of Curriculum and Instruction.
Ed.230. Problems of Organization and Administration.

ADMINISTRATION AND SUPERVISION

- Ed.Ad.24. Public School Administration. The organization and administration of public schools in relationship to the teacher and other staff members. For teachers.
- Ed.Ad.65. The High School. Development of secondary education in the U.S.; types of secondary schools; recent tendencies in reorganization; the aims and functions of secondary education; courses of study as related to aims; curriculum organization and programs of studies.
- Ed.Ad.65a. The High School. For students majoring in administration. (See Ed.Ad.65T.)
- Ed.Ad.75. The Elementary School. A systematic study of the modern elementary school: development; function; objectives; relation to junior high school and pre-school education; survey of its special features; organization; the curriculum; the function of the newer methods; the staff; articulation and co-ordination problems.
- Ed.Ad.113-114. High School Curriculum. A study of methods of curriculum making, types of programs of study, curricula, subjects of study, constants, variables, electives, distribution of subject-matter by years and units.
- Ed.Ad.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.
- Ed.Ad.119. The Elementary School Curriculum. A study of the principles underlying the selection and organization of subject-matter for courses in the elementary school; survey of scientific methods of curriculum making; examination of curricula, syllabi, and texts in the light of their function; survey of the findings of research by subjects.
- Ed.Ad.119T-120T. The Elementary School Curriculum. (Same as above for teachers. Offered every other year on Saturday mornings.)

- Ed.Ad.121. Educational Advising of Women and Girls. A course designed to acquaint students with the problems of educational advising of girls and young women, particularly those of high school age. Open to seniors and graduates, and juniors by permission of the instructor.
- Ed.Ad.123. Supervision of High School Instruction. The present status of high school supervision; its proper scope and function. A course combining consideration of principles and their application to improving high school instruction in the academic and special subjects.
- Ed.Ad.124. Public School Administration. The organization, administration, and general support of public schools in states and local school districts.
- Ed.Ad.125. Techniques in Administration. Standard practices regarding child accounting problems, records and reports; procedures having to do with personnel and school board relations and rules and regulations; standard office practices, including textbook and supply management.
- Ed.Ad.126. School Plant Management. Plant program planning and financing, including operation and maintenance of public school buildings.
- Ed.Ad.128. Special Problems in Educational Administration. This course is designed primarily for superintendents and principals qualified to make intensive studies of specific problems related to the administration of a school system.
- Ed.Ad.129. Educational Publicity Materials. Analysis of current and desirable practices in educational publicity. Planning in detail a publicity program and current publicity materials for a public school system.
- Ed.Ad.130. Educational Publicity Agencies. Relationship of superintendent to community agencies directly or indirectly interested in public education. Problems of personal contacts, public speaking, parent-teacher and similar organizations, board meetings as a publicity agency.
- Ed.Ad.133. Guidance in Secondary Schools. Emphasizes practices in educational and vocational guidance in junior and senior high schools, considering such phases as giving information about vocations, utilizing test results and school marks, and organizing the staff for guidance.
- Ed.Ad.150. Supervision and Improvement of Instruction. An analysis of the functions and duties of a supervisor as related to the improvement of instruction; specific supervisory technique; objective analysis of classroom activity; concrete applications to present day problems; case studies.
- Ed.Ad.151. Supervision: Uses of Educational Tests in Improving Instruction. Objective evaluation of the results of teaching; diagnosis of pupil difficulty; remedial work; tests as aids to teaching; following up a testing program.
- Ed.Ad.152. Supervision—The Adjustment of Schools to Individual Differences. The adaptation of the school, the curriculum, and classroom procedures to the abilities and interests of pupils. Typical provisions; classification; emphasis upon classroom procedures; survey of the evidence.

- Ed.Ad.153. Supervision of English in the Elementary Schools. Improvement of instruction in language, grammar, spelling, and handwriting; the results of scientific investigation; use of standardized and informal tests; remedial work.
- Ed.Ad.154. Supervision of Social Sciences in the Elementary Schools. The scientific work being done on the course of study, in geography, history, science, and related fields; improvement of instruction in social sciences in the elementary schools.
- Ed.Ad.155. Supervision of Arithmetic in the Elementary Schools. The improvement of instruction in arithmetic; the evaluation of the course of study; standardized drill exercises; diagnosis of specific pupil difficulty and remedial work; tests as aids of teaching.
- Ed.Ad.156. Practice in Supervision—Observation and Field Work. Classroom visitation in the university elementary demonstration school, the University High School and other schools in or near the Twin Cities, followed by conferences. The application of supervisory techniques and follow-up; special projects in supervision.
- Ed.Ad.157. Practice in Supervision. Problems and practice in the supervision of instruction in the elementary schools of Minneapolis and St. Paul.
- Ed.Ad.158. Organization for Supervision. The organization and the administration of a public school system for supervision, treating specifically the delegation and co-ordination of the supervisory responsibilities of all staff members associated in these activities.
- Ed.Ad.159. Supervision of Reading. The improvement and supervision and instruction in oral and silent reading; the testing program; remedial work; evaluation of courses of study and textbooks; results of scientific investigations; special problems for study.
- Ed.Ad.160. Supervision of Elementary Subjects. A course considering the application of principles of supervision to improving instruction in the subjects of the elementary school.
- Ed.Ad.161. Special Problems in School Supervision. This course is designed primarily for principals, superintendents, and supervisors qualified to make intensive studies of specific problems related to the supervision of schools.
- Ed.Ad.164. High School Administration. Principles and techniques of the organization and administration of secondary school units; housing; selection and assigning of the staff; schedule making; public relations and publicity; organization of guidance and of extra-curricular activities; pupil, equipment, and internal fund accounting and related problems of administration; government; problems of administration and organization related to instruction.
- Ed.Ad.167-168. The Junior High School. An introduction to the theory and practice of junior high school education; sources of the movement for reorganization; purposes, functions, and limitations; types of reorganization; fundamental problems of reorganization, and administration and teaching; reorganization of subject-matter in grades 7, 8, and 9.

- Ed.Ad.169. Extra-Curricular Activities. Types of activities in junior and senior high schools; aims and values; practices in organizing, administering, and supervising; methods of evaluation.
- Ed.Ad.170. Special Problems in Secondary Education. Planned primarily for those at work in high schools who are qualified to make intensive studies relating to administration and supervision of secondary education. Consult instructor before registering.
- Ed.Ad.172. Curriculum and Course of Study Construction. A study of the techniques employed at the public school and college levels. Class and individual projects according to needs and interests.
- Ed.Ad.175. 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.
- Ed.Ad.178-179. School Surveys. A study of the literature and methods of school surveys, as a basis for the investigation of practical problems in school administration and supervision.
- Ed.Ad.180. Practice in High School Administration. Practical experience in problems of administration, pupil personnel, curriculum administration, extra-curricular activities, staff problems, program and schedule making, etc. Consult instructor before registering.
- Ed.Ad.184. Supervision of Practice Teaching. A course primarily for teachers engaged in the direction of practice teachers in secondary education.
- Ed.Ad.185. The Professional Education of Teachers. A study of the present status and of the problems that relate to the institutional training of teachers. Emphasis upon: historical evolution of current practices; institutional organization and relationship; curricula; the building of professional curricula; recent investigations and findings. Intended for critic teachers, practice teaching supervisors, directors, and administrators in departments, schools and colleges of education, and high school teacher training directors.
- Ed.Ad.186. Special Problems in Teacher Training. Planned for those who have a special interest in this field. An intensive study of specific problems. Consult instructor before enrolling.
- Ed.Ad.205-206-207. Seminar in Educational Administration.
- Ed.Ad.218-219-220. Seminar in Secondary School Problems.
- Ed.Ad.225-226-227. Seminar in Elementary School Problems.

AGRICULTURAL EDUCATION

- Agr.Ed.11. Principles of Vocational Education. The fundamental principles upon which education is based. Emphasis is placed on those phases which are most closely related to vocational education.
- Agr.Ed.21. Vocational Education. A short history of vocational education; present status in Europe and the United States; manual training and home arts in an educational system; place of agriculture in the public schools with special reference to Minnesota.

- Agr.Ed.41. *Apprentice Teaching.* An introductory course in teaching, including observation of class work, apprentice teaching, and special conference discussions of problems relating to teaching. Intended to initiate the student into the routine of classroom procedure. Professional readings. (Not offered in 1930-31.)
- Agr.Ed.42. *Supervised Teaching Experience.* Preparation of lesson plans and actual teaching of classes under careful supervision in recitation and laboratory; criticism and discussion of plans, methods, and results of student teaching. Review and discussion of assigned professional readings.
- Agr.Ed.64. *Survey of Agriculture.* A course in general agriculture designed to give students practical familiarity with fundamental principles and basic facts, best procedures, literature, and important problems of agriculture in this region.
- Agr.Ed.75. *Visual Presentation.* To prepare persons for presenting materials by means of slides, films, charts, etc. Students assist in assembling materials for their own use and in acquiring skill and technique in preparation and operation of various mediums.
- Agr.Ed.81. *Extension Work.* Federal, state, and local extension aims, organization. Assembling and use of extension data and equipment. Development of extension methods especially as applied to the work of Minnesota.
- Agr.Ed.82. *Agricultural Extension Field Work.* Actual field practices in extension work on part salary in addition to credits. Number admitted to course limited by positions available. Usually will cover summer quarter, may extend into fall quarter.
- Agr.Ed.131. *Methods in Teaching High School Agriculture.* Fundamentals of method in teaching as related to teaching agriculture in high school. Organizing subject-matter of daily work; selection and manipulation of devices. Classroom and laboratory method. Specific plans for teaching secondary agriculture. (Not offered in 1930-31.)
- Agr.Ed.135. *The Curriculum in Vocational Agriculture.* A study of curriculum organization, determination of subject-matter, organization of subject-matter, job analysis, course construction, texts, and references.
- Agr.Ed.141. *Supervised Practice in Vocational Agriculture.* A special methods course dealing with the selection, planning, supervising, and summarizing of the practical work in agriculture. Special emphasis on the problem method of teaching, and the use of the farm and community for teaching purposes.
- Agr.Ed.151. *Organization and Management.* Organization and management of work in secondary schools, particularly in Minnesota, with special reference to agricultural work, courses of study, programs, equipment, laboratory and class management, extension work, plots, and co-ordination of work. (Not offered in 1930-31.)
- Agr.Ed.154. *Rural Education and Community Life.* The rural school as a community center, and ways and means of organizing educational and recreational activities, such as clubs, festivals, fairs, and other desirable features of rural community life. (Not offered in 1930-31.)

- Agr.Ed.161. Vocational Education in Agriculture. A study of the principles developed and established in agricultural education. The principles developed in other vocational education and their relation to agricultural education.
- Agr.Ed.162. The Basis of Vocational Teaching Technique. A course which includes an analysis of the philosophical, psychological, and other bases of teaching technique from the viewpoint of the teacher of vocational agriculture.
- Agr.Ed.164. Fundamentals of Agriculture. Basic principles of agricultural science and elements of practical agriculture. Emphasis on concrete problems in soils, crops, and animal husbandry, as related to classroom instruction and to school and home projects.
- Agr.Ed.171. Problems in Procedure. For agriculture teachers. Emphasizes working out problems in detail in order that the processes as formulated can be used in teaching the following year by those enrolled. Discussions, readings, papers, laboratory.
- Agr.Ed.176. Problems in Visual Presentation. Special attention to use of visual aids in teaching agriculture. The development of proper visual methods by means of research.
- Agr.Ed.181-182-183. Teaching Agriculture. A study of all activities of the teacher in conducting a high school agriculture department in Minnesota including all day, part time, evening, and elementary classes, and community activities. Observation, participation, reading, preparing plans, criticisms, discussions, reports.
- Agr.Ed.191-192-193. Seminar in Agricultural Education. Critical studies of important problems in agricultural education; opportunity for individual investigation and research; review and interpretation of current educational literature.

ART EDUCATION

DESIGN

- ArtEd.1-2-3. Fundamental Principles of Design. Elementary problems involving space breaking, value relations, the decorative use of nature material, creative use of symbols; application to problems developed in the handicrafts, and to the home.
- ArtEd.20-21-22. Principles of Harmony in Form and Color. Experience with color. Color theories discussed and exemplified, with analysis of color harmonies. Application of color harmonies in original designs with reference to execution in handicrafts and by industrial processes.
- ArtEd.50-51. Commercial and Industrial Design. Advertising design and lettering; design for industry. Subject-matter appropriate for high school art teaching, with emphasis on governing principles.
- ArtEd.55-56-57. Fundamental Art Principles. Planned for teachers of subjects other than art.
- ArtEd.153-154. Design for the Consumer. 153—Problems of house planning, decoration, and furnishing; 154—Problems of costume selection and designing, settings and costumes in stage design. Subject-matter

appropriate for art teaching in high schools and colleges. Emphasis on art principles; art history an important part of this course; original research problems and applications in the field.

DRAWING

- ArtEd.4,5,6. Still Life. Drawing from objects in charcoal and pencil. Emphasis on form, value relations, perspective and composition.
- ArtEd.7,8,9. Sketch in Charcoal and Pencil from the Posed Figure. Action and memory drawing. Emphasis on action, form, and value relations.
- ArtEd.10-11-12. Graphic Composition. Drawing from imagination. Stimulation by poetry and music.
- ArtEd.23,24,25. Water Color Drawing. Emphasis on color, form, and technical handling.
- ArtEd.26,27,28. Pencil and Pen Techniques. Drawing in these media. Fundamental to problems in commercial art.
- ArtEd.29,30,31. Sketch from Pose. Rhythmic expression; memory drawing; blackboard experience.
- ArtEd.60,61,62. Advanced Water Color.
- ArtEd.63,64,65. Advanced Techniques.
- ArtEd.66,67,68. Advanced Sketch.

HANDICRAFTS

- ArtEd.32. Cardboard and Paper Construction. Subject-matter for public school work.
- ArtEd.33. Bookbinding. Sequence of problems from simplest construction to the book sewed on cords or tapes. Problems with reference to grades, high schools, and for use in occupational therapy.
- ArtEd.35. Clay Modeling. Imaginative and decorative design carried out in plastic media.
- ArtEd.37. Basketry, with reference to use in the grades and in occupational therapy.
- Art.Ed.38. Elementary Weaving and Allied Crafts.
- ArtEd.39. Advanced Basketry.
- ArtEd.40. Advanced Weaving.
- ArtEd.41. Elementary Pottery. Hand building.
- ArtEd.42-43. Advanced Pottery. Work on wheels, castings, firing, and glazing.
- ArtEd.44. Application of Design to Fabrics. By means of block printing, stenciling, batik, and other dyeing processes.
- ArtEd.45. Application of Design in Needlecraft. Problems appropriate for public school work. Peasant stitches.
- ArtEd.46. Metal Work. Fundamental processes of shaping, sawing, saw piercing, riveting, and soldering.

ART HISTORY AND APPRECIATION

- ArtEd.70. Art of the Italian Renaissance.

See Note under statement of requirements for the art major.

THEORY AND PRACTICE OF ART TEACHING

- ArtEd.80,81,82. Types of Art Instruction. A special methods course with especial reference to the problems needed in practice teaching in the Minneapolis public schools. Attendance upon art supervisor's meetings and visits to the supervisory office.
- ArtEd.83. Problems in Art Education. A survey of art teaching practices; study of governing principles; history and philosophy of art teaching; making of courses of study for public school application.
- ArtEd.85,87,88. Practice Teaching in Art. Actual experience under public school conditions.
- ArtEd.189. Application of Esthetic Theories in Public School Art Education. An integration course. Original research problems.

EDUCATIONAL PSYCHOLOGY

- Ed.Psy.55. Educational Psychology. A survey of fundamental facts of human behavior, involved in educational activities. Particularly designed for high school teachers. Open to juniors and seniors.
- Ed.Psy.56. Educational Psychology for Elementary School Teachers. This course is similar to Ed.Psy.55 but particularly adapted to the needs of the elementary school teacher.
- Ed.Psy.56-57. Educational Psychology for Elementary School Teachers. Same as Ed.Psy.56.
- Ed.Psy.60. Introduction to Statistical Methods. To supply the statistical techniques necessary for an understanding of educational literature and for the pursuit of studies in education and related fields. The course includes a study of measures of central tendency, variability, and correlation.
- Ed.Psy.111-112. Educational Measurements in the Elementary School. The typical educational problems involving educational scales and standard tests. Nature of tests, methods of use, analysis of results obtained, and programs of remedial educational procedure based on the results of the tests.
- Ed.Psy.113-114-115. Psychology of Elementary School Subjects. A discussion of the research studies in the field of the psychology of elementary school subjects.
- Ed.Psy.116-117. Advanced Statistical Methods in Education. A survey of statistical studies in education with special reference to the methods employed and the reliability of the results obtained.
- Ed.Psy.133. Systematic Educational Psychology. Advanced course covering the field of psychology as related to education. Open to seniors and graduate students.
- Ed.Psy.134. Mental Tests. A laboratory study of group mental tests used in the kindergarten, elementary school, high school, and college with special emphasis upon their reliability and validity as instruments for educational guidance.
- Ed.Psy.135-136. Problems in Mental Testing. A study of the practical problems of mental testing in the public schools with special reference

- to the administration of group mental tests. Projects involving testing and classification of pupils.
- Ed.Psy.138-139. Experimental Educational Psychology. A laboratory course designed to train students in the use of experimental methods in the study of educational problems, particularly in the field of the psychology of learning. It is suggested that this course supplement either 133 or 190, 191, 192, 193-194.
- Ed.Psy.141. Psychology of Speech Disorders.
- Ed.Psy.143-144. Individual Mental Examination. For teachers of sub-normal children. Demonstration and practice in mental diagnosis. Careful study will be made of different groups and systems of mental tests, and other clinical methods with discussion of general theory involved.
- Ed.Psy.145. Special Problems in the Field of Individual Mental Testing.
- Ed.Psy.146-147. Child Guidance. Specific problems in school adjustment dependent upon physical and emotional factors of the child, the home, and the environment. Case records giving family and personal histories, physical condition, psychometric rating, and personality presented. Class discussion of the recommendations.
- Ed.Psy.149-150-151. Psycho-Educational Clinic. Conducted in co-operation with existing clinics and agencies in the Twin Cities. Students will receive practice in giving psychological examinations, in case study, and in scientific interpretation of data.
- Ed.Psy.153-154-155. Research Problems. Intended for properly prepared students who desire to pursue special investigation in the field of educational psychology.
- Ed.Psy.157. Psychology of Child Development. The physical, mental, social, and emotional development of children from birth to adolescence.
- Ed.Psy.158. Psychology of Adolescence. A study of the physical and mental changes that characterize the transition from childhood to adult life. Implications for educational guidance during the period of secondary education.
- Ed.Psy.159. Psychology of Personality. Theoretical basis. Survey of methods for the measurement and study of character and the emotions. Relation to school success and other factors in the school situation. Genetic development of personality traits in childhood and adolescence.
- Ed.Psy.181. Practice in Personnel Work. Course designed to give properly qualified students practical experience in the use of psychological and related methods in dealing with school children.
- Ed.Psy.183. Psychology of Gifted Children. A study of the physical and mental traits of gifted children and the methods of their education.
- Ed.Psy.184. Mental Deficiency. Survey of mental deficiency in children and adults. Physical traits, including study of brain defects, causes and heredity; psychology of mental deficiency; social problems of feeble-mindedness. Subjects treated with reference to the training of defectives.

- Ed.Psy.189. *The Human Organism*. The development of the human organism in relation to educational practice.
- Ed.Psy.190. *Original Nature of Man*. Advanced work in genetic psychology, man's unlearned behavior, and inherited capacities.
- Ed.Psy.191. *Individual Differences*. A study of group and individual differences and their relations to educational practice.
- Ed.Psy.192. *Recent Literature in Educational Psychology*. Readings and reports on problems in educational psychology.
- Ed.Psy.193-194. *Psychology of Learning*. A study of the experiments in learning in the laboratory and in the classroom.
- Ed.Psy.197-198-199. *Seminar: Problems of Subnormality*. Phases of subnormality studied intensively. Review of important literature and original investigation. Students required to make reports on assigned topics and submit a paper on some problem at the close of the quarter.
- Ed.Psy.201-202-203. *Seminar in Educational Psychology*. A research course for graduate students. Required of all students writing theses in educational psychology. Does not carry credit as course work.

HISTORY AND PHILOSOPHY OF EDUCATION

- H.Ed.1. *Brief Course in History of Education*. Current school problems and educational theories in the light of their history. Emphasis upon modern times and those aspects of education of most immediate concern to high school teachers.
- H.Ed.3. *Educational Sociology*. A study of the social aspects of the teacher's work and of education as a means of solving social problems and directing the evolution of institutions.
- H.Ed.5. *Public Education in the United States*. A survey of factors determining public education in the United States, followed by a study of the development of educational theory and the rise of state systems.
- H.Ed.101. *Historical Foundations of Modern Education*. Historical analysis and interpretation of the more important elements in modern education derived from the Hebrews, Greeks, Romans, Middle Ages, and Renaissance.
- H.Ed.102. *History of Modern Secondary and Higher Education*. A survey of existing types of American and European secondary and higher schools, followed by a historical study of their origin, aims, growth.
- H.Ed.103. *History of Modern Elementary Education*. The institutions, theories, and problems of modern elementary education in the light of their history. Emphasis upon the rise of state systems and upon the history of modern educational reform. Not open to students who have had H.Ed.1.
- H.Ed.114. *Sociological Philosophy of Education*. A discussion of sociologically formulated ideals with an attempt to reach a positive philosophy of educational aims, methods, content and organization.
- H.Ed.129-130. *Educational Classics*. An intensive study of selected writings of educational leaders; first quarter, Plato, Aristotle, Quintilian,

- Comenius, Locke; second quarter, Rousseau, Pestalozzi, Herbart, Froebel, and Dewey. Students may register for either quarter.
- H.Ed.131-132. Comparative School Systems. A survey of the existing school systems of France, England, Germany, Denmark. Emphasis upon present problems. Special reference to educational conditions in the United States. Students may register for either quarter.
- H.Ed.140-141. Topics in the History of Education.
- H.Ed.187. Seminar in Educational Sociology. The sociological foundations of educational theory will be discussed with the investigation of specific problems. Lectures, readings, and problems.
- H.Ed.211-212-213. Seminar in History of Education. Historical investigation of educational problems. Designed to train students in methods of historical investigations; problems to be selected somewhat upon the basis of student's interest.

HOME ECONOMICS EDUCATION

- H.E.Ed.40. Child Training. A brief study of the physical and mental development of the child is followed by a discussion of the problems of training small children. Emphasis is placed on the pre-school child. Lectures, observations in the Nursery School, and reports.
- H.E.Ed.42. Special Methods of Teaching Home Economics. The psychological bases for teaching; methods of teaching applied to home economics. Required of all students preparing to teach.
- H.E.Ed.49. Observation and Teaching: General Home Economics. Observation of classes in day schools and evening schools; teaching under supervision of at least two phases of home economics; individual and group conferences on teaching problems.
- H.E.Ed.141. Vocational Education in Home Economics. The place and development of home economics in the vocational education program. Study of the problems of the all day, evening, and part time schools.
- H.E.Ed.142a. Educational Measurement in Home Economics. Problems of measurement in home economics; home economics tests and scales; construction and evaluation of objective tests.
- H.E.Ed.142b. Educational Measurement in Home Economics. A continuation of Course 142a, dealing with methods of interpretation and utilization of test data.
- H.E.Ed.143. Home Economics Curricula. The objectives of home economics in junior and senior high schools; recent surveys and other investigations used in determining curriculum content; home economics courses of study.
- H.E.Ed.147. Organization and Methods for Related Art Teaching. Organization of a related art course and methods of teaching art principles as applied to familiar objects and processes.
- H.E.Ed.149. Research Problems. A study of the methods used in collection, treatment, and interpretation of data in the field of home economics.
- H.E.Ed.242. Problems in Home Economics Education. Current problems in home economics education will be studied. Required of all candidates minoring in home economics education.

H.E.Ed.243. Administration and Supervision of Home Economics. A study of the duties and problems of teacher trainers, city and state supervisors of home economics.

H.E.Ed.245. Seminar in Home Economics Education. A research course for graduate students. Required of all students writing theses in Home Economics Education. Does not carry credit as course work.

INDUSTRIAL EDUCATION

Shopwork and drawing courses of wide variety are available in the College of Engineering, University and Farm campuses. Students may elect to pursue courses, day or evening, at the William Hood Dunwoody Industrial Institute without fees other than those paid to the University. All shop and drawing courses should be taken under special advice and may be either extensive or intensive in resultant preparation for teaching. Those transferring from other institutions should bear in mind the maximum of forty-five quarter credits, for shopwork and drawing combined, which is enforced in this department.

Ind.10. Methods in General Shopwork. The selection and organization of content for multiple-activity courses. Teaching methods and devices, including the use of individual instruction sheets; consideration of shop plans and equipments.

Ind.11. Special-Class Woodwork. This course is designed for primary grade teachers, teachers of subnormal children, teachers of art, etc. Lectures and shopwork. The manipulative experience is divided into three parts: flat piece work, assembled and movable parts, and toy furniture. Special attention to finishes. (Not open to those with credit in woodwork.)

Ind.14. Methods in Mechanical Drawing. The selection and arrangement of course materials, methods of presentation, teaching plans and devices, evaluation of texts, problems of the drawing room, testing, grading, and records. *Not a course in drawing.*

Ind.42. Course Organization. Makes definite use of occupational analyses; content of courses selected and arranged for common and special teaching situations; both general vocational classes and groups considered.

Ind.44. Equipment and Management. Sources, purchases, costs, and inventories; installation, upkeep, and safe operation; storage and issue of tools and supplies; financial accounts, bills of material, and disposal of product; relation to curriculum, courses, and methods.

Ind.50-51-52. Practice Teaching. Three quarters required. Arrangements make possible the assignment of students to classes in the University High School and in certain Twin City schools.

Ind.60. Philosophy of Vocational Education. Definition and characteristics of vocational training; conservation of human and material resources; social and economic significance; occupational and social morale; development, results, and weaknesses; current theories.

Ind.61. Practices in Vocational Education. Plans of organization and control; types of schools and classes; public versus corporation training; state and federal policies and aid; forms other than industrial education; teacher preparation; efficiency factors; the future outlook.

- Ind.65. Methods in Non-Vocational Subjects. Details of material and method in civics, industrial history, commercial geography, English, and other branches classified by the Smith-Hughes Law, as "non-vocational"; the needs of groups, course planning, special devices.
- Ind.66. Methods in Related Subjects. Theory, practices, and problems of related instruction; special reference to mathematics, drawing, science, and safety; group study and unit courses considered; usable methods and the means of supervision; incidental and scheduled teaching discussed.
- Ind.70. Methods in Shop Subjects. Methods of conducting shop classes, with and without reference to production work; lesson plans, demonstrations, drill, grading, reports, and records; the assigning of jobs in the light of aims and of pupil differences; standards of workmanship.
- Ind.80. General Industrial Training. Administration of the industrial offering for grades and high school in typical Minnesota towns; aims, offerings, schedules, teaching fitness, general management; consideration of the unifying opportunities within a department and a school; supervision problems and practices.
- Ind.90. Tests in Industrial Subjects. Acquaintance with such available tests of aptitude and achievement as are useful in industrial education; giving and scoring of tests, with interpretation of results; the application of known techniques in remedial teaching to the work of shop and drawing instructors. (Special fee for tests to be evaluated and retained by students.)
- Ind.105. Industrial Education. For superintendents, principals, and teachers not specializing in the field named; general and vocational phases considered; objectives, administration and supervision; programs and practices; laws, rulings, and standards for aid; significant literature; how to judge teachers, courses, and methods in the special field.
- Ind.110. Guidance in the Schools. The history of the educational and vocational guidance movement; typical public school means and methods; collection and use of occupational information; duties of the counsellor; organization and relationships.
- Ind.150-151-152. Problems in Vocational Education. Six credits offered. Survey of printed reports and theses; critical analysis; selection of thesis problems; formulation of work plans; reports of progress; organization and presentation.
- Ind.170. Administration of Day Schools. National, state, and local organization and types; buildings and equipment, promotion and advertising, co-operative relationships; teaching staff; pupil guidance, training, and placement.
- Ind.171. Administration of Evening Schools. Development of the after training of adults; agencies and scope of the movement; national and state legislation; qualifications of instructors; problems and difficulties; records and certification, fees and charges; buildings, equipment, and instruction facilities; general versus unit-course organization.
- Ind.172. Administration of Part Time Schools. A study of the new movement for part time education; social and economic background; organ-

ization of classes, study of special student groups, courses of study; typical schools; comparative state legislation and plans; Minnesota's problems.

INSTITUTE OF CHILD WELFARE¹

- C.W.40. Child Training. A study of the physical and mental development of the child followed by a discussion of the problems of training of young children. Observations in the Nursery School, lectures, and reports.
- C.W.60. The Nursery School and Parental Education Movement. To orient student with reference to the Nursery School and parental education. Consideration given also to the kindergarten and Montessori movement and to the physical and mental hygiene movement.
- C.W.80. Child Psychology. A survey of child development with special reference to nursery school and kindergarten education.
- C.W.90. Physical Development of the Young Child. The physical growth and development of the young child in its anatomical, physiological, and functional aspects.
- C.W.120. Health Care of the Young Child. A course in the physical care, illnesses, prevention of disease, and health problems of the young child. Primarily for those who have charge of groups of children, and for workers in parental education. Opportunities for observation in the Nursery School and in clinics. With the co-operation of the Department of Pediatrics.
- C.W.130. The Development of the Young Child. An advanced course dealing with the development of the pre-school child from the anatomical, physiological, psychological, educational, and social aspects. Lectures, readings in the experimental literature, and reports.
- C.W.133-134²-135. Observational and Experimental Methods in the Study of the Development of the Young Child. A study of the various methods and techniques such as growth records, mental tests, ratings, controlled observations, etc., used in the experimental study of the young child. Practical exercises and problems on institute records and data.
- C.W.170. Parental Education in Child Care and Training. A consideration of the content and methods used in courses and study groups for parents in the care and training of young children. Lectures, discussions, and reports.
- C.W.173-174.² Technique and Practice of Parental Education. Field work in the technique of organizing and conducting parental study groups and courses for the study of the young child.
- C.W.190-191.² Mental Examination of Pre-school Children. A study of the methods used in testing young children together with practice in such testing.

¹ The institute also offers Courses Ed.T.30-34, and Ed.T.85-90 listed under the Theory and Practice of Teaching.

² Two quarters must be completed before credit is received for any quarter.

- C.W.230-231-232. Seminar in the Development of the Young Child. Reviews of current literature, discussion of fundamental problems and reports on research. Meetings in alternate weeks.
- C.W.233-234-235. Research in the Development of the Young Child.
- C.W.250-251-252. Seminar in Nursery School Education. Reviews and interpretations of current literature, discussion of fundamental problems and theory, problems of administration and organization.

LIBRARY METHODS

- Lib.Meth.101. Bibliography. Trade and national bibliography of the United States, Great Britain, and Europe; book ordering methods.
- Lib.Meth.102. Cataloging. Elements of dictionary cataloging. Lecture, problems, and practice.
- Lib.Meth.103. Cataloging. Continuation of 102, with special attention to difficult books and administrative aspects of a catalog department.
- Lib.Meth.104. Classification. Classification by the Dewey Decimal System, subject headings, author numbers, shelf and accession records.
- Lib.Meth.105. Classification. Continuation of 104. Library of Congress and other classifications; classed catalogs; special adaptations of classification.
- Lib.Meth.107. School Library Administration. Administrative methods and problems of school libraries.
- Lib.Meth.108. Public Library Administration. Administration, equipment, finance, and extension work of public libraries.
- Lib.Meth.110. Library Binding. Economics of library binding. Materials, processes, records, book repair.
- Lib.Meth.111. Library Practice. Practice, under supervision, in Minneapolis and St. Paul libraries. The time and character of the practice will be arranged individually to suit student aptitudes, usually in the second and third quarters. Required of all students as prerequisite to a degree in library training.
- Lib.Meth.112. Reference. Reference books and other material with emphasis on methods of search and adaptation of material to needs of users.
- Lib.Meth.113. Reference—Continued. Specialized reference material, public documents and periodicals. Reference lists and reports on special problems.
- Lib.Meth.114. Selection of Books for Adolescents. Principles of selection and criticism of representative books. Study and preparation of book lists for adolescents in school and public libraries.
- Lib.Meth.117. Library Printing. Preparation of copy, editing, proof reading, layout of library publications. Criticism of typical printed material.
- Lib.Meth.118. Library Publicity. Preparation and use of print in library publicity. Library exhibitions, etc.
- Lib.Meth.119. Current Library Problems. Discussion of typical problems and conditions in American libraries.
- Lib.Meth.120. Current Library Problems. Further discussion of typical library problems, library buildings, library surveys, etc.

- Lib.Meth.121. Library Work with Children. Administration of children's rooms and book selection.
- Lib.Meth.122. Library Work with Children. Further discussion of administration of children's rooms and book selection.
- Lib.Meth.123. Selection of Books for Adults. Principles of selection and criticism of representative books. Criticism and preparation of book lists.
- Lib.Meth.124. Selection of Books for Adults. Further discussion of books and aids to book selection.
- Lib.Meth.125. Selection of Books for Adults.

PHYSICAL EDUCATION FOR MEN

- Phys.Ed.A,B,C. Elementary Physical Education. Elementary gymnastics, i.e., free exercises, marching tactics, apparatus work, gymnastic dancing, group games, physical efficiency tests. Majors in physical education must substitute this course for Phys.Ed.1-2-3.
- Phys.Ed.1-2-3. Freshman Physical Education. Mass activities, corrective exercise, apparatus work, swimming, athletics, games, and efficiency test.
- Phys.Ed.7-8-9. Advanced Leaders. One hour of instruction; two hours leading squads in Physical Education 1-2-3 or 16-17-18 under supervision.
- Phys.Ed.10-11-12. Minor Sports. Study of nature and function of play; use of leisure time; rules, theory, technique, and values of different sports. Fall: golf, soccer, handball, boxing; winter: winter sports, wrestling, tumbling; spring: swimming, indoor baseball, volley ball, tennis.
- Phys.Ed.13-14-15. Corrective work. By petition in place of Physical Education 1-2-3.
- Phys.Ed.16-17-18. Drill Substitution. By petition in substitution for Military Science.
- Phys.Ed.19-20-21. Gymnastics. Gymnastic marching, calisthenics, light and heavy apparatus work, and tumbling.
- Phys.Ed.22-23. Kinesiology. A discussion of the principles and mechanics of bodily movements; the relation of posture to health and efficiency; the effects of various exercises upon the tissues and organs of the body.
- Phys.Ed.24. Methods in Physical Education. Lectures and quizzes on terminology, technique of teaching and various methods of teaching physical education activities.
- Phys.Ed.28. Physical Examination and Normal Diagnosis. Methods of inspection to determine deviations from the normal, including posture, musculature, skin, genitals, and feet; tests of hearing and vision; inspection of nose, throat, and teeth; examination of heart and lungs; methods of taking principal measurements, such as height, weight, girth, strength tests, etc.
- Phys.Ed.29. Adaptation of Activities in Orthopedic Procedures.
- Phys.Ed.30. Athletic Training. Principles governing conditioning of men for various sports: diet, sleep, exercise, bathing, massage. Overtraining:

its cause, diagnosis, prevention, and cure. Prevention and treatment of common athletic injuries.

Phys.Ed.31. History of Physical Education. A historical survey of physical education from ancient times to the present. Special consideration of different systems of physical education and contemporary developments.

Phys.Ed.32. Principles of Physical Education. Study of the aims and scope, and the biological aspects of physical education, with special reference to its place in education; comparative value of various activities; activities suitable to different sexes, ages, and varying conditions.

Phys.Ed.33. Organization and Administration of Physical Education. Problems of organization, administration, and supervision. Correlation of various phases of work; health supervision, health instruction, required and elective courses, intramural and interinstitutional athletics. Construction, equipment, and care of gymnasias and fields. Athletic management.

Phys.Ed.37. Football. Lectures on history, rules, theory, strategy, generalship, styles of attack and defense, methods of organizing practice and handling men, development of team spirit, officiating. Demonstrations and practice in the technique of fundamentals and position play.

Phys.Ed.38. Basket-Ball. Lectures on rules, styles of offense and defense, the conditioning and handling of a team. Practice in fundamental technique of footwork, passing, guarding, dribbling, goal throwing, etc.

Phys.Ed.39. Track Athletics. Instruction and practice in the standard track and field events. Lectures on the conduct of meets, rules of competition, officiating, track strategy, regulation of practice, and preparing contestants for competition.

Phys.Ed.42. Baseball. Theoretical consideration of, and actual practice in, batting, base running, and methods of playing each position. Special attention to "inside baseball" and the development of team play.

Phys.Ed.43-44-45. Practice Teaching. Six hours of practice per week in teaching gymnastics and corrective exercise; coaching, supervising, and officiating in all branches of athletics.

PHYSICAL EDUCATION FOR WOMEN

Phys.Ed.1-2-3. Elementary Physical Training. An exploratory course in outdoor sports, gymnastics, folk dancing, apparatus, and individual gymnastics, with the aim of increasing skill in the activities and establishing standards of good body mechanics and habits of exercise. One additional hour for hygiene in the winter quarter where a close correlation is maintained with the gymnasium work. Shower bath fee \$2.50 per quarter.

Phys.Ed.4. Preliminary Hygiene. One lecture a week. The most essential aspects of the care of personal health.

Phys.Ed.7-8. Sophomore Physical Training. A course in gymnastics, apparatus, and games, meeting twice a week throughout the year in which the hygienic, educational, and recreational values of exercise are stressed.

- Phys.Ed.9. Sophomore Archery.
- Phys.Ed.10-11-12. Sophomore Orthopedic Gymnastics. For those not able to take regular class work. Exercises are individualized to meet the needs of each student.
- Phys.Ed.13-14-15. Sophomore Natural Dancing. An art and a phase of physical education designed to develop a sense of beauty and body control through rhythmic movements prompted by the imagination.
- Phys.Ed.16-17. Sophomore Games and Folk Dancing. Suitable in strength for C-D girls. Conducted outdoors when weather permits.
- Phys.Ed.18. Sophomore Tennis.
- Phys.Ed.19-20-21. Sophomore Major Sports. Hockey in autumn, basketball in winter, baseball in spring. Suitable in strength for A-B girls.
- Phys.Ed.22-23. Sophomore Elementary Swimming.
- Phys.Ed.24. Sophomore Horseback Riding. Lessons for beginning and advanced classes under competent instruction and supervised by a member of the Physical Education Department. Students registering for this course will pay for riding lessons at about \$1 per lesson and will be exempt from the physical education fee.
- Phys.Ed.25-26. Sophomore Intermediate Swimming.
- Phys.Ed.27. Sophomore Golf. For students who know the rudiments of golf. Instruction in the technique of the various strokes, etc. Class work will be held at the University Recreation Field. Students registering for this course will be held for the regular golf fee.
- Phys.Ed.27. Sophomore Golf. For beginners. Instruction and practice in the use of the driver, mid-iron, mashie, and putter. Instruction also in the fundamentals of golf, rules, and etiquette.
- Phys.Ed.28-29. Sophomore Advanced Swimming.
- Phys.Ed.30. Sophomore Life Saving and Water Sports.
- Phys.Ed.31. Sophomore Skating. Practice and technique of skating, including simple figure skating and form in speed skating.
- Phys.Ed.34. Elementary Swimming. For major students who cannot pass the elementary swimming test.
- Phys.Ed.37-38-39. Freshman Major Sports—Hockey, Basket-Ball and Baseball. Practice and study of rules.
- Phys.Ed.40. Freshman Major Personal Hygiene. Essential aspects of positive personal health and avoidance of disease.
- Phys.Ed.43-44-45. Theory and Function of Play. Graded games, folk dances, and track for school and playground, two hours. A consideration of the nature and function of play, three hours.
- Phys.Ed.48-49-50. Tennis and Posture Training, Indefinite Gymnastics, Track, Soccer, and Archery. Tennis in first term of fall quarter, posture training in second term of fall quarter, gymnastics, marching, and apparatus work in winter quarter, track, soccer, and archery in spring quarter.
- Phys.Ed.51-52. Gymnastics for Sophomore Majors. Gymnastics, marching, and apparatus work.
- Phys.Ed.54-55. Gymnastics for Junior Majors. Modified Swedish gymnastics, marching, and apparatus work.

- Phys.Ed.56-57. Swimming with Technique and Methods. Description of strokes, methods of teaching, practice in teaching and life saving.
- Phys.Ed.58-59. Advanced Folk Dancing with Technique. The racial characteristics of peoples are studied in order to approximate the spirit of their folk dances. The presentation of folk dances and the elements of pageantry are also developed. Practice twice a week, lecture once a week.
- Phys.Ed.60-61. Minor Sports with Technique and Methods. Soccer, volley ball, archery in fall quarter, tennis, and track in spring quarter. Description and methods of teaching, one hour; practical work, two hours.
- Phys.Ed.63-64-65. Hockey, Basket-Ball, Baseball with Technique and Methods. One hour technique and methods; two hours practice.
- Phys.Ed.66-67-68. Interpretive Dancing. An art and a phase of physical education designed to develop a sense of beauty and body control through rhythmic movements prompted by the imagination.
- Phys.Ed.69-70-71. Advanced Interpretive Dancing with Technique. Technique and methods of teaching one hour, practical work two hours.
- Phys.Ed.72-73. Gymnastics for Senior Majors. Gymnastics, marching, apparatus work.
- Phys.Ed.75. History of Physical Education. A historical survey of physical education beginning with that of Greece and including contemporary developments.
- Phys.Ed.80-81. Anatomy and Kinesiology. Lectures and recitations on anatomical mechanism of movements; rôle of joint motion, muscular action, gravity, leverage, inertia, internal resistance in the production and modification of gymnastics and athletic movements and their effects.
- Phys.Ed.82. Physical Examination. Study of all the important anthropometric measurements, and practical application of them in the laboratory.
- Phys.Ed.83. Technique of Teaching and Principles of Gymnastics. A study is made of the educational philosophy underlying gymnastics, principles of progression, and methods of teaching gymnastics. Practice teaching is done within the group.
- Phys.Ed.85-86. Principles of Physical Education. A study of (1) the relation of physical education to education, (2) the relative values of the different phases of physical education, (3) general problems in teaching.
- Phys.Ed.87. School Hygiene and Technique of Teaching Personal Hygiene. A study of problems in school hygiene and sanitation with specific emphasis on the study of the methods of teaching personal hygiene in preparation for practical application in the schools through practice teaching and projects.
- Phys.Ed.88-89-90. Orthopedic and Remedial Gymnastics. Lectures, demonstrations, individual work with cases. Discussion held relative to the various defects met with the treatment outlined.
- Phys.Ed.91. Principles Underlying Dancing. The dance is studied for the effect on its development of such influence as allied arts, religion, etc. Interpretive dancing taught at this University is analyzed and its place in physical education determined.

- Phys.Ed.92-93-94. Practice Teaching. Practice teaching in gymnastics, major sports, organized games, interpretive dancing, swimming. University, University High School, and public schools afford the practice material.
- Phys.Ed.97. Administration of Physical Education. Study of organization of physical education and health departments in city, state, and university; construction and equipment; professional ethics.

Activities for Which No Registration Is Required

- Elective Sports. Fall: field hockey, volley ball; winter: basket-ball, ice hockey; spring: track, baseball, swimming.
- General Swimming. For both beginning and advanced swimmers and divers. Shower bath tickets may be bought of the matron.

PREVENTIVE MEDICINE AND PUBLIC HEALTH

- P.M.&P.H.2. First Aid. Laboratory demonstrations and practice. General care and observation of patients. Emergencies and first aid treatment.
- P.M.&P.H.3. Personal Hygiene and Elementary Sanitation. Elementary principles of normal body function; predisposing and actual causes of disease; ways in which disease may be avoided.
- P.M.&P.H.50. Public and Personal Health. Discusses the causes of diseases and of physical defects and presents the fundamental principles and working methods of health conservation and disease prevention. Lectures, demonstrations, discussions, inspection trips, and directed readings.
- P.M.&P.H.52. Health Care of the Family. (See Home Economics bulletin.)
- P.M.&P.H.53. Elements of Preventive Medicine. Susceptibility, resistance, and immunity to disease; methods of spread and the prevention of communicable and degenerative diseases; protection of food, water, and milk; school health work; vital statistics.
- P.M.&P.H.57. Health of Infant and Pre-School Child. Growth and development of baby and young child. Care and feeding of normal child. Prevention and correction of physical defects. Demonstration of infant clinics.
- P.M.&P.H.58. Maternal and Child Hygiene (for public health nurses). The maternal welfare program; importance of breast feeding; conduct of infant welfare clinics in cities and rural communities; consideration of child of pre-school and school age as to malnutrition, physical defects, cardiac and nervous disorders.
- P.M.&P.H.59. Social Hygiene. Relation to public health; normal physiological development through adolescence; educational measures; responsibility of the public health nurse; prevention and control of venereal diseases.
- P.M.&P.H.60. Tuberculosis and Its Control. History of tuberculosis movement and campaign in the United States. Early diagnosis and sanatorium treatment. Tuberculosis in children. The psychology of tuberculosis; supervision of returned sanatoria patients. State program for the eradication of tuberculosis; legislation.

- P.M.&P.H.61. Mental Hygiene. History of movements; social importance. Factors underlying emotional maladjustments and mental disease. Relation to social work, social agencies, and psychiatric practice. Illustrative case material.
- P.M.&P.H.62. Principles and Special Fields in Public Health Nursing. Development, principles of organization, administration, and supervision in public health nursing; methods of co-operative endeavor with social and health agencies. Development, scope of program, and analysis of services of the various special fields in public health nursing; health teaching as an essential factor in the promotion of individual and community well being.
- P.M.&P.H.64. Field Practice in Infant Welfare Nursing. For public health nurses. Class instruction, observation, and supervised practice in home visiting in the interest of breast feeding and well baby care: in conducting well baby clinics and behavior clinics for pre-school children; in understanding family problems affecting children.
- P.M.&P.H.65. Field Practice in School Nursing. Routine inspections with the school nurse; assistance at medical examinations; general sanitary inspections; home visits; visits to special classes, as sight-saving, defective speech and hearing, subnormal, and open air.
- P.M.&P.H.66. Field Practice in County Nursing. Student nurse observes and assists the nurse on her rounds in the county, in the routine physical inspection of school children, the home calls, the health talks and classes in home nursing, as well as the organizing, advertising, and conducting of the rural clinic.
- P.M.&P.H.67. Field Practice in a Tuberculosis Sanatorium. Observation and practical care of pulmonary, osseous, laryngeal tuberculosis; tuberculous enteritis; general sanatorium treatment; special treatment; exercise; laboratory; occupational therapy and the reading of literature on tuberculosis.
- P.M.&P.H.68. Field Practice in Visiting Nursing. Lectures, demonstrations, supervision, and field practice in bedside care of general and maternity patients; communicable disease, tuberculosis, and mental cases with special emphasis upon recognition of social problems, co-operation with social agencies and accurate record keeping.
- P.M.&P.H.69. School Nursing Procedures. Its objectives, program, and techniques. Discussion of procedures usually carried on by the school nurse in the conduct of a health program in both rural and urban schools. Opportunities for practice work will be provided. Open to public health nurses and students with teaching experience.
- P.M.&P.H.70. Methods and Materials in Teaching Home Nursing and Child Care. Theory and practice in the principles, content, and methods used in teaching home sanitation, home care of the sick, and prevention of illness to various lay groups in the community.
- P.M.&P.H.73. Occupational Hygiene and Disease.
- P.M.&P.H.74. Health Instruction Methods and Materials. Discussion deals with administrative problems of health teaching and with programs and the actual techniques and methods employed in the classroom.

- P.M.&P.H.75. Practice Teaching in Health Subjects. An opportunity is given for the advanced student to do practice teaching under supervision.
- P.M.&P.H.80. Health Supervision of the School Child. Intended for teachers interested in child health. Consideration of hygiene of physical and mental growth; health supervision of school children; special health classes and procedures, and sanitation of school plant.
- P.M.&P.H.106. Public Health Administration. The school in its relation to community health work. (See Graduate School bulletin.)
- P.M.&P.H.200. Research. (See Graduate School bulletin.)
- P.M.&P.H.210. Seminar in Preventive Medicine and Public Health.

PUBLIC SCHOOL MUSIC

- Mu.Ed.1-2-3.¹ Orchestral Instruments. Fall quarter, beginner's classes in violin, viola, cello, and bass; spring quarter, beginner's classes in flute, oboe, clarinet, and bassoon; winter quarter, beginner's classes in all brass and percussion instruments.
- Mu.4-5-6.¹ Orchestral Instruments—Advanced. Practical orchestral and band routine under baton of the director and members of class in Orchestra Conducting 64-65-66.
- Mu.Ed.7-8-9. Music Appreciation. Practical work in appreciation, with the phonograph, piano, and other instruments. Attendance at recitals, concerts, etc., required.
- Mu.Ed.29. Elementary School Methods—First Term, Primary Grades. This course is designed to meet the needs for music supervisors. Practical methods for the kindergarten, grades one, two, and three. Particular attention is given to the child voice, its care and development.
- Mu.Ed.30. Elementary School Methods—Second Term, Intermediate Grades. Methods of teaching vocal music in grades four, five, and six. Theory and practice of teaching combined in class work. Students are required to observe in the Minneapolis and St. Paul public schools.
- Mu.Ed.31. Junior High School Methods. Same as above for grades seven and eight. Particular attention to the problems of the changing voice. Organization and methods of conducting junior high school glee clubs, choruses, etc. Testing and classification of voices.
- Mu.Ed.32. High School Methods—First Term. Methods of teaching music in the modern high school. Materials and organization of the high school chorus. Students are required to observe in the Minneapolis, St. Paul, and University high schools.
- Mu.Ed.33. High School Methods—Second Term. Materials and methods of organizing and conducting the high school glee club. Application of methods of teaching by practical work with the class itself. Particular attention is given to choral expression and interpretation. Students are required to observe in the Minneapolis, St. Paul, and University high schools.

¹ A special fee of \$3 per quarter is charged for these courses.

- Mu.Ed.34. Operetta Conducting. Materials and methods of organizing and presenting operettas, pageants, cantatas, etc. An operetta is presented by the class itself, paying particular attention to the detail work from the director's standpoint.
- Mu.Ed.51-52-53. Instrumentation. Theoretical study of orchestral and band instruments. Observation of local organizations for timbre and color.
- Mu.Ed.64-65-66. Orchestra Conducting. Devoted to the theory and practice of general principles of conducting. Technique of the baton and elements of interpretation.
- Mu.Ed.81-82-83. Supervision and Teaching—First, Second, and Third Terms. A practical course in music supervision. Discussions concerning professional problems, relations, etc. A thesis is required, requiring research work in a particular field. Students are required to teach in the Minneapolis, St. Paul, and University high schools.

SOCIAL SERVICE—HOSPITAL

- S.S.60. Elements of Medical Social Work. An introduction to social problems met among the sick with a brief survey of the application of the social case work method of meeting these problems.
- S.S.61. Field Work (H.E.156). Practical work in respective specialized fields available for home economics students. Limited to groups of eight.
- S.S.62. Hospital Economics and Relationships. Lectures covering backgrounds, aims, and interdependence of groups. Emphasis on social, psychological, and ethical factors.
- S.S.63. Occupational Therapy. Lectures covering history, development, and relationships; institutional values.
- S.S.65. Application of Principles and Practices of Hospital Work. Selected medical-social problems as related to other professional groups.
- S.S.66. Preliminary Hospital Practice Training—Home Patients. Student is given opportunity to work with "home bound" patients under supervision.
- S.S.67. Preliminary Hospital Practice Training—Hospital or Field Work. Includes (1) visits to departments in different types of hospitals to give the student a broad idea of the place and function of occupational therapy in each and (2) assignment for an observation period in hospital or field work.
- S.S.68-69. Hospital Practice Training—Mental Disease. Student is given opportunity (under supervision) to do work in wards and workshop with cases of mental disease. Experience also includes recreation work with the patients. Student must be in residence at the institution.
- S.S.70. Preliminary Hospital Practice Training—Tuberculous Patients. Student is given opportunity to do bedside work with tuberculous patients in hospital or sanatoriums.
- S.S.71. Preliminary Hospital Practice Training—Orthopedic Patients. Student is given opportunity to do bedside and shop work (under supervision) with orthopedic patients or other work in related fields.

- S.S.72. Hospital Practice Training—General. Student is in residence at institution where work is given. Work includes experience in administration of a department such as: training of attendants; equipment and supplies; use of waste material; disposal of products; keeping of records and charts, etc. Assignment based on worker's previous experience and future interests.
- Ed.Psy.148. Problems of the Visiting Teacher. The function of the visiting teacher will be studied in relation to the personality, behavior, and scholastic difficulties of children. Lectures will be supplemented with an analysis of the experience of visiting teachers connected with the Commonwealth program for the prevention of delinquency.

SPECIAL EDUCATION

- Ed.Psy.195. Seminar on the Work of the Visiting Teacher. An intensive study of case histories of pupils referred by the schools to visiting teachers. Opportunity will be offered students to present case histories drawn from their experience.

THEORY AND PRACTICE OF TEACHING¹

UNDERGRADUATE COURSES

GENERAL METHODS

- Ed.T.15. Technique of High School Instruction. Types of classroom exercises; preparation of teaching plans; hygiene of instruction; methods of treating individual differences; classroom management; supervised study; marking systems, etc.; observation of high school work. Required of all students as prerequisite to practice teaching. For courses giving graduate credit see p. 110.

SPECIAL METHODS AND PRACTICE TEACHING—COMBINED COURSE²

The teachers' courses in methods of teaching and in practice teaching are combined into a one-year course in the following subjects:

- Ed.T.23-24-25. Geography. (For junior high schools.)
 Ed.T.49-50-51. English. (For junior high schools.)
 Ed.T.52-53-54. English. (For senior high schools.)
 Ed.T.56-57-58. Mathematics.
 Ed.T.62-63-64. Secondary School Science.
 Ed.T.66-67-68. History and Social Science.
 Ed.T.70-71-72. German.
 Ed.T.73-74-75. Latin.
 Ed.T.76-77-78. Romance Languages (French and Spanish).
 Ed.T.80-81-82. Commercial Subjects.

¹ For the specific requirements in the theory and practice of teaching in the special subjects, consult the special curricula. For list of major advisers see page 28.

² Arrangements for practice teaching in the academic subjects should be made through Mr. Charles W. Boardman, principal of University High School, before the close of the junior year. Such arrangements should be completed before the student registers for other courses.

PRACTICE TEACHING FOR SPECIAL STUDENTS

- T.16. Practice Teaching. Teaching under supervision in the University High School and in the Twin City schools. The course calls for one period daily at the school where the work is assigned. Registration in this course is limited to students who have completed special methods courses or have had teaching experience. Practice teaching in academic subjects is normally combined with Special Methods courses into a one-year Teachers' Course.
- T.17. Practice Teaching of Subnormal Children. Students will have opportunity to observe work with the special classes, and to teach under direction. Conducted in co-operation with the public schools of Minneapolis and St. Paul.
- T.46. Practice Teaching with Special Methods in Elementary Schools. Teaching under supervision in graded or rural schools in the vicinity of the University; discussion of special methods in their application to actual problems of teaching.

SPECIAL METHODS COURSES IN SENIOR HIGH SCHOOL SUBJECTS

- Ed.T.18. Teachers' Course in Zoology.
- Ed.T.19. Teachers' Course in Botany.
- Ed.T.20. Teachers' Course in Chemistry.
- Ed.T.21. Teachers' Course in English Composition.
- Ed.T.22. Teachers' Course in English Literature.
- Ed.T.35. Teachers' Course in Norwegian.
- Ed.T.37. Social Science for Senior High Schools. Selection, organization of content, preparation and presentation of data, methods of teaching.
- Ed.T.38. Methods and Problems in Secondary School Science. Organization and methods of secondary school sciences. Attention to general science, lesson planning, methods of presentation, assignments, measuring achievement.
- Ed.T.41. Teachers' Course in Swedish.
- Ed.T.47. Field Problems in High School Normal Training Departments. Observation of the organization and management of a training department; the department in relation to administration and supervision; program of studies; projects in the field.
- Ed.T.52-53-54. Special Methods and Practice Teaching in English. A one-year course. This course or Ed.T.49-50-51 is required of all students with a major in English.
- Ed.T.52. The Teaching of Composition in the Senior High School. Objectives of composition; selection of subject-matter and its relation to the problem—project method of assignment; problems of grading composition; problems of teaching grammar, punctuation, and spelling; oral composition. Practice teaching and observation are combined with this course except in special cases.
- Ed.T.53. The Teaching of Literature in the Senior High School. Objectives of literature teaching; differentiated method for appreciation and information; methods of handling different types such as fiction, drama,

poetry, and essay; survey courses; home reading; illustrative material. Practice teaching and observation are combined with this course except in special cases.

- Ed.T.56-57-58. Special Methods and Practice Teaching in Mathematics. A one-year course required of all students with a major in mathematics.
- Ed.T.62-63-64. Special Methods and Practice Teaching in Secondary School Science. A one-year course required of all students with a major in natural science.
- Ed.T.66-67-68. Special Methods and Practice Teaching in History and Social Studies. A one-year course required of all students with a major in history or the social studies.
- Ed.T.70-71-72. Special Methods and Practice Teaching in German. A one-year course required of all students with a major in German.
- Ed.T.73-74-75. Special Methods and Practice Teaching in Latin. A one-year course required of all students with a major in Latin.
- Ed.T.76-77-78. Special Methods and Practice Teaching in Romance Languages. A one-year course required of all students with a major in French or Spanish.
- Ed.T. 80-81-82. Special Methods and Practice Teaching in the Commercial Subjects. A one-year course required of all students in the specialized curriculum in commercial education.
- Ed.T.83. Teachers' Course in Journalism.

SPECIAL METHODS COURSES IN JUNIOR HIGH SCHOOL SUBJECTS

- Ed.T.14. Teaching Junior High School Mathematics. For students prepared to teach mathematics in the junior high school. Discussion of the course of study and methods of presentation.
- Ed.T. 23-24-25. Special Methods and Practice Teaching in Geography. The teaching of geography in junior high schools. A teacher's course in methods and practice teaching combined into a one-year course. Required of all students with a major in geography.
- Ed.T.39. Social Science for Junior High Schools.
- Ed.T. 49-50-51. Special Methods and Practice Teaching in English. The teaching of English in junior high schools. A one-year course. This or Ed.T. 52-53-54 required of all students with a major in English.
- Ed.T.49. The Teaching of Composition in the Junior High School. Aims of composition teaching in relation to pupil interests and general life needs. Importance of classroom presentation. Project motivation. Group method. Problems of measurement. The place of grammar, punctuation, and spelling.
- Ed.T.50. The Teaching of Literature in the Junior High School. Differentiated purposes in reading and literature. Methods of classroom presentation. Motivation by group and project methods in extensive reading. Testing. Illustrative materials.

METHODS IN THE ELEMENTARY SCHOOL

- Ed.T.42. Fundamental Educational Theories Relating to Instruction in the Elementary School. A study of current educational concepts as related to problems in the elementary school.

- Ed.T.43. The Teaching of English in the Elementary School. A consideration of the materials and the means for improving instruction in spelling, language and reading processes; emphasis on silent reading technique in Grades 1-6.
- Ed.T.44. Children's Literature. A study of the varied purposes of reading in the elementary school. Bases of selecting materials for extensive reading. Analysis of studies of children's interests. Extensive critical survey of old and new materials for children's reading.
- Ed.T.45. The Teaching of Geography and History in the Elementary School. The aims and purposes controlling instruction in geography and history in the elementary school; tendencies toward standardization, special emphasis on problem studies.

METHODS IN THE KINDERGARTEN AND NURSERY SCHOOL

- Ed.T.30. Principles of Kindergarten and Nursery School Education. The development, aims, and organization of kindergarten and nursery school education. A consideration of the curriculum and methods.
- Ed.T.31. Permanent Play Materials. A consideration of the various kinds and types of permanent play materials (blocks, dolls, trains, wagons, etc.) and their use by children of different ages.
- Ed.T.32. Plastic Materials. The materials used in constructive work, paper, crayons, paints, clay, woodwork, sewing, sand, etc. The student is given some opportunity for actual use of the materials and will gain considerable knowledge of the abilities of children of different ages.
- Ed.T.33. Rhythms, Games, and Music for the Young Child. A course designed to train the student in the handling of a music and rhythm period and in group games. The student will be expected to take part in the rhythms and music work in both the nursery school and the kindergarten.
- Ed.T.34. Story Telling for Young Children. A study of folk, fairy, here-and-now stories and poetry suitable for young children. The principles underlying story telling, the selection of the story, and versions. The educational importance of conversation with the child.
- Ed.T.85-86-87. Methods and Observation. Two hours each week will be spent observing in the nursery school or in the kindergarten. There will be written reports of the observations and a class discussion of one hour in alternate weeks.
- Ed.T.88-89-90. Practice Teaching in Kindergarten or Nursery School. Students must choose either nursery school or kindergarten practice teaching. If they desire, students may do practice teaching in both schools by putting in additional hours, but they can receive credit for only one. Practice will be arranged to give the student a varied experience, and each student will be assigned one child for intensive study throughout the year.

SPECIAL METHODS IN SPECIAL SUBJECTS

For courses in the theory and practice of teaching in the special subjects see special curricula.

COURSES OPEN TO GRADUATE STUDENTS

- Ed.T.110. Educational Diagnosis in Secondary Education. The application of educational measurements to the solution of the problems of high school instruction. Analysis of the specific learning process involved in the various high school subjects; a critical survey of the means of diagnosing and alleviating high school pupils' learning difficulties; the use of educational measurements in improving high school teaching.
- Ed.T.118. Problems in Junior High School English.
- Ed.T.122. Literature for Adolescents. Background for pupil guidance in extensive reading in junior and senior high schools; analysis of studies of adolescent choices in literature; principles of selection; critical reading in broad field of literary, biographical, historical, scientific, and vocational interests of boys and girls.
- Ed.T.143-144. The Teaching of Reading. A study of the objectives, the materials, and teaching procedures in lower, intermediate, and upper grades in the light of the contributions of research; survey of current practices and curricula; class and individual projects; observation of reading techniques and materials in the demonstration school.
- Ed.T.150. Teaching and Administration in Teachers' Colleges. In this course emphasis is placed on the historical development, the present status, and the prospects of future development. An intensive study is made of curricula, departmental organization, and practice teaching. Emphasis is placed also on the supervision of instruction.
- Ed.T.181. Technique of Elementary School Instruction. A critical study of the various types and methods of elementary classroom activity with emphasis upon the techniques and the function of the so-called newer methods. Observation in the demonstration school; class projects; survey of investigations and of the philosophic theories which are affecting progressive practice.
- Ed.T.188. Advanced Course in Methods of Teaching Modern Languages. An advanced course of the seminar type in methods of teaching modern foreign languages. Designed primarily for experienced teachers and graduate students. Lectures, readings, discussion.
- Ed.T.193. Foundations of Secondary School Methods. A study of the investigations which form the bases of the technique of high school instruction and the application of their results to subject-matter and to classroom procedure. Each member will work primarily in the field of his teaching choice, with a final synthesis by the class as a whole.
- Ed.T.195. Advanced Course in Methods of Teaching English. Evaluation of present practices in methods and content of junior and senior high school English courses in the light of the known results of scientific investigations in that field.
- Ed.T.196-197-198. Special Problems in Techniques of Secondary School Instruction.
- Ed.T.222-223-224. Seminar in Techniques of Secondary School Instruction. No credit. Required of students working on theses.
- See also Ed.228-229-230 under General Courses, page 84.
- For graduate courses in the theory and practice of teaching in special subjects see the respective departmental course descriptions.

INDEX

	Pages
Absences	23
Administration or Supervision ..	29-33, 83-86
Admission	17, 30
Agricultural Education	33-35, 86-88
Amount of work	23
Applied Sociology	78
Art Appreciation	83
Art Education	35-36, 88-90
Botany	37, 107, 108
Bureau of Recommendations ...	22
Bureau of Research	22
Certificate	
for administration or supervi-	
sion	29, 33
for elementary school	32, 42
for secondary school subjects	26-28
for public health nursing	58
health	20, 25
in special fields. <i>See</i> curricu-	
lum desired.	
prescribed courses for	26-28
Certification of teachers	25-28
Chemistry	37, 107, 108
Child Welfare	56-57, 96-97, 109
Clinical Psychology	39-41
Commercial Education	37-39
Correction, Speech	79
Credits	23-25
and honor points	23-24
definition of	24
quality of	23-24
Curricula	25-26
modification of	19
Deficiency, in English	24
in entrance requirements	20
Degrees	21
Description of courses	83-110
Drawing, courses in	89
Education electives	26-27
Educational Guidance ..	39-41, 84, 91, 95
Educational Psychology	39-41
clinical	40-41
description of courses	90-92
guidance	39-41
Electives in education	26-27
Elementary education	42, 108-109
certificate in	32, 42
supervisors in	32
English	43, 81, 107, 108, 110
English, standards in	25
Entrance, requirements	17, 19
Experienced teachers, admission.	29
Extension specialists	6
Extra-curricular activities	29, 86
Faculty	2-17
College of Education	2-6
extension specialists	6
faculties giving instruction in	
College of Education	6-17
University High School	6-7
Fees, special	22
French	73, 108, 110
General courses	83
General information	18-22
General requirements	23-28
Geography	43, 108, 109
German	44, 108
Grades	24
Graduate work in education	21
for teachers of English	81
in administration or supervi-	
sion	29, 33
in natural science	56
in nursing education and public	
health nursing	61
in professional education of	
teachers	70
in school health work	76
in social studies	76, 77
in Summer Session	21
in theory and practice of teach-	
ing	81
Graduation requirement	20, 23
with distinction	21
Guidance—education and voca-	
tional	41, 84, 91, 95
Handicrafts, courses in	89
Health certificate	29
Health work in schools	73-76
High school, required course ..	26, 83
High school education	26-28, 31, 83, 106-108
History	44, 108
History of Education	92-93
Home Economics Education ..	44-49, 93-94
Honor points	10, 24
Honors course	21
Incomplete, grade of	24
Industrial Education	49-51, 94-95

	Pages		Pages
Information, general	17	Public School Music	71-73, 104-105
Institute of Child Welfare	56-57, 96-97, 109	Psychology, general	19
Junior high school	42, 85, 108	Psychology, educational	39-41
Kindergarten education	56-58, 96-97, 109	curricula in	90-92
Latin	51, 108	description of courses	26, 90
Lectures, professional	25	Quality of work	23-25
Library Methods	52, 97-98	Recommendations, Bureau of	22
Major advisers	28	Registration	17, 26
<i>See also</i> curriculum concerned.		Required courses in education	26-28
Major subject	19, 24, 25-26, 27, 106	Requirements, for admission	17, 19
Minor subject	19, 25-26	general	23-28
Mathematics	53, 108	language	19
Methods. <i>See</i> Theory and Practice of Teaching.		Residence requirement	23
Methods in Educational Research	83	Romance Languages	73, 108, 110
Music. <i>See</i> Public School Music.		Scandinavian, Teachers' Course	107
Natural Science	54-56	in	107
Norwegian, Teachers' Course in	107	School Health Work	73-76, 102-104
Nursing Education	58-61, 102-104	Shop work	51
Nursery School Education	56-58, 96-97, 109	Social Service—Hospital	105-106
Philosophy of Education	92-93	Social studies	76-77, 108
Physics	55-56, 68	Social Theory, major in	78
Physical Education, required	20, 23, 25	Sociology	78
Physical Education for Men	61-63, 98-99	Special Education	106
Physical Education for Women	63-68, 99-102	Special methods	26, 106-108
Political Science	69, 108	Special students. <i>See</i> Unclassed.	
Practice teaching	26-28, 106-109	Specialized curricula	25-26
Preventive Medicine and Public Health courses	102-104	Speech	79-80
Prescribed course		Speech Correction	79
for special curricula. <i>See</i> curriculum desired.		Subnormal Children, Education of	80-81
for high school teachers	26-28	Supervision	29-33, 83-86
Principals, course for	30, 31	Swedish, Teachers' Course in	107
Probation	23	Teacher Training in Elementary Education	69-70
Problems of college education	83	Teachers' courses	106-109
Professional Education of Teachers	69-70	Technique of High School Instruction, required course	26, 106
Public Health Nursing	58-61, 102-104	Theory and Practice of Teaching	81, 106-110
Public Health courses	102-104	Unclassed students, admission	20
		Visiting teachers	81-82
		Vocational Guidance	39-41
		Zoology	82, 107, 108

The Bulletin
of the University of
Minnesota

The College of Education

Part II

Announcement of Program for the Year
1930 - 1931



Vol. XXXIII No. 14 March 29 1930

Entered at the post-office in Minneapolis as 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

1930							1931													
JULY							JANUARY							JULY						
Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa
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UNIVERSITY CALENDAR

1930-31

1930

Fall Quarter

September	18	Thursday	Payment of fees closes, except for new students
September	22	Monday	Entrance tests
September	22-23		Registration of all new students entering the freshman class
September	22-26		Examinations for removal of conditions Physical examinations
September	23-26		Registration and change of registration ¹
September	24-27		Freshman Week
September	26	Friday	Payment of fees for new students closes
September	29	Monday	Fall quarter classes begin, 8:30 a.m. ²
October	16	Thursday	Senate meeting, 4:30 p.m.
November	1	Saturday	Homecoming Day
November	4	Tuesday	General Election Day; a holiday
November	5	Wednesday	Mid-quarter grades due
November	11	Tuesday	Armistice Day; a holiday
November	27	Thursday	Thanksgiving Day; a holiday
December	4	Thursday	State Day Convocation
December	15-18		Final examination period
December	18	Thursday	Commencement Convocation Senate meeting, 4:30 p.m.
December	26	Friday	Fall quarter ends, 5:20 p.m. Payment of fees closes for all students in residence fall quarter ³

1931

Winter Quarter

January	2	Friday	Entrance tests
January	2-3		Registration and change of registration ¹ Registration closes at 12 m. Saturday
January	3	Saturday	Payment of fees for new students closes at 12 m.
January	5	Monday	Winter quarter classes begin, 8:30 a.m. ²
February	10	Tuesday	Mid-quarter grades due
February	12	Thursday	Lincoln's Birthday; a holiday
February	19	Thursday	Charter Day Convocation Senate meeting, 4:30 p.m.
February	23	Monday	(Sunday February 22 Washington's Birthday) a holiday

¹ Registration subsequent to the date specified will necessitate the approval of the Student's Work Committee. See also penalty fees for late registration. No student will be allowed to register in the University after one week from the beginning of the quarter excepting in unusual cases wherein special circumstances shall justify the appropriate committee of the college concerned in permitting registration at a later date.

² First hour classes begin at 8:15 a.m. at University Farm.

³ New students must pay fees on dates announced for registration.

COLLEGE OF EDUCATION

March	18-21		Final examination period
March	19	Thursday	Commencement Convocation
			Payment of fees closes for all students ¹ in residence winter quarter
March	21	Saturday	Winter quarter ends, 5:20 p.m.

Spring Quarter

March	27	Friday	Entrance tests
March	27-28		Registration and changes of registration ²
			Registration closes at 12 m. Saturday
March	28	Saturday	Payment of fees for new students closes at 12 m.
March	30	Monday	Spring quarter classes begin, 8:30 a.m. ³
April	3	Friday	Good Friday; a holiday
May	6	Wednesday	Mid-quarter grades due
May	14	Thursday	Cap and Gown Day Convocation
			Senate meeting, 4:30 p.m.
May	30	Saturday	Memorial Day; a holiday
June	7	Sunday	Baccalaureate service
June	8	Monday	Fifty-ninth annual commencement
June	10-13		Final examination period
June	13	Saturday	Spring quarter closes, 5:20 p.m.

Summer Quarter

June	15-16		Registration, first term
June	17	Wednesday	Classes begin, 8:00 a.m.
July	4	Saturday	Independence Day; a holiday
July	25	Saturday	Registration and payment of fees for sec- ond term closes at 12 m. First term closes
July	27	Monday	Second term classes begin
August	29	Saturday	Second term closes

Entrance Examinations

Entrance examinations for admission will be conducted for students whose credentials do not meet the requirements.

Candidates wishing to take any of these examinations should notify the examiner in writing not later than September 1, December 1, or March 1.

For further information concerning these examinations see under "Admission by Examination," page 28, bulletin of general information.

¹ New students must pay fees on dates announced for registration.

² Registration subsequent to the date specified will necessitate the approval of the college concerned. See also penalty fees for late registration. No student will be allowed to register in the University after one week from the beginning of the quarter excepting in unusual cases wherein special circumstances shall justify the appropriate committee of the college concerned in permitting registration at a later date.

³ First hour classes begin at 8:15 a.m. at University Farm.

PROGRAM

GENERAL COURSES

No.	Title	Hour	Day	Bldg.	Instructor
<i>Ed.50</i>	<i>Art Appreciation</i>	<i>Not offered</i>			
Ed.208f	Methods in Ed. Research.....	I,II	S	301Psy	Mr. Haggerty, Mr. Johnson
Ed.228f- 229w-230s	Problems of College Education...	7:30-9:30 p.m.	M	Ar	Mr. Haggerty
Ed.X	Limited Honors Course.....	Ar	Ar	Ar	Mr. Umstattd
	(10 cred.; jr.; prereq., 6 cred. in psychology)				

ADMINISTRATION AND SUPERVISION*

Major Advisers: L. J. Brueckner, H. R. Douglass, Fred Engelhardt

No.	Title	Hour	Day	Bldg.	Instructor
Ed.Ad.65as	The High School.....	II	MWF	210OL	Mr. Boardman
	(3 cred.; jr., sr.; prereq., Ed. Psy. 55)				
	(Limited to students in special curricula for superintendents and high school principals)				
Ed.Ad.65f	The High School.....	III	TThS	210OL	Mr. Douglass
	(3 cred.; jr., sr.; prereq., Ed. Psy. 55)				
Ed.Ad.65w	The High School.....				
	(3 cred.; jr., sr.; prereq., Ed. Psy. 55)				
	Sec. 1	I	TThS	210OL	Mr. Benjamin
	2	III	TThS	210OL	Mr. Douglass
Ed.Ad.65s	The High School.....	I	TThS	210OL	Mr. Douglass
	(3 cred.; jr., sr.; prereq., Ed. Psy. 55)				
Ed.Ad.75s	The Elementary School.....	III-IV	S	206Ed	Mr. Cooper
	(2 cred.; jr., sr.; prereq., Ed. Psy. 55)				
Ed.Ad.113w	High School Curriculum.....	II	TThS	210OL	Mr. Benjamin
	(3 cred.; sr., grad.; prereq., 10 hrs. in ed. incl. Ed.Psy.55)				
<i>Ed.Ad.115</i>	<i>Organization of the Elementary School</i>	<i>Not offered</i>			
Ed.Ad.119f	Elementary School Curriculum..	III	TThS	OLaAud	Mr. Peik
	(3 cred.; sr., grad.)				
<i>Ed.Ad.119T-120T</i>	<i>Elementary School Curriculum...</i>	<i>Not offered</i>			
	(4 cred.; sr., grad.)				
Ed.Ad.121w	Educational Advising of Women and Girls	VIII	MWF	Ar	Miss Blitz
	(3 cred.; jr., sr., grad.; prereq., 15 qtr. cred. in ed. and psy.)				
Ed.Ad.123w	Supervision of High School Instruction	II	MWF	100OLa	Mr. Boardman
	(3 cred.; sr., grad.; prereq., 10 hrs. in ed.)				

* See Industrial Education 105 and 110, p. 17.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
Ed.Ad.124f	Public School Administration... (3 cred.; sr., grad.; prereq., 10 hrs. in ed.)	IX	MWF	210OL	Mr. Engelhardt
Ed.Ad.125w	Techniques in Administration.... (3 cred.; sr., grad.; prereq., Ed. 124)	IX	MWF	210OL	Mr. Engelhardt
Ed.Ad.126s	School Plant Management..... (3 cred.; sr., grad.; prereq., Ed. 124, 125)	X	MWF	210OL	Mr. Engelhardt
Ed.Ad.128f,w,s	Special Problems in Ed. Adm.... (1 or 2 cred.; prereq., Ed. 124, 125, 126)	Ar	S	224OL	Mr. Engelhardt
Ed.Ad.129	<i>Educational Publicity Materials..</i>	<i>Not offered</i>			
Ed.Ad.130	<i>Educational Publicity Agencies..</i>	<i>Not offered</i>			
Ed.Ad.133w	Guidance in Secondary Schools.. (2 cred.; prereq., 10 hrs. in ed. including Ed.Psy.55)	I, II	S	205aEd	Miss Merrill
Ed.Ad.150f	Supervision and Improvement of Instruction	III	MWF	100OLA	Mr. Brueckner
	(3 cred.; sr., grad.; prereq., 15 or equiv.)				
Ed.Ad.151w	Supervision: Uses of Educational Tests in Improving Instruction (2 cred.; sr., grad.; prereq., 15 or equiv.)	III-IV	S	205aEd	Mr. Cooper
Ed.Ad.152f	Supervision: The Adjustment of Schools to Individual Differences	IX, X	T	210OL	Mr. Peik
	(2 cred.; sr., grad.; prereq., 15 or equiv.)				
Ed.Ad.153s	Supervision of English in the Elementary Schools	IX, X	T	100OLA	Mr. Brueckner
	(2 cred.; sr., grad.; prereq., 15 or equiv.)				
Ed.Ad.154s	Supervision of Social Sciences in the Elementary Schools.....	III, IV	S	100OLA	Mr. Brueckner
	(2 cred.; sr., grad.; prereq., 15 or equiv.)				
Ed.Ad.155f	Supervision of Arithmetic in the Elementary Schools	III-IV	S	100OLA	Mr. Brueckner
	(2 cred.; sr., grad.; prereq., 15 or equiv.)				
Ed.Ad.156s	Practice Supervision—Observation and Field Work.....	1-3:30	TTh	Ar	Mr. Peik
	(3 cred.; sr., grad.; prereq., 15 or equiv.)				
Ed.Ad.157f,w,s	Practice in Supervision..... (3 cred. a quarter; sr., grad.; prereq., consent of instructor)	Ar	Ar	Ar	Mr. Brueckner
Ed.Ad.158w	Organization for Supervision.... (2 cred.; sr., grad.)	I, II	S	206Ed	Mr. Engelhardt
Ed.Ad.159s	Supervision of Reading..... (2 cred.; sr., grad.; prereq., 15 or equiv.)	I, II	S	100OLA	Mr. Peik
Ed.Ad.160w	Supervision of Elementary Subjects	III, IV	S	206Ed	Mr. Brueckner
	(2 cred.; sr., grad.; prereq., Ed.Ad. 150)				

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
Ed.Ad.161	Special Problems in School Supervision (2 cred.; sr., grad.; prereq., 10 hrs. in ed., including Ed.Psy. 55)	Ar	Ar	Ar	Mr. Brueckner
Ed.Ad.164s	High School Administration..... (3 cred.; sr., grad.; prereq., 10 hrs. in ed. incl. Ed.Psy.55)	II	TThS	210OL	Mr. Douglass
Ed.Ad.167f-168w	Junior High School (4 cred.; sr., grad.; prereq., 10 hrs. in ed. incl. Ed.Psy.55)	IX, X	W	100OLA	Mr. Douglass
Ed.Ad.169w	Extra-Curricular Activities (2 cred.; prereq., 10 hrs. in ed. incl. Ed.Psy.55)	IX, X	T	210OL	Mr. Benjamin
Ed.Ad.170f,w,s	Special Problems in Secondary Education (2 cred.; prereq., 10 hrs. in ed. incl. Ed.Psy.55)	Ar	Ar	Ar	Mr. Douglass
Ed.Ad.172w	Elementary Curriculum and Course of Study Construction (2 cred.; prereq., 15 hrs. in ed.)	I, II	S	100OLA	Mr. Peik
Ed.Ad.175s	Financial Aspects of Public School Business Administration (3 cred.; sr., grad.; prereq., 124.125)	IX	MWF	210OL	Mr. Engelhardt
Ed.Ad.178f	School Surveys (3 cred.; sr., grad.)	X	MWF	224OL	Mr. Engelhardt
Ed.Ad.179	<i>School Surveys</i> (3 cred.; sr., grad.)	<i>Not offered</i>			
Ed.Ad.180f,w,s	Practice in High School Administration (6 cred.; sr., grad.; prereq., 10 hrs. in ed. including Ed.Ad.65)	Ar	Ar	Ar	Mr. Boardman
Ed.Ad.184f	Supervision of Practice Teaching (2 cred.; sr., grad.)	II, Ar	S	Ar	Mr. Boardman
Ed.Ad.185f	Professional Education of Teachers (2 cred.; sr., grad.; prereq., 10 hrs. in ed.)	I, II	S	100OLA	Mr. Peik
Ed.Ad.186w,s	Special Problems in Teacher Training (2 cred.; sr., grad.; prereq., 10 hrs. in ed.)	Ar	Ar	Ar	Mr. Peik
Ed.Ad.205f-206w-207s	Seminar in Educational Administration	IX, X	Th	224OL	Mr. Engelhardt
Ed.Ad.218f-219w-220s	Seminar in Secondary School Problems	IX, X	Th	Ar	Mr. Douglass Mr. Benjamin
Ed.Ad.225f-226w-227s	Seminar in Elementary School Problems	IX, X	Th	Ar	(winter) Mr. Brueckner, Mr. Peik

AGRICULTURAL EDUCATION

Major Adviser: A. V. Storm

No.	Title	Hour	Day	Bldg.	Instructor
Agr.Ed.11f,w,s	Educational Psychology (3 cred.; jr., sr.; no prereq.)	II	TThS	202Ad	Mr. Field
Agr.Ed.21f,s	Vocational Education (3 cred.; jr., sr.; no prereq.)	IV	TThS	202Ad	

No.	Title	Hour	Day	Bldg.	Instructor
<i>Agr.Ed.41</i>	<i>Apprentice Teaching</i>	<i>Not offered</i>			
	(2 cred.; jr., sr.; prereq., 11)				
<i>Agr.Ed.42f,w,s</i>	Supervised Teaching Experience (3 cred.; jr., sr.; prereq., 181)	Ar	Ar	Ar	Mr. Field, Mr. Nylin
<i>Agr.Ed.64w,s</i>	Survey of Agriculture..... (3 cred.; no prereq.)	Ar	Ar	Ar	Mr. Field and others
<i>Agr.Ed.75</i>	<i>Visual Presentation</i>	<i>Not offered</i>			
	(3 cred.; jr., sr.; prereq., 11)				
<i>Agr.Ed.81s</i>	Extension Work	VI	MWF	202Ad	Mr. Storm, Mr. Peck
	(3 cred.; jr., sr.; prereq., 6 cred. in farm mgt., 6 cred. in farm crops, 15 cred. in an. ind., 6 cred. in agr. ed.)				
<i>Agr.Ed.82f,w,s</i>	Agricultural Extension Field Course	Ar	Ar	Ar	Mr. Storm, Mr. Peck, Mr. Field
	(3 to 10 cred.; jr., sr.; prereq., 81)				
<i>Agr.Ed.135</i>	The Curriculum in Vocational Agriculture	Ar	Ar	Ar	
	(3 cred.; sr.; prereq., 11)				
<i>Agr.Ed.141w,s</i>	Supervised Practice in Vocational Agriculture	Ar	Ar	Ar	Mr. Field
	(3 cred.; sr.; prereq., 11)				
<i>Agr.Ed.144w</i>	Course Organization and Instruc- tion for the Individual in Vo- cational Agriculture	Ar	Ar	Ar	
	(2 cred.; sr.; prereq., 11)				
<i>Agr.Ed.154</i>	Rural Education and Community Leadership	Ar	Ar	Ar	
	(3 cred.; sr.; prereq., 11)				
<i>Agr.Ed.161</i>	Vocational Education in Agricul- ture	Ar	Ar	Ar	
	(3 cred.; prereq., 11, 181, 182, 183)				
<i>Agr.Ed.162</i>	The Basis of Vocational Teach- ing Technique	Ar	Ar	Ar	
	(3 cred.; prereq., 11, 181, 182, 183)				
<i>Agr.Ed.164</i>	Fundamentals in Agriculture... (3 cred.; prereq., 11)	Ar	Ar	Ar	
<i>Agr.Ed.171w,s</i>	Problems in Procedure..... (3 cred.; sr.; prereq., 42, 131, or equiv. teaching experience)	Ar	Ar	Ar	Mr. Storm, Mr. Field
<i>Agr.Ed.176s</i>	Problems in Visual Presentation (3 cred.; jr., sr.;¶ prereq., 75)	Ar	Ar	Ar	Mr. Field
<i>Agr.Ed.181f</i>	Teaching Agriculture	III	MTWThF	202Ad	Mr. Storm, Mr. Field, Mr. Nylin
	(5 cred.; jr., sr.;¶ prereq., 11)				
<i>Agr.Ed.182w</i>	Teaching Agriculture	III	MTWThF	202Ad	
	(Same as 181f)				
<i>Agr.Ed.183s</i>	Teaching Agriculture	III	MTWThF	202Ad	
	(Same as 181f)				
<i>Agr.Ed.191f- 192w-193s</i>	Seminar in Agricultural Education (6 cred.; sr.; prereq., 11 cred. in agr. ed.)	Ar	Ar	Ar	Mr. Storm, Mr. Field

¶ Only students pursuing the Agricultural Education curriculum are eligible to register for this course. Registration limited. Written approval of head of Department of Agricultural Education must be obtained before registration. Students entering this course will be expected to have completed the Agricultural Education curriculum of the preceding quarters.

PROGRAM

ART EDUCATION

Major Adviser: Ruth Raymond

DESIGN

No.	Title	Hour	Day	Bldg.	Instructor	
ArtEd.1f-2w-3s	Fundamental Principles of Design (9 cred.; no. prereq.)	Sec. 1	II, III	TThS	207bOPh	Mrs. Hanley
		2	III, IV	TThS	207aOPh	Miss Berglund
		3	VI, VII	MWF	207aOPh	Miss Clousing
ArtEd.2of-21w-22s	Principles of Harmony in Form and Color (9 cred.; soph., jr., sr.; prereq., 2, 3) Sec. 1, Int. Dec.	Sec. 1	I, II	MWF	207bOPh	Miss Raymond
		2	II, III	MWF	207aOPh	Miss Raymond
		3	III, IV	MWF	207aOPh	Miss Raymond
ArtEd.50,5t	Commercial and Industrial Design (3 cred.; jr., sr.; prereq., 1, 2, 3, 4, 5, 7, 8, or ar.)				Not offered	
ArtEd.55,56,57	Fundamental Art Principles..... (1 cred.; all; no prereq.)				Not offered	
ArtEd.153,154	Design for the Consumer..... (3 cred.; jr., sr.; prereq., 1, 2, 3, 7, 8, 9, and 20, 21, 22, or 50, 5t)				Not offered	

DRAWING

ArtEd.4,5,6f,w,s	Still Life Drawing..... (3 cred.; all; no prereq.) (Each section limited to 20)	Sec. 1	I, II	M	203aOPh	Mr. Harmes
		2	I, II	W	203aOPh	Mr. Harmes
		3	II, III	W	203aOPh	Mr. Harmes
ArtEd.7,8,9f,w,s	Sketch, Course I (3 cred.; all; no prereq.) (Limited to 20)	Sec. 1	III, IV	M	203OPh	Miss Clousing
		2	III, IV	W	203aOPh	Miss Clousing
		3	I, II	F	203OPh	Mr. Harmes
		4	III, IV	F	203aOPh	Miss Clousing
ArtEd.10f-11w-12s	Graphic Composition (3 cred.; all; no prereq.)	Sec. 1	II, III	M	207bOPh	Miss Raymond
		2	III, IV	M	207aOPh	Miss Raymond
ArtEd.23,24,25f,w,s	Water Color (3 cred.; soph., jr., sr.; prereq., 4, 5, 6)	Sec. 1	I, II	T	203OPh	Mr. Harmes
		2	II, III	T	203OPh	Mr. Harmes

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Room	Instructor
ArtEd.26,27, 28f,w,s	Charcoal, Pencil, and Pen Techniques (3 cred.; soph., jr., sr.; prereq., 4, 5, 6)	Sec. 1 2	I, II II, III	Th 203OPh Th 203aOPh	Mr. Harmes Mr. Harmes
ArtEd.29,30, 31f,w,s	Sketch, Course II (3 cred.; soph., jr., sr.; prereq., 7, 8, 9)	Sec. 1 2	I, II III, IV	S 203OPh S 203OPh	Miss Raymond, Miss Clousing Miss Raymond, Miss Clousing
ArtEd.29T,30T, 31T,f,w,s	Sketch (For other than Art Ed. majors; 3 cred.; soph., jr., sr.; prereq., 7, 8, 9 or ar.)	Sec. 1 2	I, II III, IV	S 203aOPh S 203aOPh	Miss Raymond Miss Raymond
ArtEd.60,61, 62f,w,s	Advanced Water Color..... (1 cred. each; soph., jr., sr.; prereq., 25)	Sec. 1 2	I, II II, III	T 203aOPh T 203OPh	Mr. Harmes Mr. Harmes
ArtEd.63,64, 65f,w,s	Advanced Techniques (1 cred. each; soph., jr., sr.; prereq., 28)	Sec. 1 2	I, II II, III	Th 203aOPh Th 203OPh	Mr. Harmes Mr. Harmes
ArtEd.66,67, 68f,w,s	Advanced Sketch (1 cred. each; soph., jr., sr.; prereq., 31)	Sec. 1 2	II, III II, III	F 203OPh S 202OPh	Mr. Harmes Mr. Harmes
HANDICRAFTS					
ArtEd.32w	Cardboard and Paper Construc- tion (1 cred.; all; no prereq.) (Sections limited to 20)	Sec. 1 2	VI, VII VIII, IX	W 10OPh W 11OPh	Miss Ross Miss Berglund
ArtEd.33w	Bookbinding (2 cred.; all; no prereq.) (Limited to 20)	Sec. 1 2	VI, VII VIII, IX	TTh 10OPh TTh 11OPh	Miss Ross Miss Ross
ArtEd.35f,w,s*	Clay Modeling (2 cred.; prereq., 4 cred. in sketch)		I, II	MF 10OPh	Miss Clousing
ArtEd.37f	Basketry (2 cred.; all; no prereq.)	Sec. 1 2	V, VI VII, VIII	TTh 11OPh TTh 10OPh	Miss Berglund Miss Ross

* A laboratory fee of \$1.50 is charged for this course.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
ArtEd.38f	Elementary Weaving and Allied Crafts (1 cred.; all) (Limited to 15)	Sec. 1 V, VI 2 VII, VIII	W	10OPh	Miss Ross
ArtEd.39	Advanced Basketry (2 cred.; prereq., 37)	Not offered	W	11OPh	Miss Ross
ArtEd.40f,w	Advanced Weaving (2 cred.; jr., sr.) (Limited to 10)	III, IV	MF	11OPh	Miss Ross
ArtEd.41f,s*	Elementary Pottery (2 cred.; all; no prereq.)	Sec. 1 V, VI 2 VII, VIII	TTh	10OPh	Miss Ross
ArtEd.42w*	Advanced Pottery (2 cred.; all; prereq., 41) (Limited to 10)	V, VI	TTh MF	10OPh 10OPh	Miss Ross Miss Ross
ArtEd.43*	Advanced Pottery—Continued....	Not offered			
ArtEd.44s	Application of Design to Fabrics (2 cred.; all; prereq., 15 cred. in design)	II, III	TTh	10OPh	Miss Ross
ArtEd.45w	Application of Design in Needle- craft (2 cred.; soph.; jr., sr.; prereq., 1, 2, 3)	III, IV	MF	10OPh	Miss Ross, Miss Berglund
ArtEd.46s*	Metal Work and Simple Jewelry (2 cred.; soph., jr., sr.; prereq., four terms design) (Limited to 10)	I, II	TTh	10OPh	Miss Ross

ART HISTORY AND APPRECIATION

ArtEd.70	Art of the Italian Renaissance...	Not offered			
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THEORY AND PRACTICE OF ART TEACHING

ArtEd.80f,81w- 82s†	Types of Art Instruction..... (3 cred.; jr., sr.; prereq., 9 cred. in design, 9 cred. in drawing, 6 cred. in handicrafts)	VIII	M	207aOPh	Mrs. Hanley
ArtEd.83s	Problems in Art Education..... (3 cred.; sr.; prereq., 12 cred. in design, 12 cred. in drawing, 6 cred. in handicrafts)	4:00 to 5:00	MWF	207bOPh	Miss Raymond
ArtEd.86f,87w, 88s†	Practice Teaching in Art..... (6 cred.; sr.; prereq., 9 cred. in design, 9 cred. in drawing, 6 cred. in handicrafts)	VI, VII	TTh	Pub.Sch.	Miss Raymond, Mrs. Hanley
ArtEd.189	Application of Esthetic Theories in Public School Art Educa- tion (3 cred.; sr., grad.; prereq., 9 cred. in drawing, 9 cred. in design, 6 cred. in handicrafts)	Not offered			

* A laboratory fee of \$1.50 is charged for this course.

† A laboratory fee of \$1 per credit hour is charged for this course.

COLLEGE OF EDUCATION

EDUCATIONAL PSYCHOLOGY

Major Advisers: M. E. Haggerty, W. S. Miller

No.	Title	Hour	Day	Bldg.	Instructor
Ed.Psy.55f	Educational Psychology (3 cred.; jr., sr.; prereq., 6 cred. in psy.)	Sec. 1 I 2 II 3 VII	MWF MWF MWF	OLaAud OLaAud 100OLa	Mr. Miller Mr. Van Wagenen Mr. Carroll
Ed.Psy.55w	Educational Psychology (See 55f)	Sec. 1 I 2 III	MWF MWF	OLaAud 100OLa	Mr. Miller Mr. Carroll
Ed.Psy.55s	Educational Psychology (See 55f)	Sec. 1 I 2 IV	MWF MWF	OLaAud OLaAud	Mr. Miller Miss Merrill
Ed.Psy.56Tf- 57Tw	Educational Psychology for Ele- mentary School Teachers..... (4 cred.; jr., sr.; prereq., 6 cred. in psy.)	I, II		S 205bEd	Mr. Van Wagenen
Ed.Psy.60f,w	Introduction to Statistical Methods (3 cred.; jr., sr.; prereq., 6 cred. in psy.)	II I-II	MWF S	210OL 206Ed	Mr. Carroll Mr. Eurich
Ed.Psy.111Tf- 112Tw	Educational Measurements in the Elementary School (for teach- ers) (4 cred.; jr., sr., grad.; prereq., 55 or equiv.)	III, IV		S 205bEd	Mr. Van Wagenen
Ed.Psy.111s	Educational Measurements in the Elementary School (3 cred.; jr., sr., grad.; prereq., 55 or equiv.)	II	MWF	109Psy	Mr. Van Wagenen
Ed.Psy.113f-114w- 115s	Psychology of Elementary School Subjects (2 cred. per qtr.; jr., sr., grad.; prereq., 10 cred. in psy. and ed.)	IX, X		W 109Psy	Mr. Van Wagenen
Ed.Psy.116w- 117s	Advanced Statistical Methods in Education (4 cred.; sr., grad.; prereq., 60 or equiv.)	IX, X		T 115Psy	Mr. Van Wagenen
Ed.Psy.133	<i>Systematic Educational Psychology</i> (4 cred.; jr., sr., grad.; prereq., 15 cred. in psy. and ed.)	<i>Not offered</i>			
Ed.Psy.134f	Mental Tests (2 cred.; sr., grad.; prereq., 55 and 60 or equiv.)	VII, VIII	MW	211Psy	Mr. Eurich
Ed.Psy.135w-136s	Problems in Mental Testing.... (4 cred.; sr., grad.; prereq., 55 and 60 or equiv. and 134)	VII, VIII	MW	211Psy	Mr. Eurich

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
Ed.Psy.138f-139w†	Experimental Educational Psychology (4 cred.; sr., grad.; prereq., 55 or equiv.)	IX, X	WF	Psy	Mr. Rockwell
Ed.Psy.141	<i>Psychology of Speech Disorders</i>	<i>Not offered</i>			
Ed.Psy.143f-144w†	Individual Mental Examination.. (4 cred.; sr., grad.; prereq., 55 and 111 or 134. Permission of instructor)	IX-X	TTh	Psy	Mr. Rockwell
Ed.Psy.145S	Special Problems in the Field of Individual Mental Testing.... (2 cred.; sr., grad.; prereq., 143-144)	Ar	Ar	Psy	Mr. Rockwell
Ed.Psy.146w-147s†	Child Guidance (4 cred.; jr., sr., grad.; prereq., 15 cred. in psy. and ed.)	III-IV	S	OLaAud	Mr. Chamberlain
Ed.Psy.149f-150w†-151S	Psycho-Educational Clinic (2 to 6 cred.; sr., grad.; permission of instructor; prereq., 134-135-136, 144-145 or 184, and 111)	Ar	Ar	Ar	Mr. Eurich
Ed.Psy.153f-154w-155S	Research Problems (Ar.; sr., grad.; prereq., consult instructor)	Ar	Ar	Ar	Mr. Haggerty, Mr. Eurich, Mr. Miller, Mr. Rockwell, Mr. Van Wagenen Mr. Carroll
Ed.Psy.157S	Psychology of Child Development (2 cred.; jr., sr., grad.; prereq., 6 cred. in psy.)	I, II	S	112Ed	Mr. Carroll
Ed.Psy.158f	Psychology of Adolescence..... (3 cred.; jr., sr., grad.; prereq., 55 or equiv.)	VII	MWF	210OL	Miss Merrill
Ed.Psy.159	<i>Psychology of Personality</i> (3 cred.; sr., grad.; prereq., 55 and 116 or 134 or parallel)	<i>Not offered</i>			
Ed.Psy.181f,w,S	Practice in Personnel Work.... (Prereq., satisfactory prep. in psy. and ed. and approval of adviser)	Ar	Ar	Ar	Mr. Haggerty, Miss Merrill, Mr. Randolph Smith Mr. Carroll
Ed.Psy.183S	Psychology of Gifted Children... (2 cred.; jr., sr., grad.; prereq., 55 or equiv.)	III	TTh	210OL	Mr. Carroll
Ed.Psy.184S	Mental Deficiency (2 cred.; jr., sr., grad.; prereq., 55 or equiv.)	III, IV	S	Ar	Mr. Rockwell
Ed.Psy.189f	The Human Organism..... (3 cred.; sr., grad.; prereq., permission of the instructor)	III	MWF	Ar	Mr. Rockwell

† The entire course must be completed before credit is received for any quarter.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
Ed.Psy.190f	Original Nature of Man..... (3 cred.; sr., grad.; prereq., 55 and 60 or equiv. and permis- sion of instructor)	III	MWF	301Psy	Mr. Miller
Ed.Psy.191w	Individual Differences (3 cred.; sr., grad.; prereq., 55 and 60 or equiv. and permis- sion of instructor)	III	MWF	301Psy	Mr. Miller
Ed.Psy.192s	Recent Literature in Educational Psychology (3 cred.; sr., grad.; prereq., 55 and 60 or equiv. and permis- sion of instructor)	III	MWF	301Psy	Mr. Miller
Ed.Psy.193w- 194s	Psychology of Learning..... (4 cred.; sr., grad.; prereq., 12 cred. in psy. and ed. psy.)	II	TTh	301Psy	Mr. Rockwell
Ed.Psy.197,198, 199	<i>Problems in Subnormality</i> (6 cred.; jr., sr., grad.)	Not offered			
Ed.Psy.201f-202w- 203s	Seminar in Educational Psychol- ogy (No cred.; grad.)	Ar	Ar	301Psy	Mr. Haggerty, Mr. Eurich, Mr. Miller, Mr. Rockwell, Mr. Van Wagenen

HISTORY AND PHILOSOPHY OF EDUCATION

Major Advisers: A. C. Krey, Ross L. Finney, Jean H. Alexander

No.	Title	Hour	Day	Bldg.	Instructor
H.Ed.1f	Brief Course in History of Edu- cation (5 cred.; jr., sr.; prereq., 6 cred. in psy.)	IV	MTWFS	210OL	Miss Alexander
H.Ed.1w,s	Brief Course in History of Edu- cation (See 1f)	IV	MTWFS	210OL	Miss Alexander
H.Ed.3f	Educational Sociology (3 cred.; jr., sr.; prereq., 6 cred. in psy.)	III	MWF	OLaAud	Mr. Finney
H.Ed.3w,s	Educational Sociology (See 3f)	III	MWF	OLaAud	Mr. Finney
H.Ed.5s	Public Education in the U. S... (Offered at U. Farm) (3 cred.; jr., sr.; prereq., 6 cred. in psy.)	VIII	MWF	ArHE	Miss Alexander
H.Ed.101f	Historical Foundations of Modern Education (3 cred.; jr., sr., grad.; prereq., 6 cred. in psy. and 6 cred. in hist.)	VI	MWF	210OL	Miss Alexander

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
H.Ed.102w	History of Modern Secondary and Higher Education..... (3 cred.; jr., sr., grad.; prereq., 6 cred. in psy. and 6 cred. in hist.)	VI	MWF	210OL	Miss Alexander
H.Ed.103s	History of Modern Elementary Education (3 cred.; jr., sr., grad.; prereq., 6 cred. in psy. and 6 cred. in hist.)	VI	MWF	210OL	Miss Alexander
H.Ed.114	Philosophy of Education.....	Not offered			
H.Ed.129-130	Educational Classics	Not offered			
H.Ed.131-132	Comparative School Systems	Not offered			
H.Ed.140w-141s	Topics in the History of Education	VI, VII VI	W F	ArOL	Mr. Krey
H.Ed.211-212-213	Seminar in History of Education	Not offered			

HOME ECONOMICS EDUCATION

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
H.E.Ed.40f,s	Child Training (3 cred.; jr., sr.; prereq., Psy. 1-2)	IV	MWF	213HE	Mrs. Foster
H.E.Ed.40w*	Child Training (Same as 40f,s)	IV	MWF	202OLA	Mrs. Foster
H.E.Ed.42f,s†	Special Methods of Teaching Home Economics	VIII	MWF	215HE	Miss Rose
H.E.Ed.49f,w,s†	Observation and Teaching: General Home Economics..... (8 cred.; sr.; prereq., 42†)				
	Lect.	IX	TTh	213HE	Miss Rose,
	Teaching	Ar	Ar	Ar	Miss Carlotta Brown, Miss Chadderdon, Miss Hadley, Miss Kafka, Miss Nordeen, Miss Sell, Miss Topp
H.E.Ed.141f	Vocational Education in Home Economics	Ar	Ar	Ar	Miss Clara Brown, Miss Rose
H.E.Ed.142af,w	Educational Measurement in Home Economics	VIII(fall) VII(winter)	TTh Ar	Ar Ar	Miss Clara Brown

* Offered on the Minneapolis campus.

† A laboratory fee of \$1 per credit hour is charged for this course.

‡ In addition to other prerequisites a student registering for this course must have received a grade of C or higher in each of the following courses: H.E. 3, 11, 13, 50, 51, 53, 80 or 81, and 83.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
H.E.Ed.142bw	Educational Measurement in Home Economics (2 cred.; sr.; prereq., 142a)	Ar	Ar	Ar	Miss Clara Brown
H.E.Ed.143w,s	Home Economics Curricula. (2 cred.; jr., sr.; prereq., 42 or parallel)	VIII	TTh	213HE	Miss Clara Brown, Miss Rose
H.E.Ed.147w	Organization and Methods for Related Art Teaching. (3 cred.; jr., sr.; prereq., 42 or parallel; H.E. 53, 131 or parallel)	III	TThS	402HE	Miss H. Goldstein
H.E.Ed.149f,w,s	Research Problems (Cred. ar.; sr.; permission of instructor)	Ar	Ar	Ar	Miss McNeal, Miss Clara Brown
H.E.Ed.242f,w,s	Problems in Home Economics Education (1 cred.; grad.)	Ar	Ar	Ar	Miss McNeal, Miss Clara Brown
H.E.Ed.243f,w,s	Administration and Supervision of Home Economics. (3 cred.; grad.; prereq., 42, 49, 143)	Ar	Ar	Ar	Miss McNeal, Miss Rose
H.E.Ed.245f,w,s	Seminar in Home Economics Education (No cred.; grad.)	Ar	Ar	Ar	Miss McNeal, Miss Clara Brown

INDUSTRIAL EDUCATION

Major Adviser: Homer J. Smith

No.	Title	Hour	Day	Bldg.	Instructor
*Ind.1f	General Shopwork (2 cred.; no prereq.)	I-IV	S	6OLa	Mr. Fryklund
*Ind.2w	General Shopwork (2 cred.; no prereq.)	I-IV	S	6OLa	Mr. Fryklund
*Ind.5s	Wood Finishing (2 cred.; no prereq.)	I-IV	S	6OLa	Mr. Fryklund
*Ind.11w,s	Special-Class Woodwork (2 cred.; no prereq.; not open to those who have credit in bench woodwork or cabinet making; for teachers of art, subnormal, and primary grade work; limited to 20; repeated in spring quarter)	4:00-6:00 p.m.	TTh	6OLa	Mr. Cunningham
Ind.14	<i>Methods in Mechanical Drawing</i> (2 cred.; prereq., 10 cred. in drawing or consent of instructor)	<i>Not offered</i>			
Ind.20	<i>Industrial History</i> (2 cred.; no prereq.)	<i>Not offered</i>			
Ind.25f	Literature of Industrial Education (2 cred.; no prereq.)	IX, X	M	112OL	Mr. Smith
Ind.30f	Graphic Presentation (2 cred.; no prereq.)	III, IV	Th	112OL	Mr. Smith
Ind.40	<i>Analysis</i> (2 cred.; no prereq.)	<i>Not offered</i>			

* A laboratory fee of \$1 per credit hour is charged for this course.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
Ind.42s	Course Organization (2 cred.; prereq., Ind.40)	IX, X	W	112OL	Mr. Smith
Ind.44s	Equipment and Management.... (2 cred.; prereq., 40, 42)	IX, X	Th	112OL	Mr. Fryklund
Ind.50f, 51w,52s	Practice Teaching (6 cred.; jr., sr.; prereq., Ind.80, either Ind.14, Ind.66, or Ind.70, plus consent of instructor)	Ar	Ar	Ar	Mr. Smith
Ind.60f	Philosophy of Vocational Edu- cation (2 cred.; no prereq. Ind.61w to be taken following)	IX, X	T	112OL	Mr. Fryklund
Ind.61w	Practices in Vocational Educa- tion (Econ.) (2 cred.; prereq., Ind.60)	IX, X	M	112OL	Mr. Fryklund
Ind.65	<i>Methods in Non-Vocational Sub- jects</i>	<i>Not offered</i>			
Ind.66	<i>Methods in Related Subjects</i> (2 cred.; prereq., Ind.40)	<i>Not offered</i>			
Ind.70s	Methods in Shop Subjects..... (2 cred.; prereq., Ind.40)	IX, X	F	112OL	Mr. Smith
Ind.80f	General Industrial Training.... (2 cred.; no prereq.)	IX, X	W	112OL	Mr. Smith
Ind.90s	Tests in Industrial Subjects.... (2 cred.; prereq., Ed.Psy.55)	IX, X	T	112OL	Mr. Smith
Ind.105w	Industrial Education (3 cred.; jr., sr., grad.; <i>not</i> open to those pursuing the special- ized curriculum in industrial education)	III	MWF	112OL	Mr. Smith
Ind.110w	Guidance in the Schools..... (2 cred.; jr., sr., grad.; prereq., Ed.Psy.55)	IX, X	F	112OL	Mr. Smith
Ind.150f,151w, 152s	Problems in Vocational Education (6 cred.; prereq., consent of the instructor)	III, IV	S	112OL	Mr. Smith
Ind.170f	Day Industrial Schools..... (2 cred.; jr., sr., grad.; no prereq.)	IX, X	F	112OL	Mr. Craigo
Ind.171w	Evening Industrial Schools.... (2 cred.; jr., sr., grad.; prereq., Ind.170)	IX, X	W	112OL	Mr. Bass
Ind.172s	Part-time Education (2 cred.; jr., sr., grad.; prereq., Ind.60,170,171)	IX, X	M	112OL	Mr. Prosser

Dunwoody enrolments, day or evening, arranged by Mr. Smith. Shopwork and drawing courses of wide variety are available in the College of Engineering, University and Farm campuses. Students may elect to pursue courses, day or evening, at the William Hood Dunwoody Industrial Institute without fees other than those paid to the University. All shop and drawing courses should be taken under special advice and may be either extensive or intensive in resultant preparation for teaching. Those transferring from other institutions should bear in mind the maximum of forty-five quarter credits, for shopwork and drawing combined, which is enforced in this department.

COLLEGE OF EDUCATION

INSTITUTE OF CHILD WELFARE*

Major Adviser: John E. Anderson

No.	Title	Hour	Day	Bldg.	Instructor
C.W.40wf	Child Training (3 cred.; jr., sr.; prereq., Psy. 1-2)	IV	MW	202OLA	Mrs. Foster
C.W.6of	Modern Aspects of Child Study (2 cred.; jr., sr.; prereq., 6 cred. in psy. and 5 cred. in soc. sci.)	VI	TTh	202OLA	Miss McGinnis
C.W.8of	Child Psychology (3 cred.; jr., sr.; prereq., Ps. 1-2)	I	MWF	202OLA	Miss Shirley
C.W.9ow	Physical Development of the Young Child (2 cred.; jr., sr.; prereq., Zool. 1-2, Psy. 1-2)	V	T and 1 hr.ar.	202OLA	Miss Boyd
C.W.120s	Health Care of the Young Child (2 cred.; sr., grad.; prereq., 40 and 90 and permission of instructor)	V	T and 1 hr.ar.	202OLA	Miss Boyd
C.W.130s	The Development of the Young Child (3 cred.; sr., grad.; prereq., 12 cred. in psy. or equivalent, and permission of instructor)	I	TThS	202OLA	Mr. Anderson
C.W.133f-134w†-135s	Observational and Experimental Methods in the Study of the Development of the Young Child (6 or 9 cred.; sr., grad.; prereq., 10 cred. in psy. or ed. psy. incl. 4-5 or 7 and permission of instructor)	VI VI-VII	M WF	202OLA	Miss Goodenough
C.W.17of	Parental Education in Child Care and Training (3 cred.; sr., grad.; prereq., 40, 60, 80, or H.E. 34, 35, and 44, or 15 cred. in ed. or psy., or soc., or prev. med.)	IV	MWF	202OLA	Miss McGinnis
C.W.173w-174s‡	Technique and Practice of Parental Education (6 cred.; sr., grad.; prereq., 170, and permission of instructor)	Ar	Ar	204OLA	Miss McGinnis
C.W.190w-191s	Mental Examination of Pre-school Children (4 cred.; sr., grad.; prereq., Ed. Psy. 143-144-145 or 134-135-136 or equivalent, and permission of instructor)	III	TTh	202OLA	Miss Goodenough
C.W.230f-231w-232s	Seminar in the Development of the Young Child.....	Ar	Ar	202OLA	Mr. Anderson

* See also Courses T.30-34 and T.85-90 listed under Theory and Practice of Teaching which are offered by the Institute of Child Welfare.

† Offered fall and spring as Home Economics Education 40. Consult bulletin of the College of Agriculture, Forestry, and Home Economics.

‡ Two quarters must be completed before credit is received for any quarter.

PROGRAM

19

No.	Title	Hour	Day	Bldg.	Instructor
C.W.233f-234w- 235s	Research in the Development of the Young Child.....	Ar	Ar	Ar	Mr. Anderson
C.W.250-251-252	Seminar in Nursery School Edu- cation	Ar	Ar	Ar	Mrs. Foster

LIBRARY METHODS

Major Adviser: Frank K. Walter

No.	Title	Hour	Day	Bldg.	Instructor
Lib.Meth.101f	Bibliography	III	MWF	5Lib	Mr. Russell
	(3 cred.; jr., sr.; no prereq.)				
Lib.Meth.102f	Cataloging	I	MWF	5Lib	Miss Hutchinson
	(3 cred.; jr., sr.; no prereq.)				
Lib.Meth.103w	Cataloging	IV	MWF	5Lib	Miss Hutchinson
	(3 cred.; jr., sr.; prereq., 102)				
Lib.Meth.104f	Classification	II	TThS	5Lib	Miss Hutchinson
	(3 cred.; jr., sr.; no prereq.)				
Lib.Meth.105w	Classification	II	TThS	5Lib	Miss Hutchinson
	(3 cred.; jr., sr.; prereq., 104)				
Lib.Meth.107s	School Library Administration...	VIII	MWF	5Lib	Miss Scripture
	(3 cred.; prereq., 9 cred. in lib. meth.)				
Lib.Meth.108s	Public Library Administration...	I	TThS	5Lib	Miss Baldwin, Miss Wood
	(3 cred.; prereq., 9 cred. in lib. meth.)				
Lib.Meth.110f	Library Binding	III	T	5Lib	Mr. Walter
	(1 cred.; jr., sr.; no prereq.)				
Lib.Meth.111 f,w,s	Library Practice	Ar	Ar	Ar	Mr. Walter
	(3 cred.; sr.; prereq., 15 cred. in lib. meth.)				
Lib.Meth.112w	Reference	III	MWF	5Lib	Miss Hutchinson
	(3 cred.; jr., sr.; no prereq.)				
Lib.Meth.113s	Reference Continued	III	MWF	5Lib	Miss Hutchinson
	(3 cred.; prereq., 112)				
Lib.Meth.114s	Selection of Books for Adolescents	II	MWF	5Lib	Miss McGregor
	(3 cred.; no prereq.)				
Lib.Meth.117w	Library Printing	III	T	5Lib	Mr. Walter
	(1 cred.; jr., sr.)				
Lib.Meth.118s	Library Publicity	III	T	5Lib	Mr. Walter
	(1 cred.; prereq., 9 cred. in lib. meth.)				
Lib.Meth.119f	Current Library Problems	II	MWF	5Lib	Mr. Walter
	(3 cred.; prereq., 9 cred. in lib. meth. or simultaneously with 101, 102, 104)				
Lib.Meth.120w	Current Library Problems.....	II	MWF	5Lib	Mr. Walter
	(3 cred.; prereq., 119)				
Lib.Meth.121w	Library Work with Children....	I	MWF	5Lib	Miss McGregor
	(3 cred.; prereq., 9 cred. in lib. meth.)				
Lib.Meth.122s	Library Work with Children....	I	MWF	5Lib	Miss McGregor
	(3 cred.; prereq., 121)				

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
Lib.Meth.123f	Selection of Books for Adults... (2 cred.)	III	ThS	5Lib	Miss Hutchinson
Lib.Meth.124w	Selection of Books for Adults... (2 cred.; prereq., 123)	III	ThS	5Lib	Miss Hutchinson
Lib.Meth.125s	Selection of Books for Adults... (2 cred.; prereq., 123)	III	ThS	5Lib	Miss Hutchinson

PHYSICAL EDUCATION FOR MEN

Major Adviser: L. F. Keller

No.	Title	Hour	Day	Bldg.	Instructor
Phys.Ed.1f,2w,3s	Freshman Physical Education.... (3 cred.; fr., no prereq.)				
	Sec. 1	I	MWF	202S	
	2	I	TThS	202S	
			(winter & spring only)		
	3	II	MWF	202S	
	4	II	TThS	202S	
	5	III	MWF	202S	
	6	III	TThS	202S	
	7	IV	MWF	202S	
	8	VI	MWF	202S	
	9	VII	MWF	202S	
	10	VIII	MWF	202S	
Phys.Ed.Af, Bw,Cs	Elementary Physical Education.. (3 cred.; fr. majoring in physical education only; no prereq.)	VI	MWF	202S	Mr. Piper
Phys.Ed. 7f,8w,9s	Advanced Leaders				
	(3 cred.; soph., jr., sr.; prereq., 1-2-3)				
	Lect.	IV	T	206A	Mr. Keller
	Lab.	Ar			
Phys.Ed.10f-11w- 12s	Minor Sports				
	(6 cred.; soph., jr., sr.; prereq., 1-2-3)				
	Lect.	IV	S	204A	Mr. Keller
	Lab.	IV	MWF		
Phys.Ed.13f,14w, 15s	Corrective Work				
	(3 cred.; by petition only)				
	Sec. 1	I	TThS	264S	
	2	II	TThS		
	3	III	TThS		
Phys.Ed.16f,17w, 18s	Drill Substitution				
	(No cred.; by petition only)				
	Sec. 1	I	MWF	264S	
	2	II	MWF		
	3	III	MWF		
	4	IV	MWF		
	5	VI	MWF		
	6	VII	MWF		

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
Phys.Ed.19f-20w-21s	Gymnastics	III	TThS	A	Mr. Piper
	(3 cred.; jr., sr.; prereq., 1-2-3)				
Phys.Ed.22f-23w	Kinesiology	VI	TTh	204A	Mr. Keller
	(4 cred.; jr., sr.; prereq., 1-2-3, Anat. 4)				
Phys.Ed.24w,25s	Methods in Physical Education . .	VII	TTh	204A	Mr. Keller
	(4 cred.; jr., sr.; prereq., 22-23)				
Phys.Ed.28f	Physical Examination and Normal Diagnosis	III	MWF	204A	Dr. Cooke
	(2 cred.; sr.; prereq., Physiol. 57-58)				
Phys.Ed.29w	Adaptation of Activities in Orthopedic Procedures	III	MWF	204A	Dr. Cooke
	(2 cred.; sr.; prereq., 22-23, 24, 28)				
Phys.Ed.30s	Athletic Training	I	MWF	204A	Dr. Cooke
	(2 cred.; sr.; prereq., none)				
Phys.Ed.31f	History of Physical Education . .	II	TThS	204A	Mr. Keller
	(2 cred.; sr.; prereq., Ed. 1)				
Phys.Ed.32w	Principles of Physical Education .	II	TThS	204A	Mr. Keller
	(3 cred.; sr.; prereq., 31, 10-11-12, 23, 24)				
Phys.Ed.33s	Organization and Administration of Physical Education	II	TThS	204A	Mr. Piper
	(3 cred.; sr.; prereq., 32)				
Phys.Ed.37s	Football Coaching				
	(3 cred.; sr.; no prereq.)				
	Lect.	III	MWF	202S	Mr. Crisler
	Lab.	Ar	Ar		
Phys.Ed.38w	Basket-Ball	VI	MWF	204A	Mr. MacMillan
	(2 cred.; sr.; no prereq.)				
Phys.Ed.39s	Track Athletics	VI	MWF	202S	Mr. Finger
	(2 cred.; sr.; no prereq.)				
Phys.Ed.42f	Baseball	VI	MWF	202S	
	(2 cred.; sr.; no prereq.)				
Phys.Ed.43f-44w-45s*	Practice Teaching	Ar	Ar	A	Mr. Keller
	(6 cred.; sr.; prereq., 10-11-12, 22-23, 24, Ed. 55)				

PHYSICAL EDUCATION FOR WOMEN

Major Adviser: J. Anna Norris

Statement of fees.—Elementary physical training, \$2.50 a quarter. All other exercise courses, including swimming, for which registration is required, except Course 24, \$2.00 a quarter. Maximum fee paid by a student in physical education, \$3.50 a quarter.

* A laboratory fee of \$1 per credit is charged for this course.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
Phys.Ed.1f	Freshman Physical Education.... (1 cred.; required of all students; no prereq.)				
	Lect. Sec. 1	I	W	201WGm	Ar
		2	T	201WGm	Ar
		3	Th	201WGm	Ar
		4	Th	201WGm	Ar
		5	M	201WGm	Ar
		6	T	201WGm	Ar
		7	W	201WGm	Ar
		8	Th	201WGm	Ar
	Lab. Sec. 1	II	MWF	3,151,153WGm	Ar
		2	MWF	3,151,153WGm	Ar
		3	TThS	3,151,153WGm	Ar
		4	MWF	3,151,153WGm	Ar
		5	MWF	3,151,153WGm	Ar
		6	MWF	3,151,153WGm	Ar
Phys.Ed.2w,3s†	Freshman Physical Education.... (See 1f)				
	Lab. Sec. 1	II	MWF	3,151,153WGm	Ar
		2	MWF	3,151,153WGm	Ar
		3	TThS	3,151,153WGm	Ar
		4	MWF	3,151,153WGm	Ar
		5	MWF	3,151,153WGm	Ar
		6	MWF	3,151,153WGm	Ar
Phys.Ed.4s‡	Preliminary Hygiene (For nurses and transfer stu- dents; no cred.; no prereq.)	II	T	206OLa	Ar
Phys.Ed.7f-8w	Sophomore Gymnastics (1½ cred.; soph.; prereq., 1-2-3)	IV	TS	153WGm	Ar
Phys.Ed.9s	Sophomore Archery (¾ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	II	MW	151WGm	Ar
		2	TS		Ar
		3	WF		Ar
Phys.Ed.10f-11w‡	Sophomore Orthopedic and Indi- vidual Gymnastics (1½ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	II	MW	3WGm	Ar
		2	TS	3WGm	Ar
		3	TTh	3WGm	Ar
Phys.Ed.12s	Sophomore Orthopedic and Indi- vidual Gymnastics (See 10f-11w)	IV	TS	3WGm	Dr. Tolg
Phys.Ed.13f-14w- 15s*‡	Sophomore Natural Dancing.... (2 cred.; soph.; prereq., 1-2-3)	VI	TTh	151WGm	Miss Timber- man
Phys.Ed.13f,s- 14w‡	Sophomore Natural Dancing.... (1½ cred.; soph.; prereq., 1-2-3)	II	TTh	151WGm	Miss Timber- man

* The spring quarter is not open to students who have not had the previous quarter.

† Courses 2w and 3s are not open to students who have not had the previous quarter. Freshman students entering in the winter or spring quarter may, with the permission of the department, register for sophomore courses in the spring.

‡ Students may enter any quarter.

§ Transfer students who have not completed the requirement in preliminary hygiene may register for this course or for Preventive Medicine 3.

¶ The winter quarter is not open to students who have not had the fall quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
Phys.Ed.16f-17w	Sophomore Games and Folk Dancing (1½ cred.; soph.; prereq., 1-2-3)	I	MW	151WGm	Miss Dickson
Phys.Ed.18s	Tennis (¾ cred.; soph.; prereq., 1-2-3)	Sec. 1			
		I	TTh	151WGm	Ar
		2	TS	151WGm	Ar
		3	TTh	151WGm	Ar
		4	WF	151WGm	Ar
		5	TTh	151WGm	Ar
Phys.Ed.19f	Sophomore Hockey (¾ cred.; soph.; prereq., 1-2-3)	Sec. 1			
		VII	WF	151WGm	Ar
		2	MW	151WGm	Ar
		3	TTh	151WGm	Ar
Phys.Ed.20w	Sophomore Basket-Ball (¾ cred.; soph.; prereq., 1-2-3)	Sec. 1			
		V	MW	151WGm	Ar
		2	WF	151WGm	Ar
		3	TTh	151WGm	Ar
		4	TTh	151WGm	Ar
Phys.Ed.21s	Sophomore Baseball (¾ cred.; soph.; prereq., 1-2-3)	V	MW	151WGm	Ar
Phys.Ed.22f,s-23w*§	Sophomore Elem. Swimming... (1½ cred.; soph.; prereq., 1-2-3)	Sec. 1			
		II	TTh	51WGm	Miss Starr and others
		2	MW	51WGm	Ar
		3	TS	51WGm	Ar
		4	MW	51WGm	Ar
		5	TTh	51WGm	Ar
		6	TTh	51WGm	Ar
		7	TTh	51WGm	Ar
Phys.Ed.22f,w,s	Sophomore Elem. Swimming... (See 22f,s-23w)	VII	MW	51WGm	Ar
Phys.Ed.24f,s‡	Sophomore Horseback Riding... (¾ cred.; soph.; prereq., 1-2-3)	Sec. 1			
		VIII	TTh	Ar	Miss Starr
		2	TTh	Ar	Miss Starr
Phys.Ed.25f,s-26w*§	Sophomore Intermed. Swimming (1½ cred.; soph.; prereq., 1-2-3, elementary swimming test)	Sec. 1			
		III	TTh	51WGm	Ar
		2	MW	51WGm	Ar
		3	MW	51WGm	Ar
Phys.Ed.27f¶	Sophomore Golf—Advanced (¾ cred.; soph.; prereq., 1-2-3)	VI	TTh	Ar	Miss Kissock

* The winter quarter is not open to students who have not had the fall quarter.

‡ Students registering for this course will pay for riding lessons at about \$1 per lesson, but not the regular physical education fee. Attendance at class hour is required for credit.

§ No student may register for more than two quarters of swimming without permission. Course 22 is never closed for senior registration.

¶ Students must supply their own golf equipment. The golf course at the University Recreation Field will be used for Phys.Ed. 27. Student tickets 10 for \$3.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor	
Phys.Ed.27s¶	Sophomore Golf—Elementary ...					
	($\frac{3}{8}$ cred.; soph.; prereq., 1-2-3)					
	Sec. 1	I	TTh	151WGm	Miss Kissock	
		2	TTh	151WGm	Miss Kissock	
		3	MW	151WGm	Ar	
Phys.Ed.28f,s-29w*§	Sophomore Advanced Swimming (1 $\frac{1}{2}$ cred.; soph.; prereq., 1-2-3, inter. swim. test)	VIII	MW	51WGm	Miss Starr	
Phys.Ed.30s	Sophomore Life Saving and Water Sports ($\frac{3}{8}$ cred.; soph.; prereq., 1-2-3) adv. swim. test)	IX	MW	51WGm	Miss Starr	
Phys.Ed.31w¶	Sophomore Skating ($\frac{3}{8}$ cred.; soph.; prereq., 1-2-3)	Sec. 1	VII	WF	Ar	
		2	II	TTh		
Phys.Ed.34f	Elementary Swimming for Major Students (No cred.; no prereq.)	II	WF	51WGm	Ar	
Phys.Ed.37f-38w-39s	Freshman Major Sports..... (1 $\frac{1}{2}$ cred.; no prereq.)	I(fall)	TTh	151WGm	Ar	
		VI $\frac{1}{2}$ (winter)	MW	151WGm	Ar	
		VII(spring)	WF	151WGm	Ar	
Phys.Ed.40s	Freshman Major Hygiene..... (2 cred.; fr.; no prereq.)	III	MW	201WGm		
Phys.Ed.43f-44w-45s	Theory and Function of Play... ($\frac{1}{2}$ cred. fall, 3 cred. winter, $\frac{1}{2}$ cred. spring; jr., sr.; prereq., 6 qtrs.)	Lab.	II(fall)	MW	151WGm	Miss Kissock
		Lect.	II(winter)	MWF	201WGm	Miss Kissock
		Lab.	V(spring)	WF	151WGm	Miss Kissock
Phys.Ed.48f	Tennis and Posture Training for Freshman Majors (1 cred.; majors in phys. ed.; no prereq.)	VI $\frac{1}{2}$	MWF	Ar	Ar	
Phys.Ed.49w	Gymnastics for Freshman Majors (See 48)	II	MWF	151WGm	Ar	
Phys.Ed.50s	Track, Soccer, and Archery for Freshman Majors (See 48)	VII	WF	151WGm	Miss Dickson	
Phys.Ed.51f-52w	Gymnastics for Sophomore Ma- jors (1 cred.; soph. majoring or minoring in phys. ed.; prereq., 48-49-50 for majors, 1-2-3 for minors)	II	TTh	153WGm	Ar	
Phys.Ed.54f-55w	Gymnastics for Junior Majors... (1 cred.; jrs. majoring and srs. minoring in phys. ed.; prereq., 51-52)	I	WF	153WGm	Ar	

* The winter quarter is not open to students who have not had the fall quarter.

¶ Students must supply their own golf equipment. The golf course at the University Recreation Field will be used for Phys.Ed. 27f. Student tickets 10 for \$3.

§ Class meetings will be sixty minutes in length, since weather and ice conditions will cause omissions at times.

§ No student may register for more than two quarters of swimming without permission. Course 22 is never closed for senior registration.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor	
Phys.Ed.56w-57s	Swimming with Technique and Methods (1 cred.; soph., jr.; prereq., 28i)	Lect.	VII(winter)	M	201WGm	Miss Starr
		Lab.	I	TTh	51WGm	
		Lect.	VI(spring)	F		
		Lab.	I	TTh	Ar	
Phys.Ed.58w-59s	Advanced Folk Dancing with Technique and Methods..... (2 cred.; jr.; prereq., 6 qtrs.)	Lect.	I(winter)	M	Ar	Miss Baker
		Lab.	II	TTh	151WGm	
			I(spring)	MWF	Ar	
Phys.Ed.60f	Minor Sports with Technique and Methods (1 cred.; jr.; prereq., 6 qtrs.)	VI	MTTh	153WGm	Ar	
Phys.Ed.61s	Minor Sports with Technique and Methods (See 60f)	VI	MTTh	153WGm	Miss Kissock, Ar	
Phys.Ed. 63f-64w-65s	Major Sports with Technique and Methods (3 cred.; soph., jr.; prereq., 37, 38, 50)	63f	VII	TWF	151WGm	Ar
		64w	VI	MTTh	151WGm	Ar
		65s	IV	MTS	151WGm	Miss Dickson
Ph. s.Ed. 66f-67w-68s	Interpretive Dancing (3 cred.; jr.; prereq., 6 qtrs.)	VIII	TThF	151WGm	Miss Baker	
Ph. s.Ed. 69f-70w-71s	Advanced Interpretive Dancing with Technique and Methods.. (3 cred.; sr.; prereq., 66-67-68)	IV	MTS	151WGm	Miss Baker	
Phys.Ed.72f-73w	Gymnastics for Senior Majors... (1 cred.; sr.; prereq., 54-55)	V	WF	151WGm	Miss Baker	
Phys.Ed.75f	History of Physical Education... (1 cred.; soph., jr.)	VII	M	201WGm	Miss Kissock	
Phys.Ed.80f-81w	Anatomy and Kinesiology..... (6 cred. fall; prereq., Anat. 3, Farm Engr. 23)	Lect.	IV	T	201WGm	Miss Mahoney
		Lab.	III	TThS	201WGm	
Phys.Ed.82w	Physical Examination (2 cred.; jr.; prereq., 80-81)	I	TThS	201WGm	Dr. Tolg	
Phys.Ed.83s	Technique of Teaching and Principles of Gymnastics..... (4 cred.; jr.; prereq., 54-55, 80-81)	Lab.	II	TThS	153WGm	Miss Baker
			III	T	153WGm	
		Lect.	VII	M	201WGm	
Ph. s.Ed.85w-86s	Principles of Physical Education (2 cred. winter, 1 cred. spring; prereq., 44, 84, 91)		VI	F	201WGm	Miss Baker
			VI	F	201WGm	
			VI	F	201WGm	
		II(winter)	MF	201WGm	Miss Baker	
		IV(spring)	W			

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
Phys.Ed.87f	School Hygiene and Technique of Teaching Personal Hygiene... (3 cred.; sr.; prereq., Physiol. 57-58)	III	MWF	201WGm	Ar
Phys.Ed.88f-89w-90s	Orthopedic and Remedial Gym... (3 cred.; sr.; prereq., 82)	Lab. II(fall) Lect. I(fall) Lab. V(winter) Lect. I(winter) (Practice teaching ar.) Lab. Ar(spring) Lect. I(spring)	TTh F T F T	3WGm 201WGm 3WGm 201WGm 201WGm	Dr. Tolg Dr. Tolg Dr. Tolg Dr. Tolg Dr. Tolg Miss Baker
Phys.Ed.91f	Principles Underlying Dancing... (2 cred.; sr.; prereq., 66-67-68)	VII	MW	151WGm	Miss Baker
Phys.Ed.92f-93w-94s*	Practice Teaching (6 cred.; sr.; prereq., 43-44-45, 56-57, 63-64-65, 69, 91, 83)	Ar	Ar	Ar	Miss Baker
Phys.Ed.97w	Administration of Physical Education (3 cred.; sr.; prereq., 75)	III	MWF	201WGm	Dr. Norris

ACTIVITIES FOR WHICH NO REGISTRATION IS REQUIRED

Elective Sports†	IX	MTWTh	51WGm	Ar
(Fall)—field hockey, volley ball; (Winter) — basket-ball, ice hockey; (Spring)—track, base-ball, swimming				
General Swimming	IX	MTWF	151WGm	Ar

PREVENTIVE MEDICINE AND PUBLIC HEALTH‡

Major Adviser: H. S. Diehl

MEDICAL SCHOOL

For specialized curriculum in school health work see Part I, Education bulletin.

No.	Title	Hour	Day	Bldg.	Instructor
P.M.&P.H.2f,w	First Aid (1 cred.; prereq., 10 cred. zool.) (Limited to 20 women)	VI, VII(fall) I, II(winter)	W S	§	Miss Fisher
P.M.&P.H.3f,w,s‡	Personal Hygiene and Elementary Sanitation (2 cred.; fr. with cert. of apt. soph.; no prereq.) (3 sections for men, 40 each) (2 sections for women, 40 each) (Also one section for men)	IV IX	TS TTh	Ar	Dr. Lees and others

* A laboratory fee of \$1 per credit is charged for this course.

† With permission of director.

‡ Students may complete the former requirements in freshman hygiene by registering for this course.

§ Classroom schedules will be posted on Preventive Medicine and Public Health bulletin board in Millard Hall, also published in the *Official Daily Bulletin* at the beginning of each quarter.

§ Woman's Hall, University Farm.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
P.M.&P.H. 50f,w,s	Public and Personal Health..... (3 cred.; jr., sr.; prereq., Zool. 1-2 and Psy. 1-2 or permission of instructor)	V	MWF	Ar	Dr. O'Brien
P.M.&P.H.52f,s	Health Care of the Family..... (3 cred.; jr., sr.; prereq., Bact. 41, Hum. Physiol. 4) (Lab. sections limited to 20)	Lect. VIII Sec. 1 VI, VII 2 VI, VII 3 III, IV(s only)	Th TTh MF TS	213HE § §	Dr. Boynton Miss Fisher Miss Fisher
P.M.&P.H.52w	Health Care of the Family..... (See 52f,s. For S. L. & A. and Ed. students only. Lab. sec. limited to 20.)	Lect. VI Lab. VI, VII	M WF	Main campus	
P.M.&P.H.53f,s	Elements of Preventive Medicine (3 cred.; jr., sr.; prereq., Psy. 1-2; Bact. 41 or equiv.)	II	MWF	Ar	Dr. Diehl Dr. Lees
P.M.&P.H.57s	Health of Infant and Pre-school Child	III	TTh	Ar	Dr. Boynton
P.M.&P.H.58w	Maternal and Child Hygiene.... (2 cred.; jr., sr.; prereq., 50 or 53) (For public health nurses only)	III	MW	Ar	Dr. Boynton
P.M.&P.H.59w	Social Hygiene	VII	M	Ar	Ar
P.M.&P.H.60w	Tuberculosis and Its Control.... (2 cred.; jr., sr.; prereq., 50 or 52 or 53)	IV	TS	Ar	Dr. Myers
P.M.&P.H.61w	Mental Hygiene	III	TThS	Ar	Dr. deBerry
P.M.&P.H.62f,s	Principles of Public Health Nurs- ing and Special Fields..... (5 cred.; jr., sr.; for public health nurses)	II I	TTh MWF	Ar	Miss Butzerin Miss Houlton
P.M.&P.H. 64f,w,s	Field Practice in Infant Welfare Nursing	Ar	Ar	Ar	Miss Butzerin, Miss Peck
P.M.&P.H. 65f,w,s	Field Practice in School Nursing	Ar	Ar	Ar	Miss Butzerin
P.M.&P.H. 66f,w,s	Field Practice in County Nursing	Ar	Ar	Ar	Miss Butzerin

§ Woman's Hall, University Farm.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
P.M.&P.H. 67f,w,s	Field Practice in a Tuberculosis Sanatorium	Ar		Ar Ar	Miss Butzerin
	(2 cred.; jr., sr.; prereq., 60 and 62)				
P.M.&P.H. 68f,w,s	Field Practice in Visiting Nursing	Ar		Ar Ar	Miss Butzerin, Miss Houlton
	(5 cred.; jr., sr.; prereq., 62)				
P.M.&P.H.69s	School Nursing Procedures.....	Ar		Ar Ar	Miss Butzerin
	(3 cred.; jr., sr.; prereq., 53 or permission of instructor)				
P.M.&P.H.70	<i>Methods and Materials in Teaching Home Nursing and Child Care</i>	<i>Not offered</i>			
	(3 cred.; public health nurses; prereq., 62, 63, or equiv.)				
P.M.&P.H.73w	Occupational Hygiene and Disease	IV		MW Ar	Dr. Myers
	(2 cred.; jr., sr.; prereq., 53)				
P.M.&P.H.74	<i>Health Instruction Methods and Materials</i>	<i>Not offered</i>			
P.M.&P.H.75	<i>Practice Teaching in Health Subjects</i>	<i>Not offered</i>			
P.M.&P.H.80w	Health Supervision of the School Child	II		MWF Ar	Dr. Diehl
	(3 cred.; jr., sr.; prereq., 50 or 52 or 53)				
P.M.&P.H. 106f,w,s	Public Health Administration... (Cred. ar.; jr., sr., grad.; prereq., 53 or 101)	Ar		Ar Ar	Dr. Diehl
P.M.&P.H.107s	Sanitary Surveys	Ar		Ar Ar	Dr. Diehl
	(2 cred.; jr., sr., grad.; prereq., 53 or 100)				
P.M.&P.H.200	Research	Ar		Ar Ar	Dr. Diehl and staff
P.M.&P.H.210	Seminar in Preventive Medicine and Public Health	IX		W Staff Room, Health Service	Dr. Diehl and staff

PUBLIC SCHOOL MUSIC

Major Advisers: Carlyle M. Scott, Abe Pepinsky, Archie Jones

NOTE.—For specialized curriculum in Public School Music, see Part I, Education bulletin. Students desiring to major in this department are advised to consult the special bulletin, obtainable at the office of the registrar.

No.	Title	Hour	Day	Bldg.	Instructor
Mu.Ed.1f-2w-3s‡	Orchestral Instruments	II	TTh	3Mu	Mr. Larusson
	(3 cred.; fr.; no prereq.)				
Mu.Ed.4f-5w-6s‡	Orchestral Instruments (Advanced)	I	TTh	4Mu	Mr. Larusson
	(3 cred.; soph.; prereq., Mu.Ed. 1-2-3) (Previously Mu.Ed.74-75-76)				

‡ A special fee of \$3 per credit is charged for this course.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
Mu.Ed.29f-30w-31s§	Elementary School Methods..... (9 cred.; jr., sr.; no prereq.)	III	MWF		Mr. Jones
Mu.Ed.32f-33w-34s§	High School Methods..... (9 cred.; jr., sr.; prereq., 29-30-31)	IV	MWF	Mu	Mr. Jones
Mu.Ed.51-52-53	Instrumentation (6 cred.; jr., sr.; prereq., Mu. 1-2-3 and Mu.Ed. 1-2-3, 4-5-6)	VII	TTh		Mr. Pepinsky
Mu.Ed.64f-65w-66s	Orchestra Conducting (6 cred.; jr., sr.; prereq., Mu.Ed. 51-52-53)	VIII Observation 7:30 p.m.	TTh	4Mu W	Mr. Pepinsky
Mu.Ed.81f-82w-83s§	Supervision and Teaching..... (6 cred.; jr., sr.; prereq., 32-33-34)	III, IV	S	Ar	Mr. Jones

SOCIAL SERVICE—HOSPITAL

No.	Title	Hour	Day	Bldg.	Instructor
S.S.60f,w,s	Principles and Practices of Hospital Social Service..... (2 to 4 cred.)	IV	W	Ar	Miss Gardiner
S.S.61f,w,s	Field Work (3 cred.)	VI, VII, VIII 3 hrs. ar	Th	Ar	Ar
S.S.62s	Hospital Economics and Relationships (2 cred.)	III	WF	Ar	Ar
S.S.63s	Occupational Therapy (2 cred.)	VIII	WF	Ar	Ar
S.S.65f,w,s	Application of Principles and Practices of Hospital Work.. (2 to 4 cred.)	III ar	M	Ar	Ar
S.S.66w	Preliminary Hospital Practice Training (3 cred.)	Ar	Ar	Ar	Ar
S.S.67s	Preliminary Hospital Practice Training (3 cred.)	Ar	Ar	Ar	Ar
S.S.68su-69su	Hospital Practice Training..... (20 cred.)	Ar	Ar	Ar	Ar
S.S.70f	Preliminary Hospital Practice Training (3 cred.)	Ar	Ar	Ar	Ar
S.S.71w	Preliminary Hospital Practice Training (6 cred.)	Ar	Ar	Ar	Ar
S.S.72s	Hospital Practice Training..... (17 cred.)	Ar	Ar	Ar	Ar

§ A laboratory fee of \$1 per credit is charged for this course.

THEORY AND PRACTICE OF TEACHING

Major Advisers: Chas. W. Boardman, Leo J. Brueckner, Dora V. Smith

No.	Title	Hour	Day	Bldg.	Instructor
T.11f-12w-13s§	Practice Teaching in Schools of Nursing with Special Methods (9 cred.; sr., grad.; prereq., permission of instructor)	Ar	Ar	Ar	Mrs. Jensen
T.14	<i>Teaching Junior High School Mathematics</i>	<i>Not offered</i>			
T.15f	Technique of High School Instruction (3 cred.; jr., sr.; prereq., Ed. Psy. 55)	III	MWF	210OL	Mr. Umstaddt
T.15w,s	Technique of High School Instruction (See 15f)				
	Sec. 1	III	MWF	210OL	Mr. Umstaddt
	2	II	MWF	OLaAud	Miss Smith
T.16f,w,s§	Practice Teaching (5 cred.; sr., grad.; prereq., Ed. 15 and Special Methods Course)	Ar	Ar	Ar	Mr. Boardman
T.17s§	Practice Teaching of Subnormal Children (5 cred.; jr., sr.)	Ar	Ar	Ar	Mr. Boardman
T.18	<i>Teachers' Course in Zoology</i> (3 cred.; jr., sr., grad.; prereq., Zool. 1-2, Ed. 15)	<i>Not offered</i>			
T.19w	<i>Teachers' Course in Botany</i> (5 cred.; jr., sr.; prereq., 18 cred. in bot. and Ed. 15)	VII	MTWThF	213Z	Miss Mygrant
T.20s	<i>Teachers' Course in Chemistry</i> .. (3 cred.; jr., sr.; prereq., gen. chem. and qual. chem. and Ed. 1-2)	IV	MWF	315C	
T.21	<i>Teachers' Course in English Composition</i>	<i>Not offered</i>			
T.22	<i>Teachers' Course in English Literature</i>	<i>Not offered</i>			
T.23f-24w-25s	Special Methods and Practice Teaching in Geography..... (9 cred.; jr., sr.; prereq., 15 cred. and Ed. 15)	VII	MWF	105OL	Miss Stokes
T.30f	Principles of Kindergarten and Nursery School Education... (3 cred.; jr., sr.; prereq., C.W. 80)	VIII	MWF	202OLa	Mrs. Foster
T.31w	Permanent Play Materials..... (2 cred.; jr., sr.; prereq., Psy. 1-2)	VIII	TTh	202OLa	Mrs. Foster
T.32s§	Plastic Materials	VIII	TTh	202OLa	Miss Headley
T.33w	Rhythms, Games, and Music.... (2 cred.; jr., sr.; prereq., T.30)	IX	TTh	202OLa	Miss Boynton
T.34s	Story Telling for Young Children (2 cred.; jr., sr.; prereq., T.30)	VI	TTh	202OLa	Miss Headley

§ A special laboratory fee of \$1 per credit is charged for this course.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
T.358	Teachers' Course in Norwegian (3 cred.; sr., grad.; prereq., Scand. 4-5 or 10-11-12 and Ed. 15)	Ar	Ar	206F	
T.37	<i>Social Science for Senior High Schools</i>	Not offered			
T.38	<i>Methods and Problems in Second- ary School Science</i>	Not offered			
T.39	<i>Social Science for Junior High Schools</i>	Not offered			
T.41w	Teachers' Course in Swedish.... (3 cred.; sr., grad.; prereq., Scand. 10-11-12 or 4-5 and Ed. 15)	VII	MWF	206F	Mr. Stomberg
T.42	<i>Fundamental Educational Theories Relating to Instruction in the Elementary School</i>	Not offered			
T.44f	(2 cred.; jr., sr.) Children's Literature	IX, X	M	Ar	Miss Smith
T.45	<i>Teaching of Geography and His- tory in the Elementary School</i>	Not offered			
T.46w*	Practice Teaching with Special Methods	Ar	Ar	Ar	Mr. Peik
T.47	(5 cred.; jr., sr.) <i>Field Problems in High School Training Departments</i>	Not offered			
T.49f-50w-51s*†	(2 cred.; jr., sr.) Special Methods and Practice Teaching in English for the Junior High School.....	Ar	Ar	Ar	Miss Smith
T.49w	(9 cred.; jr., sr.; prereq., Ed. 15) The Teaching of Composition in the Junior High School.....	VIII	TTh	210OL	Miss Smith
T.49T	(2 cred.; jr., sr.; prereq., Ed. 15) <i>The Teaching of Composition in the Junior High School</i>	Not offered			
T.50f	(2 cred.; jr., sr.; prereq., Ed. 15) Section for undergraduates. The Teaching of Literature in the Junior High School.....	VIII	TTh	210OL	Miss Smith
T.50Ts	(2 cred.; jr., sr.; prereq., Ed. 15) Section for teachers in service. The Teaching of Literature in the Junior High School.....	I, II	S	114Ed	Miss Smith
T.52f-53w-54s*†	(2 cred.; jr., sr.; prereq., Ed. 15) Teachers' Course in English and Practice Teaching	IX	MW	204Ed	Miss Inglis
T.52s	(9 cred.; jr., sr.; prereq., Ed. 15) The Teaching of Composition in Senior High School	IX	MW	204Ed	Miss Inglis
T.53w	(2 cred.; jr., sr.; prereq., Ed.15) The Teaching of Literature in Senior High School	IX	MW	204Ed	Miss Inglis
	(2 cred.; see T.52s)				

* A laboratory fee of \$1 is charged for this course.

† The entire course must be completed before credit is received for any quarter.

No.	Title	Hour	Day	Bldg.	Instructor
T.56f-57w-58s*†	Teachers' Course and Practice Teaching in Mathematics..... (9 cred.; jr., sr.; prereq., Math. 50 or 60 and Ed. 15)	VIII	TTh	205Ed	Mr. Stokes
T.62f-63w-64s*†	Teachers' Course and Practice Teaching in Secondary School Science	IX	MW	Ar	
	(9 cred.; jr., sr.; prereq., Ed. 15 and consent of instructor)				
T.66f-67w-68s*†	Teachers' Course and Practice Teaching in Social Science for Senior High Schools	VIII	MWF	210OL	Mr. Krey, Miss Gold
	(9 cred.; jr., sr.; prereq., 30 cred. in history or social science. Consult instructor)				
T.70f-71w-72s*†	Teachers' Course and Practice Teaching in German	IX	TTh	114Ed	Miss Will
	(9 cred.; jr., sr.; prereq., 52, 55, and Ed. 15)				
T.73f-74w-75s*†	Teachers' Course and Practice Teaching in Latin	IX	TTh	112Ed	Miss Marlowe
	(9 cred.; jr., sr.; prereq., any two of Courses 51-53 or equiv., 75, and Ed. 15)				
T.76f-77w-78s*†	Teachers' Course and Practice Teaching in the Romance Languages	IX	TTh	111Ed	Mrs. Sundeen
	(9 cred.; jr., sr.; prereq., Survey 49, 50-51-52, 53-54-55 (or 20), 63 and Ed. 15)				
T.80f-81w-82s*†	Teachers' Course and Practice Teaching in Commercial Subjects	II	MWF	100OLa	Miss Davidson
	(9 cred.; jr., sr.; prereq., Ed. 15 and consent of instructor)				
T.83w	Teachers' Course in Journalism..	VII	MWF	206P	
	(3 cred.; jr., sr.; prereq., Jour. 41 or 51, Ed. 15)				
T.85f-86w-87s	Methods and Observation.....	Ar	Ar	Ar	Miss Boynton, Miss Headley
	(3 cred.; jr., sr.; prereq., Psy. 1-2, 4-5)				
T.88f-89w-90s	Practice Teaching in Kindergarten or Nursery School.....	Ar	Ar	Ar	Mrs. Foster
	(9 cred.; sr.; prereq., T. 30-34 and T. 85-87)				

COURSES OPEN TO GRADUATE STUDENTS

T.110s	Educational Diagnosis in Secondary Education	III, IV	S	205bEd	Mr. Carroll
	(2 cred.; sr., grad.; prereq., Ed. Psy. 55)				
T.118	<i>Problems in Junior High School English</i>	<i>Not offered</i>			
T.122s	Literature for Adolescents.....	IX, X	M	100OL	Miss Smith
	(2 cred.; jr., sr., grad.; prereq., Ed. 15 or junior-senior high school teaching experience)				

* A laboratory fee of \$1 per credit is charged for this course.

† The entire course must be completed before credit is received for any quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
T.143f-144w†	Teaching of Reading in the Elementary School (4 cred.; jr., sr., grad.; prereq., 9 hrs. in ed. incl. Ed. Psy. 55)	I, II	S	112Ed	Mr. Carroll
T.150	Teaching and Administration in Teachers' Colleges (4 cred.; jr., sr., grad.; prereq., 15 cred. in ed.)	<i>Not offered</i>			
T.181w	Technique of Elementary Instruction (3 cred.; jr., sr., grad.; 9 hrs. in ed. incl. Ed. Psy. 55)	III II, III	TTh Th	100OL Dem. School	Mr. Peik
T.181-182	Technique of Elementary Instruction (2 cred.; jr., sr., grad.; prereq., 9 hrs. in ed. incl. Ed. Psy. 55)	<i>Not offered</i>			
T.188s	Advanced Course in Methods of Teaching Modern Languages..	Ar	Ar	Ar	Mrs. Sundeen
T.193f	Foundations of Secondary School Methods (3 cred.; sr., grad.; prereq., Ed. 15)	IX, X 1 hr. ar.	T	202Ed	Mr. Douglass, Mr. Johnson
T.195f	Advanced Course in Methods of Teaching English	III-IV	S	202Ed	Miss Smith
T.196w-197s	Special Problems in Techniques of Secondary School Instruction (2 cred. a quarter; sr., grad.; prereq., Ed.15)	Ar	Ar	Ar	Miss Smith
T.201f-202w-203s	Teaching of History and Social Studies (Open to graduates and teachers)	Ar	Ar	Ar	Mr. Krey
T.222f-223w-224s	Seminar in the Technique of High School Instruction (No cred.; grad.; prereq., Ed. 15 and 113)	Ar	Ar	Ar	Mr. Douglass, Mr. Boardman, Mr. Johnson, Miss Smith, Mr. Stokes

ANTHROPOLOGY

Major Advisers: A. J. Jenks, W. D. Wallis

No.	Title	Hour	Day	Bldg.	Instructor
41f	Introd. to Anthropology (5 cred.; soph., jr., sr.; prereq., 10 cred. sci. or soc. sci.)	VII	MTWThF	OPhAud	Mr. Jenks
41w	Introd. to Anthropology (See 41f)	VII	MTWThF	OPhAud	Mr. Jenks
41s	Introd. to Anthropology (See 41f)	I	MWThFS	206OL	Mr. Wallis
53	Cultural Anthropology: Technology (3 cred.; jr., sr.; prereq., 41)	<i>Not offered</i>			
54w	Cultural Anthropology: Social Organization (3 cred.; jr., sr.; prereq., 41)	VIII	MWF	15F	Mr. Wallis
56	Primitive Science (3 cred.; jr., sr.; prereq., 41)	<i>Not offered</i>			

† The entire course must be completed before credit is received for any quarter.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
02w	Ethnology	IV	MWF	15F	Mr. Jenks
	(3 cred.; jr., sr.; prereq., 41)				
80	<i>The American Indian</i>	<i>Not offered</i>			
	(3 cred.; jr., sr.; prereq., 41)				
106f	Prehistoric Man	III	MWF	12F	Mr. Jenks
	(3 cred.; jr., sr.; prereq., 41)				
107w	American Archeology	III	MWF	15F	Mr. Jenks
	(3 cred.; jr., sr.; prereq., 41)				
108s	Philippine Peoples	VII	MWF	15F	Mr. Jenks
	(3 cred.; jr., sr.; prereq., 41)				
110f	Physical Anthropology	III	TThS	12F	Mr. Wallis
	(3 cred.; jr., sr.; prereq., 41)				
112s	The American Negro	II	MWF	15F	Mr. Jenks
	(3 cred.; jr., sr.; prereq., 41)				
113s	Peoples of Europe	IV	MWF	15F	Mr. Jenks
	(3 cred.; jr., sr.; prereq., 41)				
114f	The American People	IV	MWF	15F	Mr. Jenks
	(3 cred.; jr., sr.; prereq., 41)				
121w	Advanced Phys. Anthropology...	Ar	Ar	12F	Mr. Wallis
	(3 cred.; jr., sr.; prereq., 110)				
122f-123w-124s	Problems in Anthropology	Ar	Ar	12F	Mr. Jenks, Mr. Wallis
	(Cred. ar.; jr., sr., grad.; prereq., three courses. For honors course students, permission of instructor)				
150*	Field Trip in Archeology	Ar	Ar	Ar	Mr. Jenks
	(1 to 8 cred.; sen. col. stud. only; prereq., one sen. col. course)				
161f	Primitive Religion	I	MWF	12F	Mr. Wallis
	(3 cred.; jr., sr.; prereq., 41)				

ARCHITECTURE

COLLEGE OF ENGINEERING AND ARCHITECTURE

Major Adviser: F. M. Mann

Junior College Courses

No.	Title	Hour	Day	Bldg.	Instructor
21f-22w†-23s	Freehand Drawing				
	(6 cred.; soph., jr., sr.; prereq., soph. standing)				
31f-32w†-33s	Elements of Architecture				
	(15 cred.; soph., jr.; prereq., soph. standing)				
31w-32s†-33su	Elements of Architecture				
	(See 31f-32w-33s)				
74f-75w-76s	Freehand Drawing				
	(9 cred.; jr., sr.; prereq., 23)				
81f	Stage Design				
	(2 cred.; jr., sr.; no prereq.)				
84-85-86f,w,s	Modeling				
	(6 cred.; jr., sr.; prereq., 23)				
90-91-92f,w,s	Illustration				
	(3 cred.; jr., sr.; prereq., 23 or equiv.)				
93-94-95f,w,s	Hand Print Process				
	(3 cred.; jr., sr.; prereq., 23 or equiv.)				

NOTE.—Consult the bulletin of the College of Engineering and Architecture for program of hours, days, buildings, and instructors.

* This course may be taken for credit only once.

† The entire course must be completed before credit is received for any quarter.

Senior College Courses

No.	Title	Hour	Day	Bldg.	Instructor
14f-15w-16s	History of Architecture (6 cred.; jr., sr.; prereq., 33)				
17f-18w-19s	History of Architecture (6 cred.; jr., sr.; prereq., 15)				
27f-28w-29s	Freehand Drawing (6 cred.; jr., sr.; prereq., 76)				
34-35-36f,w,s	Architectural Design (12 cred.; jr., sr.; prereq., 33, 23, 62)				
37-38-39f,w,s	Architectural Design (21 cred.; sr.; prereq., 36)				
51f-52w-53s	Building Construction (6 cred.; jr., sr.; prereq., 33)				
70f,w,s	Pictorial Composition (1 cred.; jr., sr.; prereq., 26 or equiv.)				
87f-88w-89s	Advanced Modeling (6 cred.; jr., sr.; prereq., 86)				
121f-122w-123s	Freehand Drawing (6 cred.; jr., sr.; prereq., 29)				
134-135-136f,w,s	Interior Design (Interior Archi- tecture) (21 cred.; sr.; prereq., 36)				
163s	History of Sculpture and Paint- ing (2 cred.; jr., sr.; prereq., 16)				
182f-183w-184s	Decoration and Allied Arts..... (9 cred.; sr.; prereq., 16, 23)				

NOTE.—Consult the bulletin of the College of Engineering
 and Architecture for program of hours, days, buildings, and
 instructors, and for additional courses.

ASTRONOMY

Major Adviser: C. C. Crump

No.	Title	Hour	Day	Bldg.	Instructor
11f,s	Descriptive Astronomy (5 cred.; fr., soph., jr., sr.; no prereq.)	III 7-9 (fall) 7:30-9:30 p.m. (spring)	MTWF W W	150Ph	
51w	Astronomy (3 cred.; jr., sr.; prereq., Math. 6 and 50 or equiv.)	IV	MWF	166Ph	
52w	Astrophysics (4 cred.; prereq., 51 or 11 and Math. 6)	II	MTWF	Ph	
53f,s	Stellar Astronomy (4 cred.; prereq., 51 or 11 and Math. 6)	II	MTWF	Ph	
101f-102w-103s	Practical Astronomy (9 cred.; jr., sr., grad.; prereq., 11 or 51 and Math. 50)	Ar	Ar	Ph	
211f-212w-213s	Seminar (9 cred.; sr. by permission, grad.; prereq., 11 or 51, 52, 53, Math. 30)	Ar	Ar	Ph	

COLLEGE OF EDUCATION

BACTERIOLOGY

MEDICAL SCHOOL

Major Advisers: W. P. Larson, A. T. Henrici, R. G. Green

No.	Title	Hcur	Day	Bldg.	Instructor
41f	General Bacteriology (5 cred.; soph., jr., sr.; prereq., chem. 10 cred. and zool. 8 cred.) Sec. 1 2	VII, VIII, IX VI, VII, VIII, IX	MWF TTh	MH MH	Ar Ar
41W	General Bacteriology (See 41f) Sec. 1 2	VII, VIII, IX I, II, III	MWF MWF	MH MH	Ar Ar
41S	General Bacteriology (See 41f)	VII, VIII, IX	MWF	MH	Ar
101f	Special Bacteriology for Medical Students (4 cred.; jr., sr.; prereq., 41)	I, II I, II, III	ThS T	MH	Dr. Larson
103W	Soil Microbiology (5 cred.; jr., sr.; prereq., 41, and 15 cred. chem.)	I, II, III I, II	TS Th	MH	Dr. Skinner
114S	Molds, Yeasts, and Actinomycetes (3 cred.; jr., sr.; prereq., 41)	VII, VIII	TTh	MH	Dr. Henrici
116W	Immunity (3 cred.; jr., sr.; prereq., 101 or 103)	VII, VIII	TTh	MH	Dr. Larson
117S	Pathogenic Protozoa (3 cred.; jr., sr.; prereq., 101 or 103)	VII, VIII	TTh	MH	Dr. Larson
118W	Morphology and Taxonomy of Bacteria (3 cred.; jr., sr.; prereq., 41)	VII, VIII	TTh	MH	Dr. Henrici
119W	Bacteriological Chemistry (2 cred.; jr., sr.; prereq., 101 or 103; Hum. Physiol. 100-101, or Agr. Biochem. 111-112)	VI	TTh	MH	Dr. Green
120S	Bacterial and Virus Diseases Common to Man and Animals (3 cred.; jr., sr., grad.; prereq., 101)	VI, VII VI	T Th	MH	Dr. Green
121W	Industrial Bacteriology (3 cred.; jr., sr., grad.; prereq., 41)	I, II	TTh	MH	Dr. Halvorson
122S	Industrial Bacteriology continued (3 cred.; jr., sr., grad.; prereq., 41)	I, II	TTh	MH	Dr. Halvorson
150f-151W or 150W-151S	Advanced Bacteriology (Cr. ar.; jr., sr., grad.; prereq., see instructor)	VII, VIII	TTh	MH	Ar

BOTANY

For a teacher's certificate.—Major recommendation, 31 credits in botany including Courses 1-2, 7, 21, 22, and either 12 and 13 or 23 and 63; Course 51 advised.

Minor recommendation in botany 20 credits including Courses 1-2, 7, and either 21 or 22; Course 51 advised.

For specialized curriculum in natural science see Part I of Education bulletin.

No. if*	Title	Hour	Day	Bldg.	Instructor
	General Botany				
	(4 cred.; all; no prereq.)				
	Lect. Sec. 1	III	TThS	BotAud	Mr. Huff
	2	{ VI VI, VII	T Th		
	Quiz Sec. 1	II	T		
	2	III	M		
	3	III	W		
	4	V	T		
	5	VI	M		
	6	VII	T		
1w,s*	General Botany				
	(See 1f)				
	Lect.	III	TThS	BotAud	Mr. Huff
	Quiz Sec. 1	I	T		
	2	II	T		
	3	III	W		
2w,s	Elem. Gen. Morph. of Plants...	III, IV	MWF	1,4,5,8Bot	Mr. Huff
	(3 cred.; all; prereq., 1)				
5w	Elem. Plant Histology	VI, VII, VIII	TTh	1,4,5,8Bot	Mr. Butters
	(3 cred.; all; prereq., 1)				
7f	Taxonomy of Flowering Plants..	I, II	MWF	1,4,5,8Bot	Mr. Rosendahl
	(3 cred.; all; prereq., 1)				
7s	Taxonomy of Flowering Plants..				
	(See 7f)				
	Sec. 1	I, II	MWF	1,4,5,8Bot	Mr. Rosendahl
	2	VI, VII, VIII	TTh		
12f,w,s	Morphology of Algae	I, II	TThS	1,4,5,8Bot	Miss Tilden
	(3 cred.; all; prereq., 1)				
13	Morphology of Fungi	Not offered			
	(3 cred., all; prereq., 1)				
21f	Elementary Ecology	III, IV	MWF	1,4,5,8Bot	Mr. Cooper
	(3 cred.; all; prereq., 1)				
21w,s	Elementary Ecology	VI, VII, VIII	TTh	1,4,5,8Bot	Mr. Cooper
	(See 21f)				
22f,w,s	Elem. Plant Physiology				
	(3 cred.; all; prereq., 1)				
	Lect.	VI	TTh	1,4,5,8Bot	Mr. Burr
	Lab. Sec. 1	II, IV	TS		
	2	VII, VIII	TTh		
23w	Bryophytes and Pteridophytes...	VI, VII	MWF	1,4,5,8Bot	Mr. Huff
	(3 cred.; all; prereq., 2 or 12)				
51f	Histological Methods	I, II	MTWThF	01Bot	Miss Wilson
	(5 cred.; jr., sr.; prereq., 15 cred.)				

* To complete the science requirement a student may elect any two of Courses 2, 5, 7, 12, 13, 21, 22.

No.	Title	Hour	Day	Bldg.	Instructor
63s	Gymnosperms and Angiosperms (3 cred.; jr., sr.; prereq., 15 cred. incl. 7 and 2 or 23)	III, IV	MWF	215Bot	Mr. Butters
101f,w	Elementary Biometry (3 cred.; jr., sr., grad.; prereq., 18 cred., biol. sci.)	I, II	MWF	202Bot	
108	<i>Pteridophytes</i> (5 cred.; sr., grad.; prereq., 18 cred. incl. 7 and 23)	<i>Not offered</i>			
110w	Gymnosperms (5 cred.; sr., grad.; prereq., 18 cred. incl. 7 and 63)	Ar	Ar	Ar	Mr. Butters
113f-114w-115s*	Adv. Taxonomy of Flowering Plants (9 cred.; jr., sr., grad.; prereq., 15 cred. incl. 7)	VI, VII, VIII	TTh	215Bot	Mr. Rosendahl
118	Cytology (5 cred.; jr., sr., grad.; prereq., 18 cred.)	Ar	Ar	Ar	Mr. Rosendahl
124s-125su-126f	Morphology and Taxonomy of Marine Algae (3 to 5 cred.; jr., sr., grad.; pre- req., 15 cred. incl. 12, or con- sent of instructor)	Lect. III Lab. III, IV	Th TS	110Bot	Miss Tilden
127s	Anatomy of Vascular Plants.... (5 cred.; jr., sr., grad.; prereq., 18 cred. incl. 5)	Lect. I Lab. Ar	MWF Ar	215Bot	Mr. Butters
131f	Field Ecology (5 cred.; jr., sr., grad.; prereq., 15 cred. incl. 21)	VI, VII, VIII	MWF	214Bot	Mr. Cooper
132w	Ecological Anatomy (5 cred.; jr., sr., grad.; prereq., 15 cred. incl. 21)	VI, VII, VIII	MWF	214Bot	Mr. Cooper
133s	Plant Geography of North Amer- ica (5 cred.; jr., sr., grad.; prereq., 15 cred. incl. 21)	VI, VII, VIII	MWF	214Bot	Mr. Cooper
134	<i>Research Methods in Ecology...</i> (5 cred.; jr., sr., grad.; prereq., 15 cred. incl. 21)	<i>Not offered</i>			
140	<i>General Plant Physiology.....</i> (5 cred.; jr., sr., grad.; prereq., 22, elem. inorg. chem.)	<i>Not offered</i>			
141f	Phvsico-chemical Principles in Plant Physiology (5 cred.; jr., sr.; prereq., qual. quant., org., and phys. chem.)	Lect. 7:50 Lab. II, III, IV	MWF MF	101Bot	Mr. Burr
142w	Photosynthesis (5 cred.; sr., grad.; prereq., as for 141)	7:50 II, III, IV	MWF MF	101Bot	Mr. Burr

* Any quarter may be taken separately.

No.	Title	Hour	Day	Bldg.	Instructor
143s	Plant Metabolism (5 cred.; sr., grad.; prereq., as for 141)	Lect. 7:50 Lab. II, III, IV	MWF MF	101Bot	Mr. Burr
144s	Plant Microchemistry (5 cred.; sr., grad.; prereq., 22, 140, org. chem.)	Ar	Ar	Ar	Mr. Harvey
145f, 146w, 147s*	Advanced Biometry (9 cred.; sr., grad.; prereq., 101)	III, IV	MWF	202Bot	
149s, 150su, 151f*	Freshwater Algae (3 to 10 cred. per qtr.; jr., sr., grad.; prereq., 15 cred. incl. 12, or consent of instructor)	VI, VII, VIII	TTh	110Bot	Miss Tilden

PLANT PATHOLOGY AND BOTANY

Students in this college may elect courses in Plant Pathology and Botany by arrangement with the department. See program of the College of Agriculture, Forestry, and Home Economics.

CHEMISTRY

For a teacher's certificate.—Major recommendation: Courses Inorganic Chemistry 6-7-8 or 9-10; 12-13; Analytical Chemistry 1-2; Organic Chemistry 51-52.

Minor recommendation: Courses Inorganic Chemistry 6-7-8, or 9-10; 12-13; Analytical Chemistry 1-2, or 7, and 6 additional credits in chemistry.

For specialized curriculum in natural science see Part I of Education bulletin.

INORGANIC CHEMISTRY

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†-3s	Gen. Inorg. Chemistry (pre-med. and pre-dent.) (12 cred.; pre-dent., pre-med.; no prereq.)	Lect. VI Lab. Sec. 1 VI, VII, VIII	MWF T	225C 290C	Mr. Glockler Mr. Glockler and assts.
	Quiz Sec. 1	VIII	Th	ArC	Mr. Glockler and assts.
	Lab. Sec. 2	VI, VII, VIII	Th	290C	Mr. Glockler and assts.
	Quiz Sec. 2	VIII	T	ArC	Mr. Glockler and assts.
4f-5w†	Gen. Inorg. Chemistry (pre-med. and pre-dent.) (8 cred.; pre-dent., pre-med. only; prereq., entrance cred. in chem.)	Lect. VI Lab. Sec. 1 VI, VII, VIII	MWF T	100C 210C	Mr. Stephens Mr. Stephens and assts.
	Quiz Sec. 1	VIII	Th	ArC	
	Lab. Sec. 2	VI, VII, VIII	Th	210C	Mr. Stephens and assts.
	Quiz Sec. 2	VIII	T	ArC	

* Any quarter may be taken separately.

† Two quarters must be completed before credit is received for either quarter.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor		
6f-7w†-8s	Gen. Inorg. Chemistry (15 cred.; those entering without chem., fr., soph., jr., sr.; no prereq.)	Lect.	II	MWF	225C	Miss Cohen Miss Cohen and assts.	
		Lab.	I, II, III	ThS	210C		
9f-10w†	Gen. Inorg. Chemistry (10 cred.; fr., soph., jr., sr.; prereq., entr. cred. in chem.)	Lect.	II	MWF	100C	Mr. Sneed Mr. Sneed and assts.	
		Lab.	I, II, III	ThS	290C		
9w-10s†*	Gen. Inorg. Chemistry (See 9f-10w)	Lect. Sec. 1	III	MWF	225C	Miss Cohen, Mr. Maynard Ar	
		Sec. 2	III	MWF	100C		
		Lab.	VI, VII	MWF	290C		
11f	Qual. Chemical Anal. (pre-med. and pre-dent.) (4 cred.; pre-med. and pre-dent. only; prereq., 3 or 5)	Lect.	IV	MWF	225C	Miss Cohen Miss Cohen and assts.	
		Lab.	VI, VII, VIII, IX	F	210C		
11s	Qual. Chemical Anal. (pre-med. and pre-dent.) (See 11f)	Lect.	VI	MWF	100C	Mr. Stephens Mr. Stephens and assts. Mr. Stephens and assts.	
		Lab. Sec. 1	VI, VII, VIII, IX	T	210C		
		Lab. Sec. 2	VI, VII, VIII, IX	Th	210C		
12f-13w†	Qual. Chemical Analysis (10 cred.; all; prereq., 8 or 10)	Fall	Lect.	I	TThS	325C	Mr. Maynard
			Lab.	I, II, III	MW	290C	
		Winter	Lect.	VI	WF	490C	
			Lab.	VII, VIII, IX	MWF	290C	
12s†	Qual. Chemical Anal. (See 12f-13w†)	Lect.	II	MWF	100C	Mr. Sneed Mr. Sneed and assts.	
		Lab.	I, II, III	ThS	290C		
13f†	Qual. Chemical Anal. (See 12f-13w†)	Lect.	VI	WF	490C	Mr. Heisig	
		Lab.	VII, VIII, IX	WF	290C		
101S	History of Chemistry (2 cred.; sr., grad.; prereq., Org. Chem. 52)	Ar	Ar	Ar	Ar	Miss Cohen	

† Two quarters must be completed before credit is received for either quarter.

* Students who have failed in 1f or 6f may register in section 2 for this course without further prerequisite.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
102w	Adv. Qual. Chemical Anal. (2 or 3 cred.; jr., sr., grad.; prereq., Anal. Chem. 1, 2, Org. Chem. 52)	Ar	Ar	290C	Mr. Sneed
103f-104w-105s	Adv. Inorg. Chemistry (3 to 9 cred.; jr., sr., grad.; prereq., Anal. Chem. 1, 2, Org. Chem. 52)	IV	MWF	111C	Mr. Sneed
106f-107w-108s	Chemistry of the Rare Elements (3 cred.; jr., sr., grad.; prereq., quant. anal. or permission of instructor)	Ar	Ar	Ar	Mr. Glockler

ANALYTICAL CHEMISTRY

1w-2s*	Quant. Analysis (10 cred.; soph., jr., sr.; prereq., Inorg. Chem. 12-13)	Lect. VI Quiz VI Rec. VI Lab. VII, VIII, IX	M W F MWF	325C 410C 315C 310C	Mr. Geiger	
7f	Quantitative Analysis (pre-med.) (4 cred.; pre-med. only; prereq., Inorg. Chem. 11 or 13)	Lect. (Secs. 1, 2) Rec. (limit 35) Sec. 1 Lab. Rec. (limit 35) Sec. 2 Lab. Lect. Sec. 3 Rec. Sec. 3 Lab.	VI VI VII, VIII, IX VI, VII VI VII, VIII, IX VI, VII VII VI VIII, IX VII, VIII, IX	M W MW F F MF W T Th T Th	325C 315C 310C 310C 315C 310C 310C 310C 325C 325C 310C 310C	Mr. Geiger Mr. Sarver
7w,s	Quantitative Analysis (See 7f)					
123f-124w-125s	Advanced Analytical Chemistry (3 cred. per qtr.; prereq., 1, 2, or 7)	Lect. VI Lab. VII, VIII, IX VI-IX	T T Th	315C 310C 310C	Mr. Sarver	
131f	Application of Indicators (3 cred.; prereq., Anal. Chem. 1 and 2 and Phys. Chem. 101, 102, 103)	Lect. Ar Lab. Ar	Ar Ar	Ar ArC	Mr. Kolthoff Mr. Kolthoff	

* Course 2s may precede 1w, if desired.

No.	Title	Hour	Day	Bldg.	Instructor
132w,s	Electrometric Titrations (3 cred.; prereq., Anal. Chem. 1 and 2 and Phys. Chem. 101, 102, 103)	Lect. Ar Lab. Ar	Ar Ar	ArC ArC	Mr. Kolthoff

ORGANIC CHEMISTRY

1f-2w†	Elem. Organic Chemistry (8 cred.; pre-dent., pre-med.; prereq., Inorg. Chem. 11)	Lect. (all secs.) I Lab. conference (all secs.) II Quiz (all secs.) I Lab. Sec. 1 I-IV 2 VI-IX 3 VI-IX	MWF Th Th T T W	100C 225C Ar 390C 390C 390C	Mr. Lauer Mr. Lauer Ar
1w-2s†	Elem. Organic Chemistry (See 1f-2w)	Lect. IV Lab. conference IV Quiz V Lab. Sec. 1 VI-IX 2 VI-IX 3 I-IV	MWF T T T W Th S	100C 100C Ar 390C 390C 390C	Mr. Smith Mr. Smith
1s†	Elem. Organic Chemistry (See 1f-2w)			For hours, see 1f-2w.	Mr. Lauer
2f†	Elem. Organic Chemistry (See 1f-2w)			For hours, see 1w-2s.	Mr. Smith
51f-52w†-53s	Organic Chemistry (10 or 15 cred.; jr., sr.; prereq., 15 cred. in college chem.)	Lect. III Rec. 1 III 2 III Lab. 1 VII, VIII, IX	MWF Th S TTh(f)	325C 111C 111C 390C	Mr. Hunter Mr. Lauer Mr. Lauer
101f-102w-103s	Advanced Organic Chemistry (3 cred. per qtr.; prereq., 53)	2 I, II, III III	TTh TThS	390C 325C	Mr. Hunter

For advanced courses in Organic Chemistry, see bulletin of the School of Chemistry.

PHYSICAL CHEMISTRY

101f-102w-103s	Physical Chemistry (9, 12, or 15 cred.; jr., sr., grad.; prereq., 2 yrs. coll. chem., 1 yr. coll. phys.)	Lect. IV Lab. VI, VII, VIII Rec. IV	MWF F S	325C 190C 115C	Mr. MacDougall
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† Two quarters must be completed before credit is received for either quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
110f,w	Physical Chemistry (medic.).... (4 cred.; pre-med. and biol. stu- dents; prereq., Org. Chem. 2)	Lect. VI	TTh	225C	Mr. Taylor
			F	325C	
	Lab. Sec. 1	I, II, III	MW	190C	
		2 VII, VIII, IX	TTh	190C	
116f-117w-118s	Adv. Physical Chem. (9 or 12 cred.; jr., sr., grad.; prereq., 103 and calculus)	Ar	Ar	Ar	Ar
129s	Prin. of Colloidal Chemistry.. (2 cred.; sr., grad.; prereq., 102)	Ar	Ar	ArC	Mr. Reyerson
130	<i>Appl. of Colloidal Chemistry</i> ... (2 cred.; sr., grad.; prereq., 102)	Not offered			
131f-132w-133s	Colloid Chemistry Lab. (Cred. ar.; sr., grad.; prereq., 129 or 130)	Ar	Ar	Ar	Mr. Reyerson
144s	Magnetochemistry (3 cred.; jr., sr., grad.; prereq., 103)	Ar	Ar	Ar	Mr. Taylor
161f-162w	Radioactivity (2 cred. per qtr.; jr., sr., grad.; prereq., Phys. Chem. 103)	Ar	Ar	Ar	Mr. Lind
164f,w,s	Radioactivity Laboratory (Must be preceded or accom- panied by 161)	Ar	Ar	Ar	Mr. Lind

TECHNOLOGICAL CHEMISTRY

100f-101w-102s	Food Analysis (9 cred.; jr., sr., grad.; prereq., Anal. Chem. 1-2)	Lect. Ar	Ar	Ar	Mr. Stoppel
		Lab. VI, VII, VIII	TF	217C	Mr. Stoppel

AGRICULTURAL BIOCHEMISTRY

Students in this college may elect courses in Agricultural Biochemistry by arrange-
ment with the department. See program of the College of Agriculture, Forestry, and
Home Economics.

COMPARATIVE LITERATURE

No.	Title	Hour	Day	Bldg.	Instructor
101f-102w-103s†	Drama (9 cred.; jr., sr., grad.; prereq., jr. coll. requirement in Eng. and foreign lang.)	III	TThS	113F	Mr. Firkins
105f-106w-107s†	Criticism (9 cred.; jr., sr., grad.; prereq., jr. coll. requirement in Eng. and foreign lang.)	VI	MWF	113F	Mr. Firkins
110w	Romantic Movement (3 cred.; jr., sr., grad.; prereq., permission of instructor)	II	TThS	113F	Mr. Firkins

† The entire course must be completed before credit is received for any quarter.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
111S	The Novel in Europe, 1875-1925 (3 cred.; jr., sr., grad.; prereq., jr. coll. requirement in Eng. and foreign lang.)	II	MWF	113F	Mr. Firkins

COMPARATIVE PHILOLOGY

No.	Title	Hour	Day	Bldg.	Instructor
101f-102w†	Science of Language..... (4 cred.; jr., sr., grad.; prereq., see note)	Ar	Ar	Ar	Mr. Klaeber
103f	Universal Language..... (2 cred.; jr., sr., grad.; prereq., see note)	Ar	Ar	Ar	Mr. Klaeber
105S	Life of Words..... (3 cred.; jr., sr., grad.; prereq., see note)	VI	TTh	205F	Mr. Klaeber
108S	Comparative Phonetics..... (3 cred.; jr., sr., grad.; prereq., see note)	III	MWF	209½	Mr. Kroesch
109-110-111†	History of German Lang. (6 cred.; jr., sr., grad.; prereq., see note)	Not offered			
141f-142w-143S†	Hist. Gram. of Eng. Lang..... (6 cred.; jr., sr., grad.; prereq., see note)	Ar	Ar	Ar	Mr. Klaeber

NOTE.—Prerequisite for all courses, one of the following groups: (1) five years' foreign language; four may be in high school and one in college; (2) two years' foreign language in college; (3) 4 credits in Old English.

DRAWING AND DESCRIPTIVE GEOMETRY

COLLEGE OF ENGINEERING AND ARCHITECTURE

No.	Title	Hour	Day	Bldg.	Instructor
41-42-43f,w,s	Technical Drawing..... (6 cred.; all; no prereq.)			411C	Mr. Sheridan
	Sec. 1	I, II	MWF	(fall, winter)	
	2	I, II	TThS	(spring)	
	3	III, IV	MWF		
	3	VIII, IX	MWF		
44f,w,s	Lettering..... (1 cred.; all; no prereq.)				
	Sec. 1	IV	T	36EE	Mr. Schuck
	2	II	Th	237EE	Mr. Levens
45f,w,s	Alphabets..... (2 cred.; soph., jr., sr.; no pre- req.)	II	TTh	206E	Mr. Kirchner
61f,w	Projections..... (2 cred.; soph.; prereq., Math. 3 or 5)				
	Lect.	III	Th	335EE	Mr. Kirchner
	Lab.‡				Mr. Myers

† The entire course must be completed before credit is received for any quarter.

‡ Consult bulletin of the College of Engineering and Architecture.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
62w	Shades and Shadows (2 cred.; prereq., 61)				
	Lect.	III	Th	335EE	Mr. Kirchner, Mr. Myers
	Lab.‡				
63s	Perspective (2 cred.; prereq., 61)				
	Lect.	III	Th	335EE	Mr. Kirchner, Mr. Myers
	Lab.‡				
64f	The Graphic Arts: Introduction.. (2 cred.; jr., sr.; prereq., 15 cred. of econ.)	IV	MW	5E	Mr. Kirchner
65w	The Graphic Arts: Printing and Layouts (2 cred.; jr., sr.; prereq., 15 cred. of econ.)	IV	MW	5E	Mr. Kirchner
66s	The Graphic Arts: Processes.... (2 cred.; jr., sr.; prereq., 15 cred. of econ.)	IV	MW	5E	Mr. Kirchner

ECONOMICS

SCHOOL OF BUSINESS ADMINISTRATION

Major Adviser: R. A. Stevenson

For specialized curriculum in social science see Part I, Education bulletin.

NOTE.—The following courses in other departments may carry credit also in this department:

Agricultural Economics 126, Economics of Consumption; 130, Prices of Farm Products; 131, Market Prices; 135, Methods of Forecasting Prices; 171, Land Tenure; History 80-81, Introduction to Economic History; 82, 83, 84, Economic History of the United States; 113-114-115, Economic History of Europe since 1750; 116-117-118, Economic History of Europe, 1300-1750; 169, Topics in Economic History; Political Science 51-52-53, Business Law; 195, Colonization; 107, Recent Social Legislation; 109, Government and Business; 111, Law of Public Utilities.

No.	Title	Hour	Day	Bldg.	Instructor
1Af	Business Organization: Produc- tion (3 cred.; fr. only; no prereq.)				
	Lect.	IV	T	OLAud	Mr. Stevenson,
	Sec. 1	I	MWFS	3F	Mr. Borak and others
	2	I	MWFS	206P	
	3	II	MWFS	3F	
	4	II	MWFS	206P	
	5	III	MWFS	3F	
	6	III	MWFS	6F	
	7	IV	MWFS	3F	
	8	IV	MWFS	110P	
	9	V	MTWF	109B	
	10	V	MTWF	6B	
	11	VI	MWThF	3F	
	12	VI	MWThF	202B	
	13	VII	MWThF	303B	
	14	VIII	MWThF	6B	

‡ Consult bulletin of the College of Engineering and Architecture.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
1Aw	Business Organization: Production (See 1Af)	Lect. IV Sec. 1 II 2 III 3 V 4 VII	T MWFS MWFS MTWF MWThF	166Ph 3F 206P 202B 303B	Mr. Stevenson, Mr. Borak, and others
1Bf	Business Organization: Marketing (5 cred.; fr. only; no prereq.)	IV	MTWFS	102B	Mr. Vaile and others
1Bw	Business Organization: Marketing (See 1Bf)	Lect. IV Sec. 1 I 2 I 3 II 4 II 5 III 6 III 7 IV 8 IV 9 V 10 VI 11 VI 12 VII	TS MWF TThS MWF TThS MWF TThS MWF MWF MWF MWF MWF MWF	OLAud 6B 303B 109B 206P 2OPh 303B 206P 3F 209B 206P 206OLa 110P	Mr. Vaile and others
1Bs	Business Organization: Marketing (See 1Bf)	Lect. IV Sec. 1 II 2 IV 3 V 4 VI	TS MWF MWF MWF MWF	301F 209B 6B 6B 206P	Mr. Vaile and others
3w	The Mechanism of Exchange... (5 cred.; 3rd qtr. fr., soph., jr., sr.; no prereq.)	Lect. III Sec. 1 I 2 II 3 III 4 IV 5 V 6 VI 7 VII	TTh TThS MWF MWF MWF MWF MWF MWF	150Ph 6B 209B 3F 105F 6B 209B 209B	Mr. Stehman and others
3s	The Mechanism of Exchange... (See 3w)	Lect. III Sec. 1 I 2 I 3 II 4 II 5 III 6 IV 7 IV 8 V 9 V 10 VI 11 VI 12 VII 13 VII 14 VIII	TTh MWF TThS MWF TThS MWF MWF MWF MWF MWF MWF MWF MWF MWF MWF	OLAud 3F 102B 202B 202B 209B 202B 206P 202B 209B 209B 109B 209B 202B 202B	Mr. Stehman and others

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
4f	Principles of Economics..... (5 cred.; soph.; prereq., 1A, 1B and 3)				Mr. Hansen and others
	Lect.	II	Th	OPhAud	
	Sec. 1	I	TThFS	9F	
		2	MWFS	109B	
		3	TThFS	5F	
		4	MWFS	104OPh	
		5	MTWF	209B	
		6	MWThF	109B	
4w	Principles of Economics..... (See 4f)	III	MTWFS	6B	Mr. Hansen and others
4s	Principles of Economics..... (See 4f)				Mr. Hansen and others
	Lect.	II	Th	301F	
	Sec. 1	II	MWFS	2F	
		2	MWFS	111OL	
		3	MTWF	102B	
		4	MWThF	104OPh	
6f-7w†	Principles of Economics—General Course (10 cred.; soph., jr., sr.; no prereq. Not open to students who have received credit in Econ. 4)				Mr. Hansen and others
	Lect.	III	W	OPhAud	
	Sec. 1	I	TThFS	5F	
		2	MWFS	15F	
		3	MWFS	5F	
		4	MTWF	102B	
		5	MWThF	6B	
		6	MWThF	6B	
6w-7s†	Principles of Economics—General Course (See 6f-7w)				Mr. Hansen and others
	Lect.	II	T	OPhAud	
	Sec. 1	I	TThFS	9F	
		2	MWFS	5F	
		3	MWFS	303B	
		4	MTWF	109B	
		5	MWThF	102B	
7f†	Principles of Economics—General Course (2nd qtr. of 6-7. See 6f-7w)	VI	MTWThF	109B	Mr. Hansen and others
14f†	Elements of Statistics (5 cred.; soph., jr., sr.; prereq., 4 or 6-7)				Mr. Mudgett and others
	Sec. 1	I	MWThFS	6B	
		2	MTWFS	109B	
		3	MTWFS	6B	
		4	MTWThF	303B	
14w†	Elements of Statistics (See 14f)				Mr. Mudgett and others
	Sec. 1	III	MTWFS	109B	
		2	MTWFS	302B	
		3	MTWThF	109B	
		4	MTWThF	301B	

† The entire course must be completed before credit is received for any quarter.

‡ No student may receive credit for both Economics 14 and Sociology 45.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
145‡	Elements of Statistics (See 14f)				Mr. Mudgett and others
	Sec. 1	I	MWThFS	6B	
	2	II	MWThFS	109B	
	3	III	MTWFS	6B	
	4	III	MTWFS	109B	
	5	IV	MTWFS	302B	
	6	VI	MTWThF	303B	
	7	VII	MTWThF	303B	
20f*	Elements of Accounting (3 cred.; 3rd qtr. fr., soph.; no prereq.)				Mr. Heilman and others
	Sec. 1	I	MWF	303B	
	2	I	TThS	301B	
	3	II	MWF	303B	
	4	II	TThS	302B	
	5	III	TThS	302B	
	6	III	TThS	301B	
	7	IV	MWF	302B	
	8	V	MWF	302B	
	9	VI	MWF	301B	
20w*	Elements of Accounting (See 20f)				Mr. Heilman and others
	Sec. 1	III	TThS	302B	
	2	III	MWF	302B	
	3	VI	MWF	303B	
20s*	Elements of Accounting (See 20f)				Mr. Heilman and others
	Sec. 1	I	MWF	301B	
	2	II	MWF	302B	
	3	III	TThS	302B	
	4	VI	MWF	302B	
25f-26w†¶	Principles of Accounting (6 cred.; soph., jr., sr.; prereq., 20)				Mr. Heilman and others
	Sec. 1	I	MWF	301B	
	2	II	MWF	302B	
	3	VI	MWF	302B	
25w-26s†¶	Principles of Accounting (See 25f-26w)				Mr. Heilman and others
	Sec. 1	I	MWF	302B	
	2	I	TThS	302B	
	3	II	MWF	301B	
	4	II	TThS	301B	
	5	III	MWF	301B	
	6	IV	MWF	301B	
	7	VI	MWF	301B	
25s†¶	Principles of Accounting (1st qtr. of 25-26. See 25f-26w)				Mr. Heilman and others
	Sec. 1	II	MWF	303B	
	2	III	TThS	303B	
26f†¶	Principles of Accounting (2nd qtr. of 25-26. See 25f-26w)				Mr. Heilman and others
	Sec. 1	II	TThS	303B	
	2	III	MWF	301B	

* Students who have had high school training or other experience in bookkeeping and who pass the placement test may be exempted from this course and admitted to Economics 25.

† The entire course must be completed before credit is received for any quarter.

‡ No student may receive credit for both Economics 14 and Sociology 45.

¶ Open to pre-business students only.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
32f§-33w-34s†*	Secretarial Training: Typewriting (3 cred.; 3rd qtr. fresh., soph., jr.; no prereq.)	III V	TThS MW	1B	Miss Donaldson
32s§||	Secretarial Training: Typewriting (1st qtr. of 32-33-34. See 32f- 33w-34s)	IV	MTWFS	1B	Miss Donaldson
33f*	Secretarial Training: Typewriting (2nd qtr. of 32-33-34. See 32f- 33w-34s)	I	MTWThF	1B	Miss Donaldson
34f*	Secretarial Training: Typewriting (3rd qtr. of 32-33-34. See 32f- 33w-34s)	VI	MTWThF	1B	Miss Donaldson
37f-38w-39s†	Secretarial Training: Shorthand (9 cred.; soph., jr.; prereq., 32)				
	Rec.	II	TThS	1B	Miss Donaldson
	Lab. Sec. 1	II	MWF	1B	
	2	III	MWF	1B	
40f-41w-42s†	Secretarial Training: Dictation (9 cred.; soph., jr., sr.; prereq., 39)				
	Rec.	I	MWF	213B	Miss Donaldson
	Lab.	VII	TThF	1B	
54f||	Accounting Survey I (3 cred.; jr., sr.; prereq., 4 or 6-7)	III	TThS	213B	Mr. Heilman and others
55w||	Accounting Survey II (3 cred.; jr., sr.; prereq., 5+)	III	TThS	213B	Mr. Heilman and others
85w||	Economics of Marketing (3 cred.; jr., sr.; prereq., 4 or 6-7)	I	TThS	102B	Mr. Vaile
103f-104w†||	Value and Distribution..... (6 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. including 4 or 6-7)	II	MWF	6B	Mr. Garver
105	<i>History of Economic Ideas (The Classical Economists)</i>	<i>Not offered</i>			
	(3 cred.; jr., sr., grad.; prereq., 101-102 or 103-104 or consent of instructor)				
106s	History of Economic Ideas (The Critics of the Classical Econ- omists)	VII	MWF	102B	Mr. Hansen
	(3 cred.; jr., sr., grad.; prereq., 101-102 or 103-104 or consent of instructor)				
108	<i>Marketing Organization: Agricul- tural Products</i>	<i>Not offered</i>			
	(3 cred.; jr., sr., grad.; prereq., 85. Not open to agr. bus. students)				
113w-114s	Theory of Statistics (6 cred.; jr., sr., grad.; prereq., 14)	I	MWF	102B	Mr. Mudgett

§ Students may be exempt from this course and admitted to 33 by passing a placement test.

* Open for credit to pre-secretarial and pre-commercial education students only.

† The entire course must be completed before credit is received for any quarter.

|| Not open to School of Business Administration students.

|| Students who have had high school training or other experience in bookkeeping and who pass the placement test may be exempted from this course and admitted to Economics 25.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor	
124f	Comparative Banking, British Systems (3 cred.; jr., sr., grad.; prereq., 141)	III	MWF	213B	Mr. Myers	
125w	Comparative Banking, European Systems (3 cred.; jr., sr., grad.; prereq., 141)	III	MWF	213B	Mr. Myers	
127s	Comparative Banking, South American Systems (3 cred.; jr., sr., grad.; prereq., 141)	II	MWF	213B	Mr. Myers	
141f	Monetary and Banking Policy... (3 cred.; jr., sr., grad.; prereq., 3, and 4 or 6-7)	I	MWF	102B	Mr. Marget, Mr. Myers	
141w	Monetary and Banking Policy... (See 141f)	I	MWF	209B	Mr. Marget, Mr. Myers	
141s	Monetary and Banking Policy... (See 141f)	VI	MWF	6B	Mr. Marget, Mr. Myers	
149f	Business Cycles (3 cred.; sr., grad.; prereq., 141)	I	TThS		Mr. Marget	
149w	Business Cycles (See 149f)					
		Sec. 1	I	MWF	109B	Mr. Marget,
		2	VII	MWF	102B	Mr. Myers
149s	Business Cycles (See 149f)	III	MWF	102B	Mr. Myers	
154s	Public Utilities (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. incl. Econ. 4 or 6-7)	III	TThS	102B	Mr. Garver	
160w†	The Modern Corporation (3 cred.; jr., sr., grad.; prereq., 3, and 4 or 6-7)	IV	MWF	102B	Mr. Stehman	
161f	Labor Problems and Trade Unionism (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. including Econ. 4 or 6-7)	IV	MWF	202B	Mr. Hansen	
161w	Labor Problems and Trade Unionism (See 161f)	III	TThS	209B	Mr. Stead	
161s	Labor Problems and Trade Unionism (See 161f)	III	TThS	202B	Mr. Hansen	
162w	Labor Movements (3 cred.; jr., sr., grad.; prereq., 161)	IV	MWF	202B	Mr. Hansen	
163w	Economic Aspects of Population and Immigration (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. including Econ. 4 or 6-7)	III	TThS	202B	Mr. Hansen	
164s	Labor Legislation and Social Insurance (3 cred.; jr., sr., grad.; prereq., 161)	III	TThS	209B	Mr. Stead	

† Not open to School of Business Administration students.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
166f	Contemporary Economic Problems (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. including Econ. 4 or 6-7)	VII	MWF	102B	Mr. Hansen
172f*	Economics of Transportation... (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. including Econ. 4 or 6-7)	VIII	MWF	102B	Mr. Butterbaugh
176f	Commercial Policies (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. including Econ. 4 or 6-7)	I	MWF	202B	Mr. Blakey
176s	Commercial Policies (See 176f)	I	MWF	202B	Mr. Blakey
191f-192w†	Public Finance (6 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. including Econ. 3 and 4 or 6-7)	III	MWF	209B	Mr. Blakey
193s	State and Local Taxation (3 cred.; jr., sr., grad.; prereq., 191-192)	III	MWF	213B	Mr. Blakey

ENGLISH

Major Advisers: C. W. Nichols, Rewey B. Inglis, Dora V. Smith

For teacher's certificate in English—

a. English as a major subject:	Credits
English 22-23. Introduction to Literature	10
English 55-56. Shakespeare	6
English 73-74. American Literature	6
Composition 11-12 or 18-19	6
Speech	6
Additional credits, all of which must be secured in courses numbered 100 or above....	6
Total credits	40
b. English as a minor subject:	
English 22-23. Introduction to Literature	10
English 55-56. Shakespeare	6
English 73-74. American Literature	6
Composition 11-12 or 18-19	6
Total credits	28

No.	Title	Hour	Day	Bldg.	Instructor
Af-Bw-Cs	Freshman English	See Composition			
21f-22w-23s‡	Introduction to Literature..... (15 cred.; all; prereq.§)				
	Sec. 1	III	MTWFS	301F(f), 206OL(w), 133Ph(s)	Mr. Hessler
	2	VI	MTWThF	301F	Miss Jackson

* Not open to School of Business Administration students.

† The entire course must be completed before credit is received for any quarter.

‡ Students may enter any quarter. Students must take two consecutive quarters to receive credit.

Two quarters are required as prerequisite for a major sequence; the second and third quarters are required for a teacher's certificate. Three quarters recommended. Limited to students with an average of 2/3 honor point per credit in their previous work, and to students exempt from English A-B-C.

§ English A-B-C, or Composition 4-5-6, or exemption from requirement.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
31f-32w†	The English Novel (6 cred.; all; prereq.§)	VII	MWF	301F	Mr. Hillhouse
33s	The Later English Novel..... (3 cred.; soph., jr., sr.; prereq.§)	VII	MWF	OPhAud	Mr. Beach
40s	The Bible As Literature..... (3 cred.; soph., jr., sr.; pre- req., §)	II	MWF	301F	Mr. Powell
51w	Spenser (3 cred.; jr., sr.; prereq., 21-22 or 55-56)	VI	MTWF	204F	Mr. Stoll
53f	Seventeenth-Century Lyrist (4 cred.; jr., sr.; prereq., 21-22 or 55-56)	IV	MTWF	204F	Mr. Moore
55f-56w†	Shakespeare (6 cred.; jr., sr.; prereq.†)				
	Sec. 1	I	TThS	205F	Mr. Bush, Miss Carr
	2	VI	MWF	305F	Mr. Dunn
	3	VII	MWF	305F	Miss Jackson
55w-56s†	Shakespeare (See 55f-56w)				
	Sec. 1	VI	MWF	303F	Miss Atkins
	2	IV	MWF	204F	Mr. Dunn, Mr. Hillhouse
55s†	Shakespeare (First qtr. of 55-56. See 55f- 56w)	VI	MWF	204F	Mr. Bush
58f-59w†	Nineteenth-Century Prose (6 cred.; jr., sr.; prereq., C or 23, or 31-32)	II	TThS	204F	Mr. Beach
61	American Pronunciation (3 cred.; jr., sr.; prereq.†)	<i>Not offered</i>			
62f	Milton (4 cred.; jr., sr.; prereq., 21-22 or 55-56)	VII	MTWF	204F	Mr. Stoll
62s	Milton (See 62f)	VII	MTWF	205F	Mr. Hessler
63	American Usage (3 cred.; jr., sr.; prereq.†)	<i>Not offered</i>			
69	Browning and Tennyson (4 cred.; jr., sr.; prereq.†)	<i>Not offered</i>			
70f	Elizabethan Drama (4 cred.; jr., sr.; prereq., 55-55)	VI	MTThF	204F	Mr. Hessler
73f-74w†	American Literature (6 cred.; jr., sr.; prereq.†)	IV	MWF	301F	Mr. McDowell, Mr. Nichols
75f	Chaucer (4 cred.; jr., sr.; prereq.†)				
	Sec. 1	II	MTWF	205F	Miss Carr
	2	V	MTWF	204F	Mr. Hillhouse
75s	Chaucer (See 75f)				
	Sec. 1	II	MTWF	205F	Mr. Dunn
	2	V	MTWF	204F	Miss Carr

§ English A-B-C, or Composition 4-5-6, or exemption from requirement.

† The entire course must be completed before credit is received for any quarter.

‡ English A-B-C, or Composition 4-5-6 and 6 additional credits, or 10 credits in 21-22-23.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
771-78w†	Classic Myths and the Classic Tradition in English Poetr... (6 cred.; jr., sr.; prereq.‡)	III	MWF	306F	Mr. Bush
81-82†	Survey of Middle English.....	<i>Not offered</i>			
100f	Old English (4 cred.; jr., sr., grad.; prereq., 8 cred. above 50)	III	TThFS	205F	Mr. Klaeber
105-106†	Eighteenth-Century Poetry	<i>Not offered</i>			
107w-108s†	Eighteenth-Century Prose	VII	MWF	204F	Mr. Moore
109f-110w†	Romantic Poets	III	TThS	204F	Mr. Beach
111-112†	Seventeenth-Century Prose	<i>Not offered</i>			
123f-124w-125s†	Technique of the Novel	4.00 to 6:00	T	205F	Mr. Beach
126w-127s†	Drama, 1660-1880	III	TThS	205F	Mr. Hillhouse, Mr. Nichols
129s	Modern Drama	II	MTWF	204F	Mr. Stoll
133	Ballads	<i>Not offered</i>			
136s	Advanced Shakespeare	I	MTWF	204F	Mr. Stoll
140s	Advanced Chaucer	II	MTWF	302F	Miss Carr
141f-142w-143s†	Historical Grammar	Ar	Ar	Ar	Mr. Klaeber
146f-147w†	Metrical Romances	III	MWF	204F	Miss Carr
148-149†	Arthurian Romances	<i>Not offered</i>			
150f	Victorian Poetry	VI	MTWF	205F	Mr. Stoll

† The entire course must be completed before credit is received for any quarter.

‡ English A-B-C, or Composition 4-5-6 and 6 additional credits, or 10 credits in 21-22-23.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
151s	Recent Poetry	III	TWThF	204F	Mr. Beach
	(4 cred.; jr., sr., grad.; prereq., 8 credits above 50)				
152-153†	<i>Pre-Elizabethan Drama</i>	<i>Not offered</i>			
	(6 cred.; jr., sr., grad.; prereq., 55-56)				
154w-155s†	American Novel	VI	MWF	205F	Mr. McDowell
	(6 cred.; jr., sr., grad.; prereq., 73-74)				
156f	The American Drama	IV	MWF	303F	Mr. Nichols
	(3 cred.; jr., sr., grad.; prereq., 8 cred. above 50; including 73-74)				
157w-158s†	Elizabethan Non-Dramatic Litera- ture	IV	MWF	205F	Mr. Bush
	(6 cred.; jr., sr., grad.; prereq., 8 credits above 50, including 51 or 70 or 55-56)				
159	<i>Colonial Literature in America.</i> ..	<i>Not offered</i>			
	(3 cred.; jr., sr., grad.; prereq., 8 credits above 50, including 73-74)				
160w	History of English Language....	VI	TTh	205F	Mr. Klieber
	(2 cred.; jr., sr., grad.; prereq., 100)				
162	<i>Restoration Literature</i>	<i>Not offered</i>			
	(4 cred.; jr., sr., grad.; prereq., 8 credits above 50)				
164s	Dante in English				Mr. Brackney
	(See Italian 164s)				
171f-172w-173s	Honors Course	Ar	Ar	Ar	Mr. Dunn, Mr. McDowell, Mrs. Phelan, Miss Carr, Mr. Nichols
	(Credits arranged; prereq., per- mission of the department)				

COMPOSITION

IMPORTANT NOTE.—Freshman English is a 15-credit course consisting of 9 credits of literature and 6 credits of composition. Composition 4-5-6 is a 9-credit course in composition. Either course satisfies the requirement in English for graduation or for admission to the Senior College. Students may be required to register for Composition 4-5-6 if their standing in the placement tests of Freshman Week shows that they need the additional training in composition. Students who have already completed one or more quarters of Freshman English should consult the director of the course before registering.

No.	Title	Hour	Day	Bldg.	Instructor
Af-Bw-Cs	Freshman English	I	MWThFS	Ar	Ar
	(15 cred.; all; prereq., placement test)	II	MWThFS		
		III	MTWFS		
		IV	MTWFS		
		{ V	MTWF		
		III	Th		
		VI	MTWThF		
		VII	MTWThF	(fall, winter)	
		{ VII	MWThF		
		V	T	(spring)	

† The entire course must be completed before credit is received for any quarter.

No.	Title	Hour	Day	Bldg.	Instructor
Aw-Bs	Freshman English	II	MWThFS	Ar	Ar
	(2 qtrs. of A-B-C. See Af-Bw-Cs)	IV	MTWFS		
		VI	MTWThF		
Cf	Freshman English	II	MWThFS	Ar	Ar
	(3rd qtr. of A-B-C. See Af-Bw-Cs)	IV	MTWFS		
		VI	MTWThF		
4f-5w-6s	Freshman Composition				
	(9 cred.; all; prereq., placement test)				
	Sec. 1	I	MWF	Ar	Ar
	2	II	MWF		
	3	II	TThS		
	4	III	MWF		
	5	III	TThS		
	6	IV	MWF		
	7	V	MWF		
	8	VI	MWF		
9	VII	MWF			
4w-5s	Freshman Composition				
	(2 qtrs. of 4-5-6. See 4f-5w-6s)				
	Sec. 1	II	TThS		
	2	V	MWF		
4s	Freshman Composition	Ar	Ar	Ar	
	(First qtr. of 4-5-6. See 4f-5w-6s. For those only who have passed subfresh.)				
5f-6w	Freshman Composition	III	TThS	302F	Ar
	(2 qtrs. of 4-5-6. See 4f-5w-6s)				
6f	Freshman Composition	II	MWF	311F	Ar
	(3rd qtr. of 4-5-6. See 4f-5w-6s)				
11f-12w†‡	Description; Narration				
	(6 cred.; soph., jr., sr.; prereq., A-B-C, or 4-5-6 or exemption from requirement)				
	Sec. 1	II	MWF	303F	Mrs. del Plaine
	2	III	MWF	302F	Miss Atkins
	3	IV	MWF	213F	Miss Armstrong
	4	IV	MWF	302F	Mrs. McFadyen
	5	V	MWF	304F	Miss Atkins
	6	II	TThS	304F	Miss Gable
	7	III	TThS	304F	Mr. Hessler
11w-12s†‡	Description; Narration				
	(See 11f-12w)				
	Sec. 1	II	MWF	306F	Miss Christie
	2	IV	MWF	303F	Mr. Appel
11s	Description; Narration				
	(First qtr. of 11-12. See 11f-12w)				
	Sec. 1	II	MWF	108F	Mrs. del Plaine
2	V	MWF	302F	Mrs. McFadyen	

† The entire course must be completed before credit is received for any quarter.

‡ A student registering for either 11-12 or 18-19 must bring with him a written memorandum from his instructor in Freshman English specifying which course in sophomore composition he should elect. No student may receive credit for both 11-12 and 18-19.

No.	Title	Hour	Day	Bldg.	Instructor
18f-19w††	Types of Writing (6 cred.; soph., jr., sr.; prereq., A-B-C or 4-5-6 or exemption from requirement)	Sec. 1 I 2 III 3 V	MWF MWF MWF	304F 305F 303F	Mr. Briggs Miss Armstrong Mrs. McFadyen
18w-19s††	Types of Writing (See 18f-19w)	Sec. 1 II 2 VI	MWF MWF	305F 306F	Miss Armstrong Mrs. del Plaine
20f	Informal Exposition (3 cred.; soph., jr., sr.; prereq., 11-12 or 18-19)	II	MWF	305F	Miss Gable
20s	Informal Exposition (See 20f)	Sec. 1 II 2 III 3 V 4 III	MWF MWF MWF TThS	303F 302F 304F 306F	Mr. Nichols Mrs. del Plaine Miss Atkins Miss Gable
31w 65s¶	Technical Writing Source Materials: Shakespeare's England (or similar field).... (3 cred.; soph., jr., sr.; prereq., A-B-C, or 4-5-6 and 6 addi- tional credits, or 10 credits in Eng. 21-22-23)	Consult College of Engineering			bulletin
67f-68w†¶	Imitative Writing (6 cred.; jr., sr., not open to sophomores; prereq., average of B in two quarters of either 11- 12, 20 or 65, or 18-19, 10 or 20)	IV	MWF	304F	Mrs. del Plaine
69f-70w-71s†¶	Short-Story Writing (6 cred.; jr., sr., not open to sophomores; prereq., average of B in two quarters of either 11- 12, 20 or 65, or 18-19, 10 or 20)	VIII, IX	W	304F	Mrs. Phelan
86-87	Forms of English Verse..... (6 cred.; jr., sr.; prereq., Eng. A-B-C or Comp. 4-5-6, and 6 additional credits, or 10 credits in 21-22-23)	Not offered			
111f-112w-113s¶	Essay Writing (9 cred.; jr., sr., grad.; prereq., 11-12, or 18-19, and 20 or 65)	III	MWF	304F	Mr. Nichols
119f-120w-121s¶	Seminary in Writing (9 cred.; sr., grad.; prereq., 9 cred., sr. coll. courses, and permission of instructor)	VI, VII	Th	304F	Mrs. Phelan

† The entire course must be completed before credit is received for any quarter.

‡ A student registering for either 11-12 or 18-19 must bring with him a written memorandum from his instructor in Freshman English specifying which course in sophomore composition he should elect. No student may receive credit for both 11-12 and 18-19.

¶ Students may not elect for credit two senior college courses to be taken simultaneously. This rule does not apply to Course 69-70-71.

THE FINE ARTS

No.	Title	Hour	Day	Bldg.	Instructor
1f	History of Ancient Art (3 cred.; all; no prereq.)	III	TThS	OPhAud	Mr. Upjohn
2w	History of Architecture and Sculpture (3 cred.; all; no prereq.)	III	TThS	OPhAud	Mr. Upjohn
3s	History of Painting (3 cred.; all; no prereq.)	III IV	TThS S*	OPhAud	Mr. Upjohn
5f	Principles of the Fine Arts..... (3 cred.; all; no prereq.)	III	MWF	124F	Mr. Upjohn
40	European Study (3 cred.; all; prereq., permission of chairman)	Consult department			
51w	Medieval Art (3 cred.; jr., sr.; prereq., 1 and 2 and 10 cred. in approved courses in hist. or lit., or per- mission of instructor)	III	MWF	124F	Mr. Upjohn
52s	The Art of the Italian Renais- sance (3 cred.; jr., sr.; prereq., 2 and 3 and 10 cred. in approved courses in hist. or lit., or by permission of instructor)	III	MWF	124F	Mr. Upjohn
53	<i>The Art of the Seventeenth Century</i> (3 cred.; jr., sr.; prereq., as for 52)	<i>Not offered</i>			
54	<i>The Art of the Eighteenth Century</i> (3 cred.; jr., sr.; prereq., as for 52)	<i>Not offered</i>			
55	<i>The Art of the Nineteenth Century</i> (3 cred.; jr., sr.; prereq., as for 52)	<i>Not offered</i>			

GEOGRAPHY

Major Adviser: D. H. Davis

For the teacher's certificate in geography.—Major recommendation: a minimum of 33 credits from the following courses in Geography: 11, 41, 43, 53, 71, 101, 102, 110, 111, 120, 133, 235, 251-252-253.

An additional 5 credits from the following courses in Geology: 1-2, 1-3, 8, or 20.

Minor recommendation: 18 credits from the following courses in Geography: 11, 41, 71, 101, 102, 110, 120.

* The fourth hour Saturday should be reserved for field trips.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
if-aw†	Introduction to Human Geography				
	(10 cred.; fr.; no prereq.)				
	Lect.	II	MWF	OLAud	Mr. Davis
	Sec. 1	V	TTh	103OL	
	2	VI	TTh	103OL	
	3	VII	TTh	103OL	
	4	VI	WF	103OL	
	5	VII	WF	103OL	
11f	Human Geography	III	MTWFS	103OL	Mr. Brown
	(5 cred.; 3rd qtr. fr., soph., jr., sr.; no prereq.)				
11w	Human Geography	III	MTWFS	103OL	Mr. Brown
	(See 11f)				
11s	Human Geography				
	(See 11f)				
	Sec. 1	I	MWThFS	103OL	Mr. Dicken
	2	II	MWThFS	103OL	Mr. Davis
	3	IV	MTWFS	103OL	Mr. Brown
41f	Geography of Commercial Production	IV	MTWFS	103OL	Mr. Hartshorne
	(5 cred.; soph., jr., sr.; prereq., 5 cred. in geog., or 10 cred. in econ. or soc. or 15 cred. in hist.)				
41w	Geography of Commercial Production	IV	MTWFS	103OL	Mr. Hartshorne
	(See 41f)				
41s	Geography of Commercial Production	III	MTWFS	103OL	Mr. Hartshorne
	(See 41f)				
43f	Political Geography	II	MWThFS	103OL	Mr. Hartshorne
	(5 cred.; soph., jr., sr.; prereq., 1-2, or 11, or 41, or 10 cred. in hist. or pol. sci.)				
43s	Political Geography	VI	MTWThF	103OL	Mr. Hartshorne
	(See 43f)				
53f	Historical Geography	I	MWF	103OL	Mr. Brown
	(3 cred.; jr., sr.; prereq., 11, or 15 cred. in hist.)				
71f	Geography of North America....	I	TThS	103OL	Mr. Dicken
	(3 cred.; jr., sr.; prereq., 11 or 41, or 20 cred. in soc. sci. incl. at least one course in geog.)				
101s	Geography of Europe	III	TThS	105OL	Mr. Dicken
	(3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. incl. 10 cred. in geog.)				
102w	Trade Routes and Trade Centers	II	TThS	103OL	Mr. Hartshorne
	(3 cred.; jr., sr., grad.; prereq., 41)				
110s	Geography of South America....	I	TThS	105OL	Mr. Brown
	(3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. to incl. 11 or 41)				

† The entire course must be completed before credit is received for any quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
III	<i>Cartography</i> (3 cred.; jr., sr., grad.; prereq., 10 cred. in sen. col. work in geog., geol., hist., or other sub- ject in which the use of maps is necessary)	<i>Not offered</i>			
120W	Geography of Asia (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. to incl. 11 or 41)	III	MWF	105OL	Mr. Davis
133W	Climatology (3 cred.; jr., sr., grad.; prereq., 11)	I	MWF	105OL	Mr. Brown

NOTE.—The Courses 235, 241, 251, 252, 253 and 301, listed in the Graduate School bulletin, are open to properly qualified juniors and seniors. For further information consult the chairman of the department.

GEOLOGY AND MINERALOGY

Major Adviser: G. A. Thiel

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†‡	General Geology (Dynamic and Historical) (10 cred.; fr., soph., jr., sr.; no prereq.)				
	Lect.	I	WThFS	210P	Mr. Thiel
	Lab. Sec. 1	I, II	M	212P	
		II	WF		
	Lab. Sec. 2	VI, VII	MW	212P	
1f-3w*†	General Geology (Dynamic and Economic) (10 cred.; fr., soph., jr., sr.; no prereq.)				
	Lect.	III	TThFS	110P	Mr. Emmons
	Lab.	III, IV or VI, VII	MW	212P (fall), 100P (winter)	
			TTh		
1w-2s*†	General Geology (Dynamic and Historical) (See 1f-2w)				
	Lect.	IV	MTWF	110P	Mr. Dutton
	Lab.	VI, VII	WF	212P	
1w-3s*†	General Geology (Dynamic and Economic) (See 1f-3w)				
	Lect.	II	MWFS	110P	Mr. Emmons
	Lab.	I, II	TTh	212P	
1s*†	General Geology (Dynamic and Historical or Economic) (First qtr. of 1-2 or 1-3. See 1f-2w)				
	Lect.	III	MWThF	110P	Mr. Park
	Lab.	III, IV	TS	212P	

* Physics 3 required.

† The entire course must be completed before credit is received for any quarter.

‡ For a three-quarter sequence, Course 2 may be followed by Course 3 or 4 or 11, and Course 3 by Course 2.

No.	Title	Hour	Day	Bldg.	Instructor
2f*†	General Geology (Dynamic and Historical) (2nd qtr. of 1-2. See 1f-2w)				
	Lect.	III	MWThF	206P	Mr. Matheson
	Lab.	III, IV	TS	212P	
4s	Geology of Minnesota (5 cred.; all; prereq., 2 or 3)	IV	MTWFS	210P	Mr. Thiel
8f‡§	Introductory Geology (5 cred.; all; no prereq.)	II	MWThFS	210P	Mr. Thiel
8w‡§	Introductory Geology (See 8f)	IV	MTWFS	210P	Mr. Thiel
8s‡§	Introductory Geology (See 8f)	II	MWThFS	210P	Mr. Thiel
11f	Elements of Paleontology (5 cred.; all; prereq., 1)				
	Lect.	II	MWF	105P	Mr. Stauffer
	Lab.	I, II	ThS		
15s¶	Minerals and Rocks (1 cred.; jr., sr.; prereq., 1 or 29)	Ar	Ar	100P	Mr. Gruner
23w 24s†	Elements of Mineralogy (8 cred.; soph., jr., sr.; prereq., course in chem.)				
	(Winter) Lect.	II	WF	206P	Mr. Gruner
	Rec.	VII	T	210P	
	Lab. Sec. 1	VII, VIII	WF	100P	
	2	III, IV	TS	100P	
	(For other sections, see Mines bulletin)				
	(Spring) Lect.	II	MWF	206P	Mr. Gruner
	Rec.	IX	T		
	Lab. Sec. 1	VII, VIII	M	100P	
	2	VI, VII	T		
		III, IV	M		
		VII, VIII	F		
27s¶	Outlines of Mineralogy (1 cred.; jr., sr.; no prereq.)	Ar	Ar	100P	Mr. Gruner
61f	Blowpipe Analysis (3 cred.; jr., sr.; prereq., 24)	Consult	Mines program		Mr. Gruner
73f	Economic Geology (3 cred.; jr., sr.; prereq., 24)	VI	MWF	110P	Mr. Schwartz
85s	Field Work in Northern Minne- sota (4 cred.; jr., sr.; prereq., 2, 3, or 11)	Ar	Ar	A*	Mr. Gruner, Mr. Thiel
91f-92w-93s	Index Fossils of North America (9 cred.; jr., sr.; prereq., 2, 3, or 11)				
	Lect.	I	F	208P	Mr. Stauffer
	Lab. Sec. 1	VI, VII	MW	105P	
	2	VI, VII	TTh		

* For a three-quarter sequence. Course 2 may be followed by Course 3 or 4 or 11, and Course 3 by Course 2.

† The entire course must be completed before credit is received for any quarter.

‡ Does not satisfy the junior college requirement for science. Cannot be followed by Course 1 for credit. May be followed by Course 2 with instructor's permission.

§ Not open to students who have had 1.

¶ Does not count for a senior college course. Not open to sophomores. See Course Numbering, page 23, Science, Literature, and the Arts bulletin, Part II.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
101f	Sedimentation (3 cred.; jr., sr., grad.; prereq., 24)	IV	MWF	210P	Mr. Thiel
102w-103s	Micropaleontology (6 cred.; jr., sr., grad.; prereq., 11 or 91)	II, III	TThS	103P	Mr. Stauffer
105f	Rock Study (3 cred.; jr., sr., grad.; prereq., 24)	Lect. VI Lab. Sec. 1 VII, VIII 2 III, IV VII, VIII	TTh T W TTh	110P 200P 200P 200P	Mr. Grout
106w	Petrography (3 cred.; jr., sr., grad.; prereq., 105)				Mr. Grout
107f-108w-109s	Paleontologic Practice (9 cred.; jr., sr., grad.; prereq., 91-92-93)	Ar	Ar	105P	Mr. Stauffer
111f	Ore Deposits (3 cred.; sr., grad.; prereq., 2, 3, or 11, and 105)	I	TThS	110P	Mr. Emmons
112w	Geology of Petroleum (3 cred.; sr., grad.; prereq., 111)	I	TThS	110P	Mr. Emmons
113s	Prob. in Ore Deposits..... (3 cred.; sr., grad.; prereq., 112)	VI-IX	Th	Ar	Mr. Emmons
119f	Physiography of the United States (3 cred.; jr., sr., grad.; prereq., 2 or 3)	Lect. II Lab. Ar	TThS Ar Ar	206P Ar 100P	Ar Mr. Gruner
121f	Crystallography (3 cred.; jr., sr.; prereq., Math. 7 and Inorg. Chem. 6-7-8 or 9-10)	Ar	Ar	100P	Mr. Gruner
124w-125s	Struct. and Metamorphic Geol. . . (6 cred.; jr., sr., grad.; prereq., 2, 3, or 11, and 105)	VI (II	MWF MTWThFS, spring, to May 1)	110P 208P	Mr. Schwartz
127f	Geol. of Lake Superior Region.. (3 cred.; jr., sr., grad.; prereq., 124-125)	Ar	Ar	Ar	Mr. Thiel
131f-132w-133s	Adv. Petrology (9 cred.; jr., sr., grad.; prereq., 106)	Lect. III Lab. Ar	TThS F	200P 200P	Mr. Grout
137f	Testing Econ. Minerals (3 cred.; jr., sr., grad.; prereq., 2, 3, or 11, and 105)	Lect. I Lab. VI, VII, VIII, IX	W T	200P 200P	Ar
140w-141s	Applied Petrography (6 cred.; jr., sr., grad.; prereq., 131)	Lect. II Lab. I, II	F MW	200P Ar	Mr. Grout

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
144W-145A	Interp. of Geologic Maps (6 cred.; jr., sr., grad.; prereq., 2, 3, or 11, and 124)	VIII, IX	TThF	Ar	Mr. Dutton
149S	Methods of Field Geology (No cred.; jr., sr., grad.; to be taken with 150; prereq., 2, 23- 24, 106, 124-125)	Ar	Ar	Ar	Mr. Schwartz
150S†	Field Geol. (Black Hills)..... (Jr., sr., grad.)	Ar	Ar	Ar	Mr. Emmons, Mr. Schwartz
151f-152W-153S	Adv. General Geology (9 cred.; jr., sr., grad.; prereq., 2, 3, or 11)	III	MWF	210P	Mr. Stauffer
161W	Crystal Structure (3 cred.; jr., sr., grad.; prereq., 121, elem. phys., and anal. geom.)	Ar	Ar	Ar	Mr. Gruner
166f-167W	Mineralography (6 cred.; sr., grad.; prereq., 111, 131)	Ar	Ar	207P	Mr. Schwartz

GERMAN

Major Adviser: S. Kroesch

For a teacher's certificate.—Major recommendations: Courses 50-51-52, 56-57, 65, 66, 67, 108, and eleven additional credits in courses numbered above 50.

Minor recommendations: Courses 50-51-52, 108, and eight additional credits in courses numbered above 50.

No.	Title	Hour	Day	Bldg.	Instructor
if*	Beginning A (5 cred.; fr., soph., jr., sr.; no prereq.)				
	Sec. 1	I	MWThFS	207F	Ar
	2	I	MWThFS	209F	Ar
	3	I	MWThFS	209½F	Ar
	4	II	MWThFS	209½F	Ar
	5	III	MTWFS	212F	Ar
	6	IV	MTWFS	207F	Ar
	7	VI	MTWThF	207F	Ar
	8	VII	MTWThF	209½F	Ar
1W*	Beginning A (See if)				
	Sec. 1	II	MWThFS	209F	Ar
	2	VII	MTWThF	207F	Ar
1S*	Beginning A (See if)				
	Sec. 1	II	MWThFS	213F	Ar
	2	VI	MTWThF	209½F	Ar
2F*	Beginning B (5 cred.; fr., soph., jr., sr.; prereq., 1 or one yr. prep. German)				
	Sec. 1	II	MWThFS	207F	Ar
	2	IV	MTWFS	113F	Ar

† A maximum of 8 credits will be granted after field report is completed.

* Credit is usually not given for more than one beginning language. See page 6, Science, Literature, and the Arts bulletin, Part II.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
2w*	Beginning B				
	(See 2f)				
	Sec. 1	I	MWThFS	207F	Ar
	2	I	MWThFS	209F	Ar
	3	I	MWThFS	209½F	Ar
	4	II	MWThFS	209½F	Ar
	5	III	MTWFS	212F	Ar
	6	IV	MTWFS	207F	Ar
	7	VI	MTWThF	207F	Ar
	8	VII	MTWThF	209½F	Ar
2s*	Beginning B				
	(See 2f)				
	Sec. 1	II	MWThFS	209F	Ar
	2	VII V	MTThF	207F	Ar
			W		
3f	Beginning C				
	(5 cred.; fr., soph., jr., sr.; pre-req., 2)				
	Sec. 1	III	MTWFS	209F	Ar
	2	IV	MTWFS	104F	Ar
	3	VII	MTWThF	209F	Ar
3Af	Beginning C	IV	MTWFS	205F	Ar
	(For pre-medics. See 3f)				
3w	Beginning C				
	(See 3f)				
	Sec. 1	II	MWThFS	207F	Ar
	2	IV	MTWFS	113F	Ar
3s	Beginning C				
	(See 3f)				
	Sec. 1	I	MWThFS	209½F	Ar
	2	II	MWThFS	209½F	Ar
	3	III	MTWFS	212F	Ar
	4	IV	MTWFS	207F	Ar
	5	VI	MTWThF	207F	Ar
3As	Beginning C				
	(For pre-medics. See 3f)				
	Sec. 1	I	MWThFS	207F	Ar
	2	I	MWThFS	209F	Ar
4f	Intermediate German				
	(5 cred.; fr., soph., jr., sr.; pre-req., 3)				
	Sec. 1	II	MWThFS	209F	Ar
	2	III	MTWFS	213F	Ar
	3	IV	MTWFS	212F	Ar
	4	VII	MTWThF	102F	Ar
4Af	Intermediate German	II	MWThFS	212F	Ar
	(For pre-medics. See 4f)				
4w	Intermediate German				
	(See 4f)				
	Sec. 1	III	MTWFS	209F	Ar
	2	IV	MTWFS	104F	Ar
	3	VII	MTWThF	209F	Ar
4s	Intermediate German				
	(See 4f)				
	Sec. 1	II	MWThFS	207F	Ar
	2	IV	MTWFS	113F	Ar

* Credit is usually not given for more than one beginning language. See page 6, Science, Literature, and the Arts bulletin, Part II.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
241-25w-26st†	Chemical German				
	(12 cred.; chemists, miners; no prereq.)				
	Sec. 1	IV	MTWF	209½F	Ar
	2	IV	MTWF	217F	Ar
30f-31w-32st†	Medical German				
	(9 cred.; pre-med.; prereq., 3A)				
	Sec. 1	I	MWF	212F	Ar
	2	I	TThS	212F	Ar
30w	Medical German	IV	MWF	212F	Ar
	(3 cred.; see 30f)				
31f-32w†	Medical German	I	MWF	205F	Ar
	(6 cred.; pre-med.; prereq., 4A or 30)				
31st	Medical German				
	(1st qtr. of 31-32. See 31f-32w)				
	Sec. 1	I	MWF	217F	Ar
	2	IV	MWF	213F	Ar
32ft	Medical German	I	MWF	108F	Ar
	(2nd qtr. of 31-32. See 31f-32w)				
50f-51w-52st†	Composition	IV	TS	213F	Mr. Lussky
	(6 cred.; jr., sr.; prereq., 4 or 4 yrs. prep. German)				
56f-57w†	Essay Writing	I	TThS	114F	Mr. Pfeiffer
	(6 cred.; jr., sr.; prereq., 52)				
61w	Epics and Ballads	III	MWF	209½F	Mr. Lussky
	(3 cred.; jr., sr.; prereq., 4 or 4 yrs. prep. German.)				
62s	Nineteenth-Century Prose	III	MTWFS	209F	Mr. Lussky
	(5 cred.; jr., sr.; prereq., 4 or 4 yrs. prep. German)				
63f	Modern Drama	IV	MWF	209F	Mr. Davies
	(3 cred.; jr., sr.; prereq., 4 or 4 yrs. prep. German)				
64w	Classic Drama	IV	MWF	209F	Mr. Davies
	(3 cred.; jr., sr.; prereq., 4 or 63)				
65f	Survey through Reformation....	III	TThS	209½F	Mr. Kroesch
	(3 cred.; jr., sr.; prereq., 3 cred. above 60)				
66w	Eighteenth-Century Survey	III	TThS	209½F	Mr. Burkhard
	(3 cred.; jr., sr.; prereq., 3 cred. above 60)				
67s	Nineteenth-Century Survey	III	TThS	209½F	Mr. Pfeiffer
	(3 cred.; jr., sr.; prereq., 3 cred. above 60)				
77s	Faust I	IV	MWF	209F	Mr. Burkhard
	(3 cred.; jr., sr.; prereq., 64 and 3 additional cred. above 60)				
108s	Phonetics	III	MWF	209½F	Mr. Kroesch
	(3 cred.; sr., grad.; prereq., 9 senior college cred. in mod. lang.)				

† The entire course must be completed before credit is received for any quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
109-110-111†	<i>Hist. of German Language</i> (9 cred.; sr., grad.; prereq., see statement under Comp. Phil.)	<i>Not offered</i>			
115f-116w-117s†	Middle High German Literature (9 cred.; sr., grad.; prereq., 65 and 11 credits above 60)	VIII, IX, X	Th	301Lib	Mr. Kroesch
140-141-142†	<i>Early New High German Literature, 1500-1700</i> (9 cred.; sr., grad.; prereq., 67 and 11 cred. above 60)	<i>Not offered</i>			
143f-144w-145s†	The Classical Period (9 cred.; sr., grad.; prereq., 66 and 11 cred. above 60)	VIII, IX, X	W	301Lib	Mr. Lussky
153f-154w-155s†	Studies in German Literature of the Nineteenth Century: Austrian Drama (9 cred.; sr., grad.; prereq., 67 and 11 cred. above 60)	VIII, IX, X	T	301Lib	Mr. Burkhard
161-162-163†	<i>Lyric Poetry</i> (9 cred.; sr., grad.; prereq., 66 or 67 and 11 cred. above 60)	<i>Not offered</i>			
163f-164w-165s†	German and English Literary Relations, 16th, 17th, 18th Centuries (9 cred.; sr., grad.; prereq., 66 and 11 cred. above 60)	VIII, IX, X	M	301Lib	Mr. Davies
170f-171w-172s	Young Germany (9 cred.; sr., grad.; prereq., 67 and 11 cred. above 60)	VIII, IX, X	F	301Lib	Mr. Pfeiffer
215-216-217†	<i>Middle High German</i> (9 cred.; grad., sr. with completed major sequence)	<i>Not offered</i>			

GREEK

Major Adviser: C. A. Savage

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†-3s	Beginning Greek (15 cred.; fr., soph., jr., sr.; no prereq.)	IV	MTWFS	114F	Mr. Savage, Mr. Hays
14f	History: Xenophon or Herodotus (3 cred.; all; prereq., 1-2-3)	III	TThS	108F	Mr. Hays
15w	History: Herodotus (3 cred.; all; prereq., 1-2-3)	III	TThS	108F	Mr. Savage
16s	Epic Poetry: Homer (3 cred.; all; prereq., 14 or 15)	III	TThS	108F	Mr. Hays
17f,w	Greek Sources (Everyday Greek) (2 cred.; soph., jr., sr.; prereq., 1 yr. of any foreign language)	VIII	TTh	114F	Mr. Savage, Mr. Hays
17s	Greek Sources (Everyday Greek) (See 17f,w)	I	TTh	114F	Mr. Hays
51f	Philosophy (3 cred.; jr., sr.; prereq., any two of 14, 15, and 16)	Ar	Ar	112F	Mr. Savage

† The entire course must be completed before credit is received for any quarter.

No.	Title	Hour	Day	Bldg.	Instructor
52w	Oratory (3 cred.; jr., sr.; prereq., any two of 14, 15, and 16)	Ar	Ar	112F	Mr. Savage
53s	Dramatic Poetry (3 cred.; jr., sr.; prereq., 51 or 52)	Ar	Ar	112F	Mr. Savage
61-62†-63	<i>Advanced Greek Composition</i> (2 or 3 cred.; jr., sr.; prereq., 2 years of Greek)	<i>Not offered</i>			
105f	Lyric Poetry (3 cred.; sr., grad.; prereq., 53)	Ar	Ar	112F	Mr. Savage
106w*	Advanced Drama (3 cred.; sr., grad.; prereq., 53 or 105)	Ar	Ar	112F	Mr. Savage
107w*	Advanced Prose (3 cred.; sr., grad.; prereq., 51-52, or 51-53, or 52-53)	Ar	Ar	112F	Mr. Savage
108s‡	Advanced Epic Poetry (3 cred.; sr., grad.; prereq., 105 or 106)	Ar	Ar	112F	Mr. Savage
109s‡	New Testament (3 cred.; jr., sr., grad.; prereq., 51 and 52)	Ar	Ar	112F	Mr. Hays

Courses for Which No Knowledge of Greek Is Required

No.	Title	Hour	Day	Bldg.	Instructor
42s¶	Greek Sculpture (2 cred.; jr., sr.; no prereq.)	VII	TTh	114F	Mr. Savage
43f¶†	Greek Drama (2 cred.; jr., sr.; no prereq.)	VII	TTh	114F	Mr. Savage
44w¶†	Greek Literature and Life..... (2 cred.; jr., sr.; no prereq.)	VII	TTh	114F	Mr. Savage
44s¶†	Greek Literature and Life..... (See 44w)	I	WF	114F	Mr. Savage
45f¶	Greek Mythology (2 cred.; jr., sr.; no prereq.)	I	WF	114F	Mr. Savage
45w¶	Greek Mythology (See 45f)	I	WF	114F	Mr. Savage

HISTORY

Major Adviser: A. C. Krey

For a teacher's certificate.—Major recommendation: a minimum of 45 credits; at least 15 credits must be in senior college courses, and of these one course (5 credits) must be numbered from 151 to 200.

Minor recommendation: a minor recommendation will be given upon the completion of at least 18 credits with a satisfactory grade.

* Courses 106 and 107 are offered alternately.

† Two quarters must be completed before credit is received for either quarter.

‡ Students may not get credit for both Courses 43 and 44 except by special permission.

§ Courses 108 and 109 are offered alternately.

¶ Does not count in a major or minor sequence. Not open to sophomores. See Course Numbering, page 23, Science, Literature, and the Arts bulletin, Part II.

PROGRAM

No major recommendation to teach history will be given unless the candidate has taken at least the general course in American History, History 7-8.

NOTE.—The following courses in Political Science carry credit also in this department: 153-154, Far Eastern Government and Politics; 191-192, Far Eastern Diplomacy.

No.	Title	Hour	Day	Bldg.	Instructor	
1f-2w†	Modern World (10 cred.; all; no prereq.)					
	Lect. Sec. 1	II	TThS	OLAud	Mr. Ford	
	2	VI	MWF	OLAud		
	Rec. Secs.	I	MTh	2F, 25F		
		I	WS	2F, 25F		
		II	MW	2F, 25F		
		III	MTh	2F, 25F		
		III	TF	2F, 25F		
		III	WS	2F, 25F		
		IV	MW	2F, 25F		
		IV	TF	2F, 25F		
		IV	TS	111OL, 109OL		
		V	MW	2F, 25F		
		V	TF	2F, 25F		
		VI	MW	2F, 25F		
		VI	TTh	2F, 25F		
		VII	MW	2F, 25F		
		VII	TTh	2F, 25F		
1w-2s†	Modern World (See 1f-2w)	Lect.	I	TThS	150Ph	Ar
		Secs.	Ar.			
3s	Soc. and Econ. Hist. of Mod. Europe (5 cred.; all; no prereq.)	Lect.	II	TThS	OLAud	Mr. Heaton
		Secs.	Ar	Ar		
4f-5w†	England to 1815 (10 cred.; fr., soph., jr., sr.; no prereq.)	Lect.	VII	MW	OLAud	Mr. White
		Sec. 1	I	MWF	112OL	
		2	II	TThS	209OL(fall) 9F(winter)	
		3	III	TThS	209OL	
		4	VI	TThF	112OL	
		5	VII	TThF	221OL	
		6	VII	TThF	6F	
4s†	England to 1815 (First qtr. of 4-5. See 4f-5w)		III	MTWFS	209OL	Mr. White
6s	England since 1815 (5 cred.; all; prereq., 10 cred.) (Limit 60 students)		II	MWThFS	221OL	Miss Thompson
7f-8w†	American History (10 cred.; soph., jr., sr.; no prereq.)	Sec. 1	I	MWThFS	211OL	Mrs. Tyler
		2	I	MWThFS	200OLa	Mr. Osgood
		3	VII	MTWThF	206OLa	Mr. Osgood
		4	VII	MTWThF	211OL	Mr. Stephenson

† The entire course must be completed before credit is received for any quarter.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
9s	Recent American History..... (5 cred.; soph., jr., sr.; prereq., 10 cred. in hist. or pol. sci.)				
	Sec. 1	I	MWThFS	211OL	Mrs. Tyler
	2	I	MWThFS	200OLA	Mr. Osgood
	3	VII	MTWThF	211OL	Mr. Stephenson
11f-12w-13s†‡	Medieval History (10 cred.; mu. and int. dec. only; no prereq.)				
	Lect.	IV	MF	221OL	Miss Thompson
	Sec. 1	IV*	W	221OL	
	2	IV*	T	221OL	
17s‡	Europe in the Middle Ages..... (5 cred.; all; prereq., 10 cred. if taken by fr.)	II	MWThFS	3F	Ar
33s	English Legal Institutions..... (5 cred.; 3rd qtr. fr., soph., jr., sr.; prereq., 4-5)	II	MWThFS	112OL	Mr. White
80-81†	<i>Introduction to Economic History</i> (6 cred.; jr., sr.; prereq., 15 cred. in hist. or 10 cred. in econ., pol. sci. or sociol.)	<i>Not offered</i>			
82f-83w	Economic History of the United States (6 cred.; jr., sr.; prereq., 15 cred. in hist. or 10 cred. in econ., pol. sci. or sociol.)	II	TThS	221OL	Mr. Heaton
90w-91s†	History of Minnesota (6 cred.; jr., sr.; prereq., 7-8*)	III	MWF	9F	Mr. Blegen
101f-102w†	French Revolution: Napoleonic Era (6 cred.; jr., sr., grad.; prereq., 15 cred. in hist. or 20 cred. in soc. sci. incl. 10 cred. in hist.)	I	TThS	111OL	Mr. Deutsch
103w	Pol. Hist.: Greece (5 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 15 cred. in hist. or major in Greek or Latin)	IV	MTWFS	112OL	Mr. Deutsch
104w	Near East: Modern (3 cred.; jr., sr., grad.; prereq., 1-2 and 10 cred. in soc. sci.)	II	MWF	111OL	Mr. Steefel
105s	History of Rome..... (5 cred.; jr., sr., grad.; prereq., as for 103)	IV	MTWFS	112OL	Mr. Deutsch
106f-107w-108s§	Europe, 1815-1914 (9 cred.; jr., sr., grad.; prereq., 15 cred. in hist. or 20 cred. in soc. sci.)	VII	MWF	111OL	Mr. Steefel
109s	Europe since 1914 (3 cred.; jr., sr., grad.; prereq., 15 cred. in hist. or 20 cred. in soc. sci.)	I	MWF	111OL	Mr. Deutsch

* In the spring quarter, an additional hour to be arranged.

† The entire course must be completed before credit is received for any quarter.

‡ No student may receive credit for both 17 and 11-12-13.

§ With the permission of the instructor, a student may enter the second or third quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
111W	European Background of American Immigration (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 15 cred. in hist.)	VI	MWF	111OL	Mr. Stephenson
112S	American Immigration (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 15 cred. in hist.)	VI	MWF	211OL	Mr. Stephenson
113f-114W-115S§	Econ. Hist. of Europe since 1750 (9 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci.)	III	TThS	221OL	Mr. Heaton
116-117-118§	<i>Econ. Hist. of Europe, 1300-1750</i> (9 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci.)	<i>Not offered</i>			
119S	Renaissance and Reformation.... (5 cred.; jr., sr., grad.; prereq., 15 cred.)	III	MTWThF	112OL	Ar
120f	Medieval Civilization (5 cred.; jr., sr., grad.; prereq., 15 cred.)	III	MTWThF	112OL	Ar
121	<i>English Backgrounds and American Colonization</i> (5 cred.; jr., sr., grad.; prereq., 20 cred. in hist. or pol. sci.)	<i>Not offered</i>			
122W	American Colonies in the 17th Century (5 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 15 cred. in hist.)	II	MWThFS	112OL	Mr. White
123f	European Expansion to 1815.... (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 15 cred. in hist.)	IV	MWF	111OL	Mr. Willson
124W	European Expansion since 1815 (3 cred.; jr., sr., grad.; prereq., same as 123)	IV	MWF	111OL	Mr. Willson
125f-126W†	American Diplomatic History... (6 cred.; jr., sr., grad.; prereq., 20 cred. in hist. and pol. sci. or 15 in hist. or pol. sci.)	III	MWF	211OL	Mr. Shippee
127	<i>Feudal Institutions</i> (5 cred.; jr., sr., grad.; prereq., 15 cred.)	<i>Not offered</i>			
128W	Rise of Nationalism in Europe.. (5 cred.; jr., sr., grad.; prereq., 15 cred.)	III	MTWThF	112OL	Ar
129S	Civil War and Reconstruction... (5 cred.; jr., sr., grad.; prereq., 15 cred., incl. 7-8)	II	MWThFS	209OL	Mrs. Tyler
130S	Introduction to the History of Russia (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. incl. Hist. 1-2 or 14-15-16)	III	MWF	211OL	Mr. Steefel

† The entire course must be completed before credit is received for any quarter.

§ With the permission of the instructor, a student may enter the second or third quarter.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
133f	Ancient Orient (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 15 cred. in hist.)	IV	MTW	211OL	Mr. Deutsch
134	<i>Ancient Civilization: Greek.....</i> (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. incl. 103 or 105 or 133, or major in Greek or Latin and consent of instr.)	<i>Not offered</i>			
135	<i>Ancient Civilization: Roman....</i> (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. incl. 103 or 105 or 133-134, or major in 105 or equiv., or major in Greek or Latin and consent of instr.)	<i>Not offered</i>			
136f-137w†	Far Eastern Government and Politics (6 cred.; jr., sr., grad.; prereq., 1-2 and 10 cred. pol. sci. or Pol. Sci. 3)	See Political Science		153-154	
138-139†	<i>Far Eastern Diplomacy.....</i> (See Political Science 191-192)	<i>Not offered</i>			
141f	West in Amer. Hist. to 1815.. (3 cred.; jr., sr., grad.; prereq., History 7-8* and 10 cred. in soc. sci. or 5 cred. in hist.)	III	TThS	211OL	Mr. Buck
142w	West in Amer. Hist., 1815-1865 (3 cred.; jr., sr., grad.; prereq., see 141)	III	TThS	211OL	Mr. Shippee
143w	West in American History since 1865 (3 cred.; jr., sr., grad.; prereq., see 141)	III	TThS	211OL	Mr. Buck
144w	American Political Parties (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 15 cred. in hist. incl. 7-8 or equiv.)	II	MWF	221OL	Mr. Stephenson
145f-146w	Canadian History (6 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 15 cred. in hist.)	II	MWF	110F	Ar
149s	American Colonies in the 18th Century (5 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci., or 15 cred. in hist.)	II	MWThFS	102F	Mr. Osgood
154w	Topics, Minnesota (5 cred.; sr., grad.; prereq., 20 cred. incl. 7-8)	VI, VII	WF	315Lib	Mr. Blegen
162	<i>Beginnings of Parliament.....</i> (Maximum of 5 cred.; sr., grad.; prereq., 20 cred., knowledge high school Latin)	<i>Not offered</i>			

* May be taken at the same time.

† The entire course must be completed before credit is received for any quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
164	<i>Studies in Crusades</i> (Maximum of 5 cred.; sr., grad.; prereq., 20 cred., knowledge high school Latin, consent of instr.)	<i>Not offered</i>			
166f	Topics, Hist. of Immigration... (5 cred.; sr., grad.; prereq., 20 cred., consent of instr.)	VIII, IX	MW	315Lib	Mr. Stephenson
168s	Topics, American Foreign Rela- tions (5 cred.; sr., grad.; prereq., 20 cred. in hist. incl. 9, or 20 cred. in pol. sci., French or German, consent of instr.)	VIII, IX	TTh	339Lib	Mr. Shippee
169s	Topics in Economic History.... (3 cred.; sr., grad.; prereq., 20 cred. in hist. or econ.)	Ar	Ar	Ar	Mr. Heaton
171f	Topics in Recent American His- tory (5 cred.; sr., grad.; prereq., 20 cred. incl. 9)	VIII, IX	WF	328Lib	Mr. Blegen
173s	Canada, 1760 to 1791..... (5 cred.; sr., grad.; prereq., 20 cred., consent of instr.)	VI, VII	TTh	328Lib	Ar
183s	Stuart Period (5 cred.; sr., grad.; prereq., 20 cred. incl. 4-5)	VIII, IX	MW	328Lib	Mr. Willson
184s	Topics in Modern English His- tory (5 cred.; sr., grad.; prereq., 20 cred.)	VIII, IX	TTh	315Lib	Mr. Willson
197f-198w-199s	Honors Course	Consult Professor Shippee			

HOME ECONOMICS

COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

NOTE.—Only courses with 15 credits prerequisite will count as senior college courses.

Junior College Courses

No.	Title	Hour	Day	Bldg.	Instructor
3s	Textiles (5 cred.; all; no prereq.) (Limited to 24)	I, II	MTWThF	311,307HE	Miss Little
4f	Textiles (Ed., S., L., & A.).... (3 cred.; not open to students in H.E.; no prereq.) (Limited to 24)	VI, VII	MWF	311,307HE	Miss Weller, Miss Little
4s	Textiles (Ed., S., L., & A.).... (See 4f) (Limited to 24)	Sec. 1 2	VI, VII VI, VII	MWF 307,311HE MWF 305HE	Miss Weller Miss Little

No.	Title	Hour	Day	Bldg.	Instructor	
11f,t	Clothing Planning and Construction A (3 cred.; all; no prereq.)	Sec. 1	I, II	MWF	304HE	Miss Little, Miss Gorham, Miss Sell
	(Limited to 24)	2	I, II, III	ThS	304HE	Miss Little, Miss Gorham, Miss Sell
		3	VI, VII, VIII	TTh	304HE	Miss Gorham, Miss Sell
11w	Clothing Planning and Construction A (See 11f)	Sec. 1	I, II	MWF	304HE	Miss Little
	(Limited to 24)	2	VI, VII, VIII	TTh	304HE	Miss Gorham
13f,s	Clothing Planning and Construction B (3 cred.; all; prereq., 3, 11, 51)	Sec. 1	III, IV	MWF	304HE	Miss Little
	(Limited to 24)	2	I, II	MWF	305HE	Miss Gorham
15f,w,s	Clothing Problems (3 cred.; 3rd qtr. fr., soph., jr.; prereq., 3, 51)	Lect.	VI, VII	Th	313HE	Miss Weller, Miss Gorham
	(Limited to 30)	Field Trips	VI, VII, VIII, IX	T		
33w	Home Management Problems for Social Workers (3 cred.; jr., sr.; no prereq.)		VIII	MWF	2OPh	Miss Studley
50f	Color and Design I (3 cred.; no prereq.)	Sec. 1	I, II	MWF	402HE	Miss Topp
	(Limited to 20)	2	I, II, III	ThS	402HE	Miss Segolson
		3	III, IV	MWF	402HE	Miss Segolson
50w	Color and Design I (See 50f)	Sec. 1	III, IV	MWF	402HE	Miss Segolson
		2	I, II	TThS	402HE	Miss Segolson
50s	Color and Design I (See 50f)	Sec. 1	I, II	MWF	402HE	Miss Topp
		2	VI, VII	MWF	402HE	Miss Topp
51f	Color and Design II (3 cred.; prereq., 50) (Limited to 20 each)	Sec. 1	I, II	MWF	401HE	Miss V. Goldstein
		2	I, II	TThS	401HE	Miss V. Goldstein
51w	Color and Design II (See 51f) (Limited to 20 each)	Sec. 1	III, IV	MWF	401HE	Miss V. Goldstein
		2	I, II	TThS	401HE	Miss V. Goldstein
51s	Color and Design II (See 51f) (Limited to 20 each)	Sec. 1	VI, VII, VIII	TTh	402HE	Miss V. Goldstein
		2	I, II	MWF	402HE	Miss V. Goldstein

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
53f	Advanced Design (3 cred.; soph., jr., sr.; prereq., 51 or 56) (Limited to 20)	VI, VII	MWF	402HE	Miss H. Gold- stein
53w	Advanced Design (See 53f) (Limited to 20 each)	Sec. 1 VI, VII 2 I, II	MWF MWF	402HE 402HE	Miss Segolson Miss H. Gold- stein
53s	Advanced Design (See 53f)	Sec. 1 I, II 2 III, IV	TThS MWF	402HE 402HE	Miss Segolson Miss Segolson
56f	Applications of Color and Design (3 cred.; no prereq.)	VI, VII, VIII	TTh	402HE	Miss H. Gold- stein
70f	Nutrition Survey (2 cred.; all; no prereq.)	IV	WF	203HE	Miss Biester
70w	Nutrition Survey (See 70f)	III	TTh	203HE	Miss Dinsmore
70s	Nutrition Survey (See 70f)	VI	TTh	OPhAud	Miss Biester
80f	Foods and Cookery (5 cred.; prereq., Agr. Biochem. 3 and 4*) (Limited to 20)	I, II	MTWThF	209HE	Mrs. Niles
80w,s	Foods and Cookery (See 80f) (Limited to 20 each)	Sec. 1 VI, VII 2 III, IV	MTWThF MTWFS	209HE 209HE	Miss Hovlid, Mrs. Niles Miss Hovlid, Mrs. Niles
83f,w	Food Management (3 cred.; soph., jr., sr.; prereq., 80 or 81) (Limited to 20)	III, IV	MWF	203,207HE	Mrs. Niles
83s	Food Management (See 83f,w) (Limited to 20 each)	Sec. 1 III, IV 2 VII, VIII	MWF MWF	203,207HE 203,207HE	Mrs. Niles Mrs. Niles

Senior College Courses

No.	Title	Hour	Day	Bldg.	Instructor
17w	Advanced Clothing (3 cred.; jr., sr.; prereq., 13, 53) (Limited to 24)	III, IV	MWF	305HE	Miss Gorham, Miss Carlotta Brown
17s	Advanced Clothing (See 17w) (Limited to 24)	I, II	TThS	305HE	Miss Gorham, Miss Carlotta Brown
115f,w	Clothing Economics (2 cred.; jr., sr.; prereq., 13, Econ. 6-7)	III	TTh	203HE	Miss Weller
131f	Home Management: House Plan- ning and Equipment (5 cred.; jr., sr.; prereq., 53) (Limited to 20)	III, IV	MTWFS	401HE	Miss Morse

* Course 80 may be taken parallel with Agricultural Biochemistry 4.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor	
131W	Home Management: House Planning and Equipment (See 131f) (Limited to 20)	VI, VII	MTWThF	401HE	Miss Morse	
131S	Home Management: House Planning and Equipment (See 131f)	Sec. 1	III, IV	MTWFS	401HE	Miss Morse
	(Limited to 20)	2	VI, VII	MTWThF	401HE	Miss Morse
150f,W,S	Art History and Appreciation... (3 cred.; jr., sr.; prereq., permission of instructor)	VIII	MWF	313HE	Miss H. Goldstein	

HOW TO STUDY

No.	Title	Hour	Day	Bldg.	Instructor	
1f	How To Study (2 cred.; all; prereq., permission of instructor)	Sec. 1	I	MWF	104Oph	Mr. Schellenberg
		2	II	MWF	104Oph	Mr. Schellenberg
		3	VII	MWF	104Oph	Mr. Bird
1W	How To Study (See 1f)	Sec. 1	I	MWF	104Oph	Mr. Schellenberg
		2	II	MWF	104Oph	Mr. Bird
1S	How To Study (See 1f)	Sec. 1	I	MWF	104Oph	Mr. Schellenberg
		2	II	MWF	104Oph	Mr. Schellenberg

HUMAN ANATOMY

MEDICAL SCHOOL

For complete list of courses, see bulletin of the Medical School.

Students in this college may elect other courses in human anatomy (see Medical School bulletin) only by arrangement with the head of the Department of Anatomy.

No.	Title	Hour	Day	Bldg.	Instructor
3f,s	Elementary Anatomy. Primarily for nurses.				

HUMAN PHYSIOLOGY

MEDICAL SCHOOL

Major Advisers: J. F. McClendon, F. H. Scott

No.	Title	Hour	Day	Bldg.	Instructor	
1f	Physiol. Chemistry and Physiology (Pre-nursing)* (7 cred.; all; no prereq.)	Lect.	I	MWThFS	Ar	Dr. Greisheimer and others
		Lab.	II, III, IV	T		
		Quiz	II	Th		
1S	Physiol. Chemistry and Physiology (Pre-nursing)* (See 1f)	Lect.	I	MTWFS		
		Lab.	I, II, III	Th		
		Quiz	II	T		

* Students may register for lectures without laboratory.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
4f,w,s	Human Physiology (4 cred.; all; prereq., 1 qtr. zool., 1 qtr. chem.) Lect., dem., or rec.	III, IV	MWF	301MH	Dr. Lyon, Dr. Greisheimer, Dr. King, and others
57f	Physiol. Chemistry (4 cred.; jr., sr.; prereq., Zool., 1-2 or 5-6-7; Inorg. Chem. 1-2-3 or 4-5)	IV I	M TThS	MH MH	Dr. Rufe and others
59s	Human Physiology (6 cred.; jr., sr.; prereq., Zool. 1-2 or 5-6-7; Inorg. Chem. 1-2-3 or 4-5)	Lect. I Rec. II Lab. II, III, IV	TWThS Th TW		Dr. King
60s	Physiology of Exercise (4 cred.; jr., sr.; prereq., 4 and 57)	Lect. I Lab. VI, VII, VIII	TThS W	Ar	Dr. Loucks
100w-101s‡	Physiol. Chemistry (10 cred.; jr., sr.; prereq., zool., org. chem., and physics)	IV	MWF	301MH	Dr. McClendon and others
	Div. A‡ Lab.	I, II, III	TTh		
	B‡ Lab.	I, II, III	FS		
	C‡ Lab.	VI, VII, VIII	TTh		
103f*	Physiology of Muscles, etc..... (8 cred.; jr., sr.; prereq., zool. and org. chem.)	Lect. II VI Rec. Sec. A III B II Lab. Sec. A VI, VII, VIII III, IV B III, IV VI, VII, VIII	MWThF T TTh TS M F W F		Dr. Scott, Dr. Lyon, Dr. Greisheimer, Dr. King, and others
104w*	Physiol. of Nervous System, etc. (7 cred., lect. only, 4 cred.; jr., sr.; prereq., 103 or org. chem. and neurol.)	Lect. IV III Rec. Div. A VI B II Lab. Div. A 9-11 I, II B 9-11	MWF S M T F S MW	301MH	Dr. Lyon, Dr. Scott, and others

For other courses see Medical School bulletin and programs.
All the above courses are repeated in the summer quarter.

* Students may register for lectures without laboratory.

‡ Div. A, B, primarily for medics; C primarily for others.

COLLEGE OF EDUCATION

JOURNALISM

NOTE.—Sociology 116 and Agricultural Journalism 10, 11, 12 and 19 carry credit in the department.

No.	Title	Hour	Day	Bldg.	Instructor
5w	The American Newspaper (3 cred.; soph., jr., sr.; no pre-req.)	III	MWF	301F	Mr. Ford
5s	The American Newspaper (See 5f)	I	MWF	301F	Mr. Ford
13f	Introduction to Reporting (3 cred.; soph. with average of C, jr., sr.; prereq., Eng. A-B-C, Comp. 4-5-6 or exemption)	I	MWF	206OLa	Mr. Desmond and others
14w-15s†	Newspaper Reporting and Correspondence (6 cred.; soph. with average of C, jr., sr.; prereq., 5 or 13 or practical experience, and Comp. 11-12 or 18-19§)	I	MWF	206OLa(w) 210P(s)	Mr. Desmond and others
17s‡	Newspaper Reference Library... (2 cred.; soph. with average of C, jr., sr.; prereq., 14)	I	TTh	20P	Mr. Desmond
41w	Principles of Editing (3 cred.; jr., sr.; prereq., 13, and a professional or vocational major in colleges other than S. L. & A.)	I	MW	10P	Mr. Kildow
	Lect.	VIII, IX	M	10P	
	Lab. Sec. 1	I, II	T	10P	
	2	VII, VIII	Th	10P	
51f-52w†	Copy Reading and Newspaper Make-Up (6 cred.; jr., sr.; prereq., 15)	III	TTh	20P	Mr. Olson and others
	Lect.	IV, V	M	10P	
	Lab. Sec. 1	IV, V	T	10P	
	2	VIII, IX	W	10P	
	3	I, II	Th	10P	
	4	VII, VIII	F	10P	
55s¶	Advertising Typography (3 cred.; jr., sr.; prereq., 41 or 51)	IV	T	20P	Mr. Olson
	Lect.	VIII, IX	MW	14P	
	Lab. Sec. 1	I, II	TTh	14P	
	2	VI, VII	TTh	14P	
	3				

† The entire course must be completed before credit is received for any quarter.

‡ No student may receive credit for both Journalism 17 and Library Methods 1.

§ May be taken at the same time.

¶ Credit will be allowed for only one quarter of Courses 55, 56, and 57.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
56w¶	Newspaper Typography (3 cred.; jr., sr.; prereq., 41 or 51)				
	Lect.	III	S	20P	Mr. Olson
	Lab. Sec. 1	VIII, IX	MF	14P	
	2	I, II	TS	14P	
	3	VI, VII	TTh	14P	
	4	IV, V	WF	14P	
57f¶	Magazine Typography (3 cred.; jr., sr.; prereq., 41 or 51)				
	Lect.	IV	T	20P	Mr. Olson
	Lab. Sec. 1	VIII, IX	MF	14P	
	2	I, II	TS	14P	
58s	Advanced Typography (2 cred.; jr., sr.; prereq., 55, 56, or 57)	VIII, IX	TTh	14P	Mr. Olson
60f-61w†-62s	The Community Newspaper..... (9 cred.; jr., sr.; prereq., 15)	I	TThS	Ar	Ar
65f	Women's Departments (3 cred.; jr., sr.; prereq., 15 or 69)	I	TThS	20P	Mr. Kildow
69s	The Writing of Special Articles (3 cred.; jr., sr.; prereq., 15 or 41)	I	MWF	206P	Mr. Kildow
70f-71w†	Trade and Technical Journals... (6 cred.; jr., sr.; prereq., 15 or 69)	IV	MWF	20P	Mr. Ford
73f-74w†	Newspaper and Magazine Articles (6 cred.; jr., sr.; prereq., 15 or 41)	VI	MWF	20P	Mr. Steward
75s	Law of the Press..... (3 cred.; jr., sr.; prereq., 52)	III	TThS	20P	Ar
76f	Critical Writing (3 cred.; jr., sr.; prereq., 15 or 69)	III	TThS	10P	Mr. Ford
78s	Press Relations (3 cred.; sr.; prereq., 69 or 73)	VI	MWF	20P	Mr. Steward
82s	Supervision of School Publications (3 cred.; jr., sr.; prereq., 41 or 51)	VIII	MWF	20P	Mr. Kildow
95f	Editorial Administration (3 cred.; sr.; prereq., 52)	III	MWF	20P	Ar
96s	Financial Writing (3 cred.; sr.; prereq., 69 or 73, and 20 credits in econ., or bus. adm.)	I	TThS	10P	Ar
100f	Analysis of News Interests..... (3 cred.; sr., grad.; prereq., 69 or 73, and 20 cred. in soc. sci.)	II	TThS	20P	Mr. Desmond
101w	The Reporting of Public Affairs (3 cred.; sr., grad.; prereq., 52 and 10 cred. in pol. sci.)	II	TThS	20P	Ar

¶ Credit will be allowed for only one quarter of Courses 55, 56, and 57.

† The entire course must be completed before credit is received for any quarter.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
104S	Editorial Writing (3 cred.; sr., grad.; prereq., 73, and 25 credits in soc. sci.)	II	TThS	20P	Mr. Casey
110f	History of Journalism..... (3 cred.; jr., sr., grad.; prereq., 41 or 51, 10 cred. in hist.)	II	MWF	20P	Mr. Casey
111W	Foreign News Sources..... (3 cred.; jr., sr., grad.; prereq., 41 or 51 and a hist. or pol. sci. course in international re- lations)	II	MWF	20P	Mr. Desmond
112S	Current Newspaper Problems... (3 cred.; sr., grad.; prereq., 100 or 101 or 110)	II	MWF	20P	Mr. Ford
130f-131W-132S†	The Press and Public Opinion.. (9 cred.; sr., grad.; prereq., 75 and 20 credits in soc., psy., and pol. sci.)	III	MWF	10P	Mr. Casey
190f-191W-192S	Topics Course				
	(9 cred.; sr., grad.; prereq., 20 cred. and consent of instructor)				
	Seniors Sec. 1	VIII, IX	T	20P	Mr. Casey
	Graduates 2	VIII, IX	Th	20P	

LATIN

Major Adviser: J. B. Pike

For a teacher's certificate.—Major recommendation: Course 73 and any two of Courses 51, 52, 53, 71, 62, 63 and three courses in the hundred sequence.

Minor recommendation: Course 73 and any two of Courses 51, 52, 53, 71, 62, 63.

Students entering with one year of Latin will take 3, or 2 and 3. Students entering with two years of Latin will take any two of 11, 12, and 13 in their first year and any two of 21, 22, 23 in their second year. Students entering with three years of Latin will take any two of 21, 22, 23. Students entering with no Latin will take 1-2 and 3 in their first year; any two of 11, 12, and 13, in their second year; and any two of 21, 22, and 23 in their third year.

Junior College Courses

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†§	Beginning Latin	IV	MTWFS	110F	Mrs. Babcock
	(10 cred.; fr., soph., jr., sr.; no prereq.)				
3S	Caesar	IV	MTWFS	110F	Mrs. Babcock
	(5 cred.; fr., soph., jr., sr.; pre- req., 1-2, or 1 yr. Latin)				
11f	Virgil I				
	(5 cred.; fr., soph., jr., sr.; pre- req., 1-2, 3, or 2 yrs. Latin)				
	Sec. 1	III	MTWFS	109F	Mrs. Babcock
	2	VI	MTWThF	109F	Mr. Cram

† The entire course must be completed before credit is received for any quarter.

§ Credit is usually not given for more than one beginning language. See page 6, Science, Literature, and the Arts bulletin, Part II.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
12w	Virgil II (5 cred.; fr., soph., jr., sr.; pre-req., 1-2, 3, or 2 yrs. Latin)				
	Sec. 1	III	MTWFS	109F	Mrs. Babcock
		2	VI	109F	Mr. Cram
13s	Ovid (5 cred.; fr., soph., jr., sr.; pre-req., 1-2, 3, or 2 yrs. Latin)	III	MTWFS	110F	Mrs. Babcock
21f	Selections (5 cred.; fr., soph., jr., sr.; pre-req., any two of 11, 12, 13, or 3 or 4 yrs. of Latin)	IV	MTWFS	109F	Mr. Pike
22w	Selections and Survey (5 cred.; fr., soph., jr., sr.; pre-req., any two of 11, 12, 13, or 3 or 4 yrs. of Latin)	IV	MTWFS	109F	Mr. Pike
23s	Plautus and Terence (5 cred.; fr., soph., jr., sr.; pre-req., any two of 11, 12, 13, or 3 or 4 yrs. of Latin)	IV	MTWFS	109F	Mr. Cram

Students entering winter quarter.—Students with one year of Latin may elect 2w. Students with two years of Latin may elect 12w. Students with three or four years of Latin may elect 22w.

Students entering spring quarter.—Students with one year of Latin may elect 3s. Students with two years of Latin may elect 13s. Students with three or four years of Latin may elect 23s.

Senior College Courses

51f	Pliny's Letters (3 cred.; jr., sr.; prereq., any two of 21, 22, 23, or equiv.)	I	TThS	109F	Mr. Cram
52	<i>Horace's Satires and Epistles</i> ... (3 cred.; jr., sr.; prereq., any two of 21, 22, 23, or equiv.)	<i>Not offered</i>			
53s	Suetonius, Selected Lives..... (3 cred.; jr., sr.; prereq., any two of 21, 22, 23, or equiv.)	I	TThS	109F	Mr. Cram
62w	Horace's Odes and Epodes..... (3 cred.; jr., sr.; prereq., any two of 21, 22, 23, or equiv.)	I	TThS	109F	Mr. Cram
63	<i>Apulcius</i> (3 cred.; jr., sr.; prereq., any two of 21, 22, 23, or equiv.)	<i>Not offered</i>			
71	<i>Cicero's De Amicitia and De Senectute</i> (3 cred.; jr., sr.; prereq., any two of 21, 22, 23, or equiv.)	<i>Not offered</i>			
73s	Advanced Grammar and Composition* (3 cred.; jr., sr.; prereq., any two of 51, 52, 53, or equiv.)	III	MWF	109F	Mr. Pike
121	<i>Advanced Virgil</i> (3 cred.; jr., sr., grad.; prereq., any two of 51, 52, 53, or equiv.)	<i>Not offered</i>			

* Required of students who expect a teaching recommendation.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
122W	Cicero's Letters (3 cred.; jr., sr., grad.; prereq., any two of 51, 52, 53, or equiv.)	II	MWF	109F	Mr. Pike
123S	Medieval Latin (3 cred.; jr., sr., grad.; prereq., any two of 51, 52, 53, or equiv.)	II	MWF	109F	Mr. Pike
131f	Juvenal (3 cred.; jr., sr., grad.; prereq., any two of 51, 52, 53, or equiv.)	II	MWF	109F	Mr. Pike
132	<i>Seneca's Epistles</i> (3 cred.; jr., sr., grad.; prereq., any two of 51, 52, 53, or equiv.)	<i>Not offered</i>			
133	<i>Vulgar Latin</i> (3 cred.; jr., sr., grad.; prereq., any two of 51, 52, 53, or equiv.)	<i>Not offered</i>			
201-202-203	<i>Grad. Seminar: Tacitus</i> (9 cred.)	<i>Not offered</i>			
211f-212w-213s	<i>Grad. Seminar: Lucretius</i> (9 cred.)	VIII, IX	T	314Lib	Mr. Pike
221-222-223	<i>Graduate Seminar: Cicero's Phil. Works</i> (9 cred.)	<i>Not offered</i>			
231-232-233	<i>Graduate Seminar: Cicero's Rhe- torical Works</i> (9 cred.)	<i>Not offered</i>			
241f-242w-243s	<i>Graduate Seminar: Introduction to Classical Philology</i> (9 cred.)	VIII, IX	Th	314Lib	Mr. Cram

LIBRARY METHODS

For specialized curriculum for school librarian, see Education bulletin, Part I. For program of courses see page 19. For program for library training see page 10, Science, Literature, and the Arts bulletin, Part II. For program of professional courses in library instruction and for the course in hospital library service, consult the bulletin of the Division of Library Instruction.

No.	Title	Hour	Day	Bldg.	Instructor
1f,w,s*	Use of Books and Libraries..... (2 cred.; fresh., soph. only; no prereq.)				
	Sec. 1	II	MW	3Lib	Miss Firkins
	2	IV	MW	3Lib	Mr. Russell, Miss Moen
	3	VI	MW	5Lib	Miss Baker

* For students in College of Science, Literature, and the Arts. Others must obtain a special card from the junior college office.

MATHEMATICS

Major Adviser: A. L. Underhill

For a teacher's certificate.—Major recommendation: Courses 50, 51, and 8 additional credits in courses numbered over 49.

Minor recommendation: entrance credit in solid geometry or its equivalent;‡ Course 5 (Higher Algebra) taken either in high school or in college; Courses 6, 7, 30, and 8 credits in courses numbered over 49.

Placement tests.—In each of Courses 3, 4, 5, and 8 a placement test will be given at the *second meeting* of the class. Students who fail in this test will be advised to take a more elementary course. It is especially important to attend the first meeting of the class in order to obtain instructions concerning the test. Late registrants must take the test before entering class.

Junior College Courses

No.	Title	Hour	Day	Bldg.	Instructor
3i*	Higher Algebra, Short Course... (4 cred.; all; prereq., 1 yr. elem. alg.)	III	MWThF	133Ph	Ar
3w*	Higher Algebra, Short Course... (See 3f)	IV	MTWF	206OLa	Ar
4f*	Trigonometry, Short Course... (4 cred.; all; prereq., 3 or 5 or prep. higher alg.)	II	MTWF	206OLa	Ar
4w*	Trigonometry, Short Course... (See 4f)	III	MWThF	133Ph	Ar
4s*	Trigonometry, Short Course... (See 4f)	IV	MTWF	206OLa	Ar
5f	Higher Algebra (5 cred.; all; prereq., 1 yr. elem. alg.)	II	MWThFS	133Ph	Ar
	Sec. 1	VI	MTWThF	166Ph	Ar
5w	Higher Algebra (See 5f)	VI	MTWThF	166Ph	Ar
5s	Higher Algebra (See 5f)	I	MWThFS	OPhAud	Ar
6f¶	Trigonometry (5 cred.; fr., soph., jr., sr.; prereq., 3 or 5, or prep. higher algebra)	II	MWThFS	104F	Ar
6w¶	Trigonometry (See 6f)	VI	MTWThF	105F	Ar
6s¶	Trigonometry (See 6f)	IV	MTWFS	105F	Ar
7f¶	College Algebra (5 cred.; all; prereq., 6)	I	MWThFS	104F	Ar
7w¶	College Algebra (See 7f)	II	MWThFS	104F	Ar

* For pre-med. and pre-dent. students, and others who desire only the mathematics necessary in the first course in physics.

¶ See page 82 for footnote.

‡ Those who did not present solid geometry for entrance may meet this requirement in one of the following ways: (1) By taking the subject in the summer school or in the General Extension Division by correspondence; (2) By passing a college entrance examination or a special examination given by the Department of Mathematics.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
7s¶	College Algebra	VI	MTWThF	104F	Ar
	(See 7f)				
8f¶	Commerce Algebra	I	MWThFS	OPhAud	Ar
	(5 cred.; pre-bus. stud.; prereq., 5 or prep. high. alg.)				
8w¶	Commerce Algebra	II	MWThFS	206OLa	Ar
	(See 8f)				
8s¶	Commerce Algebra	VI	MTWThF	105F	Ar
	(See 8f)				
20w¶	Mathematics of Investment.....	I	MWThFS	OPhAud	Ar
	(5 cred.; all; prereq., 8 or 47, or 6 and 7)				
20s¶	Mathematics of Investment.....	II	MWThFS	133Ph	Mr. Hart
	(See 20w)				
21	<i>Elements of the Mathematics of Life Insurance</i>	<i>Not offered</i>			
	(3 cred.; all; prereq., 20)				
30f	Analytic Geometry	I	MTWThFS	105F	Mr. Underhill
	(6 cred.; all; prereq., 6 and 7)				
30w	Analytic Geometry	I	MTWThFS	104F	Ar
	(See 30f)				
30s	Analytic Geometry	II	MTWThFS	104F	Ar
	(See 30f)				
47¶	<i>Mathematics for Students of Sta- tistics I</i>	<i>Not offered</i>			
	(5 cred.; soph., jr., sr.; prereq., 5 or prep. higher algebra)				
48¶	<i>Mathematics for Students of Sta- tistics II</i>	<i>Not offered</i>			
	(5 cred.; soph., jr., sr.; prereq., 47, or 6 and 7, or 6 and 8)				
49	<i>Mathematics for Students of Sta- tistics III</i>	<i>Not offered</i>			
	(3 cred.; soph., jr., sr.; prereq., 48)				

Senior College Courses

50f	Calculus I	III	MTWFS	105F	Mr. Jackson
	(5 cred.; jr., sr.; prereq., 30)				
50w	Calculus I	I	MWThFS	105F	Mr. Underhill
	(See 50f)				
51w	Calculus II	III	MTWFS	105F	Mr. Jackson
	(5 cred.; jr., sr.; prereq., 50)				
51s	Calculus II	I	MWThFS	105F	Mr. Underhill
	(See 51w)				
52f	Calculus III	II	MWThFS	101F	Mr. Underhill
	(5 cred.; jr., sr.; prereq., 51)				
52s	Calculus III	III	MTWFS	105F	Mr. Jackson
	(See 52f)				

¶ Courses 6 and 8 involve some duplication of material; any student who has taken one of them may take the other for 4 credits. Course 47 involves some duplication of material with Courses 6, 7, and 8. A student who has taken 6, 7, or 8 may take 47 only with special permission and for reduced credit. No student may receive credit for both Courses 7 and 8.

Pre-business students who elect mathematics to meet the requirement of 10 credits in mathematics or laboratory science, should take 5 and 8 or 5 and 47 if they have not had high school higher algebra, and 8 and 20 or 47 and 48 if they have had high school higher algebra.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
60s	Synthetic Metric Geometry (3 cred.; jr., sr.; prereq., 30)	VI	MWF	102F	Miss Gibbens
62w	Theory of Equations I. (3 cred.; jr., sr.; prereq., 50)	VII	MWF	101F	Mr. Bussey
63s	Theory of Equations II. (3 cred.; jr., sr.; prereq., 62)	VII	MWF	101F	Mr. Bussey
70f	Hist. of Elem. Math. (3 cred.; jr., sr.; prereq., 30)	VII	MWF	101F	Mr. Hart
71	<i>Solid Analytic Geometry</i> (3 cred.; jr., sr.; prereq., 50)	<i>Not offered</i>			
102-103-104	<i>Adv. Analytic and Synthetic Geometry</i> (9 cred.; jr., sr., grad.; prereq., 50)	<i>Not offered</i>			
106f	Differential Equations (3 cred.; jr., sr., grad.; prereq., 51)	III	MWF	101F	Miss Gibbens
107w-108s	Advanced Calculus (6 cred.; jr., sr., grad.; prereq., 52)	III	MWF	101F	Mr. Underhill
115-116-117	<i>Differential Geometry</i> (9 cred.; jr., sr., grad.; prereq., 51)	<i>Not offered</i>			
118-119-120	<i>Vector Analysis</i> (9 cred.; jr., sr., grad.; prereq., 51)	<i>Not offered</i>			
121f-122w-123s	Math. Theory of Statistics. (9 cred.; jr., sr., grad.; prereq., 51 or 47, 48, 49)	Ar	Ar	Ar	Mr. Jackson
141f	Projective Geometry (3 cred.; jr., sr., grad.; prereq., 51)	III	TThS	101F	Mr. Bussey
142w	Theory of Invariants (3 cred.; jr., sr., grad.; prereq., 51 or 62 or permission of in- structor)	III	TThS	101F	Mr. Underhill
143s	Integral Equations (3 cred.; jr., sr., grad.; prereq., 107)	III	TThS	101F	Mr. Hart
206f-207w-208s	Theory of Functions. (9 cred.; sr., grad.; prereq., 106, 107-108, or Math. and Mech. 151, 152-153*)	Ar	Ar	Ar	Mr. Brink

NOTE.—Some of the courses listed in the Graduate School bulletin are open to properly qualified juniors and seniors. For more information consult the chairman of the Department of Mathematics.

MECHANICAL ENGINEERING

COLLEGE OF ENGINEERING AND ARCHITECTURE

NOTE.—Students will register for these courses in the order 11-12-13. They may be reassigned by the department as the enrolment demands. A student transferred to 12 for his first quarter will follow this by 13 and then 11; a student transferred to 13 for his first quarter will follow this by 11 and then 12.

*See bulletin of the College of Engineering.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
11f,w,s, 12f,w,s 13f,w,s	Elem. Shop Practice	VII, VIII, IX†	MW MF	ME(f,w) ME(s)	Mr. Koepke and others
	(2 cred. per qtr.‡; pre-dent. only; no prereq.)				

MILITARY SCIENCE AND TACTICS

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w	First Year Basic Course				
	(No cred.; fr.; no prereq.)				
	Sec. 1	II	MWF	A	Ar
		2	III	MWF	Ar
		3	IV	MWF	Ar
		4	V	MWF	Ar
		5	VI	MWF	Ar
		6	VII	MWF	Ar
		7	VIII	MWF	Ar
		8	II	TThS	Ar
		9	III	TThS	Ar
3s	First Year Basic Course	VII, VIII, IX	T or W	A	Ar
	(No cred.; fr.; no prereq.)				
4f-5w	Second Year Basic Course				
	(No cred.; soph.; prereq., 1-2-3)				
	Sec. 1	II	MWF	A	Ar
		2	III	MWF	Ar
		3	IV	MWF	Ar
		4	V	MWF	Ar
		5	VI	MWF	Ar
		6	VII	MWF	Ar
		7	VIII	MWF	Ar
6s	Second Year Basic Course	VII, VIII, IX	T or W	A	Ar
	(No cred.; soph.; prereq., 1-2-3)				
51f-52w	First Year Advanced Course	Total of five hours selected from the following:			
	(Cred.‡; prereq., 4-5-6)	II	MWF	A	Ar
		III	MWF	A	Ar
		VI	MWF	A	Ar
		VIII	MWF	A	Ar
		(One two-hour period to be arranged)			
53s	First Year Advanced Course	VII, VIII, IX	T or W	A	Ar
	(Cred.‡; prereq., 4-5-6)	(One two-hour period to be arranged)			
54f-55w	Second Year Advanced Course	Total of five hours selected from the following:			
	(Cred.‡; prereq., 51-52-53)	II	MWF	A	Ar
		III	MWF	A	Ar
		VI	MWF	A	Ar
		VIII	MWF	A	Ar
		(One two-hour period to be arranged)			
56s	Second Year Advanced Course	VII, VIII, IX	T or W	A	Ar
	(Cred.‡; prereq., 51-52-53)	(One two-hour period to be arranged)			

† Students having conflicts with this program may register with one of the engineering or chemistry sections, with permission from Mr. Koepke.

‡ Does not carry credit except for pre-dental students.

§ For the amount of credit given for the work of the advanced R.O.T.C., see Science, Literature, and the Arts bulletin, Part II, p. 18.

PROGRAM

85

MUSIC

Major Advisers: C. M. Scott, A. Pepinsky

For specialized curriculum in Public School Music see Part I of Education bulletin. For courses in Public School Music see page 28-29.

NOTE.—Courses numbering from 10 to 26 inclusive carry either 2 or 4 credits per quarter and must be repeated until the practical music requirement has been met.†

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w-3s†	Harmony (9 cred.; fr. mu.; no prereq.)	II	MWF	103Mu	Mr. Scott
	Sec. 1	VI	MWF	103Mu	Mr. Scott
	2	III	MWF	103Mu	Miss Reeves
1w-2s-3su	Harmony (See 1f-2w-3s)	III	MWF	103Mu	Miss Reeves
4f-5w-6s†	Counterpoint (6 cred.; soph. mu.; prereq. 1-2-3)	III	TTh	103Mu	Mr. Ferguson
7f-8w-9s†	Ear Training (3 cred.; fr., soph. mu.; no prereq.)	VI	TTh	Mu	Mr. Killeen, Miss Reeves, Miss Kendall
7w-8s-9su	Ear Training (See 7f-8w-9s)	VII	TTh	103Mu	Miss Kendall
Af-Bw-Cs‡	Piano (6 or 12 cred.; no prereq.)	Ar	Ar	Mu	Ar
10f,w,s	Organ	Ar	Ar	Mu	Ar
11f,w,s	Piano	Ar	Ar	Mu	Ar
12f,w,s	Voice	Ar	Ar	Mu	Ar
13f,w,s	Violin	Ar	Ar	Mu	Ar
14f,w,s	Viola	Ar	Ar	Mu	Ar
15f,w,s	Cello	Ar	Ar	Mu	Ar
16f,w,s	Double Bass	Ar	Ar	Mu	Ar
17f,w,s	Flute	Ar	Ar	Mu	Ar
18f,w,s	Oboe	Ar	Ar	Mu	Ar
19f,w,s	Clarinet	Ar	Ar	Mu	Ar
20f,w,s	Bassoon	Ar	Ar	Mu	Ar
21f,w,s	Trumpet	Ar	Ar	Mu	Ar
22f,w,s	French Horn	Ar	Ar	Mu	Ar
23f,w,s	Trombone	Ar	Ar	Mu	Ar
24f,w,s	Tuba	Ar	Ar	Mu	Ar
25f,w,s	Percussion	Ar	Ar	Mu	Ar
26f,w,s	Harp	Ar	Ar	Mu	Ar

‡ Entrance requirements, according to instrument selected are:

Piano: Any major or minor scale in octaves, thirds, sixths, or tenths, M.M. quarter notes=108; Bach Invention or dance from one of the suites; a sonata by Haydn or Mozart; a modern composition of equal difficulty with the sonata.

Voice: Good natural equipment and two years of piano.

Violin: Major and minor scales, arpeggios; the simpler Kreutzer Etudes; a sonata by Handel, Haydn, Mozart, or Schubert; a more modern work displaying special technic peculiar to the violin.

Organ: Same as for piano.

A student wishing to register in the music course must first pass an examination in practical music before a committee of the faculty of the Music Department. This applies also to academic juniors and seniors who wish to elect courses in practical music.

† The entire course must be completed before credit is received for any quarter.

‡ Carries no credit for students majoring in piano. May be taken only with the consent of the instructor.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
40f-41w-42s*	Orchestra	7:30 p.m.	W	MuAud	Mr. Pepinsky
	(3 cred.; jr., sr.)				
43f-44w-45s†	University Chorus‡	IX	T	MuAud	Mr. Killeen
	(3 cred.; all mu., acad. jr., sr.; prereq., consent of director)				
86f-87w-88s	Normal Piano	VII	MWF	103Mu	Miss Reeves
	(6 cred.; jr.; prereq., 2 yrs. piano)				
89f-90w-91s	Advanced Normal Piano	VIII	MWF	103Mu	Miss Reeves
	(6 cred.; sr.; prereq., 86-87-88)				
100f-101w-102s	Composition-Orchestration	Ar	Ar	Mu	Mr. Ferguson
	(6 cred.; jr., sr.; prereq., 1-2-3, 4-5-6)				
103f-104w-105s	Analysis	III	T	4Mu	Mr. Pepinsky
	(3 cred.; soph., jr., sr.; prereq., 1-2-3)				
106f-107w-108s†	History of Music	II	MWF	4Mu	Mr. Ferguson
	(9 cred.; jr., sr.; prereq., 1-2-3)				
109f-110w-111s	Bach and Beethoven	VII, VIII	TTh	104Mu	Mr. Ferguson
	(9 cred.; sr.; prereq., 106-107- 108)				
112f-113w-114s	Ensemble				
	(6 cred.; jr.)				
	Instrumental Sec. 1	II	TTh	4Mu	Mr. Pepinsky
	Vocal 2	II	TTh	104Mu	Miss Hull
115f-116w-117s	Adv. Ensemble: Instrumental... 114)	IV	MW	4Mu	Mr. Pepinsky
	(6 cred.; sr.; prereq., 112-113- 114)				
121f-122w-123s	Romantic Movement	VII	WF	104Mu	Miss Kendall
	(6 cred.; jr., sr.; prereq., 106- 107-108)				
124f-125w-126s	Advanced Harmony	IV, V	T	103Mu	Mr. Scott
	(6 cred.; jr.; prereq., 4-5-6)				
127-128-129	Advanced Composition	Not offered			
	(6 cred.; sr.; prereq., 100-101- 102)				

ORIENTATION

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†	Orientation				
	(10 cred.; entering freshmen; no prereq.)				
	Lect.	III	Th	OLAud	
	Sec. 1	II	MWThFS	6F	
	2	III	MTWFS	102F	
	3	IV	MTWFS	200OLa	
	4	VI	MTWThF	200OLa	
	5	VII	MTWThF	200OLa	
1w-2s†	Orientation	III	MTWFS	6F	
	(See 1f-2w)				

* Students majoring in music may take 4 years of orchestra.

† The entire course must be completed before credit is received for any quarter.

‡ Students may receive credit for 2 years of chorus.

§ Carries no credit for students majoring in piano. May be taken only with the consent of the instructor.

PHILOSOPHY

Major Adviser: D. P. Swenson

No.	Title	Hour	Day	Bldg.	Instructor
1f	Problems of Philosophy..... (5 cred.; soph., jr., sr.; no pre-req.)	Sec. 1 I	MWThFS	321F	Mr. Conger
		2 II	MWThFS	321F	Ar
1w	Problems of Philosophy..... (See 1f)	Sec. 1 III	MTWFS	321F	Mr. Swenson
		2 VII	MTWThF	321F	Mr. Conger
1s	Problems of Philosophy..... (See 1f)	IV	MTWFS	321F	Mr. Conger
2f	Logic (5 cred.; soph., jr., sr.; no pre-req.)	Sec. 1 III	MTWFS	322F	Mr. Swenson
		2 IV	MTWFS	321F	Ar
2w	Logic (See 2f)	VI	MTWThF	321F	Ar
2s	Logic (See 2f)	Sec. 1 III	MTWFS	321F	Ar
		2 VII	MTWThF	321F	Ar
3f	Ethics (5 cred.; soph., jr., sr.; no pre-req.)	I	MWThFS	322F	Mr. Wilde
3w	Ethics (See 3f)	I	MWThFS	321F	Ar
3s	Ethics (See 3f)	I	MWThFS	322F	Mr. Wilde
10s	Science and Religion..... (2 cred.; soph., jr., sr.; prereq., 10 cred. in phil. or a science)	VII	TTh	204F	Mr. Swenson
50f	Ancient Philosophy (3 cred.; jr., sr.; prereq., 10 cred. or 15 cred. in phil. and soc. sci.)	IV	MWF	322F	Mr. Wilde
51w	Medieval and Renaissance Philo- sophy (3 cred.; jr., sr.; prereq., 10 cred. or 15 cred. in phil. and soc. sci.)	IV	MWF	322F	Mr. Wilde
52s	Modern Philosophy (3 cred.; jr., sr.; prereq., 10 cred. or 15 cred. in phil. and soc. sci.)	IV	MWF	322F	Mr. Wilde
100f	History of Religions..... (3 cred.; jr., sr., grad.; prereq., 10 cred.)	II	TThS	322F	Mr. Conger
101w	Psychology of Religion (3 cred.; jr., sr., grad.; prereq., 10 cred.)	II	TThS	322F	Mr. Conger
102s	Philosophy of Religion..... (3 cred.; jr., sr., grad.; prereq., 10 cred.)	II	TThS	322F	Mr. Swenson

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
103	<i>Esthetics</i> (3 cred.; jr., sr., grad.; prereq., 10 cred.)	<i>Not offered</i>			
1045	History of Esthetic Theory..... (3 cred.; jr., sr., grad.; prereq., 10 cred.)	II	MWF	322F	Mr. Swenson
108f-109w-110s	History of Ethics (6 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 10 cred. in phil.)	IV	TS	322F	Mr. Wilde
115W	Contemporary Philosophy (3 cred.; jr., sr., grad.; prereq., 50 or 51)	III	MWF	322F	Mr. Conger
120	<i>Scandinavian Philosophy</i> (3 cred.; jr., sr., grad.; prereq., 10 cred.)	<i>Not offered</i>			
124	<i>Political and Social Ethics</i> (5 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 10 cred. in phil.)	<i>Not offered</i>			
129W	Development of Political Thought (Same as Pol. Sci. 165. 5 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 10 cred. in phil.)	I	MWThFS	322F	Mr. Wilde
135f-136w	Philosophy of Plato..... (6 cred.; jr., sr., grad.; prereq., 10 cred.)	VIII	MWF	339Lib	Mr. Swenson
141S	Metaphysics (5 cred.; jr., sr., grad.; prereq., 10 cred. in phil. incl. 2)	III	MTWFS	322F	Mr. Conger
147f-148w	Advanced Logic (6 cred.; jr., sr., grad.; prereq., 10 cred. in phil. incl. 2)	II	MWF	322F	Mr. Swenson
151-152	<i>Modern Idealism</i> (6 cred.; sr., grad.; prereq., 15 cred. in phil.)	<i>Not offered</i>			
161f-162w-163s	Seminar in Philosophy..... (9 cred.; sr., grad.; prereq., 20 cred. in phil. and consent of instructor)	Ar	Ar	Ar	Mr. Wilde, Mr. Swenson, Mr. Conger

PHYSICS

Major Adviser: H. A. Erikson

For a teacher's certificate.—Major recommendation: 28 credits including Physics 3, 4, 23, 24, 33, 34, 43, 44, 9, 52 and six additional credits to be elected from the following: 104, 124, 134, 136, 144, 148, 150, 152.

Minor recommendation: 22 credits consisting of the following courses: 3, 4, 23, 24, 33, 34, 43; 44, 9 and 52.

For the specialized curriculum in natural science see College of Education bulletin, Part I.

NOTE.—Courses in laboratory require separate registration.

PROGRAM

Introductory Courses

No.	Title	Hour	Day	Bldg.	Instructor
3f	Elem. of Mechanics..... (3 cred.; all; prereq., Math. 4, or 6)	Lect. VIII Quiz II or IX	MWF Th	150Ph 150Ph	Mr. Erikson
3w	Elem. of Mechanics (See 3f)	Lect. VIII Quiz IX	MWF F	150Ph 150Ph	Mr. Erikson
3s	Elem. of Mechanics..... (See 3f)	Lect. III Quiz IX*	TThS F	150Ph 150Ph	Mr. Erikson
4f	Elem. of Mechanics Lab..... (1 cred.; all; prereq., 3 or reg. in 3)	Sec. 1 VI, VII 2 VIII, IX 3 I, II 4 VIII, IX	T T Th Th	153Ph 153Ph 153Ph 153Ph	Mr. Buchta and assts.
4w	Elem. of Mechanics Lab..... (See 4f)	Sec. 1 VI, VII 2 I, II 3 VI, VII 4 VI, VII 5 VI, VII	M T T Th F	153Ph 153Ph 153Ph 153Ph 153Ph	
4s	Elem. of Mechanics Lab..... (See 4f)	Sec. 1 VI, VII 2 I, II 3 VI, VII 4 VI, VII 5 VIII, IX	M T T Th T	153Ph 153Ph 153Ph 153Ph 153Ph	
9s‡	Acoustics (3 cred.; all; no prereq.)	VIII	MWF	133Ph	Mr. Buchta
11s	Physics Survey (3 cred.; all; no prereq.)	Lect. I Quiz IX	MWF T	166Ph 166Ph	Mr. Erikson and others
23f	Heat (3 cred.; all; prereq., 3)	Lect. III Quiz IX	TThS T	166Ph 166Ph	Mr. Miller Mr. Miller
23w	Heat (See 23f)	Lect. Sec. 1 II 2 VI Quiz Sec. 1 II 2 IX	MWF MWF Th Th	150Ph 150Ph 150Ph 150Ph	Mr. Miller

* Students who take Inorganic Chemistry 10s laboratory at VIII, IX, MWF should try to arrange with Professor Erikson for another quiz hour.

‡ Does not count as part of the pre-medical requirement in physics.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor	
24f	Heat Laboratory (1 cred.; all; prereq., 4, 23, or reg. in 23)	Sec. 1	I, II	T	244Ph	Mr. Miller and assts.
		2	VI, VII	T	244Ph	
		3	VIII, IX	Th	244Ph	
		4	I, II	F	244Ph	
		5	VIII, IX	F	244Ph	
24w	Heat Laboratory (See 24f)	Sec. 1	I, II	T	244Ph	Mr. Miller and assts.
		2	VIII, IX	Th	244Ph	
		3	I, II	F	244Ph	
		4	VIII, IX	F	244Ph	
33f	Optics (3 cred.; all; prereq., 3)	Lect.	I	TThS	133Ph	Mr. Valasek
		Quiz	IX	F	133Ph	
33s	Optics (See 33f)	Lect.	I	TThS	133Ph	Mr. Valasek
		Quiz	IX	F	133Ph	
34f,s	Optics Laboratory (1 cred.; all; prereq., 4 and 33 or reg. in 33)	Sec. 1	VI, VII	Th	236Ph	Mr. Valasek and assts.
		2	VI, VII	F		
43w	Electricity (3 cred.; all; prereq., 3)	Lect.	III	TThS	166Ph	Mr. Zeleny Mr. Zeleny
		Quiz	IX	M	150Ph	
43s	Electricity (See 43w)	Lect. Sec. 1	II	MWF	166Ph	Mr. Zeleny
		2	VI	MWF	166Ph	
		Quiz Sec. 1	II	Th	150Ph	
		2	IX	Th	150Ph	
44w	Electricity Laboratory (1 cred.; all; prereq., 4, 43 or reg. in 43)	Sec. 1	VI, VII	Th	231Ph	Mr. Zeleny and assts.
		2	VIII, IX	Th	231Ph	
		3	VI, VII	M	231Ph	
44s	Electricity Laboratory (See 44w)	Sec. 1	VI, VII	M	231Ph	Mr. Zeleny and assts.
		2	VI, VII	T	231Ph	
		3	VIII, IX	T	231Ph	
		4	I, II	T	231Ph	
<i>Intermediate Courses</i>						
52f,w,s	Laboratory Arts (3 cred.; jr., sr.; prereq., 16 cred. and approval of depart- ment)	VI, VII, VIII	TTh	39Ph	Ar	
101f-103w-105s	Theoretical Physics (15 cred.; jr., sr., grad.; prereq., 12 cred. in phys., Math. 51)	IV	MTWFS	145Ph	Mr. Tate	

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
104	<i>Precision Mechanics</i> (3 cred.; jr., sr., grad.; prereq., 12 cred. and Math. 51)	Not offered			
114f-116w-118s	Elem. Phys. Investigation..... (3 cred.; jr., sr., grad.; prereq., 104, Math. 51)	Ar	Ar	160Ph	Ar
115f-117w-119s	Problem Course (3 cred.; jr., sr., grad.; prereq., 12 cred., Math. 51)	Ar	Ar	145Ph	Mr. Buchta
124s	Pyrometry and Heat..... (3 cred.; jr., sr., grad.; prereq., 23 and 24)	V-IX or Ar	MW	245Ph	Mr. Miller
134f,w	Experimental Optics (3 cred.; jr., sr., grad.; prereq., 34)	VI, VII, VIII	MW	79Ph	Mr. Valasek
136w	Spectrum Analysis (3 cred.; jr., sr., grad.; prereq., 34)	VI, VII, VIII	MW	79Ph	Mr. Valasek
144f	Electricity Measurements (3 cred.; jr., sr., grad.; prereq., 43 and 44)	See 144f, Engineering program			Mr. Zeleny
146w	Advanced Electricity Measure- ments (3 cred.; by permission from in- structor; prereq., 144)	Ar	Ar	232Ph	Mr. Zeleny
148w	Radioactivity (3 cred.; jr., sr., grad.; prereq., 43, 44)	VI, VII, VIII	TTh	145Ph	Mr. Erikson
150f	Conduction through Gases..... (3 cred.; jr., sr., grad.; prereq., 144)	VI, VII, VIII	TTh	145Ph	Mr. Erikson
152s	X-Rays (3 cred.; jr., sr., grad.; prereq., 43, 44)	I	TThS	145Ph	Mr. Erikson

POLITICAL SCIENCE

Major Adviser: W. Anderson

For a teacher's certificate in government.—Major recommendation: at least 36 credits in political science including Introduction to Government and Politics, or American Government, and Elements of Political Science, and at least 12 credits in senior college courses not including Courses 51-52-53.

Minor recommendation: at least 18 credits in political science including Introduction to Government and Politics, or American Government, and Elements of Political Science and 3 credits in Senior College courses exclusive of 51-52-53.

NOTE.—Additional courses which may be included with the consent of the major adviser are: Economics 105; 106; 154; 161; 162; 164; 176; 191-192; 193; History 124; 144; Preventive Medicine 106; Psychology 140; 160; Sociology 100; 101; 102; 140; 141.

For specialized curriculum in social studies, see College of Education bulletin, Part I.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
11,w,s	American National Government.. (5 cred.; soph., jr., sr., and fr. with 10 cred. in hist. or econ.; no prereq.)	Lect. IV Sec. 1 I 2 I 3 II 4 III 5 VI 6 VII	WF MWF TThS TThS TThS MWF MWF	OLAud 221OL 15F(f), 221OL(w), 221OL(s) 111OL(f), 111OL(w), 200OLa(s) 111OL(f,s), 3F(w) 209OL(f), 3F(w), 2F(s) 112OL	Mr. Young
Af-Bw††	Introduction to Government and Politics (10 cred.; freshmen only, except by consent of instructor; no prereq.)	Sec. 1 III 2 IV	MTWFS MTWFS	104F 9F	Mr. Saunders Mr. Lippincott
Aw-Bs††	Introduction to Government and Politics (See Af-Bw)	VI	MTWThF	209OL(w), 111OL(s)	Ar
2w	State Government (5 cred.; soph., jr., sr.; prereq. 1)	Lect. IV Sec. 1 IV 2 II	MW TFS TThS	211OL 211OL 25F	Mr. Field, Mr. Stene
3f,w	Comparative European Govern- ment (5 cred.; soph., jr., sr.; prereq., 1 or A-B)	II	MWThFS	112OL(f), Mr. Lippincott 209OL(w)	
11f,s	Municipal Government (5 cred.; soph., jr., sr.; prereq., 1 or A-B)	Lect. I Sec. 1 I 2 II	MWF ThS ThS	209OL 201F(f), 209OL(s) 2F(f), 111OL(s)	Mr. Anderson
13s	Elements of Political Science... (5 cred.; soph., jr., sr.; prereq., 1)	VI	MTWThF	209OL	Mr. Lippincott
25f,s	World Politics (5 cred.; soph., jr., sr.; prereq., 1 or A-B, or Hist. 1-2)	III	MTWFS	206OLa	Mr. Mills
51-52-53	Business Law		(See bulletin of the School of Business Admin- istration)		
81f-82w-83s†	Readings in Political Science.... (6 cred.; jr., sr.; prereq., 15 cred.)				Staff
91f-92w-93s†	Readings and Theses for Honors (Jr., sr.; cred. ar.)				Mr. Anderson, Mr. Saunders, and others

† Alternative beginning course. Students who take this course should not take and will not receive credit for Courses 1, 2, or 15.

† The entire course must be completed before credit is received for any quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
101f-102w†	Constitutional Law I, II..... (6 cred.; jr., sr., grad.; prereq., 15 cred.)	VI	MWF	221OL	Mr. Field
103s	Constitutional Law III..... (3 cred.; jr., sr., grad.; prereq., 15 cred.)	VI	MWF	221OL	Mr. Field
104s	Problems in State Government... (3 cred.; jr., sr., grad.; prereq., 2)	III	TThS	9F	Mr. Field
105f-106w†	American Constitutional Develop- ment (6 cred.; jr., sr., grad.; prereq., 15 cred. in pol. sci., or Hist. 7-8)	II	MWF	211OL(f), 111OL(w)	Mr. Young
107f	Recent Social Legislation (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. incl. 10 cred. in pol. sci.)	II	TThS	211OL	Mr. Young
108w	Legislative Power and Methods.. (3 cred.; jr., sr., grad.; prereq., 15 cred.)	II	TThS	211OL	Mr. Young
109s	Government and Business..... (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. incl. 10 cred. in pol. sci.)	II	TThS	211OL	Mr. Young
111	Law of Public Utilities..... (3 cred.; grad. and sr. of suit- able prep.)	See Law School bulletin			
113f-114w†	Administrative Law (3 cred.; jr., sr., grad.; prereq., 15 cred.)	III	TThS	9F	Mr. Field
116s	Municipal Powers and Functions (3 cred.; jr., sr., grad.; prereq., 15 cred. incl. 11)	III	MWF	111OL	Mr. Anderson
119*	Jurisprudence (2 cred.; grad., and sr. of suit- able prep.)	See Law School bulletin			Mr. Rottschaefter
131f-132w†	Principles of Public Administra- tion (6 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. incl. 10 cred. in pol. sci.)	II	MWF	12Lib	Mr. Lambie
133s	Problems in Public Administra- tion (3 cred.; jr., sr., grad.; prereq., 131-132)	II	MWF	12Lib	Mr. Lambie
137f	Municipal Administration (3 cred.; jr., sr., grad.; prereq., 15 cred.)	IV	MWF	12Lib	Mr. Lambie
145w-146s†	Comparative Federal Government (6 cred.; jr., sr., grad.; prereq., 15 cred.)	3:30-4:45	WF	12Lib	Mr. Saunders
149f-150w†	Government and Politics of the British Empire (6 cred.; jr., sr., grad.; prereq., 15 cred. or Hist. 109)	VI	MWF	211OL	Mr. Mills

† The entire course must be completed before credit is received for any quarter.

* Second semester.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
153f-154w†	Far Eastern Government and Politics	VII	MWF	209OL	Mr. Quigley
	(6 cred.; jr., sr., grad.; prereq., 3, or 10 cred. and Hist. 1-2)				
161f-162w†	Current Political Thought.	III	MWF	209OL	Mr. Anderson
	(6 cred.; jr., sr., grad.; prereq., 20 cred.)				
163f	American Political Ideas.	3:30-4:45	WF	12Lib	Mr. Saunders
	(3 cred.; jr., sr., grad.; prereq., 15 cred.)				
165w	Develop. of Political Thought.	I	MWThFS	322F	Mr. Wilde
	(5 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 10 cred. in Phil. Same as Phil. 129)				
169s	Problems of Democracy.	III	MWF	221OL	Mr. Lippincott
	(3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci., incl. 10 cred. in pol. sci.)				
171s	Political Psychology	See Psychology 141			
	(3 cred.; jr., sr., grad.; prereq. §)				
175s	Political Parties	II	MWF	111OL	Mr. Saunders
	(3 cred.; jr., sr., grad.; prereq., 15 cred.)				
176f-177w-178s†	Scope and Methods of Political Science	3:30-5:00	Th	12Lib	Mr. Anderson
	(3 cred.; grad., and sr. with approval of instructor)				
181w-182s†	International Law	IV	MWF	209OL	Mr. Quigley
	(6 cred.; sr., grad.; prereq., 20 cred. in soc. sci., incl. 10 cred. in pol. sci.)				
183f	International Organization	IV	MWF	209OL	Mr. Quigley
	(3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci.)				
184	<i>Problems in International Law.</i>	<i>Not offered</i>			
	(3 cred.; sr., grad.; prereq., 181-182)				
187f-188w†	American Diplomatic History.	III	MWF	221OL	Mr. Shippee
	(6 cred.; jr., sr., grad.; prereq., 20 cred. in hist. and pol. sci. or 15 cred. in hist. or pol. sci.)				
189s	Topics in American Foreign Relations	VIII, IX	TTh	339Lib	Mr. Shippee
	(5 cred.; jr., sr., grad.; prereq., 20 cred. in hist. incl. 9, or 20 cred. in pol. sci.)				
191-192†	<i>Far Eastern Diplomacy.</i>	<i>Not offered</i>			
	(6 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. incl. 25, or 10 cred. in pol. sci. and Hist. 1-2)				
193s	Problems of the Pacific.	VII	MWF	209OL	Mr. Quigley
	(3 cred.; jr., sr., grad.; prereq., 153-154 or 191-192)				

† The entire course must be completed before credit is received for any quarter.

§ Open to majors in social science who have had Psy. 1-2 and 4-5 or 7 or Zoology 1-2 and to majors in psychology who have had Psy. 140 or 20 credits in social science.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
195w	Colonization (5 cred.; jr., sr., grad.; prereq., 15 cred. or 20 cred. in soc. sci. incl. 10 cred. in pol. sci.)	III	MTWThF	111OL	Mr. Mills
196s	Topics in Colonial Government.. (3 cred.; jr., sr., grad.; prereq.. consent of instructor)	VI	MWF	112OL	Mr. Mills

NOTE.—Courses 201-202-203, 211-212-213, 221-222-223, and 231-232-233 are open to properly qualified seniors, with the permission of the department.

PREVENTIVE MEDICINE AND PUBLIC HEALTH

For specialized curricula in School Health Work, Nursing Education and Public Health Nursing, see College of Education bulletin, Part I.

MEDICAL SCHOOL

No.	Title	Hour	Day	Bldg.	Instructor
3f,w,s†	Person. Hyg. and Elem. Sanita. (2 cred.; fresh., soph.; no prereq.; 3 sections for men, 40 each; 2 sections for women, 40 each)	IV(men) IX(men) IV(women)	TS TTh TS	*	Dr. Lees and others
5of,w,s	Public and Personal Health..... (3 cred.; jr., sr.; prereq., Zool. 1-2 and Psy. 1-2 or permission of instructor)	V	MWF	*	Dr. O'Brien
52w	Health Care of the Family..... (3 cred.; jr., sr.; prereq., Bact. 41, Hum. Physiol. 4) (Lab. sections limited to 20)				
	Lect.	VI	M	*	Dr. Boynton and Miss Fisher
	Lab.	VI, VII	WF	*	
53f,s	Elements of Preventive Medicine (3 cred.; jr., sr.; prereq., Psy. 1-2; Bact. 41 or equiv.)	II	MWF	*	Dr. Diehl
57s	Health of Infant and Pre-school Child (2 cred.; jr., sr.; prereq., Zool. 1-2, Psy. 1-2; or 50, or 53)	III	TTh	*	Dr. Boynton
58w	Maternal and Child Hygiene.... (2 cred.; jr., sr.; prereq., 50 or 53)	III	MW	*	Dr. Boynton
59w	(For public health nurses only) Social Hygiene (1 cred.; jr., sr.; prereq., 50, 52, or 53, or permission of instruc- tor)	VII	M	Ar	Dr. Owings
60w	Tuberculosis and Its Control.... (2 cred.; jr., sr.; prereq., 50 or 52 or 53)	IV	TS	*	Dr. Myers

* Classroom schedule will be posted on bulletin board in Millard Hall, also published in the *Minnesota Daily* at the beginning of each quarter.

† Students may complete the former requirement in freshman hygiene by registering for this course.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
61w	Mental Hygiene (3 cred.; jr., sr.; prereq., 50 or 52 or 53, Psy. 1-2)	III	TThS	*	Dr. deBerry
62f,s	Principles of Public Health Nursing and Special Fields.. (5 cred.; jr., sr.; public health nurses)	II I	TTh MWF	*	Miss Butzerin
64f,w,s	Field Practice in Infant Welfare Nursing (3 cred.; jr., sr.; prereq., 58 and 62)	Ar	Ar	Ar	Miss Butzerin, Miss Peck
65f,w,s	Field Practice in School Nursing (2 cred.; jr., sr.; prereq., 62)	Ar	Ar	Ar	Miss Butzerin
66f,w,s	Field Practice in County Nursing (2 cred.; jr., sr.; prereq., 62)	Ar	Ar	Ar	Miss Butzerin
67f,w,s	Field Practice in a Tuberculosis Sanatorium (2 cred.; jr., sr.; prereq., 60 and 62)	Ar	Ar	Ar	Dr. Mariette
68f,w,s	Field Practice in Visiting Nursing (5 cred.; jr., sr.; prereq., 62)	Ar	Ar	Ar	Miss Butzerin, Miss Houlton
73w	Occupational Hygiene and Disease (2 cred.; jr., sr.; prereq., 53)	IV	MW	*	Dr. Myers
80w	Health Supervision of the School Child (3 cred.; jr., sr.; prereq., 50 or 52 or 53)	II	MWF	*	Dr. Diehl
102w	Sanitation (Cred. ar.; jr., sr., grad.; prereq., Bact. 101; Anal. Chem. 1-2 or 7; Org. Chem. 1-2 or 51-52-53; Phys. 24, 34, 44)	Ar	Ar	*	Mr. Whittaker
103s	Public Health Bacteriology..... (3 cred. or ar.; jr., sr., grad.; prereq., Bact. 101, 116)	VII. VIII or ar	MWF or ar	*	Dr. McDaniel
106f,w,s	Public Health Administration... (Cred. ar.; jr., sr., grad.; prereq., 53 or 101)	Ar	Ar	Ar	Dr. Diehl
107s	Sanitary Surveys (2 cred.; jr., sr., grad.; prereq., 53 or 100)	Ar	Ar	Ar	Dr. Diehl

PSYCHOLOGY

Major Advisers: R. M. Elliott, D. G. Paterson, C. Bird, M. A. Tinker

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†	General Psychology (6 cred.; soph., jr., sr.; no prereq.)				Mr. Elliott and others
	Sec. 1	I	MWF	OLAud	
	2	III	MWF	OLAud	

* Classroom schedule will be posted on bulletin board in Millard Hall, also published in the *Minnesota Daily* at the beginning of each quarter.

† The entire course must be completed before credit is received for any quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
1W-2S†	General Psychology (See 1f-2w. Registration limited. Written permission must be obtained from junior college office‡)	Ar	Ar	Ar	
1S,2S	General Psychology (6 cred.; see 1f-2w. Registration limited. Written permission must be obtained from junior college office§)	Ar	Ar	Ar	
3S	Psychology Applied to Daily Life (3 cred.; soph., jr., sr.; prereq. 1-2)	III	MWF	30:F	Mr. Paterson and others
4f-5W†¶	Intro. Lab. Psychology..... (4 cred.; soph., jr., sr.; with or after 1-2) (Sections limited to 48)				
	Sec. 1	I, II	TTh	211Psy	Mr. Tinker and others
	2	III, IV	TS	211Psy	
	3	VI, VII	TTh	211Psy	
	4	VIII, IX	TTh	211Psy	
	5	III, IV	MW	211Psy	
7S¶	Intro. Lab. Psychology..... (Identical with 4-5 combined. See 4f-5w)				
	Sec. 1	VI, VII	MTThF	211Psy	Mr. Tinker and others
	2	III, IV	MTWF	211Psy	
9S	Intro. to Animal Psychology.... (3 cred.; soph., jr.; prereq. 1-2)	III	MWF	109Psy	Mr. Heron
15S	Psychology of Sensation..... (3 cred.; soph., jr., sr.; prereq. 1-2)	II	TThS	211Psy	Mr. Tinker
56W*	Psychology of Advertising..... (3 cred.; jr., sr.; prereq. 1-2, and Prin. of Econ.)	VII	MWF	133Ph	Mr. Longstaff
72f	Psychological Esthetics (3 cred.; jr., sr.; prereq. 1-2, and 4-5, or Music 1-2-3, or Art. Educ. 20-21 or 9 cred. fine arts)	III	MWF	115Psy	Miss Hevner
101f-102W†-103S	Experimental Psychology (3 cred. per qtr.; cred. ar. for honors students; jr., sr., grad.; prereq. 1-2, and 4-5 or 7, or 8 cred. in physics)	VII VIII	MWF WF	116Psy	Mr. Tinker
108	Systems of Psychology..... (3 cred.; jr., sr., grad; prereq. 1-2; 4-5 or 7)	<i>Not offered</i>			

* Cannot be counted for a minor sequence.

† The entire course must be completed before credit is received for any quarter.

‡ Offered VII MWF, VIII MWF.

§ Offered II MTWThFS, IV MTWThFS.

¶ A laboratory fee will be charged for the courses in Elementary Laboratory Psychology: \$1 per quarter for Course 4-5, \$2 for Course 7.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
109f,s	Readings in Psychology..... (3 cred.; jr., sr., grad.; prereq., 1-2; 4-5 or 7, or Zool. 1-2; and permission of instructor)	Ar	Ar	Ar	Mr. Heron(f) Mr. Tinker(s)
114w-115s†	Human Behavior (6 cred.; jr., sr., grad.; prereq., 1-2; 4-5 or 7, or Zool. 1-2)	II	TThS	115Psy	Mr. Elliott
124f	Ps. chology of Learning..... (3 cred.; jr., sr., grad.; prereq., 1-2; 4-5 or 7)	IV	MWF	109Psy	Mr. Heron
125f-126w†-127s	Psy. of Individual Differences... (3 cred. per qtr.; cred. ar. for honor students; jr., sr., grad.; prereq., 1-2; 4-5 or 7, or Ed. Psy. 116-117)	II	MWF	115Psy	Mr. Paterson
130s	Vocational Psychology (2 cred.; jr., sr., grad.; prereq., 1-2, 4 additional cred. in psy., educ., or a soc. sci.)	IX, X	F	301F	Mr. Paterson
137	<i>Psychology of Learning.....</i> (3 cred.; jr., sr., grad.; prereq., 124 or equiv.)	<i>Not offered</i>			
140w	Social Ps. chology (3 cred.; jr., sr., grad.; prereq., 1-2; 4-5 or 7, or Zool. 1-2 or 20 cred. in a soc. sci.)	III	TThS	115Psy	Mr. Biro
141s	Political Psychology (3 cred.; jr., sr., grad.; prereq.‡)	III	TThS	115Psy	Mr. Bird
144w-145s†	Abnormal Psychology (6 cred.; jr., sr., grad.; prereq., 1-2; 4-5 or 7, or Zool. 1-2 or 10 cred. in a soc. sci.)	IV	MWF	133Ph(w) 301F(s)	Mr. Heron
151f-152w†-153s	Animal Psychology (3 cred. per qtr.; cred. ar. for honor students; jr., sr., grad.; prereq., 1-2; 4-5 or 7, Zool. 1-2)	VI Lab.	MWF Ar	Ar	Mr. Heron
160f	Psychology in Personnel Work... (3 cred.; jr., sr., grad.; prereq., 1-2, and Prin. of Econ. or 10 cred. in pol. sci.)	VI	MWF	115Psy	Mr. Longstaff
168	<i>Perception of Space.....</i> (3 cred.; jr., sr., grad.; prereq., 101-102 or permission of in- structor)	<i>Not offered</i>			
172	<i>Reaction Time</i> (3 cred.; jr., sr., grad.; prereq., 101-102 or permission of in- structor)	<i>Not offered</i>			

† Two quarters must be completed before credit is received for any quarter.

‡ Open to majors in social science who have had Courses 1-2 and 4-5 or 7, or Zoology 1-2 and to majors in psychology who have had Course 140 or 20 credits in social science.

ROMANCE LANGUAGES

Major Adviser: F. B. Barton

For a teacher's certificate.—Major recommendation: 36 credits in one language numbered above 4, these courses to include in the case of French, Survey of French Literature and one other literary course; 49; 53-54-55 (or 20); 63, and 103-104-105.

Minor recommendation: 18 credits in one language in courses numbered above 4.

Admission to advanced courses.—No student will be allowed to elect courses more advanced than intermediate French or Spanish, who has not received an average grade of C in the intermediate courses.

FRENCH

No.	Title	Hour	Day	Bldg.	Instructor	
1f-2w†*	Beginning French	I	MWThFS	213F	Ar	
		(10 cred.; fr., soph., jr., sr.; no prereq.)	II	MWThFS	227F	Ar
		IV	MTWFS	227F	Ar	
		VI	MTWThF	226F	Ar	
1w-25†*	Beginning French	VII	MTWThF	202F	Ar	
		IV	MTWFS	202F	Ar	
1s†*	Beginning French	VI	MTWThF	202F	Ar	
		(See 1f-2w)	I	MWThFS	227F	Ar
2f†*	Beginning French	IV	MTWFS	212F	Ar	
		I	MWThFS	202F	Ar	
3f-4w	Beginning French	(2nd qtr. of 1-2. See 1f-2w)	VI	MTWThF	213F	Ar
		Intermediate French	I	MWThFS	124F	Ar
		(10 cred.; fr., soph., jr., sr.; prereq., 1-2, or 2 yrs. high school French)	III	MTWFS	226F	Ar
3w-4s	Intermediate French	VII	MTWThF	213F	Ar	
		I	MWThFS	202F	Ar	
3s	Intermediate French	(See 3f-4w)	VI	MTWThF	213F	Ar
		I	MWThFS	213F	Ar	
4f	Intermediate French	(First qtr. of 3-4. See 3f-4w)	II	MWThFS	227F	Ar
		IV	MTWFS	227F	Ar	
		VI	MTWThF	226F	Ar	
		VII	MTWThF	202F	Ar	
8f-9w-10s‡	Intermediate French	II	MWThFS	113F	Ar	
		(2nd qtr. of 3-4. See 3f-4w)	IV	MTWFS	124F	Ar
2of	Scientific French (pre-med.)... (9 cred.; pre-med.; prereq., 3 or equiv.)	VI	MTWThF	202F	Ar	
		I	MWF	201F	Ar	
2of	Oral and Written French..... (5 cred.; all; prereq., 4 or 3 yrs. high school French)	I	MWF	201F	Ar	
		III	MTWFS	303F	Mr. Boyer	
2os	Oral and Written French..... (See 2of)	VII	MTWThF	227F	Mr. Frelin	
		I	MWThFS	124F	Ar	
		III	MTWFS	226F	Ar	
21f-22w-23s†	Survey of French Lit. (9 cred.; all; prereq., 3-4 or 20 or 4 yrs. high school French)	VII	MTWThF	213F	Mr. Frelin	
		II	TThS	226F	Mr. Otmsted	
		III	MWF	201F	Mr. Clefthon	
		VII	MWF	201F	Mr. Searles	

* Credit is usually not given for more than one beginning language. See page 6, Science, Literature, and the Arts bulletin, Part II.

† The entire course must be completed before credit is received for any quarter.

‡ Students may enter any quarter. No student may receive credit for more than two quarters.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
24w-25s†	Survey of French Lit..... (10 cred.; all; prereq., 3-4 or 20 or 4 yrs. high school French)	III VII	MTWFS MTWThF	303F 226F	Mr. LeCompte Mr. Owens
49f,w,s	French Pronunciation (3 cred.; all; prereq., 3-4 or 4 yrs. high school French)	II	TThS	303F	Mr. Owens
53f	French Composition (3 cred.; jr., sr.*; prereq., 3-4)	III VI	TThS MWF	201F 201F	Mr. Boyer Mr. Borglum
54w-55s	French Conversation (4 cred.; jr., sr.*; prereq., 53 or 20)	III VI	TThS MWF	201F 201F	Mr. Boyer Mr. Borglum
62w	Practical French Phonetics..... (3 cred.; jr., sr.*; prereq., 49)	II	TThS	203F	Miss Guinotte
63f	Adv. French Composition..... (3 cred.; jr., sr.*; prereq., 53 or 20 with a grade of B)	II VII	MWF MWF	203F 203F	Miss Guinotte Miss Guinotte
64w-65s	Adv. French Conversation..... (6 cred.; jr., sr.*; prereq., 54, 55 or 20 with a grade of B)	II VII	MWF MWF	203F 203F	Miss Guinotte Mr. Borglum
80f-81w-82s	French Lit.: 19th Century..... (9 cred.; jr., sr.*; prereq., 21- 22-23 or 24-25)	IV	MWF	201F	Mr. Clefton
100s	French Oral Diction..... (4 cred.; jr., sr., grad.; prereq., 62)	I	MWThF	203F	Miss Guinotte
103f-104w-105s†	French Syntax and Comp..... (3 cred.; jr., sr., grad.; prereq., 63)	VI	F	217F	Mr. Sirich
115f	Fr. Lit.: 17th Cent.: Formation of Classic Ideal (4 cred.; jr., sr., grad.; prereq., 21-22-23, or 24-25)	IV	MTWF	203F	Mr. Searles
116w	Fr. Lit.: 17th Cent.: Molière, Racine, La Fontaine (4 cred.; jr., sr., grad.; prereq., 21-22-23 or 24-25)	IV	MTWF	203F	Mr. Searles
117s	Fr. Lit.: 17th Cent.: Moral and Didactic Literature (4 cred.; jr., sr., grad.; prereq., 21-22-23 or 24-25)	IV	MTWF	203F	Mr. Searles
118f-119w-120s	French Lit.: 18th Century..... (9 cred.; jr., sr., grad.; prereq., 21-22-23 or 24-25)	III	TThS	217F	Mr. Sirich
121-122-123	French Lit.: 16th Century..... (9 cred.; jr., sr., grad.; prereq., 80-81-82, or 115-116-117 or 118- 119-120)	Not offered			
145w-146s	Explication de Textes..... (4 cred.; jr., sr., grad.; prereq., 80-81-82 or 115-116-117, or 118- 119-120)	VII	TTh	203F	Mr. Boyer
150f-151w-152s	French Dramatic Lit..... (6 cred.; jr., sr., grad.; prereq., 21-22-23 or 24-25)	III	TTh	203F	Mr. Olmsted

* Open without petition to sophomores who have an average of C in all their previous work and in the prerequisite courses.

† The entire course must be completed before credit is received for any quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
153s	Contemporary French Lyric Poetry (4 cred.; jr., sr., grad.; prereq., 21-22-23 or 24-25)	VI	MTWTh	217F	Mr. LeCompte
157w	Modern French Novel..... (4 cred.; jr., sr., grad.; prereq., 21-22-23 or 24-25)	VI	MTWTh	217F	Mr. Boyer
171f-172w-173s†	History of French Language.... (3 cred.; jr., sr., grad.; prereq., 63)	VIII	Th	203F	Mr. LeCompte
174f-175w-176s	Contemp. French Novel and Drama: Lectures in French.... (6 cred.; jr., sr., grad.; prereq., 53-54-55 (or 20); and 80-81-82)	IX	TTh	201F	Mr. Boyer

ITALIAN

NOTE.—Students may receive credits for Italian 1-2 in addition to one other beginning language.

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†	Beginning Italian (10 cred.; fr., soph., jr., sr.; no prereq.)	IV	MTWFS	226F	Mr. Brackney
3s	Intermediate Italian (First qtr. of 3-4. 10 cred.; fr., soph., jr., sr.; prereq., 1-2)	IV	MTWFS	226F	Mr. Brackney
4	<i>Intermediate Italian</i> (See 3s)	<i>Not offered</i>			
7of	Survey of Italian Lit. (3 cred.; jr., sr.*; prereq., 3-4‡)	II	TThS	217F	Mr. Brackney
71w	Modern Poetry (Leopardi, Car- ducci) (3 cred.; jr., sr.*; prereq., 3-4‡)	II	TThS	217F	Mr. Brackney
72	<i>Modern Drama (Giacosa, Bracco, Pirandello)</i> (3 cred.; jr., sr.*; prereq., 3-4‡)	<i>Not offered</i>			
73s	Boccaccio (3 cred.; jr., sr.*; prereq., 3-4‡)	II	MWF	217F	Mr. Brackney
74	<i>Petrarch</i> (3 cred.; jr., sr.*; prereq., 3-4‡)	<i>Not offered</i>			
159-160	<i>Dante</i> (6 cred.; jr., sr., grad.; prereq., one course above 50)	<i>Not offered</i>			
161f-162w	The Sixteenth Century (6 cred.; jr., sr., grad.; prereq., one course above 50)	II	MWF	217F	Mr. Brackney
164s	Dante (in English) (3 cred.; jr., sr., grad.; prereq., French 21-22-23 or 24-25, or 8 cred. in Eng. above 50)	II	TThS	212F	Mr. Brackney

* Open without petition to sophomores who have an average of C in all their previous work and in the prerequisite courses.

† The entire course must be completed before credit is received for any quarter.

‡ For students beginning Italian in the Senior College, 1-2 and permission of instructor.

COLLEGE OF EDUCATION

SPANISH

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†||	Beginning Spanish	I	MWThFS	226F	Ar
	(10 cred.; fr., soph., jr., sr.; no prereq.)	IV	MTWFS	125F	Ar
		VI	MTWThF	212F	Ar
1w-2st||	Beginning Spanish	VII	MTWThF	227F	Ar
	(See 1f-2w)			(winter)	
				(spring)	
				(spring)	
1st||	Beginning Spanish	II	MWThFS	201F	Ar
	(First qtr. of 1-2)				
2f	Beginning Spanish	III	MTWFS	202F	Ar
	(2nd qtr. of 1-2. See 1f-2w)				
3f-4w	Intermediate Spanish	II	MWThFS	201F	Ar
	(10 cred.; fr., soph., jr., sr.; prereq., 1-2 or 2 yrs. high school Spanish)	VI	MTWThF	102F	Ar
3w-4s	Intermediate Spanish	III	MTWFS	202F	Ar
	(See 3f-4w)				
3s	Intermediate Spanish	I	MWThFS	226F	Ar
	(First qtr. of 3-4. See 3f-4w)	IV	MTWFS	125F	Ar
		VI	MTWThF	212F	Ar
4f	Intermediate Spanish	II	MWThFS	202F	Ar
	(2nd qtr. of 3-4. See 3f-4w)	VI	MTWThF	227F	Ar
20s	Oral and Written Spanish.....	III	MTWFS	213F	Ar
	(5 cred.; all; prereq., 4, or 3 yrs. high school Spanish)				
30s	Spanish Commercial Correspondence	VII	MWF	209F	Mr. LeFort
	(3 cred.; all; prereq., 3)				
53f	Spanish Composition	II	MWF	304F	Mr. LeFort
	(3 cred.; jr., sr.*; prereq., 3-4)				
54w-55s	Spanish Conversation	II	MWF	304F	Mr. LeFort
	(4 cred.; jr., sr.*; prereq., 53 or 20)				
60f	Adv. Spanish Composition.....	VI	MWF	203F	Mr. Arjona
	(3 cred.; jr., sr.*; prereq. 53 or 20 with grade of B)				
61w-62s	Adv. Spanish Conversation.....	VI	MWF	203F	Mr. Arjona
	(6 cred.; jr., sr.*; prereq., 54-55 or 20 with grade of B)				
65f-66w-67st	Survey of Spanish Lit.	II	TThS	109F	Mr. LeFort
	(9 cred.; jr., sr.*; prereq., 3-4)				
68w-69st	Survey of Spanish Lit.	VI	MTWThF	227F	Mr. LeFort
	(10 cred.; jr., sr.*; prereq., 3-4)				
70w-71s	Latin American Culture and Development	III	MWF	108F	Mr. LeFort
	(6 cred.; jr., sr.*; prereq., 3-4)				
110f-111w-112s	Spanish Lit.: 19th Century.....	IV	MWF	108F	Mr. Arjona
	(9 cred.; jr., sr., grad.; prereq., 65-66-67, or 68-69)				

* Open without petition to sophomores who have an average of C in all their previous work and in the prerequisite courses.

† The entire course must be completed before credit is received for any quarter.

|| Credit is usually not given for more than one beginning language. See page 6, Science, Literature, and the Arts bulletin, Part II.

PROGRAM

103

No.	Title	Hour	Day	Bldg.	Instructor
115f-116w-117s	Spanish Lit.: 17th Century..... (9 cred.; jr., sr., grad.; prereq., 65-66-67, or 68-69)	II	TThS	305F	Mr. Arjona
141	<i>Modern Spanish Novel</i> (4 cred.; jr., sr., grad.; prereq., 65-66-67, or 68-69)	<i>Not offered</i>			
150s	Modern Spanish Drama (4 cred.; jr., sr., grad.; prereq., 65-66-67, or 68-69)	VII	MThF	102F	Mr. Arjona
156-157-158	<i>Spanish Lit.: 16th Century</i> (9 cred.; jr., sr., grad.; prereq., 65-66-67, or 68-69)	<i>Not offered</i>			
174f-175w-176s	Contemporary Spanish Literature: Lectures in Spanish (6 cred.; jr., sr., grad.; prereq., 20 (or 53-54-55) and 65-66-67)	IX	TTh	202F	Mr. Arjona

SCANDINAVIAN

NOTE.—Additional courses in Scandinavian literature will be announced later.

No.	Title	Hour	Day	Bldg.	Instructor
1-2||	<i>Beginning Norwegian</i> (10 cred.; fr., soph., jr., sr.; no prereq.)	<i>Not offered</i>			
3	<i>Intermediate Norwegian</i> (5 cred.; fr., soph., jr., sr.; prereq., 1-2, or 1 yr. high school)	<i>Not offered</i>			
4-5	<i>Adv. Norwegian (Survey)</i> (10 cred.; soph., jr., sr.; prereq., 1-2-3 or 2 yrs. high school)	<i>Not offered</i>			
7f-8w||	Beginning Swedish (10 cred.; fr., soph., jr., sr.; no prereq.)	II	MWThFS	206F	Mr. Stomberg
9s	Intermediate Swedish (5 cred.; all; prereq., 7-8 or 1 yr. high school)	II	MWThFS	206F	Mr. Stomberg
10f-11w	Advanced Swedish (10 cred.; soph., jr., sr.; prereq., 7-8-9 or 2 yrs. high school)	I	MWThFS	110F	Mr. Stomberg
12s	Ancient and Medieval Scandina- vian History (5 cred.; soph., jr., sr.; prereq., 10-11, or 4-5, or Hist. 1-2)	I	MWThFS	110F	Mr. Stomberg
45s	Scandinavian Mythology (3 cred.; jr., sr. §; prereq., none)	IV	MWF	206F	Mr. Stomberg
107-102-103	<i>Modern Norwegian Lit.</i> (9 cred.; jr., sr., grad.; prereq., 4-5)	<i>Not offered</i>			
104f-105w	Modern Scandinavian History... (6 cred.; jr., sr., grad.; prereq., 10-11-12, or 4-5, or 15 cred. in hist.)	IV	MWF	206F	Mr. Stomberg

|| Credit is usually not given for more than one beginning language. See page 6, Science, Literature, and the Arts bulletin, Part II.

§ Does not count for a senior college course. Not open to sophomores. See Course Numbering, page 23, Science, Literature, and the Arts bulletin, Part II.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
107f-108w-109s	Modern Swedish Literature.... (9 cred.; jr., sr., grad.; prereq., 10-11)	VI	MWF	206F	Mr. Stomberg
110	<i>Ibsen</i>	<i>Not offered</i>			
	(3 cred.; sr., grad.; prereq., 101- 102-103)				
111-112-113	<i>Old Norse (Icelandic)</i>	<i>Not offered</i>			
	(6 cred.; sr., grad.; prereq., con- sent of instructor)				
114f	<i>Strindberg</i>	Ar	Ar	Ar	Mr. Stomberg
	(3 cred.; sr., grad.; prereq., 107- 108-109)				
117	<i>Earlier Norwegian Literature</i>	<i>Not offered</i>			
	(5 cred.; jr., sr., grad.; prereq., 4-5)				
130f-131w-132s	Danish Lit. of the 19th Century	Ar	Ar	Ar	Ar
	(9 cred.; jr., sr., grad.; prereq., 4-5)				
136	<i>Björnson</i>	<i>Not offered</i>			
	(3 cred.; sr., grad.; prereq., 101- 102-103, or 130-131-132)				

SOCIOLOGY AND SOCIAL WORK

Major Adviser: F. S. Chapin

Major in social theory.—36 or 37 credits as follows: 1, 6, 14, 53 or 45, 49, 100, 101, 102, 110, 114 or 140, 119 or 120, 121 or 141.

Major in applied sociology.—36 or 37 credits as follows: 1, 14, 45, 49, 52, 60, 90, 91, 100, 110, 112 or 122-123, 114 or 128 or 130, 119 or 134.

Requirement for minor.—19 or 20 credits including 1 and 6 or 14.

NOTE.—Students majoring in sociology must complete two teaching minors in addition to the required professional courses. Teachers who already hold a teacher's certificate may be relieved of this requirement upon petition.

For specialized curriculum in social studies see College of Education bulletin, Part I.

No.	Title	Hour	Day	Bldg.	Instructor
1f,w	Introd. to Sociology..... (5 cred.; 3rd qtr. fr., soph., jr., sr.; no prereq.)				
	Lect.	I	TTh	OLAud	Mr. Willey and others
	Sec. 1	I	MWF	2OPh	
	2	III	MWF	104OPh	
	3	IV	MWF	109OPh	
	4	V	MWF	109OPh	
	5	VI	MWF	104OPh	
	6	VII	MWF	2OPh	
	7	III	TThS	109OPh	
	(Univ. Farm, 3 cred.)	8	IV	MWF	*

* Consult the bulletin of the College of Agriculture, Forestry, and Home Economics.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
18	Introduc. to Sociology..... (See 1f)				
	Lect.	I	TTh	OLAud	Mr. Willey
	Sec. 1	I	MWF	2OPh	and others
	2	II	MWF	2OPh	
	3	III	MWF	104OPh	
	4	IV	MWF	109OPh	
	5	V	MWF	109OPh	
	6	VI	MWF	109OPh	
	7	VII	MWF	104OPh	
	8	II	TThS	104OPh	
	9	III	TThS	109OPh	
	(Univ. Farm, 3 cred.)	10	IV	MWF	*
6f,w	Social Interaction				
	(3 cred.; soph., jr., sr.; prereq., 1)				
	Lect.	II	WF	OPhAud	Mr. Kirkpatrick
	Sec. 1	I	T	2F	and others
	2	II	M	2OPh	
	3	II	T	104OPh	
	4	IV	T	109OPh	
6s	Social Interaction				
	(See 6f)				
	Lect.	III	MF	OPhAud	Mr. Kirkpatrick
	Sec. 1	III	T	104OPh	and others
	2	III	W	113F	
	3	III	Th	104OPh	
	4	II	T	2OPh	
14f,w,s	Rural Sociology				
	(3 cred.; soph., jr., sr.; prereq., 1)				
	Lect.	IV	MW	OPhAud	Mr. Zimmerman
	Sec. 1	III	S	2OPh	and others
	2	IV	F	2OPh	
	3	VI	Th	109OPh	
	4	VI	F	2OPh	
45f,w†	Social Statistics	VII	MTWThF	109OPh	Mr. Vold
	(5 cred.; soph., jr., sr.; prereq., 1)				
49f,w,s	The Occurrence of the Socially Inadequate	I	MWF	109OPh	Mrs. Fenlason
	(3 cred.; 3d qtr. soph., jr., sr.; prereq., 10 cred. in soc. or Soc. 1 and 10 cred. in soc. sci. or psy.)				
52f,w,s	Elem. Case Work.....	I	TThS	109OPh	Miss Vaile
	(3 cred.; jr., sr.; prereq., 49, 90 to be taken simultaneously)				
53f,w,s	Elem. of Criminology	III	MWF	109OPh	Mr. Vold
	(3 cred.; jr., sr.; prereq., same as for 49)				
54w	The History and Theory of Social Work	I	MWF	108F	Miss Salsberry
	(3 cred.; jr., sr.; prereq., Soc. 49, 52 or simultaneously with 52)				

* Consult the bulletin of the College of Agriculture, Forestry, and Home Economics.

† No student may receive credit for both Course 45 and Economics 14.

No.	Title	Hour	Day	Bldg.	Instructor
55s	Social Aspects of Housing Problems (3 cred.; jr., sr.; prereq., same as for 49)	I	MWF	5F	Miss Salsberry
60f,w	Social Protection of the Child.. (3 cred.; jr., sr.; prereq., 49 and 52)	VI	MWF	109OPh	Mrs. Doyle
70f,w	Group Work in the Community (3 cred.; jr., sr.; prereq., 49)	I	MWF	15F	Miss Mead
71f,w-72f,w	Elementary Field Training in Group Work	Ar	Ar	Ar	Miss Vaile, Miss Jones
90f,w,s-91f,w,s-92f,w,s	Elementary Field Training in Case Work				
	(2 cred. each qtr.; jr., sr.; prereq., 49, and 52 simultaneously with 90)				
	(Fall)	Sec. 1	I, II, III	MW	Mrs. Iverson.
		2	I, II, III	WF	Mrs. Fenlason
		3	VI, VII, VIII	MW	
		4	VI, VII, VIII	WF	
		5	VI, VII, VIII	TTh	
	(Winter)	Sec. 1	II, III, IV	MW	Mrs. Iverson.
		2	II, III, IV	WF	Mrs. Fenlason
		3	VI, VII, VIII	MW	
		4	VI, VII, VIII	WF	
		5	VI, VII, VIII	TTh	
	(Spring)	Sec. 1	VI, VII, VIII	MW	Mrs. Iverson,
		2	VI, VII, VIII	WF	Mrs. Fenlason
		3	II, III, IV	TTh	
		4	VI, VII, VIII	TTh	
93f,s	The Social Heritage and the Individual	II	TThS	2OPh(f) 15F(s)	Mr. Finney
	(3 cred.; jr., sr.; prereq., Soc. 1 and 15 cred. in soc. sci., ed., phil., or psy.)				
94f	Essentials of Medicine for Social Workers	IX	MWF	2OPh	Med. Staff U.H., Miss Gardiner
	(3 cred.; jr., sr.; prereq., Soc. 49, 52, 90, 91)				
100f	Social Psychology	II	TThS	109OPh	Mr. Kirkpatrick
	(3 cred.; jr., sr., grad.; prereq., Soc. 1, and 15 cred. in soc. sci., educ., phil., or psy.)				
101w	Social Organization	II	TThS	109OPh	Mr. Chapin
	(3 cred.; jr., sr., grad.; prereq., 4 courses in soc., or Soc. 1 and 15 cred. in soc. sci., educ., phil., or psy.)				
102s	Social Control	II	MWF	109OPh	
	(3 cred.; jr., sr., grad.; prereq., same as for 101)				
103s	Sociology of Conflict	II	MWF	110F	
	(3 cred.; jr., sr., grad.; prereq., same as for 101)				

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
110f	Rural Organization (3 cred.; jr., sr., grad.; prereq., same as for 101)	V	MWF	104OPh	Mr. Zimmerman
112w	The Rural Social Survey..... (2 cred.; jr., sr., grad.; prereq., same as for 101)	V	MW	104OPh	Mr. Zimmerman
114s	Rural Social Institutions..... (3 cred.; jr., sr., grad.; prereq., same as for 101)	I	MWF *		Mr. Lundquist
116w	The Newspaper As a Social Institution (3 cred.; jr., sr., grad.; prereq., same as for 101)	IV	MWF	104OPh	Mr. Willey
119f	The Family (3 cred.; jr., sr., grad.; prereq., same as for 101)	III	TThS	104OPh	
120f	Social Progress (3 cred.; jr., sr., grad.; prereq., same as for 101)	II	MWF	109OPh	Mr. Wallis
121w	Advanced Statistical Methods... (3 cred.; jr., sr., grad.; prereq., 4 courses in soc., including 45 or its equivalent)	VII	MWF	104OPh	Mr. Chapin
122w-123s	Methods of Social Investigation.. (6 cred.; jr., sr., grad.; prereq., same as for 101)	VIII	MWF	109OPh	
126s	Technique of Leadership in Group Work (3 cred.; sr., grad.; prereq., 70, 71)	I	TThS	104OPh	Miss Mead
128s	Principles of Administration, Publicity and Finance Applied to Social Work (2 cred.; jr., sr., grad.; prereq., same as for 101)	VIII, IX	Th	109OPh	Mr. Bradley
130s	Advanced Case Work..... (2 cred.; sr., grad.; prereq., same as for 101 incl. 49 and 52)	VIII, IX	T	109OPh	Mrs. Fenlason
131w	Rural Social Case Work..... (3 cred.; sr., grad.; prereq., 52, 90, 91)	III	TThS	104OPh	Miss Vaile
132	Juvenile Courts and Probation... (2 cred.; jr., sr., grad.; prereq., 49, 52, 53)	<i>Not offered</i>			
133f	Social Case Work in Health Problems (3 cred.; sr., grad.; prereq., 52, 90, 91 and Prev. Med. 50, or 53, or simultaneously)	IX IV	Th S	109OPh	Miss Gardiner
134s	Legal Protection of the Child... (3 cred.; jr., sr., grad.; prereq., same as for 101 incl. 60)	I	MWF	109F	Mr. Waite
135s	Field Practice in Legal Protection of the Child..... (2 cred.; jr., sr., grad.; prereq., 90, open to students taking 134)	Ar	Ar	Ar	Miss Vaile, Mrs. Fenlason

* Consult the bulletin of the College of Agriculture, Forestry, and Home Economics.

No.	Title	Hour	Day	Bldg.	Instructor
138w-139s	Mental Case Work..... (6 cred.; sr., grad.; prereq., 52, 90, 91 and Psy. 144-145, or Prev. Med. 61, or simultaneously)	I, II	S and ar	2OPh	Miss Leahy
140w	History of Social Theory..... (3 cred.; jr., sr., grad.; prereq., same as for 101)	II	MWF	109OPh	Mr. Wallis
141s	Contemp. Social Theory..... (3 cred.; jr., sr., grad.; prereq., same as for 101)	II	TThS	109OPh	Mr. Wallis
152	Seminar: <i>Problems of Institutional Administration</i> (2 cred.; sr., grad.; prereq., consent of director)	<i>Not offered</i>			
153f,w,s-154f,w,s-155f,w,s	Advanced Field Training in Group or Case Work..... (3 cred per qtr.; jr., sr., grad.; prereq., 90 and 91)	Ar	Ar	Ar	Miss Vaile, Mrs. Fenlason
160s	Population Problems (3 cred.; jr., sr., grad.; prereq., 4 courses in soc., or Soc. 1 and 15 cred. in soc. sci., ed., phil., or psy.)	III	MWF	2OPh	Mr. Chapin

SPEECH

Major Advisers: F. M. Rarig, B. Bryngelson

For a teacher's certificate.—Major recommendation: Composition 11-12; Speech 41-42-43 or 45-46; 55-56, 61, 67, 71-72, 81-82; total, 40 or 41 credits. Psy. 4-5 or 7 advised.

Minor recommendation: a minimum of 25 credits including 41-42-43 or 45-46; 61 and 67; 55-56-57 or 71-72-73 or 81-82-83.

Minor recommendation in Speech Correction; 28 or 29 credits, including 41-42-43 or 45-46; 61, 67, 161-162; Psy. 144-145.

All students majoring or minoring in Speech must present satisfactory evidence of interest and effective participation in one or more activities, such as debating, dramatics, oratory, public reading, or public speaking.

Because of the close relation between English and Speech in the high schools of Minnesota, students majoring in Speech should have a minor in English.

Students intending to take further work in Speech Correction, specializing in that field alone, should include in their undergraduate course Physiology 4.

Students majoring in Speech should register for Special Methods and Practice Teaching in Ed.T. 52-53-54.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor Mr. Rarig and others	
41f-42w-43s†*	Fundamentals of Speech..... (9 cred.; soph., jr., sr.; prereq., Eng. A-B-C or Comp. 4-5-6 or exemption)	Sec. 1	I	MWF	308F	
		2	II	MWF	308F	
		3	VI	MWF	308F	
		4	I	TThS	311F	
		5	II	TThS	308F	
		6	III	TThS	308F	
41w-42s†*	Fundamentals of Speech..... (See 41f-42w-43s)	II	MWF	311F		
43f†*	Fundamentals of Speech..... (3d qtr. of 41-42-43. See 41f- 42w-43s)	II	MWF	306F		
45f-46w‡*	Fundamentals of Speech..... (10 cred.; soph., jr., sr.; prereq., Eng. A-B-C or Comp. 4-5-6 or exemption)	Sec. 1	III	MTWFS	402F	
		2	IV	MTWFS	402F	
		3	VI	MTWThF	402F	
		4	VII	MTWThF	308F	
		5	VIII	MTWThF	308F	
		45w-46s†*	Fundamentals of Speech..... (See 45f-46w)	Sec. 1	IV	MTWFS	102F
2	VI	MTWThF	6F			
45s†*	Fundamentals of Speech..... (First qtr. of 45-46. See 45f- 46w)	Sec. 1	IV	MTWFS	5F	
		2	III	MTWFS	3F	
		3	VI	MTWThF	125F	
		4	VII	MTWThF	308F	
		46f†*	Fundamentals of Speech..... (2nd qtr. of 45-46. See 45f- 46w)	Sec. 1	IV	MTWFS	6F
2	VI	MTWThF	6F			
51s*	Advanced Public Speaking..... (3 cred.; jr., sr.; prereq., 41- 42-43 or 45-46)	II	MWF	212F	Ar	
55f-56w-57s‡*	Agr. and Debating..... (9 cred.; jr., sr.; prereq., 41-42- 43 or 45-46)	{ VII VII, VIII	{ T Th }	OLAud	Ar	
61f	Speech Correction (4 cred.; jr., sr.; prereq., 41-42- 43 or 45-46; Psy. 1-2)	VI	MTThF	306F	Miss Kennedy	
67s*¶	Phonetics (3 cred.; jr., sr.; prereq., 41-42- 43 or 45-46)	II	MWF	402F	Miss Kennedy	

* Students taking these courses are required to pay a laboratory fee of \$1 each quarter.

† The entire course must be completed before credit is received for any quarter. Students in Education not majoring in Speech may receive credit for Course 41-42.

‡ Two quarters must be completed before credit is received for either quarter.

¶ Students intending to take Advanced Speech Correction should take Phonetics the preceding spring.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
71f-72w-73s*†	Elements of Play Production... (9 cred.; jr., sr.; prereq., 41-42-43 or 45-46)	III	MWF	19Mu	Mr. Staadt
81f-82w-83s*	Interpretative Reading (9 cred.; jr., sr.; prereq., 41-42-43 or 45-46)	Sec. 1 2	IV I	308F 308F	Mr. Rarig Mr. Rarig
91f-92w-93s†	Stagecraft and Direction..... (9 cred.; jr., sr.; prereq., 71-72-73, 81-82-83, Eng. 55-56)	VII	MWF	19Mu	Mr. Staadt
97f,w,s	Intercollegiate Oratory and Debate (3 cred.; jr., sr.; prereq.§)	Ar	Ar	308F	Mr. Rarig
101f-102w†	Advanced Speech Composition... (6 cred.; jr., sr., grad.; prereq., 41-42-43 or 45-46; Psy. 1-2; 10 cred. soc. sci.)	III	MWF	308F	Mr. Rarig
105s	Theory of Reading and Acting (3 cred.; jr., sr., grad.; prereq., 41-42-43 or 45-46; 81-82-83, and Psy. 1-2)	III	MWF	308F	Mr. Rarig
121f-122w†*	Advanced Speech Problems..... (6 cred.; jr., sr., grad.; prereq., 41-42-43 or 45-46, Psy. 1-2)	II	TThS	409F	Mr. Holmes
141f-142w-143s*	Introduction to Laboratory Research (9 cred.; jr., sr., grad.; prereq., 41-42-43, Psy. 1-2 and 4-5 or 7)	Ar	Ar	Ar	Mr. Holmes
162w-163s‡*	Advanced Speech Correction..... (6 cred.; jr., sr., grad.; prereq., 41-42-43 or 45-46; 61; 67; Psy. 1-2)	Ar	Ar	Ar	Miss Kennedy

ZOOLOGY

Major Adviser: J. E. Wodsedalek

Credit is given for acceptable work done at any approved seaside laboratory.

For teacher's certificate.—Major recommendation: General Zoology, and at least 20 additional credits in the department. Medical Physiology (Course 4) is included among the electives.

Minor recommendation: General Zoology, and at least ten additional credits chosen from the following: Genetics and Eugenics, General Physiology, General Ecology, Histology, Entomology, General Embryology, Ornithology, and Human Physiology (Medical Physiology, Course 4).

* Students taking these courses are required to pay a laboratory fee of \$1 each quarter.

† The entire course must be completed before credit is received for any quarter. Students in Education majoring in Speech may receive credit for Course 71-72.

‡ Speech Clinic. A service clinic is conducted for university students who have particular speech defects, whether or not registered in courses in Speech. 410F. Miss Kennedy.

§ Open to the representative of the University in the Northern Oratoric League and to members of the intercollegiate debate squad.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†	General Zoology: Lectures..... (6 cred.; all) Sec. 1	I	TThS*	313Z	Mr. Wodsedalek
	Sections limited to 160 2	II	TThS	313Z	Mr. Minnich
	3	III	TThS	313Z	Mr. Wodsedalek
1w-2s†	General Zoology: Lectures..... (See 1f-2w) Sec. 1	II	MWF	313Z	Ar
	Sections limited to 160 2	III	MWF	313Z	Ar
3f-4w†	General Zoology: Laboratory... (4 cred.; fr., soph., jr., sr., with or after 1-2. <i>Must be completed if zoology is offered as the required laboratory science.</i>)				
	Sec. 1	I, II	MWF	101Z	Ar
	2	III, IV	MWF	101Z	Ar
3w-4s†	General Zoology: Laboratory.... (See 3f-4w) Sec. 1	VI, VII	MWF	101Z	Ar
	2	VIII, IX	MWF	101Z	Ar
5f-6w-7s†	General Zoology (12 cred.; pre-medical and pre- dental students, fr., soph., jr., sr.; no prereq.)				
	Lab. Sec. 1	I, II	ThS	101Z	Mr. Dawson
	(Pre-dental) Lect.	I	MWF	313Z	
	Lab. 2	III, IV	TS	101Z	
	(Pre-medical) Lect.	IV	MWF	313Z	Mr. Sigerfoos
	(Spring) Lab.	III, IV	WF	101Z	
	Lect.	IV	MTS	313Z	
14f-15w-16s†	General Zoology (9 cred.; Agr., For.; no prereq.)	See College of Agriculture bulletin.			
17f-18w†	General Zoology (6 cred.; H.E.; no prereq.)	See College of Agriculture bulletin.			
21s‡	Intro. to General Physiology... (5 cred.; fr., soph., jr., sr.; pre- req., 1-2, 3-4, chem. or phys. desirable)	VI, VII, VIII	MW	10Z	Mr. Minnich
		VI, VII, VIII, IX	F		
22s	General Ecology (5 cred.; fr., soph., jr., sr.; pre- req., 1-2, 3-4)	VI, VII, VIII	MW	211Z, 401Z	Mr. Chapman
		VI, VII, VIII, IX	F		
23f	Intro. Entomology (5 cred.; soph., jr., sr.; prereq., 1-2, 3-4)				
	Lect.	VI	MWF	211Z	Ar
	Lab.	VI, VII, VIII	TTh	208Z	
24f	Intro. Animal Parasitology.... (5 cred.; soph., jr., sr.; prereq., 1-2, 3-4)	VI, VII, VIII	MWF	208Z	Ar
25w	Histology (5 cred.; soph., jr., sr.; prereq., 1-2, 3-4, and permission of the head of the dept.)	VI, VII, VIII	MWF	201, 211Z	Mr. Ringoen
26w	Comp. Anatomy (5 cred.; soph., jr., sr.; prereq., 1-2)	III, IV	MTWFS	01Z	Mr. Johnson

* Section 1 is not open to first term freshmen in the fall quarter.

† The entire course must be completed before credit is received for any quarter.

‡ Not open to pre-medical or pre-dental students or to those who have had college physiology.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
27w	Technique (3 cred.; stud. in zool.; major and grad.; prereq., 20 cred.)				
	Lect.	Ar	Th	211Z	Miss Slider
	Lab.	Ar	Ar	213Z	
37f-38w-39sf	General Entomology (9 cred.; soph., jr., sr.; prereq., 1-2, 3-4)	I, II	MWF	208Z	Ar
46w-47sf	Ornithology (6 cred.; soph., jr., sr.; prereq., 1-2, 3-4 and permission of instructor)	VI, VII, VIII	MW	314Z	Dr. Roberts
75s	Nature Study (3 cred.; jr., sr.; prereq., 20 cred. incl. 1-2, 3-4)	VI, VII, VIII	TTh	213Z	Mr. Wodsedalek
107f-108w	Protozoology (6 cred.; jr., sr., grad.; prereq., 15 cred.)	I, II	TThS	Ar	Mr. Sigerfoos
109f-110w-111s	Experimental Zoology (9 cred.; jr., sr., grad.; prereq., 20 cred.)	IV	MWF	10Z	Mr. Minnich
117w-118s-119su	Ecology of Insects..... (9 cred.; jr., sr., grad.; prereq., 15 cred.)	VI, VII, VIII	TTh	401Z	Mr. Chapman
120su	Advanced Ecology (5 cred.; jr., sr., grad.; prereq., 117-118-119)	Ar	Ar	Ar	Mr. Chapman
125f-126w-127s	Advanced Entomology (9 cred.; jr., sr., grad.; prereq., 37-38-39)	Ar	Ar	208Z	Ar
139-140	<i>Histol. and Develop. of Insects.</i> (6 cred.; jr., sr., grad.; prereq., 37-38-39)	<i>Not offered</i>			
144f,s-145w-146s	Animal Parasites and Parasitism (9 cred.; jr., sr., grad.; prereq., 15 cred. in zool., or 1-2 and 1 yr. chem.)	VI, VII, VIII	WF	208Z	Ar
148f-149w-150sf	Histology and Organology..... (9 cred.; jr., sr., grad.; prereq., 15 cred. in zool., or 1-2, 3-4, and 1 yr. chem. Permission of head of dept. necessary)	III, IV	MWF	201, 211Z	Mr. Ringoen
181f-182w	Embryology (6 cred.; jr., sr., grad.; prereq., 25 or equiv.)	VI, VII, VIII	TTh	202Z	Mr. Ringoen
183s	Genetics and Eugenics (3 cred.; jr., sr., grad.; prereq., 1-2, 3-4 and 5 other cred. in zool. or bot. or psych.)	IV V	TS & Ar	211Z	Mr. Wodsedalek
197f-198w-199s	Problems (5 or more cred.; jr., sr., grad.; prereq., 1-2, spec. requirements)	Ar	Ar	Ar	Ar

† The entire course must be completed before credit is received for any quarter.

ENTOMOLOGY AND ECONOMIC ZOOLOGY

Students in this college may elect courses in Entomology and Economic Zoology by arrangement with the department. See program of the College of Agriculture, Forestry, and Home Economics.

COURSES IN OTHER COLLEGES

Certain courses in other colleges are open to election by seniors, according to General Information, Section 42, bulletin of the College of Science, Literature, and the Arts. Students interested in such courses may consult the major adviser and the Students' Work Committee.

INDEX

	Page		Page
Administration and supervision..	5-7	Human Anatomy	74
Agricultural Biochemistry	43	Human Physiology	74-75
Agricultural Education	7-8	Industrial Education	16-17
Anatomy	74	Institute of Child Welfare.....	18-19
Anthropology	33	Italian	101-102
Architecture	34	Journalism	76-78
Art appreciation	5, 11, 74	Kindergarten Education... 18-19, 30-31	
Art Education	9-11	Latin	78-80
Art history	11, 57, 74	Library Methods	19-20, 80
Astronomy	35	Literature	51-54
Bacteriology	36	Literature, Comparative	43
Botany	37-39	Mathematics	81-83
Calendar	2-4	Mechanical Engineering	83-84
Chemistry	39-43	Methods in educational research	5
Child Welfare	18-19	Methods in school subjects. <i>See</i>	
Comparative Literature	43	Theory of Teaching.	
Comparative Philology	44	Military Science and Tactics....	84
Composition	54-57	Music	85-86
Descriptive Geometry	44	Music, Public School.....	26-28
Design	9	Nursery School. <i>See</i> Child Wel-	
Drawing	9, 34, 44	fare.	
Economics	45-51	Nursing Education. <i>See</i> Preven-	
Educational Psychology	12-14	tive Medicine.	
Educational Sociology	14	Orientation	86
Elementary education	5-7, 32-33	Parental Education. <i>See</i> Child	
English	51-57	Welfare.	
Entomology	113	Pathology, Plant	39
Fine Arts	57	Philology, Comparative	44
French	99-101	Philosophy	87-88
General courses	5	Physical Education	
Geography	57-59	for men	20-21
Geology and Mineralogy.....	59-62	for women	21-26
German	62-65	Physics	88-91
Greek	65-66	Physiology	74-75
Handicrafts	10-11	Plant Pathology	39
High School, required course....	5	Political Science	91-95
History	66-71	Practice teaching	30-32
History of Education.....	14-15	Preventive Medicine	26-28, 95-96
Home Economics	71-72	Problems in college education... 5	
Home Economics Education.....	15-16	Psychology	96-98
Honors course	5	Psychology, Educational	12-14
How To Study.....	74		

INDEX

115

	Page		Page
Public Health	26-28, 95-96	Spanish	102-103
Public School Music.....	28-29	Speech	108-110
Romance Languages	99-103	Supervision	5-7
Scandinavian	103-104	Teachers' courses. <i>See</i> Theory and Practice of Teaching.	
School Health Work.....	26-28	Technique of High School In- struction	30
Shop work	16, 17, 84	Theory and Practice of Teaching	30-33
Sociology	104-108	Zoology	110-113
Sociology, Educational	14		