

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
1928-1930



Vol. XXXI No. 23 April 19 1928

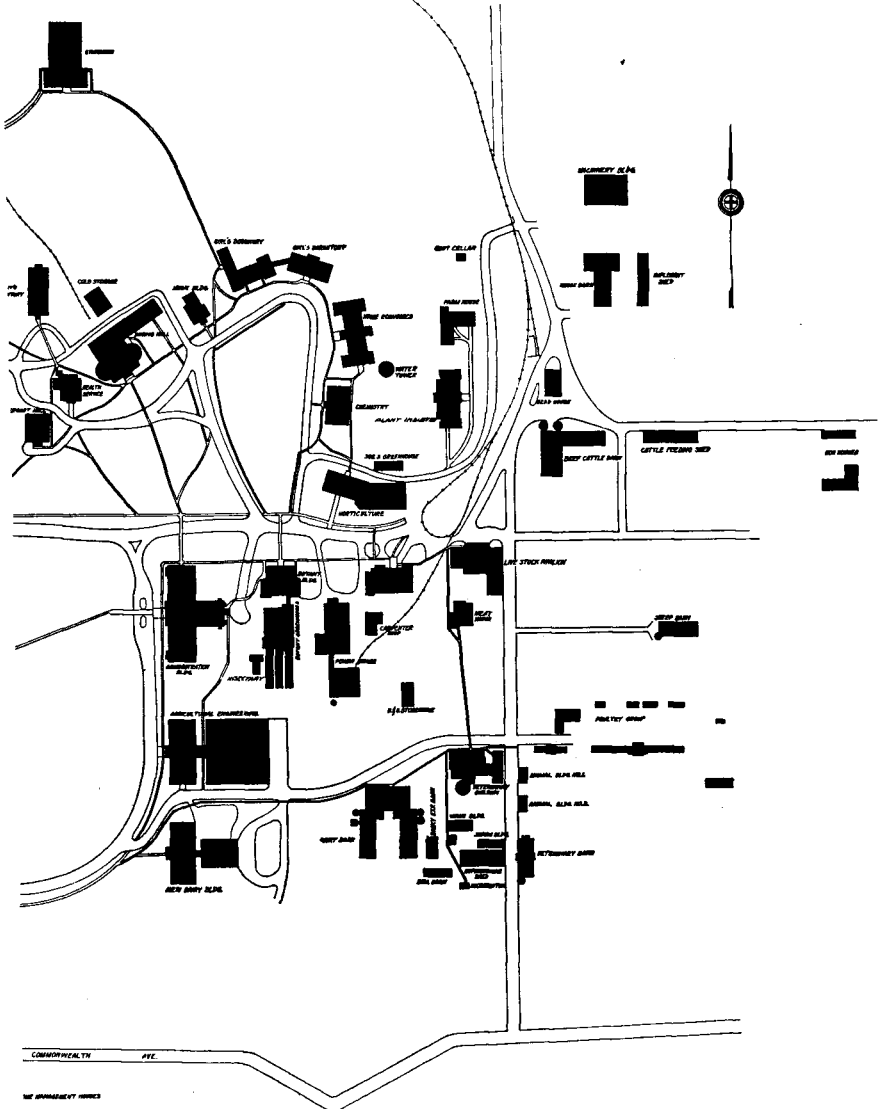
Entered at the post-office in Minneapolis as second-class matter
Minneapolis, Minnesota

Acceptance 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

SCALE
0 50 100 150



THE SCHOOL OF AGRICULTURE

FACULTY

ADMINISTRATION

Lotus Delta Coffman, Ph.D., LL.D., President
William Watts Folwell, LL.D., President Emeritus
Walter C. Coffey, M.S., LL.D., Dean of the Department of Agriculture
Dexter D. Mayne, 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

AGRICULTURAL BIOCHEMISTRY

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AGRICULTURAL ECONOMICS

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AGRICULTURAL ENGINEERING

William Boss, Chief; Chester L. Berggren, J. Grant Dent, Bernard H. Gustafson, B.S., Maurice G. Jacobson, Jesse H. Neal, B.S. (A.E.), Harry B. Roe, B.S. in Eng., Arthur J. Schwantes, B.S., James B. Torrance, B.S. in Agr., Arthur G. Tyler, Hall B. White, B.S. in Agr.

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Andrew Boss, D.Sc., Chief; Louis B. Bassett, Harvey E. Brewbaker, Ph.D., Iver G. Johnson, B.S., D. Curtis Mumford, B.S., Stephen M. Raleigh, B.S., George A. Sallee, M.S.

ANIMAL HUSBANDRY

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

BEE CULTURE

James W. Thompson, B.S.

DAIRY HUSBANDRY

Clarence H. Eckles, D.Sc., Chief; Thor W. Gullickson, M.S., Edwin A. Hanson, B.S., William E. Petersen, M.S., Lloyd M. Thurston, B.S.

ENTOMOLOGY AND ECONOMIC ZOOLOGY

Royal N. Chapman, Ph.D., Chief; Solomon L. Loewen, B.A., Arthur G. Ruggles, M.A.

FORESTRY

Henry Schmitz, Ph.D., Chief; Thorwald S. Hansen, B.S., M.F.

GYMNASIUM AND PHYSICAL TRAINING

Robert Thompson, Director; Gladys Kaercher

THE SCHOOL OF AGRICULTURE

HOME ECONOMICS

Wylle B. McNeal, M.A., Chief; Monica J. Aamodt, B.S., Carlotta Brown, Lola M. Cremeans, M.S., Hedda Kafka, B.S., Iva I. Sell, M.S., Helen J. Topp, B.S.

HORTICULTURE

William H. Alderman, B.S.A., Chief; Clarence E. Cary, B.S. in Agr., Franc P. Daniels, B.S. in Agr., Fred A. Krantz, Ph.D., Louis Sando

PLANT PATHOLOGY AND BOTANY

Edward M. Freeman, Ph.D., Chief; Charles S. Holton, B.S., Alvin H. Larson, B.S. in Agr., Howard E. Parson, B.S.

POULTRY HUSBANDRY

Arthur C. Smith, B.S., Chief

PREVENTIVE MEDICINE AND PUBLIC HEALTH

Harold S. Diehl, M.A., M.D., Director; Marbry Duryea, B.S., M.D., Hally J. Fisher, R.N., Joseph C. Hathaway, M.D.

RHETORIC

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

SCHOOL (GENERAL)

Dexter D. Mayne, Principal; David W. Boland, John O. Christianson, Bernice Dickerman, B.A., Johanna Hognason, B.A., Peder L. Johnsrud, B.S. in Agr., Christine Larson, Carrie M. Leavitt, Gustave A. Lundquist, Ph.D., Marjorie Martyn, B.A., Laura A. Matson, M.A., Rose Mertens, Hazel L. Wade, B.S., Mabel Willson.

SOILS

Frederick J. Alway, Ph.D., Chief; George H. Nesom, B.A., B.S.

VETERINARY MEDICINE

Clifford P. Fitch, M.S., D.V.M., Chief; Willard L. Boyd, D.V.S., Myron H. Reynolds, B.S., D.V.M., M.D.

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 exam-

ination. 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.

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 for that length of time, 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 large aprons suitable for the protection of her clothing while working in the foods and clothing laboratory.

For the girls' gymnasium work a uniform suit is required. This should be obtained at the school. All freshman 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 Executive Committee of the Board of Regents of the University of Minnesota. Application blanks may be obtained from the office of the dean of the Department of Agriculture.

THE DORR FUND

This fund consists of \$50,000 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 research fellowships in agriculture; the income from the remainder to be invested in scholarships, donations, and loans to worthy and needy students.

CALEB DORR CASH SCHOLARSHIP PRIZES

Cash prizes amounting to \$180 each year are offered to the students securing the highest standings in general scholarship. Of this amount \$65 will be offered each term in five prizes of \$20, \$18, \$14, \$9, \$4 each. All students carrying the full work of 18 credit hours per term are eligible for these prizes. One prize of \$50 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 military drill and gymnasium will not be counted in making the scholarship awards.

Besides the above, annual scholarship prizes of \$180 each, divided into smaller awards, 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 36, 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

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)
Tractor and Auto Work I, 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) ¹
Elementary Beekeeping I, $\frac{3}{4}$ 3(f,w)	Voice, $\frac{1}{2}$ (f,w) ¹
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)
Dramatics, $\frac{1}{2}$ (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)
Bookkeeping II, 3(f,w)	Dressed Poultry, 1(f)
	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,w) or
 Dairy Stock Judging, 2(f,w)
 Farm Horticulture, 3(f,w)
 Feeds and 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

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,w)
 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, 3(w)
 Potato Production, 3(w)
 Veterinary Studies I, 3(f)
 Advanced Beekeeping, 3(f,w)
 Dairy Stock Judging, 2(f,w)
 Land Clearing, 3(w)
 Test Association Methods, 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,w)
 Chemistry of Plant and Animal Life II, 3(f,w)
 Heat and Electricity, 3(w)
 Incubating and Brooding, 3(w)
 Seed Testing, 2(w)
 Tractor and Auto Work II, 3(f,w)
 Commercial Vegetable Gardening, 3(w)
 Veterinary Studies II, 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.

COURSES OF STUDY

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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

Livestock Feeding and Management, 3(f) Dairy Stock Feeding, 3(w) Drainage and Roads, 3(f) Farm Implements, 3(f) Elementary Economics, 3(f,w) English Literature I, 5(f) Grain Marketing I, 3(f) Commercial Law, 3(f,w) Cereal Technology, 3(w)	Advanced Public Speaking, 3(f,w) Plant Diseases, 3(f) Farm Buildings II, 3(f) Rural Economics, 3(f,w) Milk Production, 3(w) English Literature II, 5(w) Dairy Stock Selection, 3(w) Judging and Grading Farm Crops, 3(w) Grain Marketing II, 3(w)
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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

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) Physiology, 3(f,w) Judging Breed Types of Livestock, 3(f,w) Food Selection and Preparation, 2(f,w) Dramatics, $\frac{1}{2}$ (f,w) ² Debating, 1(w) ² Typewriting I, 3(f,w) Bookkeeping I, 3(f,w) Bookkeeping II, 3(f,w) Elementary Beekeeping II, 3(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) 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) Home Projects, 1 to 3
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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.

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,w)
 Tractor and Auto Work I, 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

Feeds and Feeding, 3(f,w)
 Algebra I, 7(f,w)
 Insect Pests of Plants, 3(f)
 Parliamentary Law, 1(f,w)
 Veterinary Studies I, 3(f)
 Chemistry of Plant and Animal Life I,
 3(f,w)
 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(w)
 Weeds, 2(f)

Special Problems in Horticulture (w)
 Greenhouse Construction and Management,
 3(w)
 Veterinary Studies II, 3(w)
 Algebra II, 7(f,w)
 Meats, 3(f,w)
 Geometry II, 7(f,w)
 Advanced Livestock Judging, 3(f,w)
 Elements of Bacteriology, 3(w)
 Chemistry of Plant and Animal Life II,
 3(f,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, 3(f)
 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)
 Tractor and Auto Work II, 3(f,w)
 Gymnasium, 2(f,w)
 Electives, 6

ELECTIVES

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

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

GRAIN ELEVATOR MANAGEMENT

FRESHMAN YEAR

REQUIRED—FIRST TERM

English I, 3(f,w)
 Hygiene, 1(f,w)
 Farm Arithmetic, 3(f,w)
 Grain Crops, 3(f,w)
 Tractor and Auto Work I, 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

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)
Dramatics, $\frac{1}{2}$ (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)
Dressed Poultry, 1(f)	Instrumentation and Conducting, 3(f,w)
	Home Projects, 1 to 3

JUNIOR YEAR

REQUIRED—FIRST TERM

English Classics, 3(f,w)
 Feeds and Feeding, 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 Building 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, 3(w)
 Commercial Law, 3(f,w)
 Elementary 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.

THE SCHOOL OF AGRICULTURE

ELECTIVES

Bookkeeping II, 3(f,w)	Farm Dairying, 3(f,w)
Advanced Livestock Judging, 3(f,w)	Poultry, 3(f,w)
Dairy Stock Judging, 2(f,w)	Greenhouse Construction and Management, 3(w)
Farm Horticulture, 3(f,w)	Special Problems in Horticulture, (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)	Meats, 3(f,w)
Chemistry of Plant and Animal Life I, 3(f,w)	Chemistry of Plant and Animal Life II, 3(f,w)
Mechanics and Water Supply, 3(f,w)	Heat and Electricity, 3(w)
Management of Laying Flock, 1(f,w)	Incubating and Brooding, 3(w)
Physiology and Hygiene of Breeding, 2(f)	Tractor and Auto Work II, 3(f,w)
Orchard Fruit Growing, 3(f)	Commercial Vegetable Gardening, 3(w)
Small Fruit Growing, 3(w)	Veterinary Studies II, 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 I, 3(f)	

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(f)
 Gymnasium, 2(f,w)
 Electives, 6

REQUIRED—SECOND TERM

English VI, 3(f,w)
 Cereal Technology, 3(w)
 Crop Breeding, 3(w)
 Grain Marketing II, 3(w)
 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(f,w)
Rural Sociology, 3(f,w)	Plant Diseases, 3(f)
Livestock Feeding and Management, 3(f)	Farm Buildings II, 3(f)
Dairy Stock Feeding, 3(w)	Rural Economics, 3(f,w)
Drainage and Roads, 3(f)	Milk Production, 3(w)
Farm Implements, 3(f)	English Literature II, 5(w)
English Literature I, 5(f)	Dairy Stock Selection, 3(w)

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)

COURSES OF STUDY

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ELECTIVES

Judging Breed Types of Livestock, 3(f,w)	Elementary Beekeeping II, 3(f,w)
Elementary Beekeeping I, 3(f,w)	Tractor and Auto Work I, 3(f,w)
Advanced Farm Arithmetic, 3(f,w)	Farm Buildings I, 3(f,w)
Elements of Music I, 2(f,w)	Poultry, 3(f,w)
Elements of Music II, 2(f,w)	Poultry Judging, 2(f)
Spelling, 1(f,w)	Dressed Poultry, 1(f)
Penmanship, 1(f,w)	Chorus, $\frac{1}{2}$ (f,w)
Physiology, 3(f,w)	Violin, $\frac{1}{2}$ (f,w) ¹
Dramatics, $\frac{1}{2}$ (f,w) ²	Piano, $\frac{1}{2}$ (f,w) ¹
Debating, 1(w) ²	Instrumental Music, $\frac{1}{2}$ (f,w) ¹
Typewriting I, 3(f,w)	Orchestra, $\frac{1}{2}$ (f,w)
Bookkeeping I, 3(f,w)	Voice, $\frac{1}{2}$ (f,w) ¹
Food Selection and Preparation, 2(f,w)	Band, $\frac{1}{2}$ (f,w)
Appreciation of Music, 3(f,w)	Harmony I, 2(f,w)
Instrumentation and Conducting, 3(f,w)	Harmony II, 2(f,w)

JUNIOR YEAR

REQUIRED—FIRST TERM

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

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 II, 3(f,w)
 Small Fruit Growing, 3(w)
 Gymnasium, 2(f,w)
 Electives, 3

ELECTIVES

Judging and Grading Farm Crops, 3(w)	Farm Management II, 3(f,w)
Farm Implements, 3(f)	Livestock Breeding, 3(f,w)
Farm Management I, 3(f,w)	Milk Production, 3(w)
Livestock Feeding and Management, 3(f)	Dairy Stock Selection, 3(w)
Dairy Stock Feeding, 3(w)	Farm Buildings II, 3(f)
Drainage and Roads, 3(f)	English Literature II, 5(w)
English Literature I, 5(f)	Advanced Public Speaking, 3(f,w)
Elementary Economics, 3(f,w)	Rural Economics, 3(f,w)
Cereal Technology, 3(w)	Grain Marketing I, 3(f)
Commercial Law, 3(f,w)	Grain Marketing II, 3(w)

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

Advanced Farm Arithmetic, 3(f,w)	Food Selection and Preparation, 2(f,w)
Physiology, 3(f,w)	Elements of Music II, 2(f,w)
Mechanical Training II, 3(f,w)	Violin, $\frac{1}{2}$ (f,w) ¹
Farm Buildings I, 3(f,w)	Piano, $\frac{1}{2}$ (f,w) ¹
Tractor and Auto Work I, 3(f,w)	Instrumental Music, $\frac{1}{2}$ (f,w) ¹
Elementary Beekeeping I, 3(f,w)	Voice, $\frac{1}{2}$ (f,w) ¹
Mechanical Training I, 3(f,w)	Orchestra, $\frac{1}{2}$ (f,w)
Spelling, 1(f,w)	Chorus, $\frac{1}{2}$ (f,w)
Penmanship, 1(f,w)	Band, $\frac{1}{2}$ (f,w)
Poultry, 3(f,w)	Harmony I, 2(f,w)
Poultry Judging, 2(f)	Harmony II, 2(f,w)
Dressed Poultry, 1(f)	Appreciation of Music, 3(f,w)
Farm Horticulture, 3(f,w)	Instrumentation and Conducting, 3(f,w)
Elementary Beekeeping II, 3(f,w)	Plant Propagation and Nursery Practice, 3(f)
Dramatics, $\frac{1}{2}$ (f,w) ²	Floriculture, 3(w)
Debating, 1(w) ²	Landscape Gardening, 3(f)
Typewriting I, 3(f,w)	Bookkeeping II, 3(f,w)
Bookkeeping I, 3(f,w)	Home Project, 1 to 3
Elements of Music I, 2(f,w)	

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COURSES OF STUDY

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JUNIOR YEAR

REQUIRED—FIRST TERM

English Classics, 3(f,w)
 Forage Crops and Potatoes, 3(f,w)
 Advanced Livestock Judging, 3(f,w) or
 Dairy Stock Judging, 2(f,w).
 Physiology and Hygiene of Breeding, 2(f)
 Feeds and Feeding, 3(f,w)
 Veterinary Studies I, 3(f)
 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)
 Veterinary Studies II, 3(w)
 Gymnasium, 2(f,w)
 Electives, 6

ELECTIVES

<p>Insect Pests of Plants, 3(f) Chemistry of Plant and Animal Life I, 3(f,w) 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(w) Potato Production, 3(w) Special Problems in Horticulture (w) Advanced Livestock Judging, 3(f,w) Land Clearing, 3(w)</p>	<p>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) Tractor and Auto Work II, 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(f,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)</p>
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SENIOR YEAR

REQUIRED—FIRST TERM

Public Speaking, 3(f,w)
 American Government, 3(f,w)
 Livestock Feeding and Management, 3(f)
 or Milk Production, 3(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, 3

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

<p>Plant Diseases, 3(f) Crop Breeding, 3(w) Farm Buildings II, 3(f) Drainage and Roads, 3(f) Farm Implements, 3(f) Elementary Economics, 3(f,w) English Literature I, 5(f) Livestock Feeding and Management, 3(f) Grain Marketing I, 3(f)</p>	<p>Milk Production, 3(w) Dairy Stock Feeding, 3(w) Rural Economics, 3(f,w) Dairy Stock Selection, 3(w) English Literature II, 5(w) Advanced Public Speaking, 3(f,w) Judging and Grading Farm Crops, 3(w) Commercial Law, 3(f,w) Cereal Technology, 3(w) Grain Marketing II, 3(w)</p>
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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 preparing 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	REQUIRED—SECOND TERM
Related Science I, 3(f,w)	Related Science II, 3(f,w)
English I, 3(f,w)	English II, 3(f,w)
Selection and Preparation of Food, 3(f,w)	Meal Preparation, 3(f,w)
Clothing I, 3(f,w)	Clothing II, 3(f,w)
Design, 2(f,w)	Electives, 6
Physical Training, 2(f,w)	Physical Training, 2(f,w)
Electives, 2	
Social Training, 2(f,w)	

ELECTIVES

Elements of Music I, 2(f,w)	Typewriting I, 3(f,w)
Elements of Music II, 2(f,w)	Stenography I, 3(f,w)
Chorus, ½(f,w)	Bookkeeping I, 3(f,w)
Violin, ½(f,w) ¹	Bookkeeping II, 3(f,w)
Piano, ½(f,w) ¹	Spelling, 1(f,w)
Voice, ½(f,w) ¹	Penmanship, 1(f,w)
Instrumental Music, ½(f,w) ¹	Poultry, 3(f,w)
Orchestra, ½(f,w)	Elementary Beekeeping I, 3(f,w)
Dramatics, ½(f,w) ²	Elementary Beekeeping II, 3(f,w)
Debating, 1(w) ²	Farm Horticulture, 3(f,w)
Harmony I, 2(f,w)	Landscape Gardening, 3(f)
Harmony II, 2(f,w)	Plant Propagation and Nursery Practice, 3(f)
Appreciation of Music, 3(f,w)	Floriculture, 3(w)
Instrumentation and Conducting, 3(f,w)	Farm Arithmetic, 3(f,w)
Poultry Judging, 2(f)	Advanced Farm Arithmetic, 3(f,w)
Dressed Poultry, 1(f)	Agricultural Botany, 3(w)
Physiology, 3(f,w)	

JUNIOR YEAR

REQUIRED—FIRST TERM	REQUIRED—SECOND TERM
English Classics, 3(f,w)	Business English, 3(f,w)
Food and Nutrition, 2(f,w)	Biology, 3(w)
Textiles and Dressmaking I, 3(f)	House Planning and Furnishing, 3(f,w)
Home Nursing and Hygiene I, 2(f,w)	American History, 3(f,w)
Electives, 8	Electives, 6
Physical Training, 2(f,w)	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 I, 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,w) ¹	Geometry II, 7(f,w)
Elements of Bacteriology, 3(w) ²	Industrial History, 3(f,w)
Household Physics, 5 (f)	Parliamentary Law, 1(f,w)
Utilization of Meats, 3(w)	Chemistry of Plant and Animal Life II, 3(f,w) ¹
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	REQUIRED—SECOND TERM
Public Speaking, 3(f,w)	English VI, 3(f,w)
American Government, 3(f,w)	Rural Sociology, 3(f,w)
Home Management, 3(f,w)	Home Nursing and Hygiene II, 2(w)
Electives, 9	Textiles and Dressmaking II, 3(w)
Physical Training, 2(f,w)	Child Care and Training, 2(w)
	Electives, 5
	Physical Training, 2(f,w)

ELECTIVES

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

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

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

³ Not offered in 1928-29.

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.
- A3. Cereal Technology. Lecture, laboratory, and demonstration course dealing with the fundamental bases of grain grading, the merchandising, storage, and utilization of the grain crops.

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.
- 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.

AGRICULTURAL ENGINEERING

- A10. Farm Implements. Studies and discussions of the selection, operation, and care of farm machinery, also the cost, depreciation, efficiency, and adaptability of the various machines to the work to be accomplished.
- A11. Tractor and Auto Work I. Theory and practice work in gasoline and kerosene engines.
- A12. Tractor and Auto Work II. 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, babbitting, 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 his own 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. 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, FARM MANAGEMENT, 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 agricultural crops with plans for growing and certifying pedigree seed.
- 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.

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.
- A6. Livestock Feeding and Management. The business side of stock farming, buying and selling, record keeping, economic principles involved in efficient feeding of beef cattle, horses, sheep, and swine. Study of the several forms of specialization in livestock production.
- 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.

BEE CULTURE

- A1. Elementary Beekeeping I. Fundamentals of bee behavior and of beekeeping practice during spring and early summer; spring management. Swarming, swarm control, and increase.
- A2. 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.
- A3. Advanced Beekeeping. Commercial and out apiaries. Migratory beekeeping. Package bees and nuclei. Home queen rearing. Marketing of honey.

DAIRY HUSBANDRY

- A1. Feeds and Feeding. The principles of feeding including the composition of feeds and of the animal body, digestion; a study of the various feedstuffs, and of feeding standards.

- A2. Farm Dairying. Milk, its composition, properties, cleanly 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. Feeding the cow for milk production and the growing animals. Formulation of rations with special attention to economy and efficiency, a study of roughages and concentrates. Rations for cows on official tests.
- 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.
- A16. Insect Pests of Plants. Life cycles of insect pests injurious to cultivated plants and methods of combating them.

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. A Girl Scout leadership course is offered which will enable the girls to become scout leaders in their communities. Every girl is required to pass a swimming test before graduating, proving that she can save her life in case of an accident on the water.

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.

- A1-2. *Freshman Physical Training.* Formal gymnastics, games, beginning apparatus work, folk dancing, remedial gymnastics, and swimming.
- A3-4. *Junior Physical Training.* Formal gymnastics, games, apparatus work, folk dancing, remedial gymnastics, and swimming.
- A5-6. *Senior Physical Training.* Formal gymnastics, games, advanced apparatus work, diving, 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 I.* 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 1928-29.)
- A13. Trade Millinery. To be offered in co-operation with city millinery shops, giving students actual trade experience. (Not offered in 1928-29.)
- 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 planning 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.
- 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; common ailments and simple treatments.

- 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. Home nursing equipment and methods practicable in the household. Communicable diseases, methods of prevention, control, and disinfection.
- A2. Home Nursing and Hygiene II. Hygiene requirements during infancy, childhood, womanhood, maturity. Household emergencies, preparation for maternity, care of infant.
- 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.

* 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.

- A31. Dramatics. Students who are selected by the coach of dramatics to take major parts in a play will receive one-half point credit upon the recommendation of the coach.
- A32. Debating. Students participating in intersociety 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.
- 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: Hohmann, *Kayser Etudes*, *Schradieck Scales*, *Solos in Comparison*. Intermediate: scales in all positions, Seveik, Mazas, Dont, compositions of medium difficulty. Advanced: Kreutzer, Fiorillo, Rode, Gavinié, 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 Clavicord. 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. 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 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.
- 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. Elementary Economics. Fundamental laws governing production, consumption, distribution, and exchange. Special attention devoted to such topics as taxation, co-operation, industry of today, rural credit, and international trade. Current economic problems are discussed.

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

- A44. Rural Economics. The general principles of economics as applied to the farmer's relationships, as a producer and as a consumer. Special topics considered. Marketing of farm products, co-operative societies, rural credits, taxation, farm labor, and tenancy.
- 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 judgment 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 ferra'e during parturition and lactation.
- A7. Veterinary Studies I. The animal body in health and disease; causes, prevention, and management of disease including common parasitic diseases; detail; simple surgical operations.
- A8. Veterinary Studies II. Common diseases and accidents, general advice; diseases; detail; simple surgical operations.

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 in 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
1929 - 1930



Vol. XXXII No. 22 May 3 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

1929							1930													
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	6	..	..	..	1	2	3	4	..	..	1	2	3	4	5
7	8	9	10	11	12	13	5	6	7	8	9	10	11	6	7	8	9	10	11	12
14	15	16	17	18	19	20	12	13	14	15	16	17	18	13	14	15	16	17	18	19
21	22	23	24	25	26	27	19	20	21	22	23	24	25	20	21	22	23	24	25	26
28	29	30	31	..	..	..	26	27	28	29	30	31	..	27	28	29	30	31	..	..
..
AUGUST							AUGUST													
..	..	..	..	1	2	3	..	..	..	..	..	..	1	..	..	..	..	..	1	2
4	5	6	7	8	9	10	2	3	4	5	6	7	8	3	4	5	6	7	8	9
11	12	13	14	15	16	17	9	10	11	12	13	14	15	10	11	12	13	14	15	16
18	19	20	21	22	23	24	16	17	18	19	20	21	22	17	18	19	20	21	22	23
25	26	27	28	29	30	31	23	24	25	26	27	28	..	24	25	26	27	28	29	30
..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	..	..	..	..	..	..
SEPTEMBER							SEPTEMBER													
1	2	3	4	5	6	7	..	..	..	..	..	..	1	..	1	2	3	4	5	6
8	9	10	11	12	13	14	2	3	4	5	6	7	8	7	8	9	10	11	12	13
15	16	17	18	19	20	21	9	10	11	12	13	14	15	14	15	16	17	18	19	20
22	23	24	25	26	27	28	16	17	18	19	20	21	22	21	22	23	24	25	26	27
29	30	..	..	..	..	..	23	24	25	26	27	28	29	28	29	30	..	..	..	..
..	..	..	..	..	..	..	30	31	..	..	..	..	..	..	..	..	..	..	..	..
OCTOBER							OCTOBER													
..	..	1	2	3	4	5	..	..	1	2	3	4	5	..	..	1	2	3	4	
6	7	8	9	10	11	12	6	7	8	9	10	11	12	5	6	7	8	9	10	11
13	14	15	16	17	18	19	13	14	15	16	17	18	19	12	13	14	15	16	17	18
20	21	22	23	24	25	26	20	21	22	23	24	25	26	19	20	21	22	23	24	25
27	28	29	30	31	..	..	27	28	29	30	..	..	..	26	27	28	29	30	31	..
..
NOVEMBER							NOVEMBER													
..	..	..	..	..	1	2	..	..	..	..	1	2	3	..	..	..	..	..	1	
3	4	5	6	7	8	9	4	5	6	7	8	9	10	2	3	4	5	6	7	8
10	11	12	13	14	15	16	11	12	13	14	15	16	17	9	10	11	12	13	14	15
17	18	19	20	21	22	23	18	19	20	21	22	23	24	16	17	18	19	20	21	22
24	25	26	27	28	29	30	25	26	27	28	29	30	31	23	24	25	26	27	28	29
..	..	..	..	..	..	..	..	..	..	..	..	..	..	30	..	..	..	..	..	..
DECEMBER							DECEMBER													
1	2	3	4	5	6	7	1	2	3	4	5	6	7	..	1	2	3	4	5	6
8	9	10	11	12	13	14	8	9	10	11	12	13	14	7	8	9	10	11	12	13
15	16	17	18	19	20	21	15	16	17	18	19	20	21	14	15	16	17	18	19	20
22	23	24	25	26	27	28	22	23	24	25	26	27	28	21	22	23	24	25	26	27
29	30	31	..	..	..	..	29	30	..	..	..	..	..	28	29	30	31	..	..	..
..

CALENDAR

SCHOOL OF AGRICULTURE

1929-30

1929

September	30	Monday	First term begins; entrance examinations, registration, payment of fees
October	1	Tuesday	Regular class work begins
November	11	Monday	Armistice Day; a holiday
November	28	Thursday	Thanksgiving Day; a holiday
December	20	Friday	First term closes; Christmas vacation begins, 12:00 m.

1930

January	6	Monday	Second term begins; entrance examinations, registration, payment of fees
January	7	Tuesday	Regular class work begins
February	12	Wednesday	Lincoln's Birthday; a holiday
February	22	Saturday	Washington's Birthday; a holiday
March	22	Saturday	Second term closes
March	25	Tuesday	Alumni Day
March	26	Wednesday	Forty-first 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, Tractor and Auto Work I, 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, Tractor and Auto Work II.

GRAIN ELEVATOR MANAGEMENT

Not offered 1929-30.

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, Tractor and Auto Work I 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, Book-keeping 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 I and II.

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	Soi's
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
A1w	Chemistry of Plant and Animal Life	III, IV	TThS	102BCh	Mr. Taylor
	(3 cred.*; jr., sr.; no prereq.)				
A2f	Chemistry of Plant and Animal Life	III, IV	TThS	102BCh	Mr. Taylor
	(3 cred.*; jr., sr.; prereq., A1)				
A3	Cereal Technology	Not offered 1929-30			
	(3 cred.; sr. agr.; prereq., A1-2 advised)				

AGRICULTURAL ENGINEERING

No.	Title	Hour	Day	Bldg.	Instructor
A10f	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
A19w	Heat and Electricity				
	(3 cred.; jr., sr. agr.; no prereq.)				
	Sec. 1	I	MW	101En	Mr. Tyler
	2	I, II	F	102En	Mr. Tyler
		III	TTh	101En	Mr. Tyler
		III, IV	S	102En	Mr. Tyler

* Both Course A1 and A2 must be completed in order to receive credit.

THE SCHOOL OF AGRICULTURE

No.	Title	Hour	Day	Bldg.	Instructor
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
A31f,w	Drawing and Farm Buildings.. (3 cred.; all agr.; no prereq.)				
	Sec. 1	VI, VII, VIII	TTh	303En	Mr. Jacobson
	2	VI, VII, VIII	WF	303En	Mr. Jacobson
A32f	Farm Buildings II..... (3 cred.; sr. agr.; prereq., A31)	I	M	305En	Mr. White
		I, II	WF	305En	Mr. White
A41f	Household Physics (5 cred.; jr., sr. H.E.; no prereq.)	VIII	MTThF	101En	Mr. Tyler
		VIII, IX	W	102En	Mr. Tyler
A51f	Drainage and Roads..... (3 cred.; sr. agr.; no prereq.)	I, II	MWF	105En	Mr. Neal, Mr. Roe
A52w	Land Clearing (3 cred.; jr., sr. agr.; no prereq.)	III	TThS	217En	Mr. Schwantes

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	FSt	Mr. McCarty
	3	III, IV	MWF	ESt	Mr. Harvey

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
A2f,w	Judging Breed Types of Livestock (3 cred.; all agr.; prereq., A1)				
	Sec. 1	I, II	TThS	WSt	Mr. Harvey
	2	III, IV	TThS	WSt	Mr. McCarty
A3f,w	Advanced Livestock Judging.. (3 cred.; jr., sr. agr.; prereq., A2)	VI, VII	MWF	ESt	Mr. McCarty
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)	3St	Mr. Winters
			(w)	WSt	
A7w	Utilization of Meats..... (3 cred.; jr., sr. H.E.; no prereq.)	II	MWF	MS	Mr. Anderson
A8w	Problems in Livestock Improvement (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., A2)	IV	TThS	3St	Mr. Harvey
A10w	Livestock Management (3 cred.; jr., sr. agr.; prereq., A9)	IV	MWF	WSt	Mr. Harvey

BEE CULTURE

No.	Title	Hour	Day	Bldg.	Instructor
A1f	Elementary Beekeeping I..... (3 cred.; all; no prereq.)				
	Sec. 1	I	MWF	203aDa	Mr. Thompson
	2	II	MWF	203aDa	
	3	I	TThS	203aDa	
A1w	Elementary Beekeeping I..... (Same as A1f)				
	Sec. 1	II	TThS	203aDa	
	2	III	TThS	203aDa	Mr. Thompson
A2f	Elementary Beekeeping II.... (3 cred.; all; prereq., A1)	II	TThS	203aDa	
A2w	Elementary Beekeeping II.... (Same as A2f)				
	Sec. 1	I	MWF	203aDa	
	2	II	MWF	203aDa	Mr. Thompson
	3	I	TThS	203aDa	
A3f,w	Advanced Beekeeping (3 cred.; jr., sr.; prereq., A2, and one summer experience)	Ar	Ar	203aDa	

THE SCHOOL OF AGRICULTURE

DAIRY HUSBANDRY

No.	Title	Hour	Day	Bldg.	Instructor
A1f,w	Dairy Stock Feeding I..... (3 cred.; jr., sr. agr.; no prereq.)				
	Sec. 1(f)	II	MWF	100HH	Mr. Gullick- son
	2(f,w)	II	TThS	100HH	Mr. Riddell
A2f,w	Farm Dairying (3 cred.; jr., sr.; no prereq.) (Limited to Sec. 1 30 students each) 2	I, II VI, VII	TThS MWF	109HH 109HH	Mr. Thurston Mr. Gullick- son
A3f	Dairy Stock Judging..... (2 cred.; jr., sr. agr.; no prereq.) (Limited to Sec. 1 30 students each) 2	III, IV VI, VII	MW MW	DB DB	Mr. Riddell
A3w	Dairy Stock Judging..... (Same as A3f) (Limited to Sec. 1 30 students each) 2	III, IV VI, VII	MW TTh	DB DB	Mr. Petersen
A5w	Milk Production (5 cred.; sr. agr.; no prereq.)	I	MTWThF	100HH	Mr. Petersen
A6w	Dairy Stock Feeding II..... (3 cred.; sr. agr.; prereq., A1)	II	MWF	109HH	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 in- structor)	III	MWF	100HH	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. Loewen
	2	II	MWF	301Ad	
	3	III	MWF	301Ad	
A3w	Biology (3 cred.; jr., sr. H.E.; no prereq.)	II	TThS	301Ad	Mr. Loewen
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 (3 cred.; jr., sr. agr.; prereq., Sch. A87)		Not offered	1929-30	
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

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
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
A40	Grain Marketing I..... (3 cred.; sr. agr.; prereq., Sch. A43)	Not offered		1929-30	
A41	Grain Marketing II..... (3 cred.; sr. agr.; prereq., A40)	Not offered		1929-30	

FORESTRY

No.	Title	Hour	Day	Bldg.	Instructor
A1w	Forest Nursery Methods and Tree Planting (3 cred.; jr., sr. agr.; no prereq.)	III	TThS	8aHr	Mr. Hansen

GYMNASIUM AND PHYSICAL TRAINING

No.	Title	Hour	Day	Bldg.	Instructor
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Men

A1f,w	Gymnasium (2 cred.; all agr.; no prereq.)				
	Sec. 1	IX	TTh	Gy	Mr. Thompson
	2	VIII	MW	Gy	
	3	VII	W	Gy	
		VI	F	Gy	

Women

A1f,w-2w,f	Freshman Physical Training.. (2 cred.; all H.E.; no prereq.)				
	Sec. 1	IX	MW	Gy	Miss Kaercher
	2	IX	MF	Gy	
	3	IX	WF	Gy	
A3f,w-4w,f	Junior Physical Training..... (2 cred.; jr., sr. H.E.; prereq., A1-2)				
	Sec. 1	III	TTh	Gy	
	2	I	MW	Gy	
A5f,w-6w,f	Senior Physical Training..... (2 cred.; sr. H.E.; prereq., A3-4)				
	Sec. 1	IV	TTh	Gy	
	2	I	MW	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 (Same as A1f)	II	MTWThF	114HE	Miss Sell

THE SCHOOL OF AGRICULTURE

No.	Title	Hour	Day	Bldg.	Instructor
A2f,w	Clothing II (3 cred.; all H.E.; prereq., A1)	I	MTWThS	114HE	Miss Kafka
A4f	Textiles and Dressmaking I... (3 cred.; jr., sr. H.E.; prereq., A2)	III, IV	MWF	114HE	Miss Kafka
A5w	Textiles and Dressmaking II. (3 cred.; jr., sr. H.E.; prereq., A4)	VI, VII	MWF	114HE	Miss Sell
A6w	Decorative Needlework (3 cred.; jr., sr. H.E.; prereq., A1, A21)	VI, VII	MWF	112HE	Miss Topp
A7f,w	Millinery I (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 in 1929-30			
A13	Trade Millinery (5 cred.; sr. H.E.; prereq., A8)	Not offered in 1929-30			
A21f,w	Design (2 cred.; all H.E.; no prereq.)	III, IV	TTh	402HE	Miss Topp
A26f,w	House Planning and Furnishing (3 cred.; all H.E.; prereq., A21)	VI, VII, VIII	TTh	110HE	Miss Topp
A31f	Selection and Preparation of Food (3 cred.; all H.E.; no prereq.)				
	Sec. 1	I	MTWThF	105HE	Miss Chadderdon
	2	VI	MTWThF	105HE	
A31w	Selection and Preparation of Food (Same as A31f)	VI	MTWThF	105HE	Miss Chadderdon
A32f,w	Meal Preparation (3 cred.; all H.E.; prereq., A31)	III, IV	TThS	105HE	Miss Cremeans
A33f,w	Foods and Nutrition (2 cred.; jr., sr. H.E.; prereq., A32)	II	MTWTh	105HE	Miss Kafka
A34f,w	Home Management (3 cred.; sr. H.E.; prereq., A33)	III, IV	MWF	105HE	Miss Chadderdon
A35w	Child Care and Training (2 cred.; sr. H.E.; prereq., A33, Prev. Med. A1)	II	MW	106HE	Miss Whiteside
A50f,w	Related Science I (3 cred.; all H.E.; no prereq.)	IV	MW	202So	Miss Cremeans
A51f,w	Related Science II (3 cred.; all H.E.; prereq., A50)	III, IV	F	202So	Miss Cremeans
A73f,w	Food Selection and Preparation (2 cred.; all agr.; no prereq.)	I, II	F	202So	Miss Cremeans
		VIII, IX	TTh	105HE	Miss Cremeans

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

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. Eide
	Rec.	VII	F	100PP	
	Lab.	VI, VII	M	100PP	
A2w	Seed Testing (2 cred.; jr., sr. agr.; prereq., A1)	VI, VII	TTh	100PP	Mr. Larson
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 (3 cred.; sr.; prereq., A1 or A4)	IV	MWF	107PP	Mr. Eide
A12f	Weeds (2 cred.; jr., sr. agr.; prereq., A1)	VI, VII	TTh	100PP	Mr. Larson

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
	3	VII	MWF	102Ve	Mr. Smith
A2f,w	Management of Laying Flock (1 cred.; jr., sr.; prereq., A1 or parallel)	Ar	Ar	Ar	
A3w	Incubating and Brooding (3 cred.; jr., sr.; prereq., A1)				
	Lect.	III	MF	102Ve	Mr. Smith
	Lab.	Ar	Ar	Ar	
A7f	Poultry Judging (2 cred.; all; no prereq.)	VI, VII	TTh	102Ve	
A10f	Dressed Poultry (1 cred.; all; no prereq.)	Ar	Ar	Ar	

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	106HE	Miss Fisher
	Lab.	I, II	F	WH	
A1w	Home Nursing and Hygiene I (Same as A1f) (Limited to 20)				
	Lect.	I	M	106HE	Miss Fisher
	Lab.	I, II	W	WH	
A2w	Home Nursing and Hygiene II (2 cred.; sr. H.E.; prereq., A1)				
	Lect.	I	W	106HE	Miss Fisher
	Lab.	I, II	F	WH	
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	312En	
	2	IV	TThS	306En	
	3	I	MWF	306En	
A2f	English II (3 cred.; all; prereq., A1)	IV	MWF	312En	Miss Holbrook

PROGRAM

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No.	Title	Hour	Day	Bldg.	Instructor
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)				
	Sec. 1	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	312En	
A14w	Advanced Public Speaking (Same as A14f)	III	MWF	308En	Miss McNabb
A21f-22w	English Literature I, II (10 cred.; sr.; prereq., A4)	IV	MTWThF(f)	307En	Miss Langtry
			(w)	310En	
A32w	Debating (1 cred.† under special conditions. See Faculty Regulations)	Ar	Ar	Ar	Miss Langtry

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 (3 cred.; all; prereq., 1 or high school cred. in arith.)	IV	MWF	203Da	Mr. Johnsrud

† No credit allowed until course is completed.

THE SCHOOL OF AGRICULTURE

No.	Title	Hour	Day	Bldg.	Instructor
A4f	Algebra I (7 cred.; all; no prereq.)	III	MTWThFS	217En	Miss Martyn
A4w	Algebra I (Same as A4f)	IV	MTWThFS	217En	Miss Martyn
A5f	Algebra II (7 cred.; all; no prereq.)	IV	MTWThFS	217En	Miss Martyn
A5w	Algebra II (Same as A5f)	III	MTWThFS	107En	Miss Martyn
A6f,w	Geometry I (7 cred.; all; no prereq.)	I	MTWThFS	217En	Miss Martyn
A7f,w	Geometry II (7 cred.; all; prereq., algebra or parallel advised)	II	MTWThFS	217En	Miss Martyn
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..... (2 cred.; all; prereq., A21)	VII	TTh	301MuH	Miss Willson
A23f,w	Chorus (½-3* cred.; all; no prereq.)	6:15	W	201MuH	Mr. Leach
	Mixed Chorus	4:30	Th	201MuH	
	Girls' Glee Club	4:30	T	201MuH	
	Boys' Glee Club	Ar	TF	302MuH	Mrs. Mertens
A24f,w	Violin (½-3* cred.; all; no prereq.)	Ar	Ar	301MuH	Miss Willson
A25f,w	Piano (½-3* cred.; all; no prereq.)	Ar	Ar	103MuH	Mr. Boland
A26f,w	Instrumental Music (½-3* cred.; all; no prereq.)	6:15	TTh	201MuH	Mr. Boland
A27f,w	Orchestra (½-3* cred.; all; no prereq.)	Ar	Ar	202,	Mr. Birder,
A28f,w	Voice (½-3* cred.; all; no prereq.)	II	TTh	301MuH	Mr. Leach
A29f,w	Harmony I (2 cred.; all; prereq., A22)	VII	TTh	301MuH	Miss Willson
A30f,w	Harmony II (2 cred.; all; prereq., A29)	VI	MWF	103MuH	Mr. Boland
A32f,w	Appreciation of Music..... (3 cred.; all; no prereq.)	VI	TTh	103MuH	Mr. Boland
A33f,w	Instrumentation and Conducting (3 cred.; all; prereq., A22, two terms of A25 or A26)	IX	MWF	201MuH	Mr. Boland
A34f,w	Band (½-3* cred.; all agr.; no prereq.)	6:15	T	202MuH	Mr. Birder
A35f,w	Dramatic Art (½ cred. under special conditions. See Faculty Regulations)	I	S	202Ad	Mr. Mayne
A41f,w	Parliamentary Law (1 cred.; jr. sr.; no prereq.)	II	TThS	204Da	Mr. Christianson
A42f,w	American Government (3 cred.; sr.; no prereq.)				

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

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
.A43f,w	Elementary Economics (3 cred.; sr.; no prereq.)	I	MWF(f) (w)	108Da 8aHr	Mr. Christanson
.A44f,w	Rural Economics (3 cred.; sr.; no prereq.)	II	MWF	204Da	Mr. Lundquist
.A45f,w	Industrial History (3 cred.; jr., sr.; no prereq.)	VI	MWF	204Da	Mr. Christanson
.A46f,w	Rural Sociology (3 cred.; sr.; no prereq.)	III	TThS	204Da	Mr. Lundquist
.A47f,w	American History (3 cred.; jr., sr.; no prereq.)	IV	TThS	204Da	Mr. Christanson
.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 2 II 3 III	Th T S	202So 202So 202So	Miss Hoganson
.A61f,w	Spelling (1 cred.; all; no prereq.)	Sec. 1 II 2 IV 3 VI	S S F	107MuH 107MuH 107MuH	Miss Wade
.A62f,w	Penmanship (1 cred.; all; no prereq.)	Sec. 1 II 2 IV 3 VI	TTh TTh MW	107MuH 107MuH 107MuH	Mrs. Heathcote
.A80f,w	Typewriting I (3 cred.; all; no prereq.)	Sec. 1 III, IV 2 III, IV 3 VI, VII 4 I, II 5 I, II	MWF TThS MWF MWF TThS	106MuH 106MuH 106MuH 106MuH 106MuH	Mrs. Heathcote
.A81f,w	Typewriting II (3 cred.; jr., sr. H.E.; prereq., A80)	Sec. 1 I, II 2 VI, VII, VIII	MWF TTh	106MuH 106MuH	Mrs. Heathcote
.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
.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	Mr. Ma ne

THE SCHOOL OF AGRICULTURE

SOILS

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

VETERINARY MEDICINE

No.	Title	Hour	Day	Bldg.	Instructor
A1w	Physiology	II	TThS	103Ve	Mr. Kern-
	(3 cred.; all; no prereq.)				kamp
A4w	Elements of Bacteriology.....	II	MWF	103Ve	Mr. Fenster-
	(3 cred.; jr., sr.; no prereq.)				macher
A5f	Physiology and Hygiene of				
	Breeding	II	WF	103Ve	Mr. Boyd
	(2 cred.; jr., sr. agr.; no pre-				
	req.)				
A7f	Veterinary Studies	I	MWF	102Ve	Mr. Boyd
	(3 cred.; jr., sr. agr.; no pre-				
	req.)				
A8w	Veterinary Studies	I	MWF	102Ve	Mr. Boyd
	(Same as A7f)				

The Bulletin
of the University of
Minnesota

North Central School and Station
Grand Rapids, Minnesota
Announcement for the Year
1929-1930



Vol. XXXII No. 47 August 11 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

1929							1930														
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	6	..	..	..	1	2	3	4	..	..	1	2	3	4	5
7	8	9	10	11	12	13	5	6	7	8	9	10	11	6	7	8	9	10	11	12	
14	15	16	17	18	19	20	12	13	14	15	16	17	18	13	14	15	16	17	18	19	
21	22	23	24	25	26	27	19	20	21	22	23	24	25	20	21	22	23	24	25	26	
28	29	30	31	..	..	..	26	27	28	29	30	31	..	27	28	29	30	31	..	..
..
AUGUST							FEBRUARY							AUGUST							
..	..	..	..	1	2	3	..	..	..	..	..	..	1	..	..	..	..	..	1	2
4	5	6	7	8	9	10	2	3	4	5	6	7	8	3	4	5	6	7	8	9	
11	12	13	14	15	16	17	9	10	11	12	13	14	15	10	11	12	13	14	15	16	
18	19	20	21	22	23	24	16	17	18	19	20	21	22	17	18	19	20	21	22	23	
25	26	27	28	29	30	31	23	24	25	26	27	28	..	24	25	26	27	28	29	30	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	..	..	..	..	..	..
SEPTEMBER							MARCH							SEPTEMBER							
1	2	3	4	5	6	7	..	..	..	..	..	..	1	..	1	2	3	4	5	6
8	9	10	11	12	13	14	2	3	4	5	6	7	8	7	8	9	10	11	12	13	
15	16	17	18	19	20	21	9	10	11	12	13	14	15	14	15	16	17	18	19	20	
22	23	24	25	26	27	28	16	17	18	19	20	21	22	21	22	23	24	25	26	27	
29	30	..	..	..	..	..	23	24	25	26	27	28	29	28	29	30	..	..	..	..
..	..	..	..	..	..	..	30	31	..	..	..	..	..	..	..	..	..	..	..	..
OCTOBER							APRIL							OCTOBER							
..	..	1	2	3	4	5	..	..	1	2	3	4	5	..	..	..	1	2	3	4
6	7	8	9	10	11	12	6	7	8	9	10	11	12	5	6	7	8	9	10	11	
13	14	15	16	17	18	19	13	14	15	16	17	18	19	12	13	14	15	16	17	18	
20	21	22	23	24	25	26	20	21	22	23	24	25	26	19	20	21	22	23	24	25	
27	28	29	30	31	..	..	27	28	29	30	..	..	..	26	27	28	29	30	31	..
..	
NOVEMBER							MAY							NOVEMBER							
..	..	..	..	..	1	2	..	..	..	..	1	2	3	..	..	..	..	..	..	1
3	4	5	6	7	8	9	4	5	6	7	8	9	10	3	4	5	6	7	8		
10	11	12	13	14	15	16	11	12	13	14	15	16	17	9	10	11	12	13	14	15	
17	18	19	20	21	22	23	18	19	20	21	22	23	24	16	17	18	19	20	21	22	
24	25	26	27	28	29	30	25	26	27	28	29	30	31	23	24	25	26	27	28	29	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	30	..	..	..	..	..	..
DECEMBER							JUNE							DECEMBER							
1	2	3	4	5	6	7	1	2	3	4	5	6	7	..	1	2	3	4	5	6	
8	9	10	11	12	13	14	8	9	10	11	12	13	14	7	8	9	10	11	12	13	
15	16	17	18	19	20	21	15	16	17	18	19	20	21	14	15	16	17	18	19	20	
22	23	24	25	26	27	28	22	23	24	25	26	27	28	21	22	23	24	25	26	27	
29	30	31	..	..	..	..	29	30	..	..	..	..	..	28	29	30	31	..	..	..
..	

SCHOOL CALENDAR 1929-30

1929			
July	27		Fifteenth Annual Visiting Day
September	30	Monday	Registration
October	1	Tuesday	Organization of classes
October	31	Friday	Home Coming Day
November	28	Thursday	Thanksgiving Day
December	20	Friday	First term closes; Christmas recess begins
1930			
January	6	Monday	Registration of new students
January	7	Tuesday	Second term begins; organization of classes
March	24-28	Week	North Central School Farmers' Week
March	28	Friday	School term closes
April	14-17		Junior Short Course
June	23-27		Women's Encampment

COMMENCEMENT WEEK

March	21	Friday	Superintendent's reception to graduating class
March	23	Sunday	Baccalaureate address
March	24	Monday	Literary program
March	25	Tuesday	Athletic program
March	26	Wednesday	Class exercises
March	27	Thursday	Ag. Royal and Banquet
March	28	Friday	Commencement

FACULTY

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

AT GRAND RAPIDS

ADMINISTRATION

Otto I. Bergh, B.S.Agr., Superintendent
Mary Kulstad, Registrar and Librarian
Otto W. Swenson, Preceptor
Marie Opgrande Mollins, Director of Dining Hall
August Van Loo, Accountant
Margaret Snyder, Secretary and Clerk

AGRICULTURAL ENGINEERING

Didrich Grussendorf, B.Agr.
Otto W. Swenson, Asst. Farm Machinery and Motors

AGRONOMY

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

HORTICULTURE

Theodore S. Weir, B.S.A.

ANIMAL HUSBANDRY

Clarence L. Cole, B.S., Animal and Dairy Husbandry and Poultry
Theodore S. Weir, B.S.A., Entomology

ASSOCIATED SUBJECTS

Didrich 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 30, 1929. Classes will begin at 8:15 o'clock, Tuesday, October 1, 1929.

The winter term will open for registration January 6, 1930, and classes will begin at 8:15 o'clock, January 7, 1930. This term closes March 27, 1930.

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 term of three months do not exceed \$75. 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
Deposits 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 14 to April 17, 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. 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' and Homemakers' 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 second annual Women's Camp will be held at the North Central School June 23 to 27, 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 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 5
Livestock	Livestock
Farm Dairying 3	Livestock Breeding 3
Poultry I 3	Stock Judging 2
Plant Husbandry	Plant Husbandry
Plant Life 5	Cereals 5
Arithmetic 5	Industrial Geography 5
Gymnasium 1	Gymnasium 1
Social Training ½	Social Training ½
Electives 2½	Electives 3½
Total 25	Total 25
<i>Elective</i>	<i>Elective</i>
Breeds 2	Spelling and Penmanship 3
Motors 2	Piano 2
Piano 2	Violin 2
Violin 2	Glee Club ½
Glee Club ½	Mechanical Drawing 2
Typewriting 3	
Spelling and Penmanship 3	

JUNIOR

<i>Fall</i>	<i>Winter</i>
<i>Required</i>	<i>Required</i>
English 5	English 5
Chemistry 5	Farm Accounts 3
Forage Crops 5	Fruits and Vegetables 5
Livestock	Livestock
Judging 2	Feeds and Feeding 5
Poultry II 3	Gymnasium 1
Gymnasium 1	Physics 5
Electives 4	Elective 1
Total 27	Total 25
<i>Elective</i>	<i>Elective</i>
Farm Engineering	Farm Engineering
Land Clearing 1	Advanced Carpentry 2
Concrete 1	Mechanical Drawing 2
Piano 2	Piano 2
Violin 2	Violin 2
Bookkeeping 5	Bookkeeping 5
Typewriting 3	Typewriting 3
Glee Club ½	Glee Club ½
Corn and Grain Judging 2	
Motors 2	

COURSES OF STUDY

II

SENIOR

<i>Fall</i>	<i>Winter</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>	
Farm Engineering	Farm Engineering
Farm Drainage 1	Farm Machine 2
Advanced Motors 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>	
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>	
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
Bookkeeping 5	Bookkeeping 5
Typewriting 3	Typewriting 3
Rural Sociology 3	Agriculture Economics
Glee Club ½	Machinery, etc. 3
Piano 2	Glee Club ½
Violin 2	Piano 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. Miss Kulstad.
- 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.

HORTICULTURE AND ENTOMOLOGY

- A. Plant Life. A course in the study of the various properties of a plant with special reference to the potato.
- 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.
- 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.
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.
- 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.

BEEKEEPING

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

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.
- C. Carpentry. Care and sharpening of wood-working tools useful on the farm. Construction and repair of agricultural equipment and farm buildings.
- D. Mechanical Drawing. The use of mechanical drawing instruments is taught by drawing farm equipment and buildings.
- E. Farm Motors. The principles of construction and operation of gasoline engines is given by laboratory work on stationary and automobile engines.
- F. Farm Shop. Practice in rope work, soldering, belt lacing, pipe fitting, and harness repair.
- 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.
- 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.
- B. Dairy Breeds. Various breeds for dairy purposes are studied. Comparative judging. Score cards.
- C. Livestock Breeds. Breeds, beef cattle, hogs, horses, and sheep are discussed as to origin, development, characteristics, adaptations, and economic importance. Score card judging.
- D. Feeds and Feeding. General composition of the animal body; composition and digestibility of feeds; feeding standards; methods of feeding.
- 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.
- F. Livestock Production and Marketing. Statistical studies of production, markets, market demands, and market classes and grades. Study of market reports.
- G. Animal Breeding. Theory and practice of animal breeding, including variation, heredity selection, effect of purebred animals in improving types of stock and pedigrees.
- H. Poultry I. A study of the farm laying flock covering feeding for egg production, culling, housing, and the poultry breeds.

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.

Poultry III. Selection, care, and feeding of the breeding flock. Incubation and brooding, including the feeding and diseases of baby chicks.

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.
- B. English II-A. More advanced theme writing. Oral reports. Book reports. Standard books and selections of interest are read.
- 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.
- 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.
- 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.

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.

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. Completion of Plane 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 Hunziker.
- 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.

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, Gavinié, Wessely scales.
- D. Orchestra. Credit to be arranged.

SOCIOLOGY

- Social Training. This subject includes a practical training in sanitation, neatness with respect to rooms and dress, social relationships, table etiquette, etc.

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

Northwest School and Experiment
Station

Crookston, Minnesota

Announcement for the Year
1929 -1930



Vol. XXXII No. 16 April 4 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

1929							1930													
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	6	..	..	..	1	2	3	4	..	..	1	2	3	4	5
7	8	9	10	11	12	13	5	6	7	8	9	10	11	6	7	8	9	10	11	12
14	15	16	17	18	19	20	12	13	14	15	16	17	18	13	14	15	16	17	18	19
21	22	23	24	25	26	27	19	20	21	22	23	24	25	20	21	22	23	24	25	26
28	29	30	31	..	..	..	26	27	28	29	30	31	..	27	28	29	30	31	..	..
..
AUGUST							FEBRUARY							AUGUST						
Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa
..	..	..	..	1	2	3	..	..	..	..	..	..	1	..	..	..	..	..	..	1
4	5	6	7	8	9	10	2	3	4	5	6	7	8	3	4	5	6	7	8	9
11	12	13	14	15	16	17	9	10	11	12	13	14	15	10	11	12	13	14	15	16
18	19	20	21	22	23	24	16	17	18	19	20	21	22	17	18	19	20	21	22	23
25	26	27	28	29	30	31	23	24	25	26	27	28	..	24	25	26	27	28	29	30
..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	..	..	..	..	..	..
SEPTEMBER							MARCH							SEPTEMBER						
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	6	7	..	..	..	..	..	..	1	..	1	2	3	4	5	6
8	9	10	11	12	13	14	2	3	4	5	6	7	8	7	8	9	10	11	12	13
15	16	17	18	19	20	21	9	10	11	12	13	14	15	14	15	16	17	18	19	20
22	23	24	25	26	27	28	16	17	18	19	20	21	22	21	22	23	24	25	26	27
29	30	..	..	..	..	..	23	24	25	26	27	28	29	28	29	30	..	..	..	..
..	..	..	..	..	..	..	30	31	..	..	..	..	..	..	..	..	..	..	..	..
OCTOBER							APRIL							OCTOBER						
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	4	5	..	..	1	2	3	4	5
6	7	8	9	10	11	12	6	7	8	9	10	11	12	5	6	7	8	9	10	11
13	14	15	16	17	18	19	13	14	15	16	17	18	19	12	13	14	15	16	17	18
20	21	22	23	24	25	26	20	21	22	23	24	25	26	19	20	21	22	23	24	25
27	28	29	30	31	..	..	27	28	29	30	..	..	..	26	27	28	29	30	31	..
..
NOVEMBER							MAY							NOVEMBER						
Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa
..	..	..	..	..	1	2	..	..	..	..	1	2	3	..	..	..	..	..	..	1
3	4	5	6	7	8	9	4	5	6	7	8	9	10	2	3	4	5	6	7	8
10	11	12	13	14	15	16	11	12	13	14	15	16	17	9	10	11	12	13	14	15
17	18	19	20	21	22	23	18	19	20	21	22	23	24	16	17	18	19	20	21	22
24	25	26	27	28	29	30	25	26	27	28	29	30	31	23	24	25	26	27	28	29
..	..	..	..	..	..	..	..	..	..	..	..	..	..	30	..	..	..	..	..	..
DECEMBER							JUNE							DECEMBER						
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	6	7	1	2	3	4	5	6	7	..	1	2	3	4	5	6
8	9	10	11	12	13	14	8	9	10	11	12	13	14	7	8	9	10	11	12	13
15	16	17	18	19	20	21	15	16	17	18	19	20	21	14	15	16	17	18	19	20
22	23	24	25	26	27	28	22	23	24	25	26	27	28	21	22	23	24	25	26	27
29	30	31	..	..	..	..	29	30	..	..	..	..	..	28	29	30	31	..	..	..
..

SCHOOL CALENDAR

1929-30

1929

June	17-20		Fourth Annual Women's Camp
September	30	Monday	Registration
October	1	Tuesday	Organization of classes
October	26	Saturday	Home Coming Day
November	28	Thursday	Thanksgiving Day
December	20	Friday	First term closes; Christmas recess begins

1930

January	6	Monday	Registration of new students
January	7	Tuesday	Second term begins; organization of classes
February	10-14	Week	Northwest School Farmers' Week
March	28	Friday	School term closes
June	9-12		Junior Short Course

COMMENCEMENT WEEK

March	22	Saturday	Interclass field meet
March	23	Sunday	Baccalaureate address
March	24	Monday	Intersociety declamatory contest
March	25	Tuesday	Superintendent's reception to graduating class
March	26	Wednesday	Musical recital
March	27	Thursday	Class Day exercises and commencement

FACULTY

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

AT CROOKSTON

ADMINISTRATION

Austin A. Dowell, M.S., Superintendent
Elmer R. Clark, B.S.A., Acting Registrar
*Arthur H. Larson, B.S., Registrar
Fanny B. Lippitt, B.S., Director of Dining Hall
Elesa Simonson, 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
————— 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
Delmar H. LaVoi, 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
Laura Gerber, B.S., Clothing and Textiles
Elesa Simonson, R.N., Nursing

ASSOCIATED SUBJECTS

Edward W. Avery, B.S., Advanced Subjects, Debate
Helen M. Brown, B.A., Music and Vocal Training
DeEtte Cenfield Genung, B.O., English
Fae Hughbanks, Business Training
*Arthur H. Larson, B.S., Academic Subjects
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

* On leave September 1, 1928 to September 1, 1929.

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 30, 1929, and classes will begin at 8 o'clock on Tuesday, October 1. The fall term closes on December 20, 1929.

The winter term will open for registration on January 6, and classes will begin at 8 o'clock on January 7, 1930. The winter term closes March 28, 1930.

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 16 to 25. 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 and twelve group 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 30, or Monday, January 6. 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 25 cents 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 will entitle 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 except those living at home.....	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 .....	.25
Student privilege tickets for all school functions, athletic contests, and games and entertainments	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. A satisfactory standing in this summer work, or its equivalent in practical work done at the school, is required for graduation. Ten of the 150 credits are earned by home projects.

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 school day at 11:40 a.m., the students assemble in the auditorium, a commodious room seating five hundred people. 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 elocution 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 students. Each student is expected to associate himself with one of these societies as early in his course as possible.

MUSICAL ORGANIZATION

A school band is maintained each year. A competent leader has charge of this work. A school orchestra, 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 6, 1930.

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 fourth annual Women's Camp will be held at the Northwest School June 17-20, 1929, 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 Northwest School and Station is now conducting extensive experiments in agronomy, soils, horticulture, animal husbandry, and agricultural engineering. Beginning with 1910, a special report has been issued each year describing the progress of the work. The annual report is 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, Barred Plymouth Rock, 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

BOYS' THREE-YEAR COURSE

Capital letters following the names of courses refer to descriptions given on pages 16 to 25.

FIRST YEAR

Required of All

<i>Fall Term</i>	<i>Spring Term</i>
Credit Hours	Credit Hours
5 English A	5 English A
5 Livestock* Farm Dairying A Poultry B	5 Livestock* Study of Breeds H Poultry B
5 Farm Crops* Botany A	5 Farm Crops* Cereal Crops A
5 Arithmetic A* Gymnasium and Personal Hygiene A	5 Arithmetic A* Gymnasium and Personal Hygiene A
1 Social Training C*	1-5 Summer Home Projects
5 Elective from the following:	5 Elective from the following:
<hr style="width: 100%;"/>	<hr style="width: 100%;"/>
26	25
5 Blacksmithing B*	2 Spelling and Penmanship E*
5 Farm Motors I	5 Carpentry C*
5 Farm Mechanics G*	5 Farm Motors J
5 Industrial Geography A	5 Industrial History B
1 Music B	1 Music B
3 Typewriting I F	3 Typewriting I F
5 Shorthand C	5 Shorthand C
4 Music A	4 Music A

Students having a State Board certificate in arithmetic need not take that subject.

SECOND YEAR

Required of All

<i>Fall Term</i>	<i>Spring Term</i>
Credit Hours	Credit Hours
5 English B	5 English B
5 Livestock Stock Feeding E Stock Judging G Poultry J	5 Livestock Stock Feeding F Stock Judging G
5 Farm Crops Fruit and Vegetable Crops C	5 Farm Crops Forage Crops B
5 Agricultural Chemistry C Gymnasium	2½ Farm Accounts E 2½ Forestry D Gymnasium
5 Elective from the following:	1-5 Summer Home Projects
<hr style="width: 100%;"/>	5 Elective from the following:
25	25
5 Ancient History C	5 Bookkeeping A
5 Mechanical Drawing E*	5 Modern History C
3 Field Machinery H	1 Music B
1 Music B	1 Parliamentary Law E
3 Typewriting II F	3 Typewriting II F
5 Shorthand D	5 Shorthand D
3 Advanced Carpentry D	3 Farm Drawing F
3 Beekeeping E	4 Music A
4 Music A	

* Will be offered both terms.

COURSES OF STUDY

13

THIRD YEAR Required of All

<i>Fall Term</i>	<i>Spring Term</i>
Credit	Credit
Hours	Hours
5 English C	5 English C
5 Livestock	5 Livestock
5 Herd Management C	Livestock Production D
5 Farm Crops	Poultry K
5 Soil Management D	5 Farm Crops
Gymnasium	Farm Management F
2 Farm Marketing C	Gymnasium C
3 Rural Sociology B	2 Farm Marketing C
5 Elective	3 Rural Economics A
—	5 Elective
25	—
	25

ELECTIVE

5 Algebra B	5 Algebra B
2 Meat Cutting I	2 Meat Cutting I
5 Civics D	5 Physics A
1 Music B	1 Music B
8 Office Training B	8 Office Training B
4 Music A	4 Music A

CREDIT REGULATIONS REGARDING BOYS' 3-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.

HOMEMAKERS' COURSE

FIRST YEAR

Required of All

<i>Fall Term</i>	<i>Spring Term</i>
Credit Hours	Credit Hours
5 English A	5 English A
3 Physiology and Public Health C	5 Arithmetic A*
4 Foods and Cookery A	2 Public Health C
3 Elementary Garment Making P	4 Foods and Cookery A
1 Drawing and Design M	3 Garment Making P
1 Music B	1 Music B
1 Social Training I	Physical Training D
Physical Training C	1-5 Summer Home Projects
6 Elective from the following:	5 Elective from the following:
—	—
24	25

General and Agricultural Electives

5 Industrial Geography A	3 Farm Dairying B*
5 Poultry L*	5 Industrial History B
4 Music A	4 Music A
5 Botany*	

Office Training Electives

2 { Spelling E	2 { Spelling E
Penmanship E	Penmanship E
5 Shorthand C	5 Shorthand C
3 Typewriting I G	3 Typewriting I G

SECOND YEAR

Required of All

<i>Fall Term</i>	<i>Spring Term</i>
Credit Hours	Credit Hours
5 English B	5 English B
4 Foods and Cookery B	3 Home Planning and Furnishing J
2 Textiles R	2 Home Nursing E
4 Elementary Dressmaking O	3 Dressmaking N
2 Home Nursing E	1 Music B
1 Music B	Physical Training E
Physical Training E	1-5 Summer Home Projects
1 Costume Design L	10 Electives
5 Electives	—
—	24
24	

General and Agricultural Electives

5 Ancient History C	2 Laundering Q
5 Fruit and Vegetable Crops C	5 Modern History C
4 Music A	1 Parliamentary Law E
3 Beekeeping E	4 Music A
5 Mechanical Drawing E*	2½ Farm Forestry D
5 Agricultural Chemistry C	

Office Training Electives

5 Shorthand D	5 Shorthand D
3 Typewriting II F	3 Typewriting II F
—	5 Bookkeeping A

* Will be offered both terms.

COURSES OF STUDY

THIRD YEAR

Required of All

<i>Fall Term</i>	<i>Spring Term</i>
Credit Hours	Credit Hours
5 English C	5 English C
3 Home Management D	3 Institutional Management G
1 Art Needlework K	2 Dressmaking N
1 Music B	1 Music B
Physical Training E	Physical Training E
3 Rural Sociology B	3 Rural Economics A
11 Electives	10 Electives
24	24

General and Agricultural Electives

2 Household Accounts F	2 Floriculture B
2 Nutrition H	5 Farm Management F
4 Music A	4 Music A
5 Civics D	5 Physics A
2 Meat Cutting I	2 Meat Cutting I
5 Algebra B	5 Algebra B

Office Training Electives

2 Farm Marketing C	2 Farm Marketing C
8 Office Training B	8 Office Training B

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.

Upon the completion of two summers of supervised work in addition to this course, graduates will be admitted to the College of Agriculture, Forestry, and Home Economics, and to state teachers colleges.

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

<i>Fall Term</i>	<i>Spring Term</i>
Credit Hours	Credit Hours
5 Elementary Algebra B	5 Elementary Algebra B
5 Plane Geometry	5 Plane Geometry
5 American Literature and Composition D	5 American Literature and Composition D
5 English Literature E	5 English Literature E
2 Comparative Agriculture D	2 Comparative Agriculture D

DESCRIPTION OF COURSES

AGRICULTURE

- A. 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. Mr. Clark.
- B. 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. Mr. Dunham.
- C. Agricultural Chemistry. A study of elementary chemistry and its application to soil and fertilizers. Laboratory experiments in elementary chemistry and soil tests. Mr. Dunham.
- D. 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. Mr. Dunham.
- E. 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. Mr. Clark.
- F. 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. Mr. Dunham.

AGRICULTURAL ENGINEERING

- A. Agricultural Physics. Nature of matter and force, heat, light, sound, and electricity in their application to everyday use. Mr. Clark.
- B. 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. Mr. Foker.
- C. Carpentry. Care and use of tools taught by means of practical farm problems, methods of sharpening tools, practical application of the various carpentry tools. Mr. Foker.
- D. Advanced Carpentry. Continuation of carpentry with emphasis on building construction including foundation, framing, stair and rafter cutting, and selection of materials, and concrete work. Mr. Foker.
- E. Mechanical Drawing. Practice in lettering and emphasis on working drawings for the shop. Designing of small farm structures. Mr. Foker.
- F. Farm Drawing. Continuation of Mechanical Drawing. Specializing in the planning and arranging of various buildings on the farm. Atten-

tion is given to building materials, estimates of costs, and specifications. Mr. Foker.

- G. Farm Mechanics. Practical work in soldering, pipe fitting, babbiting, and bearing scraping; rope work, belt lacing, and harness repair. Mr. Anderson.
- H. 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. Mr. Anderson.
- I. Motors: Care and Operation. Principles, 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. Mr. Anderson.
- J. 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. Mr. Anderson.

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, including record keeping. Mr. Kiser.
- B. Farm Poultry. Poultry house construction. Feeds and feeding. Essentials for winter egg production. Killing and dressing fowls. Mr. Pilkey.
- C. Herd Management. Principles 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. Mr. Kiser.
- D. Livestock Production. Statistical studies of the livestock situation. The livestock market, market demands, and market classes. Study of daily livestock market reports. Mr. Kiser.
- E. Stock Feeding. Prerequisite, study of breeds. 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 of rations. Mr. Kiser.
- F. Stock Feeding. Prerequisite E. Feeding livestock under farm conditions. Consideration of experimental work and present practice. Practical feeding problems. Efficiency and economy in the feeding of rations. Mr. Kiser.
- G. 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. Mr. Kiser, Mr. LaVoi.

- H. 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. Mr. LaVoi.
- I. Meat Cutting. Slaughtering of hogs, sheep, and beeves. Judging a carcass. Study of meat cuts and meats. Mr. Kiser.
- J. 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. Mr. Pilkey.
- K. Poultry Diseases. Diseases of poultry, their cause, prevention, and treatment. Poultry marketing. Mr. Pilkey.
- L. Farm Poultry. 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. Mr. Pilkey.

HORTICULTURE AND BEEKEEPING

- A. 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. Mr. McCall.
- B. Floriculture. 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. Mr. McCall.
- C. 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. McCall.
 - 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. McCall.
 - 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. Mr. McCall.
- D. 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. Mr. McCall.

- E. 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. Mr. McCall.

ENGLISH

- A. Freshman English. 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. 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.
Debating.—One hour a week. Principles of argumentation, briefs, debating in class, in public programs, and in debating societies. Mr. Avery.
- B. Junior English. 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. Miss Warne.
Speech.—Extemporaneous talks, interpretation, and a little dramatic work. Miss Warne.
Debating.—A development and a continuation of the first year's work. Mr. Avery.
- C. Senior English. Study of sentence structure and principles of composition. Organization of longer themes. Reading of a few of the best English classics. Shakespeare. Miss Simley.
Speech.—Special study of extemporaneous speech. Frequent participation in public programs. Dramatics. Miss Simley.
- D. American Literature and Composition. The history and development of American literature with selected readings from each period. A careful study of composition with college entrance requirements in mind. 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.
- E. English Literature. A survey of English literature with selected readings from each period. Frequent critical essays on outside reading. Miss Simley.

INDUSTRIAL HISTORY AND CIVICS

- A. Industrial Geography. Study of climate, rainfall, location, and other geographical conditions affecting the primary industries. Mr. Avery.
- B. Industrial History. A study of the growth of industry, commerce, labor, population, and agriculture in the United States. Mr. Avery.
- C. Ancient and Modern History. A study of the world's history, with particular emphasis placed on the development of institutions, states, industries, and organizations that have influenced the progress of civilization. Mr. Larson.
- D. Civics. Legislative, judicial, and executive departments and their functions. School district, township, county, state, and national government. Mr. Clark.
- E. Parliamentary Law. The essentials of parliamentary practices as necessary in conducting public meetings effectively. Mr. Avery.

RURAL ECONOMICS AND SOCIOLOGY

- A. Rural Economics. Attention is given to the consideration of factors affecting agricultural production and farm products. Mr. LaVoi.
- B. Rural Sociology. The problems of rural communities, of rural health and sanitation, and of rural social institutions will receive attention. Mr. LaVoi.
- C. Farm Marketing. Fundamentals in connection with the problems confronting the farmer today in disposing of his products. Mr. Dowell.
- D. Comparative Agriculture. A study of the different systems of agriculture, marketing, rural credit facilities, and rural life of the principal agricultural countries of the world. Mr. Dunham.

HOME ECONOMICS

FOODS AND HOME MANAGEMENT

- A. Foods and Cookery. Elementary cooking. 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. Miss Bede.
- B. Foods and Cookery. Advanced cooking. Canning and preserving. Planning and serving meals. Miss Bede.
- C. Physiology and Public Health. Study of structure of human body; digestion, absorption, and metabolism of foods; fundamental principles of human nutrition. General principles of public hygiene and sanitation are included. Miss Simonson.
- D. Home Management. Distribution of family income; household accounts; purchasing supplies; planning and serving meals; relation of cost to income. Miss Lippitt.
- E. Home Nursing. Home care of the sick. Sick room etiquette, care of children, first aid in emergencies, preparation and serving of food for the sick. Practical work is given in assisting the regular school nurse. Miss Simonson.

- F. 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 expenditure. Miss Bede.
- G. Institutional Management. Study of planning, purchasing, care, and preparation of food in quantity; organization and administration, and practice house work. Miss Lippitt.
- H. 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. Miss Lippitt.
- I. Social Training. A series of lectures on proper speech, table etiquette, care of children, first aid in emergencies. Practical work is given in assisting the regular school nurse. Miss Bede.
- J. 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. Miss Bede.

CLOTHING

- K. Art Needlework. Review of principles of design and color harmony. Decorative stitches and use in original design. Artcraft work. Prerequisite, Drawing and Design. Miss Gerber.
- L. Costume Design. Principles of design as applied to dress. Special emphasis given to different types and figures. Prerequisite, Drawing and Design. Miss Gerber.
- M. Drawing and Design. Treats of the fundamental principles in designs and color harmony, with special emphasis on house furnishings. Miss Gerber.
- N. Dressmaking. Includes the more advanced problems. Underwear and dress for graduation are made in this course. Miss Gerber.
- O. Elementary Dressmaking. Pattern alterations; making of wool blouse, wool dress, underwear, afternoon or informal party dress, and infant's layette. Miss Gerber.
- P. 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. Miss Gerber.
- Q. Laundering. Care of laundry room and utensils, study of water, soap, starch, removal of stains, washing of woolen garments, ironing. Principles of dry cleaning. Miss Gerber.
- R. Textiles. Survey of processes concerned in the manufacture of cotton, wool, silk, and flax, and tests for adulteration and substitution. Miss Gerber.

MATHEMATICS

- A. 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. Mr. Pilkey.
- B. Algebra. This work covers *First Course in Algebra*, by Hawkes-Lubby-Teuton, or equivalent text, omitting ratio and proportion, graphical representation, and imaginaries. Mr. Larson.
- C. Geometry. The course in geometry covers Wentworth and Smith's *Geometry*, from Book I to Book VIII, or equivalent text, except the work in symmetry, maxima, and minima. Mr. Larson.

MUSIC

- A. Piano, Voice, and Violin. *Piano*.—Instruction adapted to needs of each student. Technical exercises for development and control of the fingers, hands, and arms. Studies and compositions by best composers. A special fee is charged for this work. Miss Polski.
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 Brown.
Violin.—Methods and studies adapted to the individual student. This course requires a special fee. Miss Warne.
Chorus Work.—A glee club, chorus, and quartets are organized during the year. Students with the best voices are admitted to these. No special fee is charged. Miss Brown.
- B. Music. In the regular course of study, there is offered one hour a week in music each year, consisting of work in ear training, vocal development; sight reading and chorus; and appreciation of music. Miss Brown.

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

- A. 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. LaVoi.
- B. 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. LaVoi.
- C. Social Training. Lectures and demonstrations on social conventions of home, school, and public life.

WOMEN

- D. Physical Training. For freshman girls not having had gym. Exercises in correct posture and walking habits. Exercises to develop quick thinking and action. Simple folk dances. Miss Gerber.
- E. Physical Training. For junior, senior, and advanced girls. Exercises on light and heavy apparatus, and advanced folk dances. Miss Gerber.
- F. Social Training. Lectures and demonstrations on social conventions of home, school, and public life.

BUSINESS TRAINING

- A. 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. Miss Hughbanks.
- B. Office Training. This course, given the third year, combines the work of the shorthand and typewriting classes into one; and the student receives practical office work, including dictation and letter writing, filing, mimeographing, and secretarial training. Miss Hughbanks.
- C. Shorthand I. During the first year, the students complete the *Manual of Gregg Shorthand*, as well as many easy business letters. Miss Hughbanks.
- D. Shorthand II. The third semester of shorthand reviews the *Manual*, gives much new dictation material, including *Gregg Speed Studies*, and work from the *Gregg Writer*. The students' speed should be raised to 100 words a minute. Miss Hughbanks.
- E. Spelling and Penmanship. Practical drills closely related to work in other subjects, aiming to give proficiency in everyday requirements. Mr. Avery.
- F. Typewriting I and II. Proper use of the machine; accuracy in touch typing through finger drills, and writing of required exercises. Second year includes business letters and tabulating and executing legal documents. Forty to fifty words a minute required. Miss Hughbanks, Miss Warne.

SUMMER HOME PROJECTS

AGRICULTURAL PROJECTS

1. 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 credits. Mr. Kiser.
2. 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 credits. Mr. Kiser.
3. Sheep Raising. Care of farm flock for one season, with complete records of feeding and management. 1 to 2 credits. Mr. Kiser.

4. Potato Production. Production of one acre or more of potatoes for seed, and study of seed selection and treatment, control of diseases, cultural practices, cost of production, and financial returns. 3 to 5 credits. Mr. McCall.
5. Garden Production. Growing one-eighth acre or more of specified crops, with notes and cost records. 1 to 3 credits. Mr. McCall.
6. 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.
7. Plant Identification. Identification and classification of weeds. 5 credits. Mr. McCall.
8. Beekeeping. Care of two or more colonies of bees, including approved methods of management, and marketing of honey. 1 to 3 credits. Mr. McCall.
9. 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 credits. Mr. McCall.
10. Corn Production. Production of one acre or more of a standard variety of corn for feed, following up-to-date methods of seed selection, curing, testing, and cultural operations as taught in the classroom. 3 to 5 credits. Mr. Dunham.
11. Pure Seed Production. Production of one acre or more of a pure standard variety of wheat, oats, or barley, with special attention to preserving purity of seed and to producing high quality seed grain. 3 to 5 credits. Mr. Clark.
12. Farm Accounts. Includes the keeping of a complete system of financial accounts on the home farm for one season. 5 credits. Mr. Clark.
13. Rearing Chicks. Hatching, brooding, feeding, and management of chicks, including records of production costs. 3 credits. Mr. Pilkey.
14. Poultry Culling. Culling the farm flock. Project may be extended to include demonstrations in other flocks in the community. 1 to 5 credits. Mr. Pilkey.
15. Turkey Production. Hatching and rearing turkeys within an enclosure. 3 to 5 credits. Mr. Pilkey.
16. Building Construction. Planning, locating, and constructing a garage, machine shed, poultry house, or other farm buildings on the home farm. 1 to 3 credits. Mr. Foker.
17. 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 to 5 credits. Mr. Anderson.
18. Baby Beef. Care and feeding of baby beef with records for cost of production. 5 credits. Mr. Kiser.
19. Hogging-Off. The growing of corn for hogging-off, with records of cost of production and results. 2 to 3 credits. Mr. Kiser.
20. Community Service. The organization and promotion of community, social, or religious organizations. 5 credits. Mr. Dowell.

HOME ECONOMICS PROJECTS

1. 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 credits. Miss Bede.
2. Canning Meat. The canning of not less than twelve quarts of meat by the "oven method," with notes and cost record. 1 credit. Miss Bede.
3. 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 credit. Miss Bede.
4. 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 credits. Miss Bede.
5. House Dress. Making a washable house dress for self or other member of the family. 1 credit. Miss Gerber.
6. Made-Over Dress. Making over a dress for self or other member of the family. 1 credit. Miss Gerber.
7. Table Linen. Hemming a half dozen table napkins and a lunch cloth by hand with damask or French hem. 1 credit. Miss Gerber.
8. 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 credit. Miss Gerber.
9. Hemstitching. Hemstitching, either single or double, a half dozen handkerchiefs or a thirty-six inch square lunch cloth and four napkins. 1 credit. Miss Gerber.
10. Cooking and Serving. Cooking and serving six vegetables three times each. 1 credit. Miss Bede.
11. Cake Making. Making eight cakes—four sponge cakes and four butter cakes. 1 credit. Miss Bede.
12. Baking Cookies. Making twelve bakings of cookies, six of which are drop cookies and six rolled out. 1 credit. Miss Bede.
13. Desserts. Making and serving six hot desserts and six cold desserts. 1 credit. Miss Bede.
14. Pie Baking. Making twelve pies, six of which are two-crust pies, and six one-crust pies. 1 credit. Miss Bede.

SUMMARY OF ATTENDANCE

1928-29

Regular School Course	Men	Women	Total
Advanced	18	9	27
Seniors	37	19	56
Juniors	65	22	87
Freshmen	92	38	130
Special	5	14	19
	<hr style="width: 50%; margin: 0 auto;"/>	<hr style="width: 50%; margin: 0 auto;"/>	<hr style="width: 50%; margin: 0 auto;"/>
Total	217	102	319
Women's Camp, 1928 .....	..	112	112
Junior Short Course, 1928.....	142	112	254
'Cow Testers' Short Course, 1928.....	25	..	25
	<hr style="width: 50%; margin: 0 auto;"/>	<hr style="width: 50%; margin: 0 auto;"/>	<hr style="width: 50%; margin: 0 auto;"/>
Total	384	326	710

STUDENTS

1928-29

ADVANCED

Wilfred Bakken, Twin Valley	*Ronald Lofgren, Roosevelt
George Berggren, Greenbush	*James Logelin, Clearbrook
*Neil Boehmer, Glyndon	Julia Miller, Goodridge
Elon Bryngelson, Callaway	Anna Osmundson, East Grand Forks
Melvin Burk, Brooks	Harold Roadfeldt, Salol
Harry Confer, Angus	Arthur Sandal, Syre
John Covlin, Erskine	*Norma Shawsted, Gary
Isabelle Dobias, Angus	Donald Spong, Oklee
Elida Erickson, Clearbrook	*Paul Stedronsky, Gary
Irvin Flynn, Leonard	August Thorkelson, Gatzke
Gunda Gullingsrud, Nielsville	Chester Torgerson, Fergus Falls
Ruth Hamre, Gary	Edwin Trandem, Mentor
*Augusta Jacobson, Kennedy	*Karen Wold, McIntosh
Manly Larson, Twin Valley	

SENIORS

Hilma Ahlm, Argyle	Esther Gibbons, Crookston
Evelyn Bain, Baudette	Rudy Gorden, Badger
Evelyn Bierbaum, Clearbrook	Jetle Gullekson, Beltrami
John Billberg, Roseau	Chester Hanson, Karlstad
Williamine Cenfield, Clinton	Florence Hanson, Mentor
Meldor Christianson, Fertile	Sanna Hanson, Wanke
Harold Cordes, Henning	Sophia Hoper, Stephen
Julia Dale, Fertile	Mervin Hough, Bagley
John Dexheimer, Gary	Agnes Johnson, Fisher
Iver Eklund, Gary	Elmer Johnson, Erskine
Earl Ellinger, Crookston	Harvey Johnson, Rollag
Gordon Ellinger, Crookston	Mary Johnson, East Grand Forks
Lawrence Elton, Hawley	Olga Johnson, Plummer
Estelle Filipi, Angus	Walter Johnson, Bantry, North Dakota
Roy Fisher, Beltrami	Wilfred Knutson, Clearbrook
Stanton Gandrud, Detroit Lakes	Winton Knutson, Thief River Falls

* Graduates also of the three-year course.

Alma Krogstad, Fertile
 Fordyce Larson, Ulen
 Robert Larson, Crookston
 Willie Lohn, Winger
 Norman Lorentzen, Fosston
 Lauritz Mikkelson, Hawley
 Elmer Mortenson, Pencer
 Alice Naplin, Wylie
 Claire Nelson, Crookston
 Oscar Norbom, Clearbrook
 Esther Nornes, Beltrami
 Roy Nyberg, Kennedy

Martin Odland, Wadena
 Theodore Peet, Wolverton
 Kenneth Rice, Bronson
 Edna Ross, Crookston
 Lowell Ryden, Hallock
 Raymond Schlauderaff, Detroit Lakes
 Perry Sevald, Winger
 Hazel Stephenson, Gary
 T. Gundrens Torgerson, Roseau
 Emmet Torkelson, Crookston
 Lloyd Weaver, Williams
 Oscar Wedul, Hazel

JUNIORS

Theodore Anden, Fergus Falls
 Ivan Anderson, Greenbush
 Harold Banks, East Grand Forks
 Harold Bendix, Henning
 Daniel Bergeron, Argyle
 Willard Bitzer, Graceton
 Vernon Bryngelson, Callaway
 Thomas Cain, Ponemah
 Walter Cantwell, Oklee
 Clarence Carlson, Stephen
 Harold Carroll, Mentor
 Ralph Cartwright, Shevlin
 Johanna Caudle, Crookston
 Otelia Coltom, Strathcona
 Marie Dablow, Thief River Falls
 Melvin Dale, Fertile
 Alvin Degerness, Gary
 Alice Erickson, Pencer
 Selvin Erickson, Ross
 Ruby Ferry, Hendrum
 Kenneth Flom, Twin Valley
 Iris Gibbons, Crookston
 Robert Gleason, Minneapolis
 Edgar Grendahl, Gary
 Norah Hamre, Gary
 Arnold Hanson, Thief River Falls
 John Hanson, Overly, North Dakota
 McLean Hetland, Halstad
 Burdeen Hoiland, Halstad
 Osborn Hoiland, Halstad
 Arthur Holm, Winger
 Harvey Hovland, Grand Forks, North
 Dakota
 John Hovorka, Strathcona
 Thomas Hovorka, Strathcona
 Clarence Howard, Goodridge
 Orville Ingebretson, Ulen
 Esther Jacobson, Perley
 Halbert Johnson, Underwood
 Viola Johnson, Middle River
 Kenneth Johnstad, Beltrami
 Alice Josephson, Wanke
 Harmen Juelson, Fertile
 Edward King, Euclid

Evinda Koppang, Climax
 Emma Krogstad, Fertile
 John LaBonte, Gently
 Daniel Letnes, Crookston
 Isabelle Letnes, Crookston
 Clifford Lindquist, Wylie
 Henning Lundberg, Detroit Lakes
 Leo Maattala, Oklee
 Donald McCall, Crookston
 Kenneth McNown, Barnesville
 Helga Moe, East Grand Forks
 Harold Moen, Helma
 Walter Morinville, Red Lake Falls
 Clinton Nelson, Glentana, Montana
 Eugene Nelson, Glentana, Montana
 John Nelson, Winger
 Lawrence Newhouse, Crookston
 Herbert Nisbet, East Grand Forks
 Abraham Paquin, Oklee
 Effie Pederson, Clitherall
 Olaf Pederson, Perley
 Arthur Peterson, East Grand Forks
 Conrad Peterson, Gary
 Lawrence Peterson, Gary
 Oscar Quam, Goodridge
 Stanley Radniecki, Wanke
 Alfred Rasmussen, Crookston
 Annette Rots, Clitherall
 Albert Sandal, Syre
 Justina Sannes, Thief River Falls
 Aslaug Satre, Grygla
 Agnes Sevald, Winger
 Marvin Simmons, Crookston
 Melvin Soderberg, Kennedy
 Lillian Stepp, Williams
 William Strickler, Euclid
 Melvin Sundrud, Fosston
 Earl Swenson, Fosston
 Lester Tangjerd, Bagley
 Marie Tastad, Gary
 Selma Waldal, Plummer
 Marvin Wardner, Fisher
 Arthur Widseth, Gonvick
 Carl Vik, Halma

FRESHMEN

Elmer Aasen, Erskine	Melvin Johnson, Erskine
Ingvald Anderson, Fisher	Arlie Jorgenson, Erskine
John Anderson, Hallock	Arthur Kippe, Lake Park
Kenneth Anderson, Fisher	Harry Klever, Henning
Trygve Anderson, Crookston	Ida Lee, Hendrum
Palmer Askland, Oklee	Wilbur Lee, Pencer
Kenneth Avery, Hallock	Ragna Lefstad, Gary
Einar Barstad, Thief River Falls	Dennis Leiran, Beltrami
George Beatty, Euclid	Elmer Lund, Osage
Rishton Bedard, Northcote	Mildred Malme, Nielsville
Lawrence Berg, Barnesville	Sidney Mason, Graceton
Rudolph Berger, Greenbush	Martin Melsness, Erskine
Glenn Bloomquist, Drayton, North Dakota	Sophia Mizisin, Warren
Ingemar Borg, Grygla	Martin Moen, Dalton
Roy Bowman, Syre	Carter Mortenson, Underwood
Annie Brandli, Warroad	Edwin Myers, Warroad
Louis Brouillard, Crookston	Helen Naplin, Wylie
Alpha Bruun, Climax	Emma Negaard, Gonvick
Arthur Burk, Brooks	Harold Nelson, Hawley
Hazel Canedy, LaPorte	Helen Nelson, Strathcona
Arne Carlson, Lake Park	Carl Ness, Eldred
Arthur Chelstrom, Perley	Hannah Njaa, Wannaska
Dilman Culp, Baudette	Bjarne Nornes, Winger
Hazel Dahlgren, Kennedy	Helmer Nornes, Lockhart
Alvin Dalager, Pelican Rapids	Hazel Noyes, Brooks
Blanche DePochee, Pelican Rapids	Marvel Noyes, Erskine
Mollie (Mary Lois) DePochee, Pelican Rapids	Henry Ona, Michigan, North Dakota
Gladys Eggen, Fertile	John Pearson, Middle River
Eldon Engelstad, Fertile	Clarence Peterson, Hawley
Arnold Eraker, Winger	Evert Peterson, Brooks
Vernon Erickson, Badger	Hazel Peterson, Gary
Angela Filipi, Angus	Raymond Peterson, East Grand Forks
Jesse Filipi, Angus	Estella Philipp, Mavie
Earl Fisher, Lockhart	Delilah Pinske, Gary
Paul Fisher, Lockhart	Irvin Pinske, Gary
Orie Gabrielson, Grygla	Mabel Pinske, Gary
Knute Gilbertson, Pelican Rapids	Vernon Pope, St. Hilaire
Roland Gilmet, Red Lake Falls	Lawrence Przekwas, Strandquist
Dorothy Glass, Mentor	Theresa Przekwas, Strandquist
Clifford Grendahl, Gary	Millard Radtke, Crookston
Emil Hanson, Overly, North Dakota	Richard Radway, Roosevelt
Beulah Harris, Crookston	Robert Reed, Grygla
Harry Haugen, Plummer	Frederick Reitan, Hawley
Lester Haugen, Winger	Ralph Robidoux, Brooks
Luella Haugen, Angus	Anna Rosen, Salol
Selma Hedstrand, East Grand Forks	Lloyd Ross, Alvarado
Arthur Hendrickson, Fosston	James Sabourin, Brooks
Arleen Hill, Brooks	Evelyn Sandem, Lockhart
Allan Hoff, Underwood	Herbert Schroeder, Fergus Falls
Silas Hviding, Hendrum	George Schulz, Fergus Falls
Alma Jacobson, Kennedy	Conley Skoglund, Holt
Lawrence Jansen, Hallock	Roger Skoglund, Holt
Alice Johnson, Drayton, North Dakota	Tumina Slette, Twin Valley
Chauncey Johnson, Detroit Lakes	Jacob Snartland, Glyndon
Harold Johnson, Greenbush	Ray Solmanson, Thief River Falls
Lloyd M. Johnson, Winger	Paul Sorenson, Hallock
	James Southard, Euclid

STUDENTS

29

Nils Stenborg, Clearbrook
Ruth Stenborg, Clearbrook
William Stepp, Williams
Erwin Strande, Fergus Falls
Victor Sundseth, Halstad
Ingolf Swanson, Alvarado
Walter Swenson, Fertile
Harry Tangen, Menahga
Bennie Thompson, Newfolden

Bertrand Thompson, McIntosh
Anna Thoreson, Little Fork
Eleanor Torkelson, Crookston
Leonard Truhn, Park Rapids
Marion Valor, Climax
John Veit, Alida
Walter Widdifield, Park Rapids
Dorothy Worman, Crookston

SPECIAL

Doria Brouillard, Crookston
Hannah Dowell, Crookston
Margaret Dowell, Crookston
Annie Dunbar, Lancaster
Jean Dunham, Crookston
Margaret Dunham, Crookston
Robert Forker, Crookston
Mayda Huseby, Halstad
Olav Hustad, Gary
Lloyd R. Johnson, St. Hilaire

Beth Kiser, Crookston
Jay Kiser, Crookston
Barbara Ann Miller, Crookston
Enoch Norum, Hallock
Clarence Olson, Karlstad
Stella Sorenson, Plummer
Edna Thompson, Fertile
Ethel Wentzel, Crookston
Natalie Woolson, Thief River Falls

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

West Central School and Station
Morris, Minnesota

Announcement for the Year
1929-1930



Vol. XXXII No. 41 June 10 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

SCHOOL CALENDAR

1929-30

1929			
September	30	Monday	First term opens; registration
October	1	Tuesday	Organization of classes
November	2	Saturday	Visitors' Day
November	9	Saturday	Field Day
November	11	Monday	Armistice Day
November	28	Thursday	Thanksgiving Day; a holiday
December	21	Saturday	First term closes; Christmas vacation begins
1930			
January	6	Monday	Christmas vacation ends; second term opens; registration
January	7	Tuesday	Organization of classes
February	12	Monday	Lincoln's Birthday (special exercises)
February	22	Wednesday	Washington's Birthday (special exercises)
March	21	Friday	Annual Music Pupils' Recital
March	23	Sunday	Baccalaureate Service
March	24	Monday	Annual Concert Recital
March	25	Tuesday	Senior Class Play
March	27	Thursday	Junior-Senior Alumni Banquet
March	28	Friday	Commencement Exercises
June	10	Tuesday	Short Course for Farm Women opens
June	13	Thursday	Short Course for Farm Women closes
June	16	Monday	Boys' and Girls' Club Short Course opens
June	19	Thursday	Boys' and Girls' Club Short Course closes
June	20	Friday	Annual Student Homecoming
July	25	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
Alma H. Peterson, R.N., School Nurse
Margaret Stanness, Accountant
Hazel Amelsberg, Secretary

AGRICULTURAL ENGINEERING

Albert C. Heine, Physics, Farm Mechanics
Alex B. Rolfe, Forge and Welding
Ernest L. Kleckner, B.S., Automotive Mechanics and Farm Drainage
Julius Felt, Carpentry and Farm Structures

AGRONOMY

Theodore Fenske, B.S., Farm Crops and Soils
Roy O. Bridgford,* 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
Gust Peterson, Gardener

ANIMAL HUSBANDRY

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

HOME ECONOMICS

Gladys E. Hinson, B.S., Foods and Cookery
Lisle Arduser, B.S., Foods and Home Management
Alma H. Peterson, 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
Dorothea Reiter, B.A., English, Physical Training
Edwin J. Volden, Mathematics
Glenn I. Prickett, B.A., History
Martin J. Sorflaten, B.A., Music
Oretta Steenerson, B.A., Business Training
Arletta H. Ness, Penmanship

* On sabbatical leave, 1929-30.

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 School of Agriculture will open Monday, September 30, and close Saturday, December 21. The winter term will open Monday, January 6 and close Friday, March 28. 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, preparation for teaching, 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 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 and 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, bedspreads, 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.

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, and made to hang on two closet hooks; the gymnasium suit should consist of a pair of black sateen bloomers and a white middy 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. To those who are unable to make the bloomers at home, assistance will be given at the school.

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 .....	.25
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 to exceed 12 credit hours less than the required number for the freshman year.

In order to be classified as a senior, a student must have not to exceed 10 credit hours less than the required number for the first two years.

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 preceptress 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 preceptress. 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 11 modern brick and stone buildings which compose the educational group and 10 frame buildings which make up the farm group. The school group includes the girls' dormitory with facilities for 75 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 and Gymnasium, with large, modern dining room and gymnasium; 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; and Home Management Practice House to accommodate a unit of 10 people.

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.

THE LUDDEN TRUST

The late Honorable John D. Ludden, of St. Paul, gave the University of Minnesota a sum of money to be held and invested by the University through its Board of Regents and the income thereof to be collected, received, and made available by the Board of Regents for the financial assistance of students attending the schools of agriculture of the University. The income from this fund is available to students of the West Central

School of Agriculture. It 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.

THE DORR FUND

The Dorr fund consists of \$110,000 willed by the late Caleb Dorr, of Minneapolis, for the benefit of the Department of Agriculture of the University.

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

CALEB DORR CASH SCHOLARSHIP PRIZES

Cash prizes and scholarships amounting to \$410 are available to the students attending the West Central School of Agriculture each year and are awarded as follows: A cash scholarship of \$50 is awarded to one girl and one boy from each of the three classes and one student selected at large from the entire school at the close of each regular school year. The money is to be used for defraying a portion of the student's school expenses the following year. The awards are made on class standings, as recorded by instructors for the year's work, and on student activities and deportment. The rating for student activities is based on the quality of leadership as indicated by a review of the activities participated in and the general deportment of the student during his attendance at school. The awards are made by a scholarship committee selected from the faculty. In addition to the scholarships mentioned, prizes of \$15 each are awarded to the boy and the girl who have done the best student project work in any one year. Medals, also, are awarded to students who are members of the school debating teams, declamation teams, and judging teams.

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 \$2.50 covers all expenses, including board and room for the entire week. Boys are given work in the machine shops, forge and woodwork shops, farm crops laboratories, and stock judging pavilion. The girls are given work in sewing, cooking, and home nursing. At the close of the week, contests in corn judging and stock judging will be held for the boys, and the winner of each contest will be given a free trip to the 1930 Minnesota State Fair. For the girls, contests in bread making and canning are held, and appropriate prizes are awarded to winners. Special instructions will be given in all boys' and girls' club projects. 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 \$4.50.

EXPERIMENT STATION

The West Central School and Station is now conducting extensive experiments in agronomy, soils, horticulture, animal husbandry, and agricultural engineering. 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 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, 5 or Farm Accounts, 3 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 Horticulture, 3 Automotive Engineering, 6 Steam Tractors, 3 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 Horticulture, 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 Stock Judging IV, 2 Public Speaking, 3 Meats, 2 Adv. Poultry Production, 3 Piano, 2 Violin, 2 Orchestra, 1 Glee Club, ½ 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	} First term only } May be taken either term } 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, 4 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, 4 Foods and Cookery II, 3 Drawing and Design II, 1 Gymnasium, 1	

Eleven to 14 credit hours must be chosen from this group each term	}	General Science, 5	}	First term only			
		Home Accounts I, 3					
		Home Nursing II, 3		}	Second term only		
		Horticulture, 3					
		Home Accounts II, 2					
Poultry, 2 Beekeeping, 3 Home Economics, Spelling 3 Glee Club, ½ Chorus, 1 Music (instrumental or vocal), 2	}		}	Either term			
					*Spelling and Penmanship, 5		
					Typewriting, 2	}	Must be taken both terms
					JUNIOR YEAR		
Required—first term	}	Dressmaking I, 3	}				
		Elementary Dietetics I, 3					
		English III, 5					
		Gymnasium, 1					
Required—second term	}	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	}	Home Furnishing, 3	}	First term only			
		Shorthand I, 5					
		Typewriting, 2					
		Chemistry I, 5		}	Second term only		
		Applied Art I, 2					
		Nursing III, 3					
		Algebra II, 5					
		Shorthand II, 5					
		Typewriting, 2					
		Chemistry II, 5		}	Either term		
		Horticulture, 5					
		Applied Art II, 2					
		Public Speaking, 3					
		Poultry, 2					
		Laundrying, 2					
Beekeeping, 3							
Applied Art I, 2							
Glee Club, ½							
Chorus, 1							
Music (instrumental or vocal), 2							
SENIOR YEAR							
Required—first term	}	English V, 5	}				
		United States History, 5					
		Dressmaking III, 3					
		Home Management, 3 Gymnasium, 1					
Required—second term	}	English VI, 5	}				
		Government, 5					
		Dressmaking IV, 3					
		Gymnasium, 1					

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

Required—first or second term	{ Home Management House, 6 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
Seven to 12 credit hours in this group or from electives not taken in junior year	{ 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 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, 2	} Either term

Through their choice of electives, girls may prepare themselves for one of several lines of work. At the time of registration, girls 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 Bookkeeping III, 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 judging 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 the 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.; 3 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, \$3.
- Blacksmithing III. Continuation of Blacksmithing II. Lab. 2, 2 hrs.; 2 credits; fee, \$3.
- 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.
- Steam Tractors. A study of the construction, operation, and repair of the steam traction engine. The course leads to the state examination for engineer's license. Rec. 2 hrs.; lab. 2, 2 hrs.; 4 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.
- Garden and Orchard. Planning, planting, culture, value, and management of the orchard and garden on the general farm. Rec. 5 hrs.; 5 credits.
- Horticulture. A general course including the principles of growing vegetables, fruits, flowers, and ornamental plantings. The work is taught with special emphasis upon application of the principles to the student's home conditions. Rec. 5 hrs.; 5 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.; 5 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 25-cent 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, cake, puddings, 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 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.; 4 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.; 4 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. Lab. 2, 3 hrs.; 3 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 the 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. Continuation of Course I, including first aid. Rec. 3 hrs.; 3 credits.
- Home Nursing III. Communicable diseases, equipment for nursing in the home, 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 hand 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; block 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, Jensen, etc. Easier Beethoven works. 2 credits; fee, \$9.50.
- Vocal Course. Graded course in voice culture and art of singing by Frederic 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, Schobrick, 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.
- Bookkeeping III. Controlling accounts; depreciation and bad debts; accruals and deferred items. Partnership and corporation accounts. 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

- i. 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. 5 credits.

2. 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. 5 credits.
3. 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. 5 credits.
4. Livestock Club Projects. Livestock club projects for boys and girls may be carried as home projects. The rules and regulations are to be carried out in each project and an exhibit of the club animal or animals is to be made at the county fair. 2 to 5 credits.
5. 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. 5 credits.
6. 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. 5 credits.
7. 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 to 5 credits.
8. 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. 5 credits.
9. Soy Bean Production. Growing one or more acres of an approved variety of soy beans for seed production, including preparation of ground, inoculation, planting, cultivating, and harvesting. Cost records are made a part of the project. 2 to 3 credits.
10. 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 to 5 credits.
11. 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.
12. 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 to 5 credits.
13. 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 prepare operating statement, showing financial results of operation. 5 credits.

14. 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 credits.
15. 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 to 5 credits.
15. Community Service. The organization and promotion of community, social, or religious organizations. 5 credits.

HOME ECONOMICS PROJECTS

1. 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.
2. 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.
3. 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.
4. Home Management. Includes the planning and preparation of all meals in the home for a period of two weeks. 2 credits.
5. 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.
6. 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.
7. Laundering. This project includes doing the family laundering for four weeks, dry cleaning, stain removal, etc. 2 credits.
8. Children's Clothing. Consists of making of a layette for a baby, or two suits or dresses for a small child. 2 credits.
9. 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.
10. 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.

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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.....

Bulletin *of the University of* Minnesota

The Law School
Announcement for the Years
1928-1930



Vol. XXXI No. 42 July 14 1928

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 on 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 62 of the 176 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

1928-29

Fall Quarter

1928			
September	20	Thursday	Payment of fees closes, except for new students
September	27-28		Registration days ¹ for Law School
September	28	Friday	Payment of fees for new students closes
October	1	Monday	Fall quarter classes begin, 8:30 ² a.m.
October	20	Saturday	Homecoming Day
November	6	Tuesday	Election Day; a holiday
November	12	Monday	A holiday; (November 11, Sunday, Armistice Day)
November	29	Thursday	Thanksgiving Day; a holiday
December	6	Thursday	State Day Convocation
December	20	Thursday	Commencement Convocation
December	22	Saturday	Fall quarter ends, Christmas vacation begins, 5:20 p.m.
December	26	Wednesday	Payment of fees closes for all students in residence fall quarter ³

Winter Quarter

1929			
January	7	Monday	Christmas vacation ends, winter quarter classes begin, 8:30 ² a.m.
February	12	Tuesday	Lincoln's Birthday; a holiday
February	21	Thursday	Charter Day Convocation
February	22	Friday	Washington's Birthday; a holiday
March	21	Thursday	Commencement Convocation
			Payment of fees closes for all students in residence winter quarter ¹
March	23	Saturday	Winter quarter ends, spring vacation begins, 5:20 p.m.

Spring Quarter

March	29	Friday	Good Friday; a holiday
April	1	Monday	Spring vacation ends, spring quarter classes begin, 8:30 ² a.m.

¹ Registration subsequent to the date specified will necessitate the approval of the college concerned. See also penalty fees for late registration, general information bulletin, page 44.

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.

² First hour classes begin at 8:15 at University Farm.

³ New students must pay fees on dates announced for registration.

THE LAW SCHOOL

May	16	Thursday	Cap and Gown Day Convocation
May	30	Thursday	Memorial Day; a holiday
June	12-15		Final examination period
June	15	Saturday	Spring quarter closes, 5:20 p.m.
June	16	Sunday	Baccalaureate service
June	17	Monday	Fifty-seventh annual commencement

Summer Quarter

June	18-19		Registration, first term
June	20	Thursday	Classes begin, 8:00 a.m.
July	4	Thursday	Independence Day; a holiday
July	27	Saturday	Registration and payment of fees for second term closes. First term closes
July	29	Monday	Second term classes begin
August	31	Saturday	Second term closes

FACULTY

Lotus Delta Coffman, Ph.D., LL.D., President
William Watts Folwell, LL.D., President Emeritus
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., Assistant Professor of Law
Oliver P. Field, M.A., LL.B., S.J.D., Associate Professor of Political
Science
Henry J. Fletcher, LL.M., Professor of Law
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 Rottschaefer, B.A., J.D., S.J.D., Professor of Law
John F. Bonner, LL.B., Instructor in Practice
David E. Bronson, B.A., LL.B., Instructor in Practice
Paul S. Carroll, B.A., LL.B., Instructor in Practice
Samuel H. Maslon, B.A., LL.B., Instructor in Law
Maynard E. Pirsig, B.A., LL.B., Instructor in Practice

PROFESSORIAL LECTURER

Homer B. Dibell, B.A., LL.B., Associate Justice of the Supreme Court
of Minnesota

SPECIAL LECTURERS

Charles W. Bunn, B.S., St. Paul
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.

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

The Law School will occupy a new building in 1928-29. 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 fully equipped and admirably suited for the work of a modern law school.

LIBRARIES

The library of the Law School contains 46,000 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. Eighteen 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

Scholarships of \$150 each are offered by the Law Alumni Association, the *Minnesota Law Review*, and the faculty of the Law School, to the students in the senior class for meritorious work in the course and on the *Minnesota Law Review*. Several readerships of \$120 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.

SUMMER SESSION

A program of law studies for both beginning and advanced students is offered during the Summer Session. The session is divided into two terms of six and five weeks. Beginning students must attend both terms to receive credit, but advanced students can complete a program in either term. Credits may be earned towards a degree, and the work is so arranged that a student may complete a year of work by attending three successive summer sessions. The work offered in summer is the same as that given in the same subjects in the regular session. Instruction is given by members of the law faculty and distinguished teachers from other law schools. The Summer Session of 1929 will begin June 18 and end August 31. The courses will be announced in a separate bulletin which will be sent on application.

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 uni-

versity. The minimum requirement is 90 quarter (60 semester) credits. The candidate must also have made an average of one honor point for each credit in all his college work. Candidates may be admitted upon presenting their diplomas or other credentials showing the completion of such college work to the registrar of the University. Altho two years of college education satisfy the Law School's entrance requirements, prospective law students are urgently advised to take a full college course or at least the combined six-year course leading to the degrees of bachelor of arts and bachelor of laws.

RECOMMENDED PRE-LEGAL COURSES

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 to go on to the bachelor of arts degree should they later so desire. The following course is recommended by the faculty of the Law School:

- | | |
|--------------------------------|----------------------------|
| 1. Latin, 0 to 20 credits | 4. Political Science 1 |
| 2. Rhetoric, English A-B-C | 5. Philosophy 2, and 50-51 |
| 3. Natural science, 10 credits | 6. History 31-32 and 33-34 |
| | 7. Economics 3-4 |

Other subjects recommended for pre-legal students are Psychology 1-2; Public Speaking 45-46, 55-56-57; Economics 1-2, 54, 143-144, and 167-168; History 146-147, and 116-117-118; Philosophy 1, 3, 124, and 129; Political Science 7, 11, 15, 121-122, 123, and 161.

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.

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 three years 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-legal and law work. Attorneys-at-law who have been admitted to practice in the state of Minnesota and who have had two years of academic work in college, may enter the third year 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.

SPECIAL STUDENTS

A limited number of applicants who are twenty-three years of age or over and have preliminary education sufficient at least to entitle them to admission to the College of Science, Literature, and the Arts¹ may, on petition to the faculty, be admitted to the Law School as special students. The petitioner should state his age, education, grades, occupation since leaving school, reason for not qualifying as a regular student, and all other matter that will aid the faculty in determining his fitness for the study of law. No one whose failure to qualify as a regular student is due to lack of honor points will be admitted as a special student. Special students can qualify for bar examinations, but cannot qualify for a degree.

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. Among the subjects which may be profitably selected are English composition, English and American constitutional history, public speaking and debating, political science, economics, and sociology.

REGISTRATION

New students will be admitted only at the opening of the school year,² or of the Summer Session. 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 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. (See Tuition and Other Fees, post page 10.)

¹These requirements are stated in full in the current bulletin of the College of Science, Literature, and the Arts.

²See general information bulletin, page 44, for the provisions as to penalty for late registration.

THE LAW SCHOOL

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 curriculum leading to the degree of bachelor of laws covers a period of three academic years. 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 during each term of the third year.

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 the period of their study of law over four years. The credit hour tuition fee enables students to extend the period of study at slight additional expense.

No student, unless permitted by special action of the faculty, will be allowed to carry more than the regularly 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 first law 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 eight year hours 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. Warren, *Cases on Property*. Three hours. Mr. Fraser.
- Torts. Genuine 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*. 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*. Ames, *Cases on Equity Jurisdiction*, Vol. I. Two hours. Mr. McClintock.
- Criminal Law and Procedure. The common and statutory law of crimes; criminal procedure. Casebook to be announced. 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 for account. 1928-29, Cook, *Cases on Equity*, Vols. I and II; 1929-30, Ames, *Cases on Equity*, Vols. I and II. 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. Fletcher.
- 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 and Drafting. Practical exercises in the writing of briefs and in the preparation of legal documents. Examination of abstracts of title. One hour. Mr. Cherry.

THIRD 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 course. Sunderland, *Cases on Trial and Appellate Practice* (1924 edition). Three hours. Mr. Cherry, Mr. Bonner, Mr. Bronson, Mr. Carroll, Mr. Firsig.
- 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. Common Law and Code 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 aid. Cook and Hinton, *Cases on Common Law Pleading*. Hinton, *Cases on Code Pleading* (Second ed.). Two hours. Mr. Dwan.
- 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.)
- Administration 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. Hoshour.
- 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. Fletcher.
- 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; creditor's rights to surety's securities. Ames, *Cases on Suretyship*. Two hours, half year. Mr. Fletcher.
- 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. Hoshour.
- 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; summer jurisdiction; crimes, composition, discharge. Selected cases. Two hours, second half year. Mr. Fletcher.
- 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. Rottschaefer.

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 and 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.

MILITARY SCIENCE AND TACTICS

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.¹ 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.

INFANTRY COURSES

No.	Title	Hour	Day	Bldg.	Instructor
51f-52w	First Year Adv. Course.....	II	MWF	A	Ar
		III	MWF	A	Ar
		VI	MWF	A	Ar
		VIII	MWF	A	Ar
		I, II	TThS	A	Ar
		III, IV	TThS	A	Ar
		VI, VII	TTh	A	Ar
		VIII, IX	TTh	A	Ar

¹ Must be legally eligible for enrolment in R.O.T.C. Consult P.M.S.&T.

THE LAW SCHOOL

No	Title	Hour	Day	Bldg.	Instructor
53s	First Year Adv. Course.....	VII, VIII,			
		IX	T or W	A	Ar
54f-55w	Second Year Adv. Course.....	IV	TS	A	Ar
		II	MWF	A	Ar
		III	MWF	A	Ar
		VI	MWF	A	Ar
		VIII	MWF	A	Ar
		I, II	TThS	A	Ar
		III, IV	TThS	A	Ar
		VI, VII	TTh	A	Ar
		VIII, IX	TTh	A	Ar
		56s	Second Year Adv. Course.....	VII, VIII,	
IX	T or W			A	Ar
IV	TS			A	Ar

ATTENDANCE FOR 1927-28

Third year class.....	93
Second year class.....	81
First year class.....	117
Total	291

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

THE MEDICAL SCHOOL

FACULTY

ADMINISTRATION

Lotus D. Coffman, Ph.D., LL.D., President
William Watts Folwell, LL.D., President, Emeritus
Elias P. Lyon, Ph.D., M.D., LL.D., Dean

ANATOMY

Professors Clarence M. Jackson, M.S., M.D., LL.D., Head; Thomas G. Lee, B.S., M.D., Andrew T. Rasmussen, Ph.D., Richard E. Scammon, Ph.D.; Associate Professor Charles A. Erdmann, Ph.D., M.D.; Assistant Professor Shirley P. Miller, Ph.D.; Instructor Carol A. Fisher, Ph.D.; Assistant L. Haynes Fowler, B.A., M.D.; Teaching Fellows Donald Duncan, B.A., Theodore C. Erickson, B.S., Clay B. Freudenberger, M.A., Charles H. Mead, Jr., B.S., M.A., M.D., Harold E. Roe, B.A., B.S., Vernon D. E. Smith, M.A.

BACTERIOLOGY

Professors Winford P. Larson, M.D., Head; 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.; Teaching Fellows Paul C. Leck, B.A., Newell R. Ziegler, B.S.

PATHOLOGY

Professors Elexious T. Bell, B.S., M.D., Head; Benjamin J. Clawson, M.D., Ph.D.; Assistant Professors James S. McCartney, Jr., B.A., M.D., John F. Noble, M.D., William A. O'Brien, M.D.; Instructors Kano Ikeda, M.D., Nathaniel H. Lufkin, B.S., M.D., Theodore H. Sweetser, B.S., M.D., Charlotte C. Van Winkle, B.A., M.D., D.P.H.; Teaching Fellows Paul H. Guttman, B.S., M.D., Albert E. Kumpf, B.S., M.D., Leone McGregor, M.S., M.D.; Demonstrator Charles H. Slocumb, B.S., M.D.

PHARMACOLOGY

Professors Arthur D. Hirschfelder, B.S., M.D., Head; Frederick J. Wulling, Ph.D., Ph.D., LL.M., Ph.D. *causa honoris*, D.Sc. *causa honoris*, Dean, College of Pharmacy; Associate Professor Edgar D. Brown, Ph.D., M.D.; Instructor Raymond N. Bieter, B.S., M.D.; Teaching Fellow Harold N. G. Wright, B.S.

PHYSIOLOGY

Professors Elias P. Lyon, Ph.D., M.D., LL.D., Head; Jesse F. McClendon, Ph.D., Frederick H. Scott, Ph.D., M.B., D.Sc.; Professor Emeritus

Richard O. Beard, M.D.; Associate Professor Karl W. Stenstrom, Ph.D.; Assistant Professor Esther M. Greisheimer, Ph.D., M.D.; Instructors Joseph T. King, M.A., M.D., Milo M. Loucks, Ph.D., Truman, A. Pascoe, Ph.D.; Assistants Clara J. Conklin, B.A., Donald W. Cowan, Carl E. Nurnberger, M.A.; Harold Wiles, B.S.; Teaching Fellows Dean A. Collins, B.A., Robert H. Hamilton, Jr., B.S., Frederick R. Steggerda, M.S.

PREVENTIVE MEDICINE AND PUBLIC HEALTH

University Staff

Associate Professors Harold S. Diehl, M.A., M.D., Head; J. Arthur Myers, Ph.D., M.D.; Assistant Professors Ruth E. Boynton, M.S., M.D., Eula B. Butzerin, B.A., R.N., Ellett M. de Berry, B.A., M.D., Harry DeWitt Lees, M.D. (Tor.), William A. O'Brien, M.D.; Instructors J. Horton Daniels, B.A., M.D., Hally J. Fisher, R.N., Joseph C. Hathaway, B.S., M.D., Ruth Houlton, B.A., R.N., Helen C. Peck, R.N., Jean Taylor, B.S., R.N.; Assistant Arnold Anderson, B.S., M.D.

State Board of Health Staff

Associate Professor Albert J. Chesley, M.D.; Assistant Professors James A. Childs, C.E., Orianna McDaniel, M.D., E. Marion Wade, M.A., Harold A. Whittaker, B.A.

MEDICINE

Division of General Medicine

Professors Hilding Berglund, M.D., Head; George E. Fahr, B.S., M.D., Henry L. Ulrich, B.S., M.D., F.A.C.P., S. Marx White, B.S., M.D., F.A.C.P.; Professor Emeritus John Wesley Bell, M.D.; Associate Professors Moses Barron, B.S., M.D., Edwin L. Gardner, B.S., M.D., James S. Gilfillan, M.D., J. Arthur Myers, Ph.D., M.D., Ernest T. F. Richards, M.D., C.M., John P. Schneider, M.D., Charles B. Wright, B.A., M.D.; Assistant Professors Archibald H. Beard, B.A., M.D., F.A.C.P., Alexander R. Hall, M.D., C.M., M.R.C.S., L.R.C.P., John A. Lepak, B.S., M.D., Chauncey A. McKinlay, B.A., M.D., Ernest S. Mariette, B.S., M.D., Grace Medes, Ph.D., Morris H. Nathanson, B.S., M.D., Harry Oerting, M.D., Thomas A. Peppard, M.D., Robert I. Rizer, M.D., F.A.C.P., Frederick H. K. Schaaf, M.D., Thomas Ziskin, M.D.; Lecturers Henry Wireman Cook, B.A., M.D.; Thomas B. Hartzell, D.D.M., M.D.; Instructors Jacob H. Bendes, M.D., Harold S. Boquist, B.A., B.S., M.D., Carl B. Drake, B.A., M.D., Charles R. Drake, M.D., Everett K. Geer, B.S., M.D., DeForest Hastings, B.S., M.D., Edgar T. Herrmann, B.S., M.D., Max H. Hoffman, B.S., M.D., Frank L. Jennings, M.D., Reuben A. Johnson, B.S., M.D., Richard H. Lindquist, B.S., M.D., Donald McCarthy, B.S., M.D., Adam M. Smith, B.S., M.D., Samuel A. Weisman, B.S., M.D., Macnider Wetherby, B.S., M.D., Arthur A. Wohlrahe, M.D.; Assistants Karl W. Anderson, B.S.,

THE MEDICAL SCHOOL

M.D., Joseph F. Borg, B.S., M.D., Ralph H. Creighton, B.S., M.D., Lewis M. Daniel, B.S., M.D., Jay C. Davis, B.S., M.D., Benjamin A. Dvorak, B.S., M.D., Ejvind P. K. Fenger, B.S., M.D., Victor K. Funk, B.A., M.D., John D. Geissinger, M.D., Frank R. Hirshfield, B.S., M.D., Emmett B. Kenefick, M.D., Thomas J. Kinsella, B.S., M.D., Rudolph C. Logefeil, B.S., M.D., Charles E. Merkert, B.S., M.D., Harold E. Richardson, B.S., M.D.; Teaching Fellows Arthur C. Kerkhof, B.S., M.D., Julius Jensen, M.R.C.S., L.R.C.F., Harold Nathanson, B.S., M.D., Morse J. Shapiro, B.S., M.D.

Division of Nervous and Mental Diseases

Professor Arthur S. Hamilton, B.S., M.D., Director; Professor Emeritus C. Eugene Riggs, M.A., M.D.; Associate Professors Ernest M. Hammes, M.D., J. Charnley McKinley, M.D., Ph.D., Angus W. Morrison, B.A., M.D.; Assistant Professor Joseph C. Michael, B.S., M.D.; Instructors Richard S. Ahrens, B.S., M.D., Hewitt B. Hannah, B.A., M.D., William H. Hengstler, M.D., Charles J. Hutchinson, B.A., M.D., Gordon R. Kamman, B.S., M.D., George N. Ruhberg, B.S., M.D., Frank W. Whitmore, M.D.; Assistant Nathan J. Berkwitz, B.S., M.D.; Teaching Fellow Royal C. Gray, B.S., M.D.

Division of Dermatology

Professor Henry E. Michelson, B.S., M.D., Director; Associate Professors John Butler, M.D., Harry G. Irvine, M.D., Samuel E. Sweitzer, M.D.; Assistant Professor Charles D. Freeman, M.D.; Instructors Clifton A. Boreen, B.S., M.D., Edward C. Gager, M.D., Henry N. Klein, M.D., Dale D. Turna Cliff, B.S., M.D.; Assistants Philip K. Allen, M.D., George C. Doyle, B.A., M.D.

OBSTETRICS AND GYNECOLOGY

Professors Jennings C. Litzenberg, B.S., M.D., F.A.C.S., Head; Fred L. Adair, B.S., M.D., M.A., F.A.C.S.; Associate Professor John L. Rothrock, M.A., M.D., F.A.C.S.; Assistant Professors Lee W. Barry, M.D., Ph.D., F.A.C.S., Arthur E. Benjamin, M.D., William H. Condit, B.S., M.D., F.A.C.S., Rae T. LaVake, B.A., M.D., F.A.C.S., Clarence O. Maland, B.S., M.D., F.A.C.S., Jalmar H. Simons, B.S., M.D., F.A.C.S., Herbert M. N. Wynne, B.S., M.D., F.A.C.S.; Instructors Duma C. Arnold, B.S., M.D., Joseph F. Bicek, B.S., M.D., James F. Hammond, M.D., C.M., Everett C. Hartley, B.A., M.D., Albert G. Schulze, M.D., Samuel B. Solhaug, M.D., Ph.D., Roy E. Swanson, B.S., M.D., Ph.D., F.A.C.S., John A. Urner, B.S., M.D.; Thurston W. Weum, B.S., M.D., Assistants Melvin P. Baken, B.A., M.D., Claude J. Ehrenberg, B.S., M.D., Charles E. Proshek, B.S., M.D., Julius R. Sturre, B.S., M.D., Paul A. Wilken, B.S., M.D.; Teaching Fellows Milton Abramson, B.S., M.D., Milton G. Brown, B.S., M.D., Eugene M. Kasper, B.S., M.D., Seymour R. Lee, M.D., Louise M. Paul, B.A., B.S., M.D.

OPHTHALMOLOGY AND OTO-LARYNGOLOGY

Professor Frank E. Burch, M.D., F.A.C.S., Head; Professor Emeritus John Farquhar Fulton, M.D., Ph.D.; Associate Professor Horace Newhart, B.S., M.D., F.A.C.S.; Assistant Professors Walter E. Camp, M.A., M.D., F.A.C.S., Howard S. Clark, B.S., M.D., F.A.C.S., Charles E. Connor, M.A., M.D., F.A.C.S., C. Alford Fjelstad, M.S., M.D., Erling W. Hansen, B.S., M.D., F.A.C.S., William W. Lewis, M.D., F.A.C.S., John S. Macnie, B.A., M.D., F.A.C.S., Kenneth A. Phelps, M.D., F.A.C.S., Fred J. Pratt, Jr., M.D., F.A.C.S., John A. Pratt, M.D., F.A.C.S., G. Elmer Strout, M.D., F.A.C.S.; Instructors Paul D. Berrisford, M.D., John C. Brown, B.S., M.D., Charles Hymes, M.D., M.S., Virgil J. Schwartz, B.S., M.D.; Assistants Henry E. Binger, M.D., Egbert J. Borgeson, M.D., M.S., Frank T. Cavanor, B.A., M.D., Hendrie W. Grant, M.D., M.S., F.A.C.S., Albert J. Herbolzheimer, M.D., M.S., David Kadesky, B.S., M.D., Gerald M. Koepcke, B.S., M.D., Richard O. Leavenworth, B.S., M.D.; Teaching Fellows Warren M. Dodge, B.S., M.D., Manley F. Fellows, B.S., M.D., M. George Melan, B.A., M.D., Bernard E. O'Reilly, B.S., M.D., Harry P. Rosenberger, B.S., M.D., Reginald A. Salter, B.A., M.D.

PEDIATRICS

Professor Frederick W. Schlutz, B.A., M.D., Head; Professor Emeritus Thomas S. Roberts, M.D.; Associate Professors James T. Christison, M.D., Edgar J. Huenekens, B.A., M.D., Walter R. Ramsey, M.D., Frederick C. Rodda, M.D., William W. Swanson, B.A., M.S., M.D.; Assistant Professors Tobias L. Birnberg, M.D., Naboth O. Pearce, M.D., Erling S. Platou, B.S., M.D., Lawrence F. Richdorf, M.D., Ph.D., Max Seham, M.D., Chester A. Stewart, Ph.D., M.D., Rood Taylor, M.D., Ph.D., Milton R. Ziegler, Ph.D.; Lecturer Herbert E. Chamberlain, B.A., M.D.; Instructors Edward D. Anderson, B.A., M.D., Woodard L. Colby, B.S., M.D., Lyman R. Critchfield, B.S., M.D., George K. Hagaman, M.D., Frank G. Hedenstrom, B.S., M.D., Cecile R. Moriarty, B.S., M.D., Lillian L. Nye, M.A., M.D., Robert Rosenthal, M.D., W. Ray Shannon, M.S., M.D., David M. Siperstein, M.A., M.D., Alexander A. Stewart, M.D., C.M., Albert V. Stoesser, B.S., M.D., Eugene F. Warner, M.D., Robert L. Wilder, B.S., M.D.; Assistants Aaron Friedell, B.A., B.S., M.D., Arild E. Hansen, B.S., M.D., Hermina Hartig, B.S., M.D., Glenn R. Matchan, M.D., Walter W. Murphy, B.A., M.D., Daniel F. Noonan, B.A., M.D.; Teaching Fellows Harold F. Flanagan, B.S., M.D., Walter J. Siemsen, M.D.

SURGERY

Division of General Surgery

Professors Arthur C. Strachauer, M.D., F.A.C.S., Director; Charles H. Mayo, M.D., M.A., LL.D., F.A.C.S.; Associate Professors Alexander R. Colvin, M.D., F.A.C.S., J. Frank Corbett, M.D., F.A.C.S., James A.

Johnson, M.D., F.A.C.S., Arthur A. Law, M.D., F.A.C.S., Arthur T. Mann, B.S., M.D., F.A.C.S., Harry P. Ritchie, Ph.B., M.D., F.A.C.S., John T. Rogers, M.D., F.A.C.S., Owen H. Wangelsteen, M.D., Ph.D.; Assistant Professors John S. Abbott, B.A., M.D., Louis E. Daugherty, M.D., F.A.C.S., George R. Dunn, Ph.B., M.D., F.A.C.S., Walter A. Fansler, M.A., M.D., F.A.C.S., E. Mendelssohn Jones, M.D., F.A.C.S., Frank S. McKinney, B.A., M.D., Emil C. Robitshek, M.D., F.A.C.S., Archa E. Wilcox, M.D., F.A.C.S., Arthur A. Zierold, M.D., Ph.D., Harry A. Zimmerman, M.D., F.A.C.S.; Professorial Lecturer Arnold Schwyzer, M.D., F.A.C.S.; Instructors Arthur F. Bratrud, B.S., M.D., F.A.C.S., Orwood J. Campbell, B.S., M.D., Victor P. Hauser, B.A., B.S., M.D., James M. Hayes, M.D., M.S., F.A.C.S., Harold E. Hullsiek, B.S., M.D., Frederick A. Olson, M.D., M.S., F.A.C.S., William T. Peyton, M.D., Ph.D., Edward A. Regnier, B.S., M.D., Roscoe C. Webb, B.A., M.D., F.A.C.S., Oswald S. Wyatt, B.S., M.D.; Assistants John M. Culligan, B.S., M.D., D. Gretls Gardiner, B.A., B.S., M.D., William A. Hanson, B.S., M.D., Leo T. Murphy, B.S., M.D., Warner Ogden, B.A., M.D., Horatio B. Sweetser, Jr., B.S., M.D.; Teaching Fellows Charles D. Creevy, B.S., M.D., Percy W. Harrison, B.A., M.D., Nathaniel L. Leven, B.A., B.S., M.D., Melville H. Manson, B.S., M.D., Carl O. Rice, B.S., M.D., Leslie W. Tasche, M.S., M.D.

Division of Orthopedic Surgery

Associate Professors Emil S. Geist, M.D., F.A.C.S., Charles A. Reed, B.S., M.D., F.A.C.S.; Assistant Professors Carl C. Chatterton, M.D., F.A.C.S., Wallace H. Cole, M.D., F.A.C.S., Paul W. Giessler, B.S., M.D.; Instructors Edward T. Evans, B.S., M.D., Myron O. Henry, B.S., M.D.; Assistants Albert E. Flagstad, B.S., M.D., Donne F. Gosin, M.D., William H. von der Weyer, M.D., George A. Williamson, B.S., M.D.

Division of Urology

Associate Professor Franklin R. Wright, D.D.S., M.D., F.A.C.S., Director; Assistant Professors Oscar Owre, M.D., C.M., F.A.C.S., Gilbert J. Thomas, M.D., F.A.C.S., Anton G. Wethall, B.S., M.D.; Instructors Frederic E. B. Foley, Ph.B., M.D.; Assistants Joseph C. Giere, B.A., B.S., M.D., William P. Herbst, Sr., M.D., M.S.

HOSPITAL DEPARTMENT

Paul Fesler, Superintendent, with rank of Department Head.

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 Andreasen, 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 zoology, 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.

FEES

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 interneship 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, Millard 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.
- 52s. 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

- I. 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. Turnacliff.
- 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. Turnacliff.
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. Herbolzheimer.
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.

THE MEDICAL SCHOOL

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 sophmores 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. Prerequisite, 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
Olena 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.

SCHOOL OF NURSING

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:

FIRST YEAR		
FALL QUARTER	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
SECOND YEAR		
FALL QUARTER	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. 51 5
Rhet. 18§ or 12..... 3	Rhet. 19§ or 13..... 3	Hist. of Nurs. 1
Total..... 16	Total..... 16	Theory of Diet. 1
		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. 1 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. Greishwimer and others.

PHARMACOLOGY

1w,su. Elementary Pharmacology. A study of the history, use, 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

60f,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 examinee; 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
1929-1931



Vol. XXXII No. 27 May 11 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

THE COLLEGE OF DENTISTRY
and
THE SCHOOL FOR DENTAL HYGIENISTS

FACULTY

ADMINISTRATION

Lotus Delta Coffman, Ph.D., LL.D., President
William Watts Folwell, LL.D., President Emeritus
William F. Lasby, B.A., D.D.S., F.A.C.D., Dean of the College of Dentistry
and the School for Dental Hygienists, Professor of Prosthetic Den-
tistry and Orthodontia

ANATOMY

Clarence M. Jackson, M.S., M.D., LL.D., Professor of Anatomy
Andrew T. Rasmussen, Ph.D., Professor of Neurology
Shirley P. Miller, Ph.D., Assistant Professor of Anatomy
Carol A. Fisher, Ph.D., Instructor in Anatomy

BACTERIOLOGY AND IMMUNOLOGY

Winford P. Larson, M.D., Professor of Bacteriology and Immunology and
Director of the Department of Bacteriology and Immunology
Robert G. Green, M.A., M.D., Associate Professor of Bacteriology and
Immunology
H. Orin Halvorson, Ph.D., Assistant Professor of Bacteriology and Im-
munology
Arthur T. Henrici, M.D., Professor of Bacteriology and Immunology
Beryl S. Green, M.A., Instructor in Bacteriology and Immunology
Charles E. Skinner, Ph.D., Instructor in Bacteriology and Immunology

DENTISTRY

William F. Lasby, B.A., D.D.S., F.A.C.D., Dean of the College of Dentistry
and the School for Dental Hygienists, Professor of Prosthetic Den-
tistry and Orthodontia
Peter J. Brekhus, B.A., D.D.S., Professor of Crown and Bridge Work and
Oral Diagnosis and Chairman of the Division of Oral Diagnosis
Archibald B. Butter, D.D.S., Assistant Professor of Operative Dentistry
Oscar Cooperman, D.D.S., Associate Professor of Prosthetic Dentistry and
Oral Anatomy
Norman J. Cox, B.A., D.M.D., Associate Professor of Operative Dentistry
George M. Damon, D.D.S., Professor of Prosthetic Dentistry and Oral
Anatomy and Chairman of the Division of Oral Anatomy
Rudolph W. Delton, D.D.S., Assistant Professor of Prosthetic Dentistry
and Orthodontia
George D. Estes, D.D.S., Assistant Professor of Operative Dentistry

- Carl O. Flagstad, D.D.S., Professor of Prosthetic Dentistry and Orthodontia
Jay M. Freeburg, D.D.S., Assistant Professor of Operative Dentistry
Henry S. Godfrey, D.M.D., Professor of Operative Dentistry
Robert O. Green, D.D.S., Professor of Operative Dentistry
Charles A. Griffith, D.D.S., Professor of Oral Surgery and Chairman of
the Division of Oral Surgery
Ambert B. Hall, D.D.S., Assistant Professor of Crown and Bridge Work
Lee A. Harker, D.D.S., Assistant Professor of Oral Anatomy and Pros-
thetic Dentistry
Raymond R. Henry, D.D.S., Assistant Professor of Operative Dentistry
Clare E. Hermann, D.D.S., Assistant Professor of Oral Surgery
Roy M. Jernall, D.D.S., Assistant Professor of Prosthetic Dentistry
Raymond E. Johnson, D.D.S., Assistant Professor of Oral Hygiene and
Pathology
Ray R. Knight, B.A., M.D., Professor of Oral Roentgenology and Physical
Diagnosis
Harry C. Lawton, D.D.S., Associate Professor of Prosthetic Dentistry and
Orthodontia
Joseph M. Little, D.D.S., Associate Professor of Operative Dentistry
Everett E. MacGibbon, D.D.S., Associate Professor of Oral Surgery
Herman A. Maves, D.D.S., F.A.C.D., Professor of Oral Surgery
Richard S. Maybury, D.D.S., Associate Professor of Operative Dentistry
George A. Montelius, D.D.S., Assistant Professor of Oral Diagnosis
Earl A. Nelson, D.D.S., Assistant Professor of Crown and Bridge Work
Earle W. Nelson, D.D.S., Assistant Professor of Oral Surgery
Herbert C. Nelson, D.D.S., Associate Professor of Crown and Bridge Work
Carl F. Otto, D.D.S., Associate Professor of Crown and Bridge Work
Alfred A. Pagenkopf, D.D.S., Professor of Crown and Bridge Work
Paul S. Parker, D.D.S., Assistant Professor of Operative Dentistry
Mark O. Patridge, D.D.S., Associate Professor of Operative Dentistry
George W. Reynolds, D.D.S., Professor of Crown and Bridge Work
William A. Roll, D.D.S., Associate Professor of Crown and Bridge Work
Charles E. Rudolph, D.D.S., Professor of Prosthetic Dentistry, Oral
Anatomy, and Orthodontia
Joseph F. Shellman, D.D.S., Professor of Operative Dentistry
Lewis W. Thom, D.D.S., Assistant Professor of Operative Dentistry
Edward T. Tinker, D.D.S., Professorial Lecturer of Crown and Bridge
Work
William D. Vehe, D.D.S., Professor of Crown and Bridge Work and
Operative Dentistry
Harold F. Wahlquist, B.S., D.D.S., M.D., Assistant Professor of Oral
Diagnosis and Oral Hygiene and Pathology
Carl W. Waldron, M.D., D.D.S., L.D.S., F.A.C.S., F.A.C.D., Professor of
Oral Hygiene and Pathology and Oral Surgery and Chairman of the
Division of Oral Hygiene and Pathology
James M. Walls, D.M.D., Professor of Operative Dentistry and Chairman
of the Division of Operative Dentistry

- Oscar A. Weiss, D.M.D., Professor of Prosthetic Dentistry and Orthodontia and Chairman of the Division of Orthodontia
 Amos S. Wells, B.A., D.D.S., Professor of Crown and Bridge Work and Chairman of the Division of Crown and Bridge Work
 Lehman Wendell, B.S., D.D.S., Assistant Professor of Orthodontia and Prosthetic Dentistry
 Charles A. Wiethoff, D.D.S., Professor of Oral Surgery
 Daniel E. Ziskin, D.D.S., Assistant Professor of Oral Surgery
 Joseph O. Baker, D.D.S., Instructor in Orthodontia
 Daniel R. Clark, D.D.S., Instructor in Oral Hygiene and Pathology
 Fred H. Hayes, D.D.S., Instructor in Oral Surgery
 Harold G. Heckler, D.D.S., Instructor in Prosthetic Dentistry
 Ione M. Jackson, D.H., Instructor in School for Dental Hygienists
 George W. Lundberg, D.D.S., Instructor in Operative Dentistry
 Lester C. McCarthy, D.D.S., Assistant Professor of Crown and Bridge Work
 Charles Peterka, D.D.S., Instructor in Crown and Bridge Work
 Dorothea Radusch, D.D.S., Instructor in Oral Hygiene and Pathology
 Fred C. Thiers, D.D.S., Instructor in Operative Dentistry
 Andrew J. Weiss, Instructor in Prosthetic Dentistry
 Harold C. Wittich, D.D.S., Instructor in Operative Dentistry
 Harold G. Worman, D.D.S., Instructor in Oral Hygiene and Pathology

LECTURERS

- Frank E. Burch, M.D., F.A.C.S., Professor of Ophthalmology and Otolaryngology and Head of the Department of Ophthalmology and Otolaryngology
 George E. Fahr, B.S., M.D., Professor of Medicine
 Boyd S. Gardner, D.D.S., Associate Professor of Dental Surgery, Mayo Foundation
 Edwin L. Gardner, B.S., M.D., Associate Professor of Medicine
 Arthur S. Hamilton, B.S., M.D., Professor of Nervous and Mental Diseases, in charge of the Division of Nervous and Mental Diseases
 Thomas B. Hartzell, D.M.D., M.D., F.A.C.D., Research Professor of Mouth Infections
 Jennings C. Litzenberg, B.S., M.D., F.A.C.S., Professor of Obstetrics and Gynecology and Head of the Department of Obstetrics and Gynecology
 Robert I. Rizer, M.D., F.A.C.P., Assistant Professor of Medicine
 David F. Swenson, B.S., Professor of Philosophy
 S. Marx White, B.S., M.D., F.A.C.P., Professor of Medicine

METALLOGRAPHY

- Oscar E. Harder, Ph.D., Professor of Metallography
 Ralph L. Dowdell, Met.E., Ph.D., Assistant Professor of Metallography

MILITARY SCIENCE AND TACTICS

- Earl L. Hering, D.D.S., Major, Dental Corps, U.S.A., Assistant Professor of Military Science and Tactics

FACULTY

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PATHOLOGY

Elexious T. Bell, B.S., M.D., Professor of Pathology
Benjamin J. Clawson, M.D., Ph.D., Professor of Pathology
James S. McCartney, Jr., B.A., M.D., Assistant Professor of Pathology

PHARMACOLOGY

Arthur D. Hirschfelder, B.S., M.D., Professor of Pharmacology
Edgar D. Brown, Ph.D., M.D., Associate Professor of Pharmacology
Raymond N. Bieter, B.S., M.D., Instructor in Pharmacology

PHYSIOLOGY

Elias P. Lyon, Ph.D., M.D., LL.D., Professor of Physiology
Esther M. Greisheimer, Ph.D., M.D., Assistant Professor of Physiology
Jesse F. McClendon, Ph.D., Professor of Physiologic Chemistry
Frederick H. Scott, Ph.D., M.B., D.Sc., Professor of Physiology
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

SURGERY

Arthur C. Strachauer, M.D., F.A.C.S., Professor of Surgery and Head of
the Department of Surgery
Owen H. Wangenstein, M.D., Ph.D., Associate Professor of Surgery
Orwood J. Campbell, B.S., M.D., Instructor in Surgery
William T. Peyton, M.D., Ph.D., Instructor in Surgery

SPECIAL TEACHERS IN EXTENSION WORK

Adolph R. Ringoen, Ph.D., Assistant Professor of Zoology
Richard E. Scammon, Ph.D., Professor of Anatomy
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

F. Stuart Chapin, Ph.D., Professor of Sociology, Chairman of the Department of Sociology, and Director of the Training Course for Social and Civic Work
Harold S. Diehl, M.A., M.D., Associate Professor of Preventive Medicine and Public Health, Director of the Students' Health Service and of the Department of Preventive Medicine and Public Health
Richard M. Elliott, Ph.D., Professor of Psychology and Chairman of the Department of Psychology

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

William A. Riley, Ph.D., Professor of Zoology and Head of the Department
of Zoology

Russell A. Stevenson, Ph.D., Dean of the School of Business Administration

Joseph M. Thomas, 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.

* The faculty may accept electives for these courses.

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 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.

COURSES OF STUDY IN THE COLLEGE OF DENTISTRY FOR 1929-31

	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								
Bacteriology, Spec. (1929 only)	3	44	..	..	..	..	3	44
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
	18	385	18	374	17	418	53	1177
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, Assistant 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

- 52f. Special Bacteriology (fall quarter of 1929 only). Concept of infection; pathogenic bacteria; general consideration of the oral flora; bacteriology of the stomatitides, dental caries, alveolar abscess, and pyorrhea; systemic infections secondary to bacterial diseases of the mouth and teeth. 44 hours. 3 credits. Offered to juniors. Prerequisite: Bacteriology 41. Assoc. Prof. R. G. Green and assistants.
- 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. Assoc. 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, Assoc. Prof. Roll, 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 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, Asst. Profs. Montelius, 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. Profs. Brekhus, Knight, Waldron, Asst. Profs. Montelius, 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, Freeburg, 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 irregularity 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. Asst. 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. Radusch.

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, Ziskin, Dr. Hayes.
- 95f-96w.† 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.
- 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. Prof. 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, D. F. Swenson, S. Marx White, Assoc. Profs. Boyd S. Gardner, E. L. Gardner, Asst. Prof. R. I. Rizer.

METALLOGRAPHY

155s. 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. Harder, Asst. 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 enrollment 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 per 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.
- 6os. 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.

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.

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 technic 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	..	..	4	88
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	1	11	4	44	7	77
	15	319	12	198	16	242	43	759

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. Thomas.

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. Riley.

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 construc-

tion 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. Asst. 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. 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.
- 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. Asst. 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 per 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
Announcement for the Years
1928 - 1930



Vol. XXXI *No. 32* *June 2 1928*

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

1928							1929													
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	6	7	1	2	3	4	5	..	1	2	3	4	5	6
8	9	10	11	12	13	14	6	7	8	9	10	11	12	7	8	9	10	11	12	13
15	16	17	18	19	20	21	13	14	15	16	17	18	19	14	15	16	17	18	19	20
22	23	24	25	26	27	28	20	21	22	23	24	25	26	21	22	23	24	25	26	27
29	30	31	27	28	29	30	31	28	29	30	31
..
AUGUST							FEBRUARY							AUGUST						
..	..	..	1	2	3	4	..	..	..	..	1	2	..	..	..	..	1	2	3
5	6	7	8	9	10	11	3	4	5	6	7	8	4	5	6	7	8	9	10	
12	13	14	15	16	17	18	10	11	12	13	14	15	11	12	13	14	15	16	17	
19	20	21	22	23	24	25	17	18	19	20	21	22	18	19	20	21	22	23	24	
26	27	28	29	30	31	..	24	25	26	27	28	..	25	26	27	28	29	30	31	
..	
SEPTEMBER							MARCH							SEPTEMBER						
..	..	..	..	..	..	1	..	..	..	..	1	2	1	2	3	4	5	6	7
2	3	4	5	6	7	8	3	4	5	6	7	8	8	9	10	11	12	13	14	
9	10	11	12	13	14	15	10	11	12	13	14	15	15	16	17	18	19	20	21	
16	17	18	19	20	21	22	17	18	19	20	21	22	22	23	24	25	26	27	28	
23	24	25	26	27	28	29	24	25	26	27	28	29	29	30	..	..	..	..	..
30	..	..	..	..	..	..	31	..	..	..	..	..	..	..	..	..	..	..	..
OCTOBER							APRIL							OCTOBER						
..	1	2	3	4	5	6	..	1	2	3	4	5	..	..	1	2	3	4	5
7	8	9	10	11	12	13	7	8	9	10	11	12	6	7	8	9	10	11	12	
14	15	16	17	18	19	20	14	15	16	17	18	19	13	14	15	16	17	18	19	
21	22	23	24	25	26	27	21	22	23	24	25	26	20	21	22	23	24	25	26	
28	29	30	31	..	..	..	28	29	30	..	..	..	27	28	29	30	31	..	..
..	
NOVEMBER							MAY							NOVEMBER						
..	..	..	..	1	2	3	..	..	..	1	2	3	..	..	..	..	1	2	
4	5	6	7	8	9	10	5	6	7	8	9	10	3	4	5	6	7	8	9	
11	12	13	14	15	16	17	12	13	14	15	16	17	10	11	12	13	14	15	16	
18	19	20	21	22	23	24	19	20	21	22	23	24	17	18	19	20	21	22	23	
25	26	27	28	29	30	..	26	27	28	29	30	31	24	25	26	27	28	29	30	
..	
DECEMBER							JUNE							DECEMBER						
..	..	..	..	..	1	2	..	..	..	..	..	1	1	2	3	4	5	6	7
3	4	5	6	7	8	9	3	4	5	6	7	8	8	9	10	11	12	13	14	
10	11	12	13	14	15	16	10	11	12	13	14	15	15	16	17	18	19	20	21	
17	18	19	20	21	22	23	17	18	19	20	21	22	22	23	24	25	26	27	28	
24	25	26	27	28	29	30	24	25	26	27	28	29	29	30	31	..	..	..	..
31	..	..	..	..	..	..	30	..	..	..	..	..	..	..	..	..	..	..	..

UNIVERSITY CALENDAR

1928-29

Fall Quarter

1928			
September	20	Thursday	Payment of fees closes, except for new students
September	21-24		Entrance examinations (for removal of entrance deficiencies) Registration of all new students entering the freshman class
September	24	Monday	Seniors, School of Mines and Metallurgy report for completion of field work
September	24-28		Examinations for removal of conditions Physical examinations Registration period, ¹ Colleges of Science, Literature, and the Arts, and Education
September	24-29		Freshman Week
September	26	Wednesday	Juniors, School of Mines and Metallurgy report for completion of field work
September	27-28		Registration days ¹ for all colleges not included above
September	28	Friday	Payment of fees for new students closes
October	1	Monday	Fall quarter classes begin, 8:30 ² a.m. First semester extension classes ³ begin
October	18	Thursday	Senate meeting, 4:30 p.m.
October	20	Saturday	Homecoming Day
November	6	Tuesday	Election Day; a holiday
November	12	Monday	A holiday; (November 11, Sunday, Armistice Day)
November	29	Thursday	Thanksgiving Day; a holiday
December	6	Thursday	State Day Convocation
December	19-22		Final examination period
December	20	Thursday	Commencement Convocation Senate meeting, 4:30 p.m.
December	22	Saturday	Fall quarter ends, Christmas vacation begins, 5:20 p.m.
December	26	Wednesday	Payment of fees closes for all students in residence fall quarter ⁴

¹ Registration subsequent to the date specified will necessitate the approval of the college concerned. See also penalty fees for late registration, page 9.

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.

² First hour classes begin at 8:15 at University Farm.

³ This date does not refer to correspondence study courses, which may be started at any time during the year.

⁴ New students must pay fees on dates announced for registration.

		<i>Winter Quarter</i>		
1929				
January	2-4			Entrance examinations
January	4-5			Registration days for new students in College of Science, Literature, and Arts
January	5	Saturday		Registration day for new students in all other colleges, 8:30 a.m.-3:00 p.m.
January	7	Monday		Christmas vacation ends, winter quarter classes begin, 8:30 ¹ a.m.
February	2	Saturday		First semester extension classes close
February	4	Monday		Second semester extension classes begin
February	12	Tuesday		Lincoln's Birthday; a holiday
February	21	Thursday		Charter Day Convocation
				Senate meeting, 4:30 p.m.
February	22	Friday		Washington's Birthday; a holiday
March	20-23			Final examination period
March	21	Thursday		Commencement Convocation
				Payment of fees closes for all students in residence winter quarter ²
March	23	Saturday		Winter quarter ends, spring vacation be- gins, 5:20 p.m.
		<i>Spring Quarter</i>		
March	25-27			Entrance examinations
March	29	Friday		Good Friday; a holiday
March	30	Saturday		Registration day for new students in all colleges, 8:30 a.m.-3:00 p.m.
April	1	Monday		Spring vacation ends, spring quarter classes begin, 8:30 ¹ a.m.
May	16	Thursday		Cap and Gown Day Convocation
				Senate meeting, 4:30 p.m.
May	30	Thursday		Memorial Day; a holiday
June	1	Saturday		Second semester extension classes close
June	12-15			Final examination period
June	15	Saturday		Spring quarter closes, 5:20 p.m.
June	16	Sunday		Baccalaureate service
June	17	Monday		Fifty-seventh annual commencement
		<i>Summer Quarter</i>		
June	18-19			Registration, first term
June	20	Thursday		Classes begin, 8:00 a.m.
July	4	Thursday		Independence Day; a holiday
July	27	Saturday		Registration and payment of fees for second term closes. First term closes
July	29	Monday		Second term classes begin
August	31	Saturday		Second term closes

¹ First hour classes begin at 8:15 at University Farm.

² Registration subsequent to the date specified will necessitate the approval of the college concerned. See also penalty fees for late registration, page 9.

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

CHEMISTRY

Professor M. Cannon Sneed, Ph.D.; Associate Professor I. William Geiger, Ph.D.; Assistant Professor Norville C. Pervier, Ph.D.; Instructor Gladstone B. Heisig, M.S., M.A.

DRAWING AND DESCRIPTIVE GEOMETRY

Professor William H. Kirchner, B.S.; Assistant Professors Leon Archibald, B.Sc., Henry C. T. Eggers, E.E., Alex S. Levens, M.S. (C.E.), Howard D. Myers, B.S. in C.E.

ELECTRICAL ENGINEERING

Professor William T. Ryan, E.E.; Assistant Professor George W. Swenson, M.S. (E.E.).

EXPERIMENTAL ENGINEERING

Mathematics and Mechanics

Professor William E. Brooke, B.C.E., M.A.; Assistant Professor Charles Boehnlein, B.S., M.E.

Mechanical Engineering

Professors Frank B. Rowley, B.S., M.E., Charles F. Shoop, B.S.; Instructor Jarl E. Larson, B.S.

GEOLOGY AND MINERALOGY

Professors William H. Emmons, Ph.D., Frank F. Grout, Ph.D., Clinton R. Stauffer, Ph.D.; Assistant Professors Ira S. Allison, Ph.D., John W. Gruner, Ph.D., George M. Schwartz, Ph.D., George A. Thiel, Ph.D.; Instructor George McL. Brownell, M.Sc.

GERMAN

Professor Carl Schlenker, B.A.; Assistant Professors James Davies, Ph.D., George Lussky, Ph.D.

METALLURGY

Professors William R. Appleby, M.A., Peter Christianson, B.S., E.M., Oscar E. Harder, Ph.D., Levi B. Pease, M.S.; Assistant Professor Ralph L. Dowdell, Met.E., Ph.D.; Instructors R. W. Allard, Met.E., Arthur C. Forsyth, Met.E., Henry S. Jerabek, B.S.

MILITARY SCIENCE AND TACTICS

Professor Bernard Lentz, Major, Infantry; Assistant Professors Ray C. Hill, Major, Infantry, Frederick S. Matthews, Captain, Infantry, Don F. Pratt, Captain, Infantry, Porter P. Wiggins, Captain, Infantry, Julian H. Gist, Captain, Infantry; Murray T. Davenport, Captain, Infantry; William G. Walker, Captain, Infantry; Instructors Alfred Brandt, Master Sergeant, Infantry; John Coop, Sergeant, Infantry.

MINE PLANT AND MECHANICS

Professor Elting H. Comstock, M.S.; Assistant Professors Louis S. Heilig, E.M., James C. Sanderson, Ph.D.

MINING

Professor Walter H. Parker, E.M.

MINING ENGINEERING

Professor Edwin M. Lambert, M.E.

PHYSICS

Professors Henry A. Erikson, Ph.D., Anthony Zeleny, Ph.D.; Associate Professor Louallen F. Miller, Ph.D.

ROMANCE LANGUAGES

Professors Everett W. Olmsted, Ph.D., Litt.D., Head; Irville C. LeCompte, Ph.D.; Ruth S. Phelps, Ph.D.; Colbert Searles, Ph.D.; Associate Professors Francis B. Barton, Docteur de l'Université de Paris; Edward H. Sirich, 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 degree 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.

FEEES

Tuition fee (per quarter)	
Residents of Minnesota.....	\$30.00
Non-residents	40.00
Incidental fee (per quarter).....	6.40
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 examinations	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) of 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 failing to pass supplementary examinations will become members of the succeeding class and must register for those subjects in which they have failed. They may take in addition other subjects not more than one year in advance of their class, with the exception of mining, mining engineering, and metallurgical courses, based upon requirements of the various courses and daily program. They may also take certain electives in other colleges provided suitable arrangements can be made.

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.

COURSES OF STUDY

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SOPHOMORE YEAR

First Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Drawing	14f	Descriptive Geometry	3	..	Draw. 13s, Math. 5s
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	3	..	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	8	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, 105f
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	Economic	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. 25f
Mining	131f	Exploration	5	..	Mining 21s

SCHOOL OF MINES AND METALLURGY

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. 4s

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 Administration	5	..	Min. 134s
Mining	144f	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	142w	Mine Administration	5	..	Min. 141f
Mining	145w	Thesis	..	12	Min. 144f

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	143s	Mine Administration	5	..	Min. 142w
Mining	146s	Thesis	..	12	Min. 145w

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. Registration will cover field work, electric power, and geology.

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 departments concerned.

At the close of the field work all seniors who expect to graduate must register for the remaining subjects. Prior to this date the student must submit 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. Final registration will not be allowed until after reports on field work are accepted. All final reports, therefore, must be presented by this time. 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.

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. 25f
	or 65f	or Crystallography	2	4	Geol. 25f
Geology	73f	Economic	3	..	Geol. 28, 105f
Geology	131f	Advanced Petrology	3	3	Geol. 28, 106w
Geology	151f	Advanced General	3	..	Geol. 73f
Mechanics	109f	Mechanics	5	..	Math. 88
Mining	131f	Exploration	5	..	Min. 218
Elective	....	.....	3	..	.....

COURSES OF STUDY

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. 25f
Mining	141f	Mine Administration	5	..	Min. 134S
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	142W	Mine Methods	5	..	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 Vermilion 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	131f	Advanced Petrology	3	3	Geol. 2s, 106w
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

Second Quarter

Geology	124w	Struct. & Metamorphic	3	..	Geol. 73f, 105f
Geology	132w	Advanced Petrology	3	3	Geol. 2s, 106w
Geology	152w	Advanced General	3	..	Geol. 73f
Mechanics	110w	Mechanics of Materials	5	..	Mech. 109f
Mechanics	113w	Mine Plant	6	..	Mech. 112f
Min. Eng.	105w	Mine Mapping	..	3	M.E. 4s
Pet. Eng.	132w	Oil Field Development	5	..	Pet. Eng. 131f

Third Quarter

Geology	125s	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	Jr. year

COURSES OF STUDY

19

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. 117f
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. Registration will cover field work, paleontology, and ore deposits.

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.

At the close of the field work all seniors who expect to graduate must register for the remaining subjects. Prior to this date the student must submit 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. Final registration will not be allowed until after reports on field work are accepted. All final reports, therefore, must be presented by this time. 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

Dept.	No.	Title	Lect.	Lab.	Prereq.
Geology	73f	Economic	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. 25f
Metallurgy	112f	Ore Dressing Lab.	..	4	Phys. 43s, Geol. 25f
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

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 Metal- lurgy beginning about May 1	..	10 days	Junior year
Mining	139s	Field Work in Mine Plant and Mining be- ginning 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 various 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 maganiferous 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. Registration will cover field work, electric power, and geology.

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.

At the close of the field work all seniors who expect to graduate must register for the remaining subjects. Prior to this date the student must submit 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. Final registration will not be allowed until after reports on field work are accepted. All final reports, therefore, must be presented by this time. 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.
14. General Inorganic Chemistry. A study of the general laws of chemistry and of the non-metals, the metals, and their compounds.
15. General Inorganic Chemistry. A continuation of Course 14.
16. Qualitative Analysis. Laboratory work in systematic qualitative analysis with lectures on solutions, ionization, chemical and physical equilibrium, oxidation and reduction, etc.
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 for 1928, 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 and 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.
- 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, micro-

- scopic 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.
- 163-164-165. 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 equation, 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 variable, 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 Administration. Mine examination and mining reports. Amortization. Mining corporations, capitalization, stocks and bonds. Contracts and specifications. Placer, hydraulic mining, and dredging.
142. Mine Administration. Coal mining and coal preparation. Mine gases. Accident prevention. State mining codes. Mining law and court interpretations. Compensation laws.
143. Mine Administration. Continuation of Course 142.

144. Thesis. Preparatory work on the mining thesis.
145. Thesis. Preparation of an original thesis on some mining project, covering the exploration and development of a mining property.
146. Thesis. Completion of thesis project.

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

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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 credentials, 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.

FEEES 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 COLLEGE OF 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 eligible 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 morphologic 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. II.) 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. II.) 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. Smythe, 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. Smythe, 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 Schne'l, 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 Archegoniates. In this course some of the drugs and economic products obtained from the thallophytes and archegoniates 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

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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, Phm.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. 1.) Assoc. Prof. Brown.

The Bulletin of the University of Minnesota

The College of Education

Part I

*Announcement of Courses for the Years
1928-1930*



Vol. XXXI No. 29 May 28 1928

*Entered at the post-office in Minneapolis as second-class matter
Minneapolis, Minnesota*

*Acceptance 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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- Elias P. Lyon, Ph.D., M.D., LL.D., Professor of Physiology and Director of the Department of Physiology
- Jesse F. McClendon, Ph.D., Professor of Physiologic Chemistry
- Orianna McDaniel, M.D., Assistant Professor of Preventive Medicine and Public Health and Director, Division of Preventable Diseases, State Board of Health
- Frank H. MacDougall, Ph.D., Professor of Chemistry
- Wylle B. McNeal, M.A., Professor of Home Economics and Chief of the Division of Home Economics

- Frederick M. Mann, M.S. in Arch., C.E., Professor of Architecture and
Head of the Department of Architecture
- Arthur W. Marget, Ph.D., Associate Professor of Economics
- Ernest S. Mariette, B.S., M.D., Assistant Professor of Medicine
- Frederick S. Matthews, Captain, Infantry, Assistant Professor of Military
Science and Tactics
- Louallen F. Miller, Ph.D., Associate Professor of Physics
- Shirley P. Miller, Ph.D., Assistant Professor of Anatomy
- Dwight E. Minnich, Ph.D., Associate Professor of Zoology
- Cecil A. Moore, Ph.D., Professor of English
- Paul Morand, Licencié ès Lettres, Assistant Professor of Romance Lan-
guages
- Clarence A. Morrow, Ph.D., Assistant Professor of Agricultural Bio-
chemistry
- Amy P. Morse, B.A., Assistant Professor of Drawing and Design
- Wayne L. Morse, M.A., Assistant Professor of English
- Bruce D. Mudgett, Ph.D., Professor of Economics
- Mildred D. Mudgett, Ph.D., Assistant Professor of Sociology and Super-
visor of Field Practice Work
- J. Arthur Myers, Ph.D., M.D., Associate Professor of Preventive Medicine
and Public Health
- Walter R. Myers, Ph.D., Assistant Professor of Economics
- Charles W. Nichols, Ph.D., Assistant Professor of English
- J. Anna Norris, M.D., Professor of Physical Education for Women and
Director of Health and Physical Education for Women
- William A. O'Brien, M.D., Assistant Professor of Pathology
- Oscar W. Oestlund, Ph.D., Associate Professor of Zoology
- Everett W. Olmsted, Ph.D., Litt.D., Professor of Romance Languages and
Head of the Department of Romance Languages
- Olena Ordahl, R.N., Assistant Professor of Nursing
- Harry J. Ostlund, B.A., Assistant Professor of Economics
- Leroy S. Palmer, Ph.D., Professor of Agricultural Biochemistry
- Donald G. Paterson, M.A., Professor of Psychology
- Abe Pepinsky, Assistant Professor of Music
- Chauncey J. Pettibone, Ph.D., Associate Professor of Physiologic Chemistry
- Anna H. Phelan, Ph.D., Assistant Professor of English
- Ethel L. Phelps, Ph.D., Assistant Professor of Textiles and Clothing
- Ruth S. Phelps, Ph.D., Professor of Romance Languages
- Joseph B. Pike, M.A., Professor of Latin and Head of the Department of
Latin
- Don F. Pratt, Captain, Infantry, Assistant Professor of Military Science
and Tactics
- H. Bruce Price, Ph.D., Professor of Agricultural Economics
- Harold S. Quigley, Ph.D., Professor of Political Science
- Frank M. Rarig, M.A., Professor of Public Speaking
- Andrew T. Rasmussen, Ph.D., Professor of Neurology
- Gertrude Reeves, Assistant Professor of Music
- John J. Reighard, M.A., C.P.A., Assistant Professor of Accounting
- Lloyd H. Reyerson, Ph.D., Associate Professor of Chemistry

- William H. Richards, Assistant Professor of Woodworking
 William A. Riley, Ph.D., Professor of Entomology and Economic Zoology
 and Head of the Department of Zoology
 Adolph Ringoen, Ph.D., Assistant Professor of Zoology
 Thomas S. Roberts, M.D., Professor of Ornithology and Director of the
 Museum of Natural History
 Rhodes Robertson, M.S. in Arch., Assistant Professor of Architectural
 Design
 C. Otto Rosendahl, Ph.D., Professor of Botany
 Henry Rottschaefer, B.A., J.D., S.J.D., Professor of Law
 Clare Leo Rotzel, B.C.S., C.P.A., Associate Professor of Accounting
 Arthur G. Ruggles, M.A., Professor of Economic Entomology
 Harold Russell, B.A., B.L.S., Assistant Professor of Library Methods
 Martin B. Ruud, Ph.D., Professor of English
 Landon A. Sarver, Ph.D., Assistant Professor of Chemistry
 Charles A. Savage, Ph.D., Professor of Greek and Chairman of the De-
 partment of Greek
 Richard E. Scammon, Ph.D., Professor of Anatomy
 Carl Schlenker, B.A., Professor of German and Chairman of the Depart-
 ment of German
 George M. Schwartz, Ph.D., Assistant Professor of Geology and Min-
 eralogy
 Carlyle M. Scott, Professor of Music and Chairman of the Department of
 Music
 Frederick H. Scott, M.B., Ph.D., Sc.D., Professor of Physiology
 Colbert Searles, Ph.D., Professor of Romance Languages
 S. Carl Shipley, B.S., M.E., Professor of Mechanical Engineering
 Lester B. Shippee, Ph.D., Professor of History
 Royal R. Shumway, B.A., Associate Professor of Mathematics
 Charles P. Sigerfoos, Ph.D., Professor of Zoology
 Edward H. Sirich, Ph.D., Associate Professor of Romance Languages
 Lee I. Smith, Ph.D., Assistant Professor of Chemistry
 M. Cannon Sneed, Ph.D., Professor of Chemistry
 Pitirim A. Sorokin, Dr. of Soc., Professor of Sociology
 Clarence Spears, M.D., Professor of Physical Education for Men
 Elvin C. Stakman, Ph.D., Professor of Plant Pathology and Botany
 Clinton R. Stauffer, Ph.D., Professor of Geology and Mineralogy
 William H. Stead, Ph.D., Assistant Professor of Economics
 Lawrence D. Steefel, Ph.D., Assistant Professor of History
 J. Warren Stehman, Ph.D., Associate Professor of Economics
 Henry N. Stephens, Ph.D., Assistant Professor of Chemistry
 George M. Stephenson, Ph.D., Assistant Professor of History
 Thomas E. Steward, B.A., Assistant Professor of Journalism
 Elmer E. Stoll, Ph.D., Professor of English
 Andrew A. Stomberg, M.S., Professor of Scandinavian Languages and
 Literature
 August L. Strand, Assistant Professor of Entomology
 Lucy A. Studley, M.A., Assistant Professor of Home Economics
 Emerson G. Sutcliffe, Ph.D., Assistant Professor of English

FACULTY

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- William W. Swanson, B.A., M.S., Assistant Professor of Physiology
David F. Swenson, B.S., Professor of Philosophy
John T. Tate, Ph.D., Professor of Physics
Nelson W. Taylor, Ph.D., Assistant Professor of Chemistry
George A. Thiel, Ph.D., Assistant Professor of Geology and Mineralogy
Joseph M. Thomas, Ph.D., Professor of English and Chairman of the
Department of English
Faith Thompson, Ph.D., Assistant Professor of History
Josephine E. Tilden, M.S., Professor of Botany
Alice J. H. Tolg, M.D., Assistant Professor of Physical Education for
Women
Anthony L. Underhill, Ph.D., Associate Professor of Mathematics
Roland S. Vaile, M.A., Professor of Economics
Joseph Valasek, Ph.D., Associate Professor of Physics
Marion L. Vannier, R.N., Associate Professor of Nursing and Director of
School of Nursing
John H. Van Vleck, Ph.D., Professor of Physics
Cortlandt van Winkle, Ph.D., Assistant Professor of English
Maurice B. Visscher, Ph.D., Assistant Professor of Physiology
E. Marion Wade, M.A., Assistant Professor of Preventive Medicine and
Public Health
Frederick C. Wagner, M.A., Associate Professor of Marketing
Warren C. Waite, Ph.D., Associate Professor of Economics
William G. Walker, Captain, Infantry, Assistant Professor of Military
Science and Tactics
Wilson D. Wallis, Ph.D., Professor of Anthropology
Frank K. Walter, M.A., M.L.S., Professor of Library Methods, University
Librarian
Marion Weller, B.A., Associate Professor of Textiles
Albert B. White, Ph.D., Professor of History
Harold A. Whittaker, B.A., Assistant Professor of Preventive Medicine
and Public Health
Porter P. Wiggins, Captain, Infantry, Assistant Professor of Military
Science and Tactics
Norman Wilde, Ph.D., Professor of Philosophy and Head of the Depart-
ment of Philosophy
John J. Willaman, Ph.D., Associate Professor of Plant Chemistry
Elmer E. Young, Assistant Professor of Fine Arts
Jeremiah S. Young, Ph.D., Professor of Political Science
Anthony Zeleny, Ph.D., Professor of Physics
Carle C. Zimmermann, Ph.D., Assistant Professor of Sociology
Otto F. Bradley, B.A., Lecturer in Sociology
Joanna C. Colcord, M.S., Lecturer in Sociology
Monica K. Doyle, B.A., Lecturer in Sociology
Belle Mead, M.A., Lecturer in Sociology
Edward F. Waite, B.A., LL.M., Lecturer in Sociology
Mary P. Wheeler, Lecturer in Sociology
Helen A. Young, B.S., Lecturer in Sociology

- Amy E. Armstrong, M.A., Instructor in English
 Emily A. Babcock, M.A., Instructor in Latin
 Emma Bach, M.A., Instructor in German
 David R. Blanpied, B.A., Instructor in Romance Languages
 Harold C. Blote, B.A., Instructor in Philosophy
 Else H. Bockstruck, B.S., Instructor in Physical Education for Women
 Alfred Brandt, Master Sergeant, Infantry, Instructor in Military Science
 and Tactics
 Carlotta M. Brown, Instructor in Millinery
 Laurence H. Cady, B.S., M.D., Instructor in Preventive Medicine and
 Public Health
 S. Elizabeth Carlson, Ph.D., Instructor in Mathematics
 Muriel B. Carr, Ph.D., Instructor in English
 John A. Cederstrom, Ph.B., Instructor in Zoology
 Irene Clayton, B.S., Instructor in Physical Education for Women
 Mary Starr Conger, Instructor in Physical Education for Women
 John Coop, Sergeant, Infantry, Instructor in Military Science and Tactics
 E. P. Crossen, M.S., Instructor in Agricultural Economics
 William Dehorn, Ph.D., Instructor in German
 Frances del Plaine, M.A., Instructor in English
 Grace E. Denny, B.S., Instructor in Physical Education for Women
 Ernest M. Dopp, M.A., Instructor in Botany
 Alexandre Duvoir, Instructor in Oboe
 Adella Eppel, M.S., Instructor in Home Economics
 Christian Ereck, Instructor in Cello
 Helen Irene Erickson, R.N., Instructor in Nursing
 Hally J. Fisher, R.N., Instructor in Preventive Medicine and Public Health
 Margaret Gable, M.A., Instructor in Rhetoric
 Dorothy P. Gary, M.A., Instructor in Sociology
 Thaddeus Giddings, Instructor in Public School Music
 Bueford M. Gile, M.A., Instructor in Agricultural Economics
 Vetta Goldstein, Instructor in Drawing and Design
 Ethel R. Gorham, M.A., Instructor in Home Economics
 Richard A. Graves, M.A., Instructor in Economics
 Margaret C. Gray, B.A., Instructor in Secretarial Studies
 George Grisez, Instructor in Clarinet
 Madeleine Guillemin, M.A., Instructor in Bacteriology and Immunology
 Marguerite Guinotte, Brevet Supérieur, Certificat d'Aptitude Pédagogique,
 M.A., Instructor in Romance Languages
 J. Roy Haag, M.S., Instructor in Agricultural Biochemistry
 Ford P. Hall, B.A., B.C.L., Instructor in Political Science
 H. Orin Halvorson, B.S., Ch.E., Instructor in Bacteriology
 Wheeler Hawley, M.A., Instructor in Romance Languages
 Donald C. Heath, B.S. (Arch.), Instructor in Architecture
 F. Lincoln D. Holmes, M.A., Instructor in Public Speaking
 Charles B. Howe, M.A., Instructor in Agricultural Economics
 Thomas P. Hughes, Instructor in Mechanical Engineering
 Carlyle Jacobson, B.A., Instructor in Psychology

FACULTY

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- Michael Jalma, Band Master
Arnold V. Johnston, M.A., Instructor in Political Science
Blanche Kendall, Instructor in Music
Helen M. Kepler, M.A., M.D., Instructor in Anatomy
Joseph T. King, M.A., M.D., Instructor in Physiology
Agnes Kolshorn, M.A., Instructor in Home Economics
Richard L. Kozelka, M.A., Instructor in Economics
Pauline Lane, B.A., Instructor in Physical Education for Women
Faith Leonard, B.S., Instructor in Secretarial Studies
Richard Lindenhahn, Instructor in French Horn
Winslow H. Loveland, M.A., Instructor in English
Reuel I. Lund, C.P.A., M.A., Instructor in Accounting
Margaret E. Macgregor, M.A., Instructor in English
J. Lewis Maynard, B.A., Instructor in Chemistry
Robert E. Maxwell, M.A., Instructor in Economics
John H. Moffett, M.E., Instructor in Mechanical Engineering
Ethel M. Mygrant, M.S., Instructor in Botany
Elizabeth Nissen, M.A., Instructor in Romance Languages
Ada M. Olsen, Instructor in Nursing
Fern Osbeck, B.S., Instructor in Home Economics
J. Henry Owens, M.A., Instructor in Romance Languages
Helen Chelsey Peck, R.N., Instructor in Public Health Nursing
Dayton A. Rogers, Instructor in Machine Shop Practice
W. Martin Sandstrom, Ph.D., Instructor in Agricultural Biochemistry
Karl Scheurer, Instructor in Music
I. Irene Sell, M.S., Instructor in Home Economics
Miles Sery, Instructor in Tuba and Cornet
Mary Cynthia Smith, B.A., Instructor in Medical Social Service
Walter R. Smith, B.A., Instructor in Physical Education for Men and
Director of Intramural Athletics
Robert L. Starkey, Ph.D., Instructor in Bacteriology
Clyde W. Stephens, Instructor in Piano
Mary A. Tebbets, B.A., Instructor in Medical Social Service and Director
of the Division of Medical Social Service
Gertrude I. Thomas, Instructor in Dietetics
Ella A. M. Thorp, B.A., Instructor in Mathematics
Niels Thorpe, Instructor in Physical Education for Men
Arturo Torres-Riosco, M.A., Certificado de Pedagogia, Instructor in
Romance Languages
George B. Watts, M.A., Instructor in Romance Languages
Robert M. Weidenhammer, Ph.D., 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
Vernon Young, Instructor in Botany
Nina L. Youngs, B.A., Instructor in Economics

GENERAL INFORMATION

Admission as regular students.—To be admitted to regular standing in the College of Education students must be able to satisfy one of the following requirements:

a. Completion of the requirements for admission to the Senior College of the College of Science, Literature, and the Arts, or of the College of Agriculture, Forestry, and Home Economics, during which time at least 90 credits and 90 honor points shall have been earned. An introductory course in general psychology must be included.

b. The College of Education grants 90 credits to graduates of the advanced graduate course of Minnesota state teachers colleges.

c. In the following four-year specialized curricula students may register in the College of Education in the freshman year, provided they have completed the requirements for admission to the University:

Art Education	Physical Education for Men
Industrial Education	Physical Education for Women
Nursing Education	Public School Music
Occupational Therapy	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. 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.

All courses of a special curriculum should be completed, altho it may not always be possible to complete them in the order listed.

Admission as unclassified students.—The College of Education grants to graduates of the advanced Latin and the advanced English courses of the Minnesota state teachers colleges, 63 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 112½ credits in the College of Education.

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.

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 Student Personnel Committee of this college.

Special fees.—All special methods and practice teaching courses carry a fee of \$1 per credit hour.

Appointments Bureau.—Graduates of the College of Education qualifying for the university 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, 206 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.

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 12 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 6 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 work may be pursued during summer sessions. The Master's degree may ordinarily be completed in four summer sessions. For full statement of regulations, consult the Graduate School bulletin.

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.

The degree of bachelor of science.—Students graduating from the College of Education will receive the degree of bachelor of science.

Candidates for this degree may major in any department listed on page 18.

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*. The final authority for making this award rests with the faculty.

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*. The final authority for making this award rests with the faculty.

¹ The honor point ratio is calculated by dividing the total number of honor points earned by the total number of credits earned.

COURSES OF STUDY

GENERAL REQUIREMENTS

AMOUNT AND GRADE OF WORK

a. During his entire course the student must earn (1) 180 credits in addition to 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 180 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 for a teacher's certificate; (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.

b. 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.

c. A maximum of 27 credits is elective from courses in agriculture and home economics except in the special curricula in those fields.

d. 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 Student Personnel Committee.

e. 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.

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.

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*.

The University Teacher's Certificate

The university teacher's certificate is legally valid for two years as a first grade professional certificate. After two years of successful teaching experience in Minnesota, the certificate may become a life certificate, upon

endorsement by the State Department of Education and the president of the University.

The university teacher's certificate is granted only to graduates of the College of Education and to students completing work for a graduate degree who have satisfied the requirements of a special curriculum as outlined in this bulletin. Students expecting to receive this certificate upon graduation shall be registrants in the College of Education from the beginning of the junior year. Students desiring the teacher's certificate in home economics or agriculture shall also be registrants in the College of Agriculture, Forestry, and Home Economics.

The university teacher's certificate is offered in the following subjects:

Agriculture	Natural Science
Art Education	Norwegian
Botany	Nursing Education
Chemistry	Nursery School or Kindergarten Education
Clinical Psychology	Occupational Therapy
Commercial Education	Physical Education for Men
Educational and Vocational Guidance	Physical Education for Women
Educational Psychology	Physics
Elementary Education	Political Science
Elementary School Supervision	Public School Administration
English	Public School Music
French	School Health Work
Geography	Social Studies
German	Spanish
History	Swedish
Home Economics	Teaching Subnormal Children
Industrial Education	Teacher Training in Elementary Education
Latin	Zoology
Mathematics	

All students without teaching experience, desiring a university teacher's certificate, will be required to comply with the prescribed requirements for the university teacher's certificate in a secondary school subject, or the specific requirements of a special curriculum. Such students will also be required to complete a two years' course leading to the degree of bachelor of science. No certificate can be granted except with 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 a certificate 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 the University Teacher's Certificate in a Secondary School Subject

In order to receive the Bachelor's degree and the university teacher's certificate in secondary subjects, students not completing a specialized curriculum as set forth in this bulletin will be required to pursue in addi-

COURSES OF STUDY

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tion to one academic major and one academic minor the following professional courses.

Subject	Title	Credits
Ed.Psy. 55	Educational Psychology	3
Ed.T. 15	Technique of High School Instruction.....	3
Ed.Ad. 65	The High School.....	3

In addition the student must complete a *Special Methods and Practice Teaching Course* (9 credits) in his major field and a course in Special Methods in his minor field (3 credits).

Graduates of normal schools cannot take for credit Psychology 1 or 2.

To complete the professional requirements of 26 quarter credits required for this degree and teacher's certificate the candidate will elect additional credits, under faculty advisement, from among the following subjects:

H.Ed. 1	History of Education
H.Ed. 3	Educational Sociology
H.Ed. 5	Public Education in United States
H.Ed. 101	Foundation of Modern Education
H.Ed. 102	History of Modern Secondary and Higher Education
H.Ed. 103	History of Modern Elementary Education
Ed.Ad. 113	High School Curriculum
Ed.Ad. 121	Educational Advising of Women and Girls
Ed. Ad. 124	Educational Administration
Ed.Ad. 133	Guidance in Secondary Schools
Ed.Ad. 167	Junior High School
Ed.Ad. 169	Extra-curricular Activities
Art.Ed. 89	Application of Esthetic Theory to Art Education
Ind.Ed. 105	Industrial Education
H.E.Ed. 143	Home Economics Curricula
Ed.T. 110	Educational Diagnosis in Secondary Education
Ed.T. 193	Foundations of Secondary School Methods
Ed.Psy. 134	Mental Tests
Ed.Psy. 146	Child Guidance
Ed.Psy. 157	Psychology of Child Development
Ed.Psy. 159	Psychology of Personality

In addition to the special methods and practice teaching course in the subject in which the student wishes to do practice teaching, he must satisfy the departmental requirement in the teaching subject as listed in the bulletin of the College of Education, Part II.

The courses prerequisite to the special methods and practice teaching courses should be completed by the end of the junior year. Arrangements for practice teaching in academic subjects should be made through Mr. Boardman, the principal of the University High School, and in the special subjects through the following major advisers:

Agricultural Education.....	A. V. Storm
Art Education.....	Ruth Raymond
Home Economics.....	Ella J. Rose
Industrial Education.....	Homer J. Smith
Physical Education for Men.....	L. F. Keller
Physical Education for Women.....	J. Anna Norris
Public School Music.....	Carlyle Scott, A. Pepinsky
Subnormal Education.....	John G. Rockwell

Arrangements for practice teaching should be made before the close of the quarter immediately preceding the quarter in which the practice teaching is to begin.

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 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 university teacher's certificate. The satisfactory completion of the fifth year's work entitles the student to the Master's degree and the 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 certificate in administration or supervision must complete two teaching minors during the four years of undergraduate work, which shall include 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 UNIVERSITY CERTIFICATE IN ADMINISTRATION OR SUPERVISION

Freshman Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
English A	5	English B	5	English C	5
History 1	5	History 2	5	Political Sci. 1	5
Natural Science	5	Natural Science	5	French or German ¹	5
Military Science		Military Science		Military Science	
Physical Education		Physical Education		Physical Education	
	—		—		—
	15		15		15

Sophomore Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Psychology 1	3	Psychology 2	3	Sociology 1	5
Economics 8	3	Economics 9	3	Electives ²	10
Electives ²	9	Electives ²	9	Military Science	
Military Science		Military Science		Physical Education	
Physical Education		Physical Education			
	—		—		—
	15		15		15

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

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Ed.Psy. 55, Ed.Psy.	3	Ed.T. 15, Tech. of H.S.		Ed.Ad. 75, The Ele-	
Ed. Psy. 60, Statis. Meth. 2		Instruc.	3	mentary School	3
Electives ³	10	Electives ³	12	Ed.Ad. 65a, The H.S. ...	3
	—		—	Electives ³	9
	15		15		15

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 schedule in the bulletin of the College of Science, Literature, and the Arts, Part I, page 6.)

² The electives should be selected in view of the teaching minor requirements.

³ Selection under guidance from the following additional courses is recommended: Ind. Ed. 105; Industrial Education 3; Public Health 53, Elements of Preventive Medicine 3; Public Speaking and Journalism 6; Physical Education 97, Organization and Administration of Physical Education 3; Agricultural Administration 151, 3; Ed. Ad. 158, Organization for Supervision 3; H. Ed. 3, Educational Sociology; H. Ed. 103, History of Education.

COLLEGE OF EDUCATION

Senior Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Spec. Meth. and Pract.		Spec. Meth. and Pract.		Spec. Meth. and Pract.	
Teach.	3	Teach.	3	Teach.	3
Ed.Ad. 124, Ed. Admin.	3	Ed.Ad. 125, Ed. Admin.	3	Ed.Ad. 156, Prac. Sup...	3
Ed.Psy. 134, Men. Tests	2	Electives ¹	9	Ed.Ad. 123, H.S. Sup...	3
Ed.Ad. 150, Supervision	2			Electives ¹	6
Electives ¹	5				
	<hr/> 15		<hr/> 15		<hr/> 15

II. THREE-YEAR CURRICULUM FOR HIGH SCHOOL PRINCIPALS

Major Adviser: L. V. Koos

Junior Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Ed.Psy. 55, Ed.Psy. ...	3	Ed. 102, Hist. of Mod.		Ed.T. 15, Tech. of Teach.	3
Ed.Psy. 60, El. Statis.		Sec. and Higher Ed...	3	Ed.Ad. 65a, The High	
Meth.	2	Electives ¹	12	School	3
Electives ¹	10			Ed.Ad. 75, The Elemen-	
	<hr/> 15		<hr/> 15	tary School	3
				Electives ²	6
					<hr/> 15

Senior Year

Spec. Meth. and Pract.		Spec. Meth. and Pract.		Spec. Meth. and Pract.	
Teach.	3	Teach.	3	Teach.	3
Ed.Ad. 124, Ed. Admin.	3	Ind.Ed. 105, Industrial		Ed.Psy. 111, Ed. Meas.	3
Ed.Psy. 134, Men. Tests		Ed.	3	Ed.Ad. 123, Supvr. of	
and Men. Diag.	2	Ed.Ad. 113, High Sch.		H. S. Instr.	3
Ed.Ad. 150, Supervision.	2	Curriculum	3	Electives ¹	6
Ed.Ad. 133, Guidance ..	2	Ed.Ad. 134, Guidance ..	2		
Electives ¹	3	Electives ¹	4		
	<hr/> 15		<hr/> 15		<hr/> 15

III. THREE-YEAR CURRICULUM FOR ELEMENTARY SCHOOL SUPERVISORS

The completion of the first two years of this curriculum entitles one to a certificate for teaching in the elementary and not in the high school.

Major Adviser: Leo J. Brueckner

Required Courses

	Credits
Ed.Psy. 56 Educational Psychology	3
Ed.Psy. 60 Introduction to Statistical Methods.....	3
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 Teaching.....	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	<hr/> 34

¹ See page 21, footnote 3.

Ten hours of electives from courses listed below

Course	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 Teaching of Reading in Elementary School.....	3
Ed. Ad. 152 Supervision—Adjustment of Schools to Individual Differences...	3
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. 158 Organization for Supervision.....	2
Ed.Ad. 168 The Junior High School	2
Special methods courses in elementary and junior high school teaching.	
Total required credits.....	44
<i>18 credits in each of two of the following fields or such others as may be approved: English literature, history, languages, political science, science, mathematics, geography, art, music or physical education.....</i>	<i>36</i>
General electives	10
	—
Total credits required for certificate.....	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

Major Adviser: A. V. Storm

GENERAL STATEMENT

Students who desire to teach agriculture in the high schools or other secondary schools may, upon graduation, obtain the university teacher's certificate in addition to the regular college degrees, by registering in both the College of Education and the College of Agriculture, Forestry, and Home Economics, in the junior and senior years. It is desirable to consult the head of the Department of Agricultural Education earlier to avoid difficulties that may arise in the program of specialization. The university teacher's certificate entitles the holder to teach agriculture in any Minnesota high school for two years. Upon satisfactory completion of the teaching of these two years, the holder may have the certificate renewed

as a life certificate by approval of the president of the University and the State Commissioner of Education.

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 COURSES

(Required for university teacher's certificate in agriculture)

For the junior and senior years the following curriculum has been approved by the College of Agriculture, Forestry, and Home Economics, and the College of Education and is required of all students who are candidates for the university teacher's certificate in agriculture.

NOTE.—The Agricultural Education faculty recommends that students preparing to teach choose their electives from the elective courses in agricultural education or from such of the following recommended electives as will best complete a well-balanced preparation in subject-matter.

- Agricultural Engineering 12, Farm Machinery
- Agronomy 122, Special Crops
 - 132, Farm Crops Plant Breeding
 - 133, Judging and Grading Grain and Hay
- Forestry 27, Farm Wood Lot and Windbreaks
- Plant Pathology 9, Weeds and Seed Testing
- Poultry 1 (or equivalent)
- Publications and Rural Journalism 19, Publicity

JUNIOR YEAR

SENIOR YEAR

Fall Quarter

- | | |
|--|--|
| <p>Agr. Ed. 21f, Vocational Education, 3</p> <p>Agron. 121f, Cereal Crops, 3 (Agron. 1, Bot. 9 cred.)</p> <p>An. Husb. 2f, Types and Breeds of Livestock, 3 (An. Husb. 1)</p> <p>Dy. Husb. 101f, Milk Production, 5 (Dy. Husb. 1)</p> <p>Hort. 6f, Fruit Growing, 3 (May be omitted if completed as a part of the general requirements)</p> <p>Electives, 0 or 3</p> | <p>Agr. Econ. 40f,s, Principles of Marketing Organization, 3 (Agr. Econ. 2)</p> <p>Agr. Ed. 181f, Teaching Agriculture, 5 (See Part II.)</p> <p>Agron. 102f,w, Farm Management Organization, 3 (Agron. 1, Agr. Econ. 2, Soils 4)</p> <p>Dy. Husb. 6f, Judging Dairy Cattle, 1 (Dy. Husb. 1)</p> <p>Pl. Path. 1f, Plant Pathology, 5 (Bot. 9 cred.)</p> |
|--|--|

Winter Quarter

- | | |
|--|--|
| <p>Agron. 131f,w, Principles of Genetics, 3 (Bot. or Zool. 9 cred.)</p> <p>An. Husb. 3w, Types and Breeds of Livestock, 3 (An. Husb. 2)</p> <p>Ent. 3f,w, Economic Entomology, 3 (Zool. 16)</p> <p>Vet. 9w, Veterinary Studies</p> <p>Electives, 5</p> | <p>Agr. Ed. 182w, Teaching Agriculture, 5 (See Part II.)</p> <p>Agron. 103w,s, Farm Management Organization, 3 (Agron. 102)</p> <p>Sociol. 14f,w,s, Rural Sociology, 3</p> <p>Electives, 6</p> |
|--|--|

Spring Quarter

Agr. Ed. 11f,w,s, Principles of Vocational Education, 3	Agr. Ed. 42f,w,s, Supervised Teaching Experience, 3 (See Part II.)
Agr. Eng. 40f,s, Mechanical Training I, 3	Agr. Ed. 183s, Teaching Agriculture, 5 (See Part II.)
Agron. 123s, Forage and Fiber Crops, 3 (Agron. 1, Bot. 9 cred.)	Electives, 9
An. Husb. 8s, Fundamentals of Breeding and Management, 5	
Vet. 10s, Veterinary Studies, 3 (Vet. 9)	

ART EDUCATION

A FOUR-YEAR CURRICULUM IN THE COLLEGE OF EDUCATION

Major Adviser: Ruth Raymond

The following special curriculum leads to the degree B.S., with a state teacher's certificate in art education. Positions open to graduates are largely departmental in elementary schools, and in junior and senior high schools. 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 with a teacher's certificate in art may register in the Department of Art Education at the beginning of their freshman year.

Requirements

- 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.
- 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 and 12 credits selected from the following courses:
 - The Elementary School, Ed.Ad. 75
 - Educational Sociology, H.Ed. 3
 - History of Modern Elementary Education, H.Ed. 103
 - Brief Course in History of Education, H.Ed. 1
 - The High School, Ed.Ad. 65
 - Introduction to Statistical Methods, Ed. Psy. 60
 - Organization of Supervision, Ed.Ad. 181
- 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.

¹ Course 11 in Industrial Education may be chosen as a handicraft.

² These credits may be chosen from the following courses: Art Ed. 55, 56, 57, 70, 153, 154; Art Hist. and Int. 1, 2; H.E. 161; Gr. 42, 43, 44, 45.

4. Required supporting courses: a minimum of
- 9 credits in English composition
 - 6 credits in English literature
 - 10 credits in history, if a minor of high school history has not been presented for entrance
 - 10 credits in a natural science, if a minor of a laboratory science has not been presented for entrance
(Orientation will meet this requirement)
 - 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 profitably may be spent for art courses beyond the minimal requirement listed above.

Art minor:

- 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.

COMMERCIAL EDUCATION

Major Advisers, R. A. Stevenson, Ellen 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.

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.

The junior and senior years in the College of Education consist of certain prescribed courses in education and commerce, considerable leeway being left for electives in the two fields and in other departments.

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.

For students preparing to become teachers of shorthand and typewriting. Secretarial Training, to be approved by the adviser, is required.

JUNIOR COLLEGE

1. 9 credits in English (Composition 4-5-6).
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 General Economics (Economics 6-7).
6. 6 credits in General Psychology (Psychology 1-2).
7. 3 credits in Elements of Accounting (Econ. 20).*
8. 6 credits in Principles of Accounting (Economics 25-26).
9. 5 credits in Elements of Statistics (Economics 14).
10. 26 credits of electives, for which the following are especially recommended:
continuation of a language begun in high school, public speaking, philosophy,
additional social science.

COLLEGE OF EDUCATION

Junior Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Econ. 51, Business Law.	3	Ed.Psy. 55, Educational		Ed.T. 15, Technique of	
Electives	12	Psychology	3	Teaching	3
		Econ. 52, Business Law.	3	Ed.Ad. 65, The High	
		Electives	9	School	3
				Econ. 53, Business Law.	3
				B.A. 139, Advanced	
				General Accounting ..	3
				Electives	3 to 5

Senior Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Ed.T.80, Teachers' Course		Ed.T.81, Teachers' Course		Ed.T.82, Teachers' Course	
in Commercial Educa-		in Commercial Educa-		in Commercial Educa-	
tion	3	tion	3	tion	3
Geog. 61, Geography of		Econ. 141, Monetary and		Geog. 102, Trade Routes	
Commercial Production	5	Banking Policy	3	and Trade Centers...	3
Econ. 161, Labor Prob-		Electives	8 to 11	B.A. 86, Office Man-	
lems	3			agement	3
Electives	3 to 6			Econ. 85, Economics of	
				Marketing	3
				Electives	3 to 5

Recommended Electives

	Credits
History of Education (H.Ed. 1).....	5
Educational Sociology (H.Ed. 3).....	3
Secretarial Training { Shorthand (Econ. 30-31, 40)	13
{ Typewriting (Econ. 32-33)	2
Advertising (Psychology 56 and B.A. 88).....	6
Industrial 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

*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.

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 these curricula will also secure two teaching minors in meeting the requirements for the university 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, Willard C. Olson

For a Major

	Course	Credits
Psy. 1-2	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
Ed.Psy. 159	Psychology of Personality.....	2
	Electives in Educational Psychology.....	7
	Total	30

COURSES OF STUDY

29

For a Minor

Psy. 1-2	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. 15, Technique of High School Instruction, 3 credits; and practice teaching and special methods, 9 credits.

II. CLINICAL PSYCHOLOGY

Major Adviser: John 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	Credits
Psy. 1-2	General Psychology	6
Psy. 4-5	Introd. Lab. Psychology.....	4
Psy. 144-145	Abnormal Psychology	6
Soc. 1	Introduction to Sociology.....	5
Soc. 51	Occurrence of the Socially Inadequate.....	3
Soc. 52	Elementary Case Work.....	3
Soc. 53	Elements of Criminology.....	3
Soc. 60	Child Welfare	3
Soc. 90-91-92	Elementary Field Training.....	6
Ed.Psy. 55	Educational Psychology	3
Ed.Psy. 116 or 60	Statistical Methods	3
Ed.Psy. 134	Mental Tests	2
Ed.Psy. 143-144	Individual Mental Examination.....	4
Ed.Psy. 146	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. 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, Helen D. Bragdon, Grayson N. Kefauver

For a Major

	Course	Credits
Psy. 1-2	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. 137	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. 51	Occurrence of the Socially Inadequate.....	3
Soc. 52	Elementary Case Work.....	3
Soc. 90	Elementary Field Training in Case Work.....	2
Ed.Ad. 133	Guidance in Secondary Schools, or	
Ind.Ed. 110	Guidance in the Schools, or	
Ed.Ad. 121	Educational Advising of Women and Girls.....	2 or 3
	Electives	5
	Total	45 or 46

For a Minor

Course	Credits
Psy. 1-2 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 Occurrence of the Socially Inadequate	
Soc. 51 Introduction to Sociology.....	5
Ed.Ad. 65 The High School.....	3
Ed.Ad. 133 Guidance in Secondary Schools, or	
Ind.Ed. 110 Guidance in the Schools, or	
Ed.Ad. 121 Educational Advising of Women and Girls.....	2 or 3
Total	28 or 29

In addition to the above major or minor requirements students will take Ed. 15, Technique of High School Instruction, 3 credits; and practice teaching and special methods, 9 credits.

ELEMENTARY EDUCATION

PRESCRIBED CURRICULUM FOR THE UNIVERSITY CERTIFICATE FOR
ELEMENTARY SCHOOL TEACHERS

Major Adviser: L. J. Brueckner

Students who have been graduated from a two-year normal training course or its equivalent and who wish to work for the Bachelor's degree in education and the university teacher's certificate for elementary school teachers may enroll in the College of Education. The courses listed below as required presuppose a full two-year normal training course.

	Required Courses	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. 75	The Elementary School.....	3
Ed.Ad. 119-120	Elementary School Curriculum.....	4
Ed.Ad. 124	Educational Administration	3
Ed.Ad. 150	Elementary School Supervision.....	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. 152	Supervision—The Adjustment of Schools to Individual Differences	3
Ed.Ad. 153	Supervision of English in the Elementary Schools.....	3
Ed.Ad. 155	Supervision of Arithmetic in the Elementary Schools.....	3
Ed.Ad. 167	The Junior High School.....	3
Ed.Soc. 3	Educational Sociology	3
Hist.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 teaching	
	Total required credits.....	36
	18 credits in each of two of the following fields or such others as may be approved: English, history, languages, political science, science, mathematics, geography, art, music, physical education	36
	General electives	18
	Total credits required for certificate.....	90

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 and all students who are candidates for the university teacher's certificate 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 who expects to obtain the university endorsement for a 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 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 FOR THE UNIVERSITY TEACHER'S CERTIFICATE 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

SENIOR YEAR

- | | |
|--|---|
| Ed. Psy. 55f,w,s, Ed. Psv., 3 (Psy. 1-2)
or Agr. Ed. 11f,w,s, Principles of Vocational Education, 3 | H. E. Ed. 49f,w,s, Observation and Teaching, 8 (H. E. Ed. 42) |
| 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. 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) | |

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 Courses H. E. 80 and 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. 80)
 H. E. 85f,w,s, Food Marketing, 2 (Agr. Econ. 1 or parallel)
 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. 51, 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) or Pub. and Rur. Jour. 20f, Writing for the Press, 3 (Rhet. 9 cred.)

2. *Special courses* as prescribed by the curriculum of the line of specialization selected. See special requirements on pages 32-35.

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. 35 parallel, 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, or parallel, Prev. Med. 52, home practice in foods and cookery; must parallel H. E. 34)
 H. E. 170f,w,s, Nutrition of the Family, 3 (Agr. Biochem. 4, H. E. 80 or 81)
 H. E. 171f,w,s, Child Nutrition, 3 (H. E. 170 or parallel, H. E. Ed. 40)

2. *Special courses* as prescribed by the curriculum of the line of specialization selected. See special requirements on pages 32-35.

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 for the University Teacher's Certificate 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

¹A special project in the field of home management may be substituted or required at the discretion of the Division of Home Economics.

- H. E. 13f,w,s, Clothing Planning and Construction, B, 3 (H. E. 3, 11 or equivalent, 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. 15of,w,s, Art History and Appreciation, 3 (H. E. 51 or equivalent)

b. *Elective courses.*—Five to ten credits must be elected from Group A and enough credits from Group B to make a total of sixteen credits.

Group A

Hist. 1-2 or 2-3

Pol. Sci. 1

Group B

Bot. 1

Child Wel. 60

Eng. 31-32 or 33, 73-74

H. E. 55, 57, 61, 182, 195, 154, 73 or 75 or 179 or 173

H. E. Ed. 142

Jour. 13, 41, 65, 69

Lib. Methods 1

Psy. 3, 56 or 60

Rhet. 28, 32, 33, 34

Zool. 183

TEACHERS' CURRICULUM IN HOME ECONOMICS EXTENSION

To those courses listed under Requirements for the University Teacher's Certificate 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 or equivalent, 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. 15of,w,s, Art History and Appreciation, 3 (H. E. 51 or equivalent)

b. *Elective courses.*—Ten credits must be elected from the following courses:

Agr. Ed. 75

Agr. Eng. 34

Child Wel. 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 for the University Teacher's Certificate 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 or equivalent)
 and
 H. E. 179w,s, Readings in Nutrition, 2 (H. E. 170)
 H. E. 182f,w,s, Experimental Cookery, 3 (H. E. 80)
 or
 H. E. 183f,w,s, Experimental Cookery, 5 (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)

b. *Elective courses.*—Fifteen additional credits must be elected from the following courses:

- Agr. Biochem. 2, 106, 108
 Agr. Eng. 34, 35
 Chem. 110
 Eng. 31-32 or 33, 73-74
 French 1, 2, 3, 8, 9, 10
 German 1, 2, 3, 4, 24, 25, 26, 27, 28, 29
 Hist. 1-2 or 2-3
 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 for the University Teacher's Certificate 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, or equivalent, 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 or equivalent)

b. *Elective courses.*—Eleven additional credits must be added from the following courses:

- Agr. Biochem. 2
 Bot. 8
 H. E. 17 or 18, 55, 57, 107, 154, 195

TEACHERS' CURRICULUM IN RELATED ART

To those courses listed under Requirements for the University Teacher's Certificate 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)
- Art Ed. 4f-5w-6s, Still Life, 3
- Art Ed. 7f-8w-9s, Sketch, 3
- Art. Ed. 29f-30w-31s, Sketch, Course II, 3 (Art Ed. 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 or equivalent, 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 or equivalent)
- 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 EDUCATION¹

FOUR-YEAR CURRICULUM IN THE COLLEGE OF EDUCATION

Major Adviser: Homer J. Smith

Freshman Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Eng. Af Fresh. Eng....	5	Eng. Bw Fresh. Eng...	5	Eng. Cs Fresh. Eng....	5
Ind. 40f, Analysis.....	2	Ind. 42w, Course Organ-		Ind. 25s, Lit. of Ind. Ed.	2
Ind. 20f, Ind. Hist....	2	ization (prereq., 40f).	2	Shopwork	2
Shopwork	4	Shopwork	3	Drawing	3
Drawing	2	Drawing	3	Electives	3
		Electives	2		

Sophomore Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Econ. 6f, Prin. of Econ.	5	Econ. 7w, Prin. of Econ.	5	Soc. 1s, Introd. to Soc.	5
Psy. 1f, Gen. Psy.....	3	Psy. 2w, Gen. Psy.....	3	Ed. Psy. 55, Ed. Psy.	
Ind. 60f, Soc. Agencies		Ind. 61w, Soc. Sig. of		(prereq., 6 cred. in	
in Ed.	2	Voc. Ed. (prereq., 60)	2	psy.)	3
Shopwork	3	Shopwork	3	Drawing	2
Electives	2	Electives	2	Electives	5

¹Part II of the College of Education bulletin lists some courses of this department which are not parts of this curriculum. Examples, Ind. 10 and Ind. 105.

Junior Year

FALL	Credits	WINTER	Credits	SPRING	Credits
Ind. 80f, Gen. Ind. Tr. (prereq., 10 cred. in ed.)	2	Ed. 3w, Ed. Soc. (prereq., Soc. 1)	3	Ind. 14s, Methods in Drawing (10 cred. in draw)	2
124f, Ed. Admin. (prereq. 10 cred. in ed.)	3	Ind. 70w, Methods in Shop Subjects (prereq., 15)	2	Ind. 66s, Methods in Rel. Subj. (prereq., 40)	2
15f, Technique of Teaching (prereq., Ed. 55)	3	Ind. 30w, Graphic Presentation	2	Ed. 103s, Hist. of Elem. Ed.	3
Electives	7	167w, Junior High School (prereq., 10 cred. in ed. including Ed. 55)	2	168s, Junior High School	2
		Electives	6	Electives	6

Senior Year

FALL	Credits	WINTER	Credits	SPRING	Credits
Ind. 50f, Prac. Teach.	2	Ind. 51w, Prac. Teach.	2	Ind. 52s, Prac. Teach.	2
Ind. 170f, Admin. of Voc. Ed. (Day School)	2	Ind. 171w, Admin. of Voc. Ed. (Evening School)	2	Ind. 172s, Admin. of Voc. Ed. (Part Time Schools)	2
134f, Mental Tests (prereq., Ed. 55)	2	Ind. 110w, Guidance in the Schools (prereq., 134)	2	Psy. 130s, Voc. Psy. (6 cred. in psy.)	2
Electives	9	Electives	9	Electives	9

Required, as specified, 120 quarter credits. Advised electives, 60 quarter credits. Total 180 quarter credits.

Mathematics, science, art, and athletic coaching are appropriate elective fields. The requirement of 15 credits in shopwork and 10 in drawing (25 total) may be extended by election to a maximum of 45 credits total. Shop and drawing courses, in *wide variety*, are offered in the College of Engineering, in the University High School, and at the William Hood Dunwoody Industrial Institute. These courses should be taken under special advice and may be either extensive or intensive in resultant training.

Certain required courses of the curriculum and others acceptable as electives may be taken by correspondence and by extension lecture courses.

Those desiring evaluation of credits earned in other institutions, since high school graduation, should procure signed transcripts of such credit and mail them to the Department of Industrial Education, 218 Old Library Bldg.

NATURAL SCIENCE

Advisers: H. A. Erikson, A. W. Hurd

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 any 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 above the word *major* means any one of these four subjects.
2. Completion of 15 hours, from one to 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 courses 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

FALL		WINTER		SPRING	
	Credits		Credits		Credits
English A	5	English B	5	English C	5
Natural science	5	Natural science	5	Natural science	5
Foreign language	5	Foreign language	5	Foreign language	5

Sophomore Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Foreign language	5	Social science	5	Social science	5
Major	5	Major	5	Major	5
Psychology 1	3	Psychology 2	3	Natural science	5
Electives	3	Electives	3		

COLLEGE OF EDUCATION

Junior Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Major	5	Major	5	Technique of H. S. Inst. 3	
Natural science	5	Electives	11	Electives	12
Ed. Psychology 55.....	3				
Electives	3				

COLLEGE OF EDUCATION

Senior Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Natural science	5	Natural science	5	Teachers' Course 64	3
The High School (Ed.Ad. 65)	3	Teachers' Course 63	3	Electives	12
Teachers' Course 62	3	Electives	7 or 8		
Electives	4 or 5				

NATURAL SCIENCE COURSE WITH A MAJOR IN PHYSICS

JUNIOR COLLEGE

Freshman Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
English A	5	English B	5	English C	5
Natural science	5	Natural science	5	Foreign language	5
Mathematics 6	5	Mathematics 7	5	Mathematics 30	5

Sophomore Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Physics 3 and 4	4	Physics 23 and 24	4	Physics 43 and 44	4
Foreign language	5	Foreign language	5	Foreign language	5
Mathematics 50	5	Mathematics 51	5	Mathematics 52	5
Psychology 1	3	Psychology 2	3	Electives	2 to 3

COLLEGE OF EDUCATION

Junior Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Physics 33 and 34	4	Physics 134	3	Physics 124	3
Natural science	5	Natural science	5	Natural science	5
Ed. Psychology 55	3	Electives	8	Technique of H. S. Inst.	3
Electives	5			Electives	5

Senior Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Physics 144	3	Natural science	5	Natural science	3
The High School (Ed.Ad. 65)	3	Special Methods and Practice Teaching, T63	3	Special Methods and Practice Teaching, T64	3
Special Methods and Practice Teaching, T62	3	Electives	8	Electives	9
Electives	5				

FIVE-YEAR COURSES

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.

COURSES OF STUDY

FIFTH YEAR SEQUENCES

EDUCATION

No.	Title	Credits
Major:		
Ed.Psy. 190,191,192	Educational Psychology	9
Ed.Psy. 111f-112w	Educational Diagnosis	4
Hist.Ed. 102w	History of Modern Secondary Education.....	3
Ed. 208f	Methods of Educational Research.....	2
		18
Thesis		
Minor:		
Ed.Psy. 190,191,192		

BOTANY

No.	Title	Credits
Major:		
Bot. 113-114	Advanced Taxonomy	6
Bot. 118	Cytology	3
Bot. 131	Field Ecology	5
Bot. 141	Physical Phases of Plant Physiology.....	5
		19
Thesis		
Minor:		
Bot. 131 and 141		

CHEMISTRY

Prerequisite requirements for graduate work:

Organic Chemistry 51-52-53 (15 credits), in addition to introductory courses in General, Qualitative, and Quantitative Chemistry.

No.	Title	Credits
Major:		
Phys.Chem. 101-102-103	Physical Chemistry	9 to 15
Org.Chem. 103-104-105	Advanced Inorganic	9
		18
Minor:		
Org. Chem. 103-104-105		

PHYSICS

No.	Title	Credits
Major:		
Phys. 101-103-105	Theoretical Physics	15
Phys. 124	Pyrometry	3
Phys. 134w	Applied Optics	3
Phys. 144f	Electrical Measurements	3
		24
Minor:		
Phys. 122,132,142		

ZOOLOGY

No.	Title	Credits
Major:		
Zool. 109-110	General Physiology	10
Zool. 181-182	Embryology	6
Zool. 183	Genetics and Eugenics.....	3
		19
Thesis		
Minor:		
Zool. 181-182 or 181-182-183		

NURSING EDUCATION

Major Adviser: Marion L. Vannier

The following curriculum leads to a combined degree of bachelor of science in the College of Education and graduate in nursing. It is planned to prepare students for administrative and executive positions in hospitals, for teaching positions in schools of nursing, and for positions in public health nursing. Under the latter heading come such positions as the visiting nurse, the school nurse, the infant welfare nurse, and the rural public health nurse.

FIVE-YEAR COURSE CURRICULUM

*First Year*¹

FALL QUARTER		WINTER QUARTER		SPRING QUARTER	
	Credits		Credits		Credits
Rhet. 4 or A.....	3 or 5	Rhet. 5 or B.....	3 or 5	Rhet. 6 or C.....	3 or 5
Botany 1	5	Botany 2	5	Anatomy 2	3
Chem. 6, 9, or 1... 5 or 4		Chem. 7, 10, or 2... 5 or 4		Chem. 3 or elect... 4	
Electives	—	Electives	—	Electives	—
Total	15	Total	15	Total	15

*Second Year*¹

FALL QUARTER		WINTER QUARTER		SPRING QUARTER	
	Credits		Credits		Credits
Zool. 1	5	Zool. 2	5	Physiol. 4	5
Psy. 1	3	Psy. 2	3	Ed. Psy.	3
Hist.	5	Hist.	5	Bact. 51	5
Rhet. 18 or 12 or Pub.		Rhet. 18 or 12 or Pub.		Hist. of Nurs.....	1
Sp. 41	3	Sp. 42	3	Theory of Diet.....	1
	—		—	Lettering	1
Total	16	Total	16	Total	16

Third and Fourth Years

Students are registered in the School of Nursing during the third and fourth years, which consist of four quarters each. They are assigned to graded services for practical work and have a schedule of lectures and recitation courses in the associated hospitals.

Fifth Year

Students are registered in the College of Education during the last three quarters. The following curriculum is outlined for the year.

FALL QUARTER		WINTER QUARTER		SPRING QUARTER	
	Credits		Credits		Credits
Tech. of Teach.....	3	Spec. Methods	5	Prac. Teach.	5
Soc. 1	5	The High School.....	3	Hosp. Admin.	4
Elect. ²	8	Hosp. Prac. Teach....	2	Elect.	5
	—	Elect.	5		—
Total	16	Total	15	Total	14

¹ Registration in the first five quarters is in the Junior College. Registration in the spring quarter of the second year is in the School of Nursing.

² History of Education 1 and Educational Sociology 3 are suggested electives for this course.

NURSERY SCHOOL AND KINDERGARTEN EDUCATION

Major Adviser: John E. Anderson

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.

FOUR-YEAR NURSERY SCHOOL AND KINDERGARTEN CURRICULUM

Freshman Year

Dept. No.	Title	Credits			Prerequisites
		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
or					
Orient. 1-2	Orientation				
Pol. Sci. 1	American Government.....	..	..	5	None
Geog. 18	Introduction to Human Geography .....	..	..	5	None
Phys. Ed. 1-2-3	Elem. Phys. Training.....	0	0	0	None
Electives	.....	2	2	2	
		15	15	15	

Sophomore Year

Dept. No.	Title	Credits			Prerequisites
		F	W	S	
Psy. 1-2	General Psychology	3	3	..	None
Psy. 4-5	Introductory Lab. Psy.....	..	..	4	Psy. 1-2
Soc. 1	Introduction to Sociology...	5	..	..	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. 17-18	Sophomore Games and Folk Dancing	0	0	..	
Phys. Ed.	One other course in Physi- cal Education .....	..	..	0	
Electives	.....	0	3	4	
		15	15	15	

¹ For Art Ed. 7-8-9, Art Ed. 4-5-6 or Art Ed. 32, 35, 38 may be substituted.

COLLEGE OF EDUCATION

Junior Year

Dept. No.	Title	Credits			Prerequisites
		F	W	S	
Ed Ad.75	The Elementary School....	..	..	3	Ed. Psy. 55 or 56 or equiv.
Phys. Ed. 43-44-45	Theory and Function of Play	½	3	½	6 qtrs. phys. ed.
Prev. Med. 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
T. 30	Principles of Kindergarten and Nursery School Ed....	..	3	..	6 cred. psy.
T. 31	Permanent Play Materials..	2	..	..	6 cred. psy.
T. 32	Plastic Materials .....	..	2	..	with T. 30
T. 33	Rhythms, Games, and Music for the Young Child..	..	..	2	T. 30
T. 34	Story Telling for Young Children .....	..	..	2	T. 30
T. 85-86-87	Methods and Observation...	1	1	1	6 cred. psy.
C.W. 80	Child Psychology	3	..	..	6 cred. psy.
C.W. 90	Physical Development of the Child	2	..	..	Zool. 1-2, Psy. 1-2
Electives	.....	1	3	4	
		15½	15	15½	

Senior Year

Dept. No.	Title	Credits			Prerequisites
		F	W	S	
Ed. Ad. 119	Elementary School Curric...	3	..	..	Ed. Psy. 55 or equiv.
Ed. Psy. 134-135	Mental Tests and Mental Diagnosis	2	2	..	Ed. Psy. 55 or equiv.
Ed. Psy. 146-147	Child Guidance .....	..	2	2	15 cred. psy. and ed.
C.W. 120	Health Care of Young Child	..	..	2	C.W. 90
H.E. 70	Nutrition Survey	3	..	..	10 cred. lab. science
T. 88-89-90	Practice Teaching in Kindergarten or Nursery School	3	3	3	T. 30-34, 85-87
T. 143-144	The Teaching of Reading..	2	2	..	9 cred. ed.
Electives	.....	2	6	8	
		15	15	15	

OCCUPATIONAL THERAPY

Major Adviser: Marion A. Tebbets

Occupational therapy is practiced by teachers of training and experience in many hospitals throughout the country. The therapeutic value of this work in the treatment of disease and in successful convalescence makes it of definite value to physicians and hospital administrators. The part it plays in the restoration to economic efficiency of the more or less permanently disabled and its educational value in the reconstruction of the injured and in the promotion of new vocational capacity is attracting the attention of social workers, economists, and educators.

With the co-operation of the Medical School and of certain departments in the College of Science, Literature, and the Arts, the College of Education offers a course of instruction covering a period of four years in occupational therapy which leads to the degree of bachelor of science.

FOUR-YEAR CURRICULUM

First Year

FALL		WINTER		SPRING	
English A	5	English B	5	English C	5
Zoology 1	5	Zoology 2	5	Physiology Chem. 1	7
Prelim. Hygiene	0	Design 2	2	Design 3	2
Fund. Prin. Design 1	2	Sketch 7	1	Sketch 8	1
Basketry 37	2				
	<hr/>		<hr/>		<hr/>
	14		13		15

Second Year

FALL		WINTER		SPRING	
History 1 or 7	5	History 2 or 8	5	Hospital Economics and Relationships 62	2
Psychology 1	3	Psychology 2	3	Anatomy 4	4
Sociology 1	5	Prin. of Harmony in Form and Color 21	2	Application of Design to Fabric 14	2
Principles of Harmony in Form and Color 20	2	Electives	5	Prin. of Harmony in Form and Color 22	2
	<hr/>		<hr/>	General Physics 23	5
	15		15		<hr/>
					15

Third Year

FALL		WINTER		SPRING	
Technique of High School Instruction 15	3	Abnormal Psychology 144	3	Abnormal Psychology 145	3
Sociology 51	3	Sociology 52	3	Principles and Practice of Hospital S.S. 60	3
Pottery 41	2	Cardboard Construction 32	1	Theory of Occupational Therapy S.S. 63	2
Elem. Weaving and Allied Crafts 38	1	Occupational Hygiene and Disease 73 or Tuberculosis 60	2	Application of Design in Needlecraft	2
Educational Psychology 55	3	Public and Personal Health 50	3	Metal Work	2
Elective	3	Preliminary Hospital Practice S.S.66	3	Preliminary Hospital Practice Teaching S.S.67	3
	<hr/>		<hr/>		<hr/>
	15		15		15

5 credits in drawing will be required, 3 in the third year—elective as to course.

Summer Quarter

S.S.68-69 Hospital Practice Training 12 weeks—18 credits
(Full time in an institution)

Fourth Year¹

FALL		WINTER		SPRING	
Kinesiology 80	3	Child Health Ed. 80	3	Hospital Practice Training S.S.72	17
Art History and Appreciation 70	2	Mental Hygiene 61	2		
Woodwork 10	2	Bookbinding 33	2		
Elements of Preventive Medicine 53	3	Social Psychology 140	3		
Preliminary Hospital Practice Training	3	Preliminary Hospital Practice Training S.S.71	6		
Elective	3		<hr/>		<hr/>
	<hr/>		16		
	16				

¹ During the third year (summer quarter) and in the fourth year opportunities will be given for practice work in hospitals. This field work will be credited on the usual university basis.

PHYSICAL EDUCATION FOR MEN

FOUR-YEAR CURRICULUM IN THE COLLEGE OF EDUCATION

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 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.

CURRICULUM FOR MEN MAJORING IN PHYSICAL EDUCATION

Major Adviser: L. F. Keller

Freshman Year

No.	Title	Credits			Prerequisite Courses
		F	W	S	
Comp. A,B,C	Freshman English	5	5	5	None
Chem. 14,15	General Inorganic Chemistry	5	5	..	None
Sociol. 1	Introduction to Sociology... ..	..	..	5	None
Prev. Med. 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	
		<u>16</u>	<u>16</u>	<u>16</u>	

Sophomore Year

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
Bact. 51	General Bacteriology .....	..	..	5	Zool. 1-2, Chem. 1-2-3 or equiv.
Mil. Sci. 4-5-6	Second Year Basic Course.. ..	..	..	..	Mil. Sci. 1,2,3
	General electives	4	4	3	
		<u>15</u>	<u>15</u>	<u>15</u>	

COURSES OF STUDY

Junior Year

No.	Title	Credits			Prerequisite Courses
		F	W	S	
Physiol. 58,59	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	Technique of Gymnastic Teaching .....	..	..	2	Phys. Ed. 22-23
Phys. Ed. 30	Athletic Training and First Aid .....	..	..	2	None
Prev. Med. 53	Elements of Preventive Medicine	3	..	..	Psy. 1-2, Bact. 51
Ed. Psy. 55	Educational Psychology .....	..	3	..	Psy. 1-2
Ed. Ad. 65	The High School .....	..	..	3	Ed. 55
	General electives ¹	7	5	3	
		13	15	15	

Senior Year

No.	Title	Credits			Prerequisite Courses
		F	W	S	
Prev. Med. 80	Educational Hygiene .....	..	3	..	Prev. Med. 50 or 52
Phys. Ed. 28	Physical Examination and Normal Diagnosis	2	..	..	Physiol. 58,59
Phys. Ed. 29	Orthopedic and Remedial Gymnastics .....	..	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
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	

¹ H.Ed.1, History of Education and Ed.3, Educational Sociology are suggested electives for this curriculum.

COURSES FOR MEN MINORING IN ATHLETIC COACHING

No.	Title	Credits			Prerequisite Courses
		F	W	S	
Phys. Ed. Af,Bw,Cs	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	Technique of Gymnastic Teaching .....	..	..	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 examination 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 bodily mechanics, skill in handling the body in physical recreation, and the development of that valuable social quality known as good sportsmanship; co-operates closely with the Women'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 Courses 1-2-3 and 4), and of all sophomores, who are permitted as free a choice among the sophomore courses as their physical condition permits (see "sophomore" courses; students who cannot swim must register for Course 22-23 during sophomore year); work in this department must be taken for six consecutive quarters except by petition through this department; physical examinations or consultations are required annually of all students.

Six credits toward the degree can be gained by taking courses in exercises (Courses 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.

The special four-year professional course described below is designed to prepare graduates for the responsible direction of physical education activities. 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

No.	Title	Credits			Prerequisite Courses
		F	W	S	
English A-B-C or	Freshman English ¹	5	5	5	None
Eng. 4-5-6	Freshman English ¹	3	3	3	None
Chem. 14-15	Gen. Inorg. Chemistry ²	5	5	..	None
Farm Eng. 23 ⁶	General Physics ³ .....	..	..	5	None
Hist. 1-2	Modern World ¹	5	5	..	None
Soc. 1	Introduction to Sociology ¹..	..	..	5	None
Phys. Ed. 40	Preliminary H. giene	1	..	..	None
Phys. Ed. 22s, 25s or 28s	Elem. Int. or Adv. Swim- ming .....	..	..	0	None
Phys. Ed. 37-38 ⁴	Freshman Hockey, Basket- Ball	0	0	..	None
Phys. Ed. 48f-49w- 50s	Tennis and Posture Train- ing, Danish Gymnastics, Baseball	0	0	0	None
		16	15	15	
		or	or	or	
		14	13	13	

¹ For description of course see bulletin of College of Science, Literature, and the Arts.

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 quarter is open to students who have not taken the preceding quarter.

⁵ If one year of physics is presented at entrance no physics will be required.

COLLEGE OF EDUCATION

Sophomore Year

No.	Title	Credits			Prerequisite Courses
		F	W	S	
Zool. 1-2 ²	General Zoology ¹	5	5	..	None
Anat. 4s	Human Anatomy ³ .....	..	..	5	Zool. 1-2
Psy. 1-2 ²	General Psychology	3	3	..	None
*Prev. Med. 2w	First Aid ³ .....	..	1	..	Zool. 9 cred.
Bact. 51f,w,s	General Bacteriology ¹ .....	..	..	5	Chem. 10 cred., Zool. 10 cred.
Pub. Sp. 41f-42w	Public Speaking ¹	3	3	..	Rhet. A-B-C or 4-5-6
Phys. Ed. 25f or 28f	Int. or Advanced Swimming	0	..	..	Phys. Ed. 22 or equivalent
Phys. Ed. 51-52	Soph. Major Gymnastics...	½	½	..	Phys. Ed. 49-50
Phys. Ed. 56w-57s	Swim. with Technique.....	..	½	½	Phys. Ed. 28 or equivalent
Phys. Ed. 63-64-65	Hockey, Basket-Ball, Base- ball with Technique.....	1	1	1	Phys. Ed. 37-38
Ed. Psy. 55	Educational Psychology .....	..	..	3	Psy. 1-2
	Elective	3	..	..
		15½	14	14½	

Junior Year

No.	Title	Credits			Prerequisite Courses
		F	W	S	
Physiol. 58-59	Human Physiology .....	..	4	4	Zool. 1-2, 10 cred. chemistry
Prev. Med. 2 ⁴	First Aid ³	1	..	..	Zool. 10 cred.
Prev. Med. 53	Elements of Preventive Medicine .....	..	..	3	Psy. 1-2, Bact. 51 or equivalents
Phys. Ed. 43-44-45	Theory and Function of Play	½	3	½	Phys. Ed. 6 qtrs.
Phys. Ed. 54-55	Gym. for Junior Majors...	½	½	..	Phys. Ed. 51-52
Phys. Ed. 58-59	Advanced Folk Dancing with Technique .....	..	1	1	Phys. Ed. 6 qtrs.
Phys. Ed. 60-61	Minor Sports with Technique	1	..	1	Phys. Ed. 6 qtrs.
Phys. Ed. 66-67-68	Elementary Inter. Dancing.	1	1	1	Phys. Ed. 6 qtrs.
Phys. Ed. 75	History of Physical Ed.....	1	..	..
Phys. Ed. 80-81	Kinesiology	3	4	..	Anat. 4, Farm Eng. 23
Phys. Ed. 82	Physical Examination .....	..	..	2	Phys. Ed. 80-81
Phys. Ed. 83	Technique of Teaching and Principles of Gymnastics..	..	..	4	Phys. Ed. 54-55, 80-81
	Electives ⁵	8	3	..	
		16	16½	16½	

¹ For description of course see bulletin of College of Science. Literature, and the Arts.

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.

⁵ Eight credits must be elected from among educational subjects listed on p. 19 of this bulletin for teacher's certificate.

COURSES OF STUDY

Senior Year

No.	Title	Credits			Prerequisite Courses
		F	W	S	
Ed. Ad. 65	The High School.....	..	..	3	
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	Organization and Administration .....	..	3	..	
	Electives	5	5	5	
		14½	14½	13	

Some electives which are permitted by program hours.

- Anthropology, 51 (Introduction)
- Art Education, 1 (Appreciation)
- Astronomy, 11 (Descriptive)
- English, 8 (Shakespeare)
- Greek, 43 (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 (Modern Social Reform), 14 (Rural Sociology)
- Home Economics, 70, Nutrition Survey (Freshmen or Sophomores)
- Home Economics, 170, Nutrition of the Family
- Home Economics, 171, Child Nutrition

COLLEGE OF EDUCATION

COURSE FOR WOMEN STUDENTS MINORING IN PHYSICAL EDUCATION

No.	Cred.	Title	Offered to	Prereq. Courses
Phys. Ed. 1-2-3	0	Elem. Physical Training....	Required of all new students	None
Ph. s. Ed. 4	0	Preliminary Hygiene	Required of all new students	None
Phys. Ed. 20w	0	Basket-Ball	All	
Phys. Ed. 21s	0	Baseball	All	
Phys. Ed. 22-23	0	Elementary Swimming	Soph.	None
Phys. Ed. 43-44-45	4	Play and Playground.....		Phys. Ed., 6 qtrs.
Phys. Ed. 51-52	1	Soph. Major Gymnastics... Jr., sr.		Phys. Ed. 1-2-3
Phys. Ed. 54-55	1	Junior Major Gymnastics... Jr. minors		Phys. Ed. 51-52
Phys. Ed. 64-65	2	Basket-Ball, Baseball with Technique	Sr. minors Jr., sr.	Phys. Ed. 20w-21s
Zool. 1-2	10	General Zoology	All	No prereq.
Anatomy 4s	5	Human Anatomy	Soph., jr.	Zool. 1-2
Phys. Ed. 80	3	Kinesiology	Jr., sr.	Zool. 1-2, Anat. 3
Phys. Ed. 83	4	Technique of Teaching and Principles of Gymnastics..	Sr.	Phys. Ed. 80, 54-55
Prev. Med. 50	3	Public and Personal Health.	Jr., sr.	Zool. 1-2, Psy. 1-2

PUBLIC SCHOOL MUSIC

FOUR-YEAR CURRICULUM IN THE COLLEGE OF EDUCATION

Major Advisers: Carlyle Scott, A. Pepinsky

	<i>First Year</i>				<i>Second Year</i>		
	Credits				Credits		
	F	W	S		F	W	S
Rhetoric A,B,C.....	5	5	5	Gen. Psychology 1, 2.....	3	3	..
Harmony 1-2-3	3	3	3	Grade School Methods and Practice Teaching (Mu. Ed. 29-30-31)	3	3	3
Sight Singing and Vocal Ear Training (Solfeggio)	1	1	1	Analysis, Mu. Ed. 103-104-105	1	1	1
Piano	2	2	2	History of Music, Mu. Ed. 106-107-108	3	3	3
Voice	2	2	2	Piano, Voice or other instrument	2	2	2
Class Inst. Teaching (1 period strings; 1 period winds)..	1	1	1	Adv. Class Inst. Teach. (1 period strings; 1 period winds) Mu. Ed. 74-75-76..	1	1	1
				Electives ¹	3	5	3

¹ Electives should be chosen to meet the teaching minor requirement in one secondary school subject such as English, public speaking, art, etc.

COURSES OF STUDY

<i>Third Year</i>				<i>Fourth Year</i>						
				Credits						
				F	W	S				
				F	W	S	F	W	S	
Instrumentation and Orchestration	2	2	2	Orchestra Conducting (Mu. Ed. 64-65-66)	2	2	2			
High School Methods and Practice Teaching (Mu. Ed. 32-33-34)	3	3	3	Piano, Voice or other instrument	2	2	2			
Ed. Psy. 55	3	..	..	Ensemble, Mu. Ed. 112-113-114	2	2	2			
Piano, Voice or other instrument	2	2	2	Normal Piano (elective), Mu. Ed. 86-87-88	2	2	2			
Orchestra or Chorus as elective	1	1	1	Orchestra or Chorus as elective	1	1	1			
Electives ¹	3	3	3	Other electives ¹	2	4	4			
Ed. Elective ²	3	..	3							

SCHOOL HEALTH WORK

Major Adviser: H. S. Diehl

This course is designed to prepare students to take charge of health programs in school systems which do not provide specialists in the various phases of school health work. 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.

Ed.Ad. 75	The Elementary School	3
Ed.Ad. 65	The High School	3
Ed. 3	Educational Sociology	3
H.Ed. 1	History of Education.....	5
Ed.Ad. 158	Organization for Supervision.....	3
Ed.Ad. 167	Junior High School.....	3

¹ Electives should be chosen to meet the teaching minor requirement in one secondary school subject such as English, public speaking, art, etc.

² Six credits are to be elected from among the following courses:

COLLEGE OF EDUCATION

FOUR-YEAR CURRICULUM IN SCHOOL HEALTH WORK

Freshman-Sophomore

		Credits
Eng. A-B-C	Freshman English	15
Hist. 1-2	Modern World	10
Chem. 1,2,3 (or 4-5)	General Inorganic Chemistry.....	10 or 8
P.M. & P.H. 3	Personal Hygiene and Elementary Sanitation.....	2
Soc. 1	Introduction to Sociology.....	5
Psy. 1	General Psychology	6
Zool. 1-2	General Zoology	10
Anat. 3	Human Anatomy	5
Physiol. 4	Human Physiology	4
Bact. 51	General Bacteriology	5
Speech 22	Fundamentals of Speech.....	3
H.E. 70	Nutrition Survey	2
P.M. & P.H. 2	First Aid	1
	Total required credits.....	76 to 78

Approved electives to total 90 credits and usual freshman and sophomore courses in physical education are required.

Junior-Senior

		Credits
Phys.Ed. 80	Kinesiology and Physiology of Exercise.....	3
Phys.Ed. 85	Principles or Philosophy of Phys. Educ.....	2
Phys.Ed. ¹	Technique of Teaching Motor Activities, Play, Dancing, Games, Gymnastics, etc.....	3
Phys.Ed. 88-89-90	Theory and Technique of Orthopedic and Remedial Gymnastics	3
Phys.Ed. 92	Practice Teaching in Physical Education.....	2
Phys.Ed. 97	Organization and Supervision of Physical Educ.....	3
Ed.T.(Ar)	Health Education Methods and Materials.....	2
Ed.T.(Ar)	Health Education Practice Teaching.....	3
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	1
P.M. & P.H. 69	School Nursing—Principles, Techniques and Practices.	4
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.....	2
Ed.Ad. 119	Elementary Curriculum	
or		
Ed.Ad. 181	Technique of Elementary Instruction.....	2
Ed.Ad. 124	Educational Administration	3
Ed. Ad. 150	Principles of Supervision.....	2
H.E. 171	Child Nutrition	3
Soc. 51	Occurrence of the Socially Inadequate.....	3
Soc. 52	Elem. Case Work.....	3
Soc. 90-91	Elem. Field Work.....	4
C.W.I. 130	Development of Young Child.....	3
C.W.I. 170	Parental Education	3
Bot. 101	Elementary Biometry	3
	Total required credits.....	72
	Approved electives	18
		90

¹ This course is a specially adapted course in the Department of Physical Education for Women for this curriculum and will be developed as there is a demand for it.

Recommended Electives

		Credits
Ed.Ad. 133	Guidance in Secondary School.....	3
or	or	
Ed.Ad. 169	Extra-Curricular Activities	(2)
Ed. Psy. 134	Mental Testing	
or	or	
Ed.Psy. 143	Individual Mental Examination.....	2
Ed.Psy. 159	Psychology of Personality.....	2
Ed.Psy. 192-193	Psychology of Behavior Problems.....	4
H.E. 170	Nutrition of Family.....	3
Bact. 101	Special Bacteriology	4
Bact. 116	Immunity	3
Anat. 135	Physical Development of Child.....	2

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

Major Adviser: A. C. Krey

Students who desire to specialize in the group of Social Studies are advised to follow either of the following options—preferably the second.

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 51-52 strongly urged. A minimum of 10 credits in three of these departments 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 51, 52, 61, or 71 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.

COLLEGE OF EDUCATION

JUNIOR COLLEGE

Freshman Year

	Credits
English	15
Language (see requirements).....	10
Science	10
History 1-2	10
	—
	45

Sophomore Year

	Credits
History 7-8	10
Psychology	6
Group	15
Political Science 1 and 2.....	10
	—
	41

COLLEGE OF EDUCATION

Junior Year

	Credits
Economics 6-7	10
History 105 or 133 and 119 or 120.....	10
Sociology 1, 6, and 14.....	1
Education 1, 3, 55, and 15.....	14
	—
	45

Senior Year

	Credits
Economics 3	5
Economics 141	3
Political Science 11 and 15.....	10
Sociology (see departmental statement).....	9
History, intensive course (see departmental statement).....	5
Education 113-114 and 5 credits to be chosen from Courses 101, 102, 116-117, 124, 134-135-136, and 167-168.....	9
	—
	41

Graduate School

	Credits
Economics 161 and 191-192.....	9
Political Science course numbered over 100.....	5
Sociology (see departmental statement).....	6
Education 66f, 67w, 68s.....	9
	—
	29

SOCIOLOGY¹

Major Adviser: F. S. Chapin

MAJOR IN SOCIAL THEORY² (36-37 hrs.)

Course No.	Name of Course	Course No.	Name of Course
Soc. 1	Introduction to Sociology	Soc. 101 ³	Social Organization
Soc. 6	Social Interactions	Soc. 102 ³	Social Control
Soc. 14	Rural Sociology	Soc. 110	Community Organization and Social Work in Small Towns and Country
Soc. 53	Elements of Criminology	Soc. 114	Rural Social Institutions
or		or	
Soc. 45	Social Statistics	Soc. 140	History of Social Theory
Soc. 51	Occurrence of the Socially Inadequate	Soc. 121	Advanced Statistical Methods
Soc. 119	The Family	or	
or		Soc. 141	Contemporary Social Theory
Soc. 120	Social Progress		
Soc. 100	Social Psychology		

MAJOR IN APPLIED SOCIOLOGY⁴ (36-37 hrs.)

Course No.	Name of Course	Course No.	Name of Course
Soc. 1	Introduction to Sociology	Soc. 119	The Family
Soc. 14	Rural Sociology	or	
Soc. 45	Social Statistics	Soc. 134	Legal Protection of the Child
Soc. 51	Occurrence of the Socially Inadequate	Soc. 110	Community Organization and Social Work in Small Towns and Country
Soc. 52	Elementary Case Work	or	
Soc. 60	Child Welfare	Soc. 114	Rural Social Institutions
Soc. 90	Elementary Field Work	or	
Soc. 91	Elementary Field Work	Soc. 128 ⁵	Principles of Administration Applied to Social Work
Soc. 100	Social Psychology	or	
Soc. 112	The Rural Social Survey	Soc. 130 ⁵	Advanced Case Work
or			
Soc. 122	Methods of Social Investiga- tion		

MINOR SOCIOLOGY

Course No.	Name of Course
Soc. 1	Introduction to Sociology
Soc. 6	Modern Social Reform Movements
or	
Soc. 14, and 4 other courses	(19-20 hrs.)

TEACHERS OF SUBNORMAL CHILDREN

Major Adviser: J. G. Rockwell

Students will complete the first two years of this course in the Junior College.

¹ In order to secure a teacher's certificate, students majoring in sociology must complete two teaching minors.

² Soc. 116, The Newspaper As a Social Institution; Soc. 158, Sociology of Revolution; or Soc. 160, Social Population, 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.

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 starred courses of the junior and senior years, will qualify for a special teaching certificate good for one year 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 course in practice teaching and hand-work 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

JUNIOR COLLEGE

Freshman Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Eng. A, Fresh. English.	5	Eng. B, Fresh. English.	5	Eng. C, Fresh. English.	5
Art Ed. 1f, Art Educa-		Art Ed. 2w, Art Educa-		Ed. 1, Introd. to Soci-	
tion	3	tion	3	ology	5
Zool. 1, Zoology.....	5	Zool. 2, Zoology.....	5	Art. Ed. 3s, Art Edu-	
Elective	2	Elective	2	cation	3
				Elective	2

Sophomore Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Psy. 1, Psychology.....	3	Psy. 2, Psychology.....	3	H.E. 57, Weaving on	
Psy. 4, Psychology Lab.	2	Psy. 5, Psychology Lab.	2	Table Looms	3
Hist. 1, History.....	5	Hist. 2, History.....	5	Ind. Ed. 10, Meth. Elem.	
Art Ed. 37, Art Educa-		Art. Ed. 32, Art Educa-		Grade Woodwork	3
tion	2	tion	1	Ed. Psy. 55, Ed. Psy....	3
Elective	3	Ind. Ed. 11, Meth. Prim.		Elective	6
		Grade Woodwork ...	2		
		Elective	3		

COLLEGE OF EDUCATION

Junior Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Phys.Ed. 43, Play and		Phys.Ed. 44, Play and		Phys.Ed. 45, Play and	
Playground	1	Playground	1	Playground	1
Ed.Psy. 134, Mental Tests	2	Ed.Psy. 135, Mental Tests	2	Ed.Psy. 184, Mental De-	
Phys.Ed. 31, Physical Ed.	0	Phys.Ed. 32, Physical Ed.	0	ficiency	2
Ed.T. 181, Tech. of El.		Ed.T. 155, Super. of		Ed.Psy. 136, Mental Tests	2
Inst.	3	Arith. in the Elem.		Phys.Ed. 33, Physical Ed-	
Ed.T. 143, Teach. of		School (Lower grades)	2	ucation	0
Reading in Elem.		Electives	10	Electives	8
Grades	2				
Electives	6				

Senior Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Ed.Psy. 111, Ed. Measurements	3	Elem. Case Work.....	3	Child Welfare	3
Soc. 51, Sociology.....	3	Ed.T. 17, Practice Teaching	2	Ed.T. 17, Practice Teaching	2
Ed.T. 17, Practice Teaching	2	Electives	10	Electives	10
Electives	7				

TEACHER TRAINING IN ELEMENTARY EDUCATION

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 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 course listed below presupposes a full two-year normal or a junior college course. The completion of two additional years of work entitles the students to the degree of bachelor of science and to the university teacher's certificate in elementary education. 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 student's major adviser and the faculty.

A. REQUIRED IN EDUCATION

		Credits
Ed.Psy. 56	Educational Psychology	3
Ed.Psy. 60	Introduction to Statistical Methods.....	3
Ed.Psy. 134	Mental Tests	2
Ed.Ad. 24	Public School Administration.....	3
Ed.Ad. 75	The Elementary School (Not required of normal graduates)	3
Ed.Ad. 119	The Elementary School Curriculum.....	3 or 4
Ed.Ad. 150	Supervision and Improvement of Instruction.....	2
Ed.Ad. 151	Supervision: Uses of Educational Tests and Measurements	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 or 4
Ed.T. 185	Investigation of Problems in Teacher Training.....	2 or 4

In addition 14 hours to be elected from the courses below

Ed.T. 45	The Teaching of Geography and History in the Elem. School	2	
Ed.T. 143	The Teaching of Primary Reading.....	2	
Ed.T. 144	The Teaching of Intermediate and Upper Grade Reading	2	
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	
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	
Fd.Psy. 113-114-115	Psychology of Elementary School Subjects.....	6	
Ed.Psy. 159	Psychology of Personality	2-4	14
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	45
Total credits required for the university teacher's certificate and the bachelor of science degree.....		90

C. 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.

VISITING TEACHERS

FOUR-YEAR CURRICULUM

Major Adviser: F. S. Chapin

JUNIOR COLLEGE

Freshman Year

	Credits
English A-B-C	15
History 1, 2, or 3 or Language.....	10
Zoology 1-2	10
Sociology 1	5
Political Science 1.....	5
	45

COURSES OF STUDY

Sophomore Year

	Credits
History 7-8	10
Economics 6-7	10
Psychology 1-2	6
Political Science 2.....	5
Sociology 6, 45, 49.....	11
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	42

COLLEGE OF EDUCATION

Junior Year

	Credits
Education T, 15.....	3
Hist. Ed. 1, Ed. Psy. 55.....	8
Sociology 52, 53, 79, 90, 91.....	13
Home Economics 70-71-72, or Child Welfare 50, 51, 60.....	9
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	33

Senior Year

	Credits
Educational Psychology 184-185-186.....	6
Five credits from H. Ed. 101, H. Ed. 102, Ed. Ad. 124, Ed. Psy. 116-117, Ed. Psy. 134-135-136, Ed. Ad. 167...	5
Economics 161-162 or Psy. 144-45.....	6
Sociology 60, 92, 128, 130, 134, 138-139	18
Sociology 153-154-155	9
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	44

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 with a 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.228f. Problems of Student Personnel.
Ed.229w. Problems of Curriculum and Instruction.
Ed.230s. 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.¹
- Ed.Ad.65T. The High School. For high school teachers in training. Recent growth in secondary education; pupils; place of secondary education in the system; types of reorganization; types of programs of study; types of high schools; staff; plant; costs; standardization.
- Ed.Ad.65a. The High School. For students majoring in administration. (See Ed.Ad.65T.)
- Ed.Ad.75. The Elementary School. A study of the modern elementary school: development; function; objectives; relation to junior and senior high schools; a survey of the curriculum; the materials of instruction; a special emphasis upon the general methods. An orientation course for those who plan to take advanced work in administration, supervision, elementary education, or teacher training.
- 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. Study of the principles underlying the selection and organization of subject-matter for courses in the elementary school; examination of curricula, syllabi, and texts in the light of their function. Survey of the procedures and findings of scientific research in curricular content by subjects.

¹ For teachers.

- Ed.Ad.119T-120T. The Elementary School Curriculum. (Same as above for teachers. Offered every other year on Saturday morning.)
- 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. Students admitted to the course through conference with 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 superintendents 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 curriculum to the abilities and interests

- of pupils; methods of classification; emphasis upon classroom procedures.
- Ed.Ad.153. Supervision of English in the Elementary Schools. Improvement of instruction in oral and silent reading; the results of scientific investigation in reading; use of standardized and informal tests; remedial work; some consideration of spelling and writing.
- 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 Supervision—Observation and Field Work. Classroom visitation followed by conference in the university elementary demonstration school, the University High School, and other schools in or near the Twin Cities. The application of supervisory techniques; conferences; special projects.
- 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.164. High School Administration. A study of the high school principalship, elimination from school, secondary vocational education, the marking system, record forms, classification of students, schedule of recitations, high school library, social organization and extra-curricular activities, community relationships, teaching schedule, building, costs.
- Ed.Ad.167-168. Junior High School. A study of the special purposes of this institution and the appropriate reorganizations to achieve them; the history of the movement.
- 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. Elementary Curriculum and Course of Study Construction. A study of the techniques and of special problems in the field of elementary curriculum and course of study making. Class and individual projects.
- 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.184. Supervision of Practice Teaching. A course primarily for teachers engaged in the direction of practice teachers in secondary education.

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

COLLEGE OF 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 1928-29.)

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.121. Teachers' Course, Home and School Gardening. A lecture and laboratory course designed to give teachers the preparation necessary for the proper planning, management, and supervision of home and school gardens.
- 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 1928-29.)
- 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 1928-29.)
- Agr.Ed.153. Consolidated Rural Schools. To prepare principals to meet the problems of organization and management peculiar to consolidated rural schools, such as building arrangements, curriculum adjustments, transportation of pupils, and home project work.
- 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.
- Agr.Ed.155. Consolidated Rural School Problems. Opportunity for intensive study and research in special problems of administration and supervision of village and consolidated rural schools.
- 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. Color theories discussed and exemplified, with analysis of color harmonies and original work therein. 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.
- 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. Representation of familiar objects, and illustrative modeling.
- ArtEd.37,38. Elementary Weaving, Basketry, and Allied Crafts, with reference to use in the grades and in occupational therapy.
- 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.86,87,88. 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.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.130. Vocational Psychology. Methods of judging vocational interests and aptitudes, psychological analysis of learning or the acquisition of skill, transfer of training, motives and incentives. Intended for students especially interested in vocational and industrial education and training.
- 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.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.187. 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.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. 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.
- H.Ed.114. Philosophy of Education. A discussion of philosophically formulated ideals of education with an attempt to reach a positive philosophy of educational values.
- 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. Problems in 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.142. Educational Measurement in Home Economics. Survey of accomplishment in this field; evaluation and construction of objective tests.
- H.E.Ed.143. Home Economics Curricula. A study of the objectives of home economics in the junior and senior high schools; organization of curricula.
- 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.

INDUSTRIAL EDUCATION

- 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.20. Industrial History. Lectures, quizzes, and required readings. Evolution of arts, industry, tools, processes, and production to 1800; evolution in economic and social conditions; culmination of the industrial revolution in America—resultant agricultural, industrial, economic, and social problems; twentieth century outlook and opportunities; implications for practical education.
- Ind.25. Literature of Industrial Education. Acquaintance and methods of use. Survey of useful books, reports, periodicals, and special bulletins. Students made familiar with reference facilities. Individual term assignments to teach sources, note taking, organization, and the preparation of papers.
- Ind.30. Graphic Presentation. Study of typical methods of graphic representation of data. The use of simple educational and social materials for drill in the interpretation and statement of facts and conditions.
- Ind.40. Occupational Analysis. Necessity for and types of analyses; survey of those available. Individual work upon a chosen occupation—break-ups, and classification of materials.
- Ind.42. Course Organization. Makes definite use of occupational analyses prepared in Course Ind.40. Content of courses determined and arranged. Reference materials collected. Both general industrial and vocational courses considered.
- Ind.50-51-52. Practice Teaching. Three quarters required. During each quarter the group to meet for not less than four two-hour periods for lectures and the making of lesson plans. Instructor to visit persons enrolled (at their places of employment) to criticize and help and to determine grade of ability. Students not on the part time basis to be assigned to practice work in the University High School, Dunwoody Industrial Institute, or the public schools of the Twin Cities.
- Ind.60. Social Agencies in Education. An evaluation of various social agencies that make educational contributions; their status, aims, achievements, and deficiencies; their relationships and possible fields of co-operation. The special significance of social agencies to vocational education under public support and control.
- Ind.61. Social Significance of Vocational Education. A study of the basic facts of economics and sociology which support efforts in the organization and administration of vocational education. Review of the movements which contributed to its introduction and development. Its social value and results.
- 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, and course planning.
- 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. Both incidental and scheduled teaching discussed.

- Ind.70. *Methods in Shop Subjects.* Various methods of conducting shop classes, with and without reference to production work; lesson plans, grading, reports, and records; the assigning of jobs and shop management; standards of workmanship.
- Ind. 80. *General Industrial Training.* Organization of the industrial offering for grades and high school in typical Minnesota towns. Aims of the work, offerings and schedules, teaching fitness, equipment, methods, and management. Consideration of the unifying opportunities within a department and a school. Supervision practices and problems.
- 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, courses, and practices; laws, rulings, and standards for aid; significant literature.
- Ind. 110. *Guidance in the Schools.* The history of the guidance movement; typical public school means and methods; the presentation of occupational information; the junior wage earnings situation; attendance and child labor laws; guidance, placement, and follow-up plans.
- Ind. 150-151-152. *Problems in Vocational Education.* Survey of studies in the field, individual and group investigation, reports, and criticisms. Required of all students writing theses in this special field.
- Ind. 170. *Administration of Industrial Education—Day Schools.* National, state, and local organization and support of day industrial schools; adaptable types, buildings, and equipment, promotion and advertising, co-operative agreements and relationships, supervision of instruction, student placement. General versus unit-course organization. Relation to part time and evening instruction.
- Ind.171. *Administration of Industrial Education—Evening Schools.* Development of the after training of adults; agencies and scope of the movement; state supervision, 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. Costs.
- Ind.172. *Administration of Industrial Education—Part Time Schools.* A study of the new movement for part time education. Social and economic background, methods of organizing classes, a study of the special student groups, courses of study. Typical schools, comparative state legislation and plans. Minnesota's problems.

NOTE.—See Education bulletin Part II for statement about shopwork and drawing courses.

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

¹ The institute also offers Courses T30-34, and T85-90 listed under the Theory and Practice of Teaching.

- 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, 134,² 135. 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.173-174². 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.
- 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.

²Two quarters must be completed before credit is received for any quarter.

LIBRARY METHODS

- Lib.Ed.7. School Library Organization. Covers routine of organization, classification, and installation of all necessary records except the card catalog; care of periodicals; mending, binding and bindery records; care of unbound material; miscellaneous problems of administration. Includes 30 hours of practice work.
- Lib.Ed.8. Cataloging for the School Library. Instruction in making a card catalog, with Library of Congress cards. If possible, students planning to take this course should be able to use the typewriter. Includes 30 hours of practice work.
- Lib.Ed.9. Reference Work in the School Library. Selection and use of reference books and miscellaneous reference material. Includes 30 hours of practice work.
- Lib.Ed.10. Book Selection for the High School Library. Books examined in the fall are those chiefly of interest to the English Department.
- Lib.Ed.11. Book Selection for the High School Library. Books chiefly of interest to the Social Science Department.
- Lib.Ed.12. Book Selection for the High School Library. Books on science, home economics, and miscellaneous subjects.

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.4. Freshman Hygiene. Fall quarter A-H; winter quarter I-R; spring quarter S-Z.
- 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, volleyball, 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. Technique of Gymnastic Teaching. Lectures and quizzes on terminology, and technique of teaching.
- 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. Orthopedic and Remedial Gymnastics.
- 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.35. Athletic Organization and Administration. Discussion of place of athletics in physical education program; organization for athletic control; schedule making; construction and maintenance of athletic fields; purchase and care of equipment; eligibility problems; management of contests; financial accounting; insignias and awards.
- 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. 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.7-8-9. 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.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 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.16-17-18. Sophomore Games and Folk Dancing. Suitable in strength for C-D girls. Conducted outdoors when weather permits.
- 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.37-38. Freshman Major Hockey and Basket-Ball. Practice and study of rules.
- Phys.Ed.40. Freshman Major Hygiene. Lecture and quiz. 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, 3 hours.

- Phys.Ed.48-49-50. Tennis, Gymnastics, Baseball for Freshmen. Tennis in first term of fall quarter, posture training in second term of fall quarter, gymnastics, marching, and apparatus work in winter quarter, baseball in spring quarter.
- Phys.Ed.51-52. Gymnastics for Sophomores. Gymnastics, marching, and apparatus work.
- Phys.Ed.54-55. Gymnastics for Juniors. Gymnastics, marching, and apparatus work.
- Phys.Ed.56-57. Swimming with Technique. 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. Soccer, volley ball, track, tennis, archery. Description and methods of teaching, one hour; practical work, two hours.
- Phys.Ed.63-64-65. Hockey, Basket-Ball, Baseball with Technique. 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 Seniors. 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. 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. Organization and Administration. 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.H.50. Public and Personal Health. Discusses the cause of disease 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.H.53. Elements of Preventive Medicine. Susceptibility, resistance, and immunity to disease; methods of spread and the prevention of communicable and degenerative diseases; importance of heredity and environment; protection of food, water, and milk.

P.H.58. Maternal and Child Hygiene. The maternal welfare program; importance of breast feeding, origin and 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.H.59. Social Hygiene. Relation to public health. Sex development to age of twelve; adolescence; sex incorrigibility. Methods of education in schools. Responsibility of public health nurse. Prevention and control of venereal disease; clinics; follow-up system.

P.H.60. The Tuberculosis Problem. 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.H.6r. Mental Hygiene. History of movement, factors underlying mental disease; diagnosis of feeble-mindedness and border-line cases; institutional treatment; insanity, its relation to social work and to the institution; the importance of psychiatric nursing.
- P.H.8o. Educational Hygiene. Intended for teachers interested in health education. Consideration of hygiene of physical and mental growth, health supervision of school children, teaching of health subjects, and sanitation of the school plant.

PUBLIC SCHOOL MUSIC

- Mu.Ed.29. Grade School Methods. First term. This course is designed to meet the requirements for music supervisors. Practical methods for grades one and two. Particular attention is given to the child voice, its care and development.
- Mu.Ed.30. Grade School Methods. Second term. Methods of teaching vocal music in grades three, 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. Grade School Methods. Third term. Same as above for grades seven and eight. Particular attention to the problems of the changing voice. Also includes a short course in methods of teaching appreciation.
- Mu.Ed.32. High School Methods. First term. Methods of teaching music in the modern high school. Materials and organization of chorus and glee clubs. Students are required to observe in the Minneapolis and University high schools.
- Mu.Ed.33. High School Methods. Second term. Application of methods of teaching by practical work with the class itself. Students are required to observe and teach in the Minneapolis and University high schools.
- Mu.Ed.34. Voice. A practical course in methods of class voice teaching, in the use and care of the changing voice and adult voice. Testing and classification of voices in the junior and senior high schools. Also includes methods of conducting chorus and glee clubs.
- Mu.Ed.51-52-53. Instrumentation. (Junior, three quarters.) Theoretical study of orchestral and band instruments. Observation of local organizations for timbre and color.
- Mu.Ed.64-65-66. Orchestra Conducting. (Fourth year, three quarters.) Devoted to the theory and practice of general principles of conducting. Technique of the baton and elements of interpretation.
- Mu.Ed.71-72-73.¹ Class Instrument Teaching. 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.Ed.74-75-76.¹ Advanced Class Instrument Teaching. Practical orchestral and band routine under baton of the director and members of class in Orchestra Conducting 64-65-66.

¹A special fee of \$3 per quarter is charged for these courses.

SOCIAL SERVICE—HOSPITAL

- S.S.60. Principles and Practices of Hospital Social Service.
- 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

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.

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, and required of, students taking T.18, T.19, T.20, T.23, T.35, and T.41. Practice teaching in all other academic subjects is 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.

SENIOR HIGH SCHOOL TEACHING

T.18. Teachers' Course in Zoology.

T.19. Teachers' Course in Botany.

T.20. Teachers' Course in Chemistry.

T.21. Teachers' Course in English Composition.

T.22. Teachers' Course in English Literature.

T.23. Teachers' Course in Geography.

T.35. Teachers' Course in Norwegian.

¹ For the specific requirements in the theory and practice of teaching in the special subjects, consult the special curricula. Arrangements should be made through the directors listed below:

Agricultural Education	A. V. Storm
Art	Ruth Raymond
Home Economics	Ella J. Rose
Industrial Education.....	Homer J. Smith
Physical Education for Men.....	G. F. Keller
Physical Education for Women.....	J. Anna Norris
Public School Music.....	Carlyle Scott, Abe Pepinsky
Subnormal Education.....	John G. Rockwell

Arrangements for practice teaching should be made before the close of the quarter immediately preceding the quarter in which the practice teaching is to begin. Such arrangements should be completed before the student registers in other courses.

- T.37. Social Science for Senior High Schools. Selection and organization of content, preparation and presentation of data, and methods of teaching. Required of all students whose major is social science.
- 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. Open to students preparing to teach natural science. Required for practice teaching in science.
- T.41. Teachers' Course in Swedish.
- 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.

The teachers' courses in methods of teaching and in practice teaching are combined into a one-year course in the following subjects:

- T.52-53-54. English.
- T.56-57-58. Mathematics.
- T.62-63-64. Secondary School Science.
- T.66-67-68. History and Social Science.
- T.70-71-72. German.
- T.73-74-75. Latin.
- T.76-77-78. Romance Languages (French and Spanish).
- T.80-81-82. Commercial Subjects.
- T.83. Teachers' Course in Journalism.

JUNIOR HIGH SCHOOL TEACHING

- 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.
- T.39. Social Science for Junior High Schools.
- T.50. Teaching of Composition in the Junior High Schools. Differentiated purposes in reading and literature. Methods of classroom presentation. Group and project method in extensive reading. Illustrative material. Testing.
- T.51. The Teaching of Literature in the Junior High Schools. Importance of classroom presentation in realizing the aims of composition teaching. Project motivation. Group method. The place of grammar, punctuation, and spelling.

ELEMENTARY SCHOOL TEACHING

- 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.
- 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.

- T.44. Children's Literature. A study of the nature and purposes of literature in the elementary school; bases of selecting materials for intensive and extensive reading; critical examination and evaluation of new literary materials for children's use.
- 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.
- 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.

KINDERGARTEN OR NURSERY SCHOOL TEACHING

- 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 to be employed.
- 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.
- T.32. Plastic Materials. The materials used in constructive work, paper, crayons, paints, clay, woodwork, sewing, sand, etc. The student will be given some opportunity for actual use of the materials and will gain considerable knowledge of the abilities of children of different ages.
- 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.
- 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.
- 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.
- 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.

TEACHING OF SPECIAL SUBJECTS

The courses in the theory and practice of teaching in the special subjects will be found in this bulletin as follows:

- Agricultural Education, pages 63 to 65.
- Art Education, pages 65 to 66.
- Home Economics, page 70.
- Industrial Education, pages 70 to 72.
- Nursery School Education, pages 72 to 73.
- Nursing Education, page 40.
- Physical Education for Men, pages 74 to 75.
- Physical Education for Women, pages 76 to 78.
- Public School Music, page 79.
- Subnormal Education, page 81.

OPEN TO GRADUATE STUDENTS

SECONDARY TEACHING

- 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 processes 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.
- T.118. Problems in Junior High School English.
- T.193. Foundation 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 high school subject-matter and to high school classroom procedure.
- T.195. Problems of High School English Teaching. An intensive study of various means of adapting subject content to high school pupils; observations; classroom experiments; conferences and classroom teachers; pupil advisory work; submission of proposals of special methods.
- T.222-223-224. Seminar in the Technique of High School Instruction.

ELEMENTARY TEACHING

- T.143. The Teaching of Reading. Emphasis upon a study of the present content, materials of instruction, and teaching procedures in lower, intermediate, and upper grade reading; a survey of the contributions of research; class and individual projects. Classroom observation of reading.
- T.181. Technique of Elementary School Instruction. A course in the critical study and application of methods of teaching to elementary school subjects. Observation of classroom procedures in the demonstration school.

NORMAL SCHOOL, COLLEGE, AND UNIVERSITY TEACHING

- 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.
- T.185. Investigation of Problems in Teacher Training. A survey of practice and of the problems relating to the institutional and in service training of teachers; recent investigations and findings; selected problems; individual projects. Intended for normal training directors, critic teachers, and supervisors, and for others interested in the problems of the professional training of teachers.

See also Ed.228-229-230 under General Course, page 60.

TEACHING OF SPECIAL SUBJECTS

The graduate courses in the theory and practice of teaching in special subjects will be found in this bulletin in the respective departmental course descriptions. For list of page references see page 84.

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The Bulletin
of the University of
Minnesota

The College of Education
Part II
Announcement of Program for the Year
1929 - 1930



Vol. XXXII No. 50 August 26 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*

UNIVERSITY CALENDAR

1929-30

Fall Quarter

1929			
September	19	Thursday	Payment of fees closes, except for new students
September	23		Entrance examinations (for removal of entrance deficiencies)
September	23-24		Registration of all new students entering the freshman class
September	23-27		Examinations for removal of conditions Physical examinations
September	24-27		Registration period, ¹ Colleges of Science, Literature, and the Arts, and Education
September	25-28		Freshman Week
September	26-27		Registration days ¹ for all colleges not included above
September	27	Friday	Payment of fees for new students closes
September	30	Monday	Fall quarter classes begin, 8:30 ² a.m. First semester extension classes ³ begin
October	17	Thursday	Senate meeting, 4:30 p.m.
November	6	Wednesday	Mid-quarter grades due
November	11	Monday	Armistice Day; a holiday
November	16	Saturday	Homecoming Day
November	28	Thursday	Thanksgiving Day; a holiday
December	5	Thursday	State Day Convocation
December	16-19		Final examination period
December	19	Thursday	Commencement Convocation Senate meeting, 4:30 p.m.
December	21	Saturday	Fall quarter ends, 5:20 p.m.
December	26	Thursday	Payment of fees closes for all students in residence fall quarter ⁴

Winter Quarter

1930			
January	3	Friday	Entrance examinations
January	3-4		Registration days for new students in all colleges Registration closes at 12 m. Saturday

¹ Registration subsequent to the date specified will necessitate the approval of the college concerned. See also penalty fees for late registration, general information bulletin, page 45.

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.

² First hour classes begin at 8:15 at University Farm.

³ This date does not refer to correspondence study courses, which may be started at any time during the year.

⁴ New students must pay fees on dates announced for registration.

COLLEGE OF EDUCATION

January	6	Monday	Winter quarter classes begin 8:30 ² a.m.
February	1	Saturday	First semester extension classes close
February	3	Monday	Second semester extension classes begin
February	11	Tuesday	Mid-quarter grades due
February	12	Wednesday	Lincoln's Birthday; a holiday
February	20	Thursday	Charter Day Convocation Senate meeting, 4:30 p.m.
February	22	Saturday	Washington's Birthday; a holiday
March	19-22		Final examination period
March	20	Thursday	Commencement Convocation Payment of fees closes for all students in residence winter quarter ¹
March	22	Saturday	Winter quarter ends, 5:20 p.m.
<i>Spring Quarter</i>			
March	28	Friday	Entrance examinations
March	28-29		Registration day for new students in all colleges Registration closes at 12 m. Saturday
March	31	Monday	Spring quarter classes begin, 8:30 a.m. ²
April	18	Friday	Good Friday; a holiday
May	7	Wednesday	Mid-quarter grades due
May	15	Thursday	Cap and Gown Day Convocation Senate meeting, 4:30 p.m.
May	30	Friday	Memorial Day; a holiday
May	31	Saturday	Second semester extension classes close
June	8	Sunday	Baccalaureate service
June	9	Monday	Fifty-eighth annual commencement
June	11-14		Final examination period
June	14	Saturday	Spring quarter closes, 5:20 p.m.
<i>Summer Quarter</i>			
June	17-18		Registration, first term
June	19	Thursday	Classes begin, 8:00 a.m.
July	4	Friday	Independence Day; a holiday
July	26	Saturday	Registration and payment of fees for second term closes. First term closes
July	28	Monday	Second term classes begin
August	30	Saturday	Second term closes

¹ Registration subsequent to the date specified will necessitate the approval of the college concerned. See also penalty fees for late registration, general information bulletin, page 45.

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.

² First hour classes begin at 8:15 at University Farm.

SUPPLEMENT TO PART I, 1929-1930

GENERAL INFORMATION

Revised admission requirements.—The following statement of revised entrance requirements to the College of Education has been given tentative approval by the faculty to become operative at the beginning of the autumn quarter, 1930:

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, 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 the bulletin of the College of Education, Part I, the above requirements may be modified in details.

Apart from the specialized curricula, majors and minors are offered separately in the following fields: English; German, Latin, French, Scandinavian; geography, history, political science; botany, chemistry, physics, zoology; mathematics.

6. At the time of entrance a student must present a certificate from the Students' Health Service indicating that he is free from physical and health defects that would prevent him from the successful pursuit of educational work.

7. 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.

8. 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.

Limited honors course.—A limited honors course will be inaugurated on an experimental basis for the year 1929-30.

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.

SPECIALIZED CURRICULUM FOR SCHOOL LIBRARIAN*

Major Adviser: Frank 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 and to the university teacher's certificate for library training. Students will also qualify for teaching by completing requirements for a teaching major or for two teaching minors. It will be wisest to choose majors and minors in the fields of English and history.

All library training work may be deferred till the senior year.

Minor.—The requirements for a minor in library training will be satisfied upon the completion of Courses 102f, 104f, 107s, 108s, 112w, 114s.

Freshman Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
English	5	English	5	English	5
Modern World	5	Modern World	5	Modern World	5
Language	5	Language	5	Language	5
	15		15		15

Sophomore Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Science	5	Science	5	Elective	5
Language	5	Elective	7	Elective	5
Psychology	3	Psychology	3	Elective	5
Elective	2				
	15		15		15

* 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.

Completion of academic requirements—fall, winter, spring.
 Library courses—27-45 credits—fall, winter, spring.

Junior Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
102	Cataloging 3	112	Reference 3	107	Library Administration 3
103	Classification 3	114	Selection of Books 3	108	Library Administration 3
55	Ed. Psy. 3	Ed. Ad. 65	The High School 3	T. 15	Tech. of H. S. Instruction 3
	Continuation of required elective academic courses 6		Continuation of required elective academic courses 6		Continuation of required elective academic courses 6
	15		15		15

Senior Year

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Special Methods and Practice Teaching 3		Special Methods and Practice Teaching 3		Special Methods and Practice Teaching 3	

DESCRIPTION OF COURSES

- Lib. Meth. 101f. Bibliography. Trade and national bibliography of the United States, Great Britain, and Europe; book ordering methods.
- Lib. Meth. 102f. Cataloging. Elements of dictionary cataloging. Lecture, problems, and practice.
- Lib. Meth. 103w. Cataloging. Continuation of Cataloging 102, with special attention to difficult books and administrative aspects of a catalog department.
- Lib. Meth. 104f. Classification. Classification by the Dewey Decimal System, subject headings, author numbers, shelf and accession records.
- Lib. Meth. 105w. Classification. Continuation of Lib. Meth. 104. Library of Congress and other classifications; classed catalogs; special adaptations of classification.
- Lib. Meth. 106f.w. Current Library Problems. Discussion of specific library problems and conditions in American libraries. Two quarters continuation course.
- Lib. Meth. 107s. School Library Administration. Administrative methods and problems of school libraries.
- Lib. Meth. 108s. Public Library Administration. Administration, equipment, finance, and extension work of public libraries.
- Lib. Meth. 109w. Library Work with Children.
- Lib. Meth. 110f. Library Binding. Economics of library binding. Materials, processes, records, book repair.
- Lib. Meth. 111f.w.s. Library Practice. Practice, under supervision, in Minneapolis and St. Paul libraries. The time and character of the practice will be individually arranged to suit student aptitudes, usually in the second and third quarters. Required of all candidates as prerequisite for a degree in library training.
- Lib. Meth. 112w. Reference. Reference books and other material with emphasis on methods of search and adaptation of material to needs of users.

- Lib. Meth. 113s. Reference—Continued. Specialized reference material, public documents, and periodicals. Reference lists and reports on special problems.
- Lib. Meth. 114s. 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. 115f,w,s. Selection of Books for Adults. Principles of selection and criticism of representative books. Criticism and preparation of book lists. Continuation course.
- Lib. Meth. 116w. Selection of Books for Children. Principles of selection and criticism of representative juvenile books.
- Lib. Meth. 117w. Library Printing. Preparation of copy, editing, proof reading, layout of library publications. Criticism of typical printed material.
- Lib. Meth. 118s. Library Publicity. Preparation and use of print in library publicity. Library exhibitions, etc.

PROGRAM GENERAL COURSES

No.	Title	Hour	Day	Bldg.	Instructor
Ed.5of,w,s,	Art Appreciation	IV	WF	207bOPh	Miss Raymond
	(2 cred.; jr., sr.; no prereq. Lect.)				
Ed.208f	Methods in Ed. Research	I,II	S	301Psy	Mr. Haggerty, Mr. Johnson
	(2 cred.; grad.)				
Ed.228f- 229w-230s	Problems of College Education...	7:30-9:30 p.m.	M	Ar	Mr. Haggerty
	(6 cred.; grad.)				
Ed.X	Limited Honors Course.....	Ar	Ar	Ar	Mr. Miller Mr. Hudelson, Mr. Krey, Miss Smith
	(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.24	Public School Administration...	(See bulletin of Extension Division)			
Ed.Ad.65aw	The High School.....	I	TThS	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	III	TThS	210OL	Mr. Douglass
	(3 cred.; jr., sr.; prereq., Ed. Psy. 55)				
Ed.Ad.65s	The High School.....	II	TThS	210OL	Mr. Douglass
	(3 cred.; jr., sr.; prereq., Ed. Psy. 55)				
Ed.Ad.75s	The Elementary School.....	I	MWF	210OL	Mr. Peik
	(3 cred.; jr., sr.; prereq., Ed. Psy. 55)				
Ed.Ad.113w	High School Curriculum.....	II	TThS	210OL	Mr. Hudelson
	(3 cred.; sr., grad.; prereq., 10 hrs. in ed. incl. Ed. Psy. 55)				
Ed.Ad.115	Organization of the Elementary School	<i>Not offered</i>			
Ed.Ad.119f	Elementary School Curriculum..	1	MWF	210OL	Mr. Peik
	(3 cred.; sr., grad.)				
Ed.Ad.119Tw- 120Ts	Elementary School Curriculum...	III-IV	S	Ar	
	(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.)				

* See Industrial Education 105, p. 22.

PROGRAM

No	Title	Hour	Day	Bldg.	Instructor
Ed.Ad.123s	Supervision of High School In- struction (3 cred.; sr., grad.; prereq., 10 hrs. in ed.)	II	TThS	104OLa	Mr. Boardman
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	210OI.	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.133af- 133bw	Guidance in Secondary Schools.. (4 cred.; prereq., 10 hrs. in ed. including Ed.Psy.55)	IX,X	T	104OLa	
Ed.Ad.150af- 150bw	Supervision and Improvement of Instruction (6 cred.; sr., grad.; prereq., 15 or equiv.)	III	MWF	104OLa	Mr. Brueckner
Ed.Ad.151w	Supervision: Uses of Educational Tests in Improving Instruction. (2 cred.; sr., grad.; prereq., 15 or equiv.)	III-IV	S	104OLa	Mr. Brueckner
Ed.Ad.152w	Supervision: The Adjustment of Schools to Industrial Differences (2 cred.; sr., grad.; prereq., 15 or equiv.)	IX, X	W	202Ed	Mr. Peik
Ed.Ad.153s	Supervision of English in the Elementary Schools (2 cred.; sr., grad.; prereq., 15 or equiv.)	IX,X	T	104OLa	Mr. Brueckner
Ed.Ad.154s	Supervision of Social Sciences in the Elementary Schools (2 cred.; sr., grad.; prereq., 15 or equiv.)	III,IV	S	104OLa	Mr. Brueckner
Ed.Ad.155f	Supervision of Arithmetic in the Elementary Schools (2 cred.; sr., grad.; prereq., 15 or equiv.)	III-IV	S	104OLa	Mr. Brueckner
Ed.Ad.156s	Practice Supervision — Observa- tion and Field Work..... (3 cred.; sr., grad.; prereq., 15 or equiv.)	1:3-30	TTh	Ar	Mr. Peik
Ed.Ad.157f,w,s	Practice in Supervision..... (9 cred.; sr., grad.; prereq., con- sent 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	Ar	Mr. Peik

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
Ed.Ad.164w	High School Administration..... (3 cred.; sr., grad.; prereq., 10 hrs. in ed. incl. Ed. Psy. 55)	II	TThS	104OLA	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	104OLA	Mr. Douglass
Ed.Ad.169w	Extra-Curricular Activities (2 cred.; prereq., 10 hrs. in ed. incl. Ed.Psy.55)	IX,X	T	210OL	Mr. Boardman, Mr. Johnson
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.)	III,IV	S	206Ed	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> <i>Not offered</i> (3 cred.; sr., grad.)				
Ed.Ad.184f	Supervision of Practice Teaching (2 cred.; sr., grad.)	9-11 a.m.	S	Ar	Mr. Boardman
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
Ed.Ad.225f-226w-227s	Seminar in Elementary School Problems	IX,X	Th	Ar	Mr. Brueckner, Mr. Peik

AGRICULTURAL EDUCATION

Major Adviser: A. V. Storm

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
Agr.Ed.11f	Principles of Vocational Education (3 cred.; jr., sr.;§ no prereq.)	III	MWF	202Ad	Mr. Jackson, Mr. Field
Agr.Ed.11w,s	Principles of Vocational Education (Same as 11f)	II	TThS	202Ad	Mr. Jackson, Mr. Field
Agr.Ed.21f	Vocational Education (3 cred.; jr., sr.; no prereq.)	III	TThS	202Ad	Mr. Mayne
Agr.Ed.41§*	<i>Apprentice Teaching</i> <i>Not offered</i> (2 cred.; jr., sr.;¶ prereq., 11)				
Agr.Ed.42f,w,s‡*	Supervised Teaching Experience. (3 cred.; jr., sr.¶)	Ar	Ar	Ar	Mr. Field Mr. Nylin

* A laboratory fee of \$1 per credit is charged for this course.

‡ A special fee of \$1 per credit hour is charged for this course.

¶ 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.

§ Offered only to those preparing to teach.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
Agr.Ed.64w,s	Survey of Agriculture (3 cred.; no prereq.)	Ar	Ar	Ar	Mr. Field and others
Agr.Ed.75w,s	Visual Presentation (3 cred.; jr., sr.; prereq., 11)				
	Lect.	VI	M	202Ad	Mr. Field
	Lab.	VI,VII	WF	202Ad	
Agr.Ed.81s	Extension Work (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.)	VI	MWF	118Ad	Mr. Storm
Agr.Ed.82f,w,s	Agricultural Extension Field Course (3 to 10 cred.; jr., sr.; prereq., †† 81)	Ar	Ar	118Ad	Mr. Storm
Agr.Ed.121	Teachers' Course, Home and School Gardening (2 cred.; prereq., division ap- proval)	Ar	Ar	Ar	
Agr.Ed.131	Methods in Teaching High School Agriculture (5 cred.; jr.,** sr.; † prereq., 2 hon. pts. in 41)	Not offered			
Agr.Ed.141w,s	Supervised Practice in Vocational Agriculture (3 cred.; sr.; †§ prereq., 11)	Ar	Ar	Ar	Mr. Field
Agr.Ed.144w	Course Organization and Instruc- tion for the Individual in Vo- cational Agriculture (2 cred.; sr.; † prereq., 131)	Ar	Ar	Ar	
Agr.Ed.151	Organization and Management... (5 cred.; sr.; § † prereq., 11, 21)	Not offered			
Agr.Ed.153w,s	Consolidated Rural Schools..... (3 cred.; jr., sr.; § prereq., 11)	Ar	Ar	Ar	
Agr.Ed.154	Rural Education and Community Life (3 cred.; sr.; prereq., 11)	Ar	Ar	Ar	
Agr.Ed.155	Consolidated Rural School Prob- lems (3 cred.; jr., sr.; § prereq., 11, 153, or equiv.)	Ar	Ar	Ar	
Agr.Ed.171w,s	Problems in Procedure..... (3 cred.; sr.; § † prereq., 42)	Ar	Ar	Ar	
Agr.Ed.176s	Problems in Visual Presentation.. (3 cred.; jr., sr.; † prereq., 75)	Ar	Ar	Ar	Mr. Field
Agr.Ed.181f	Teaching Agriculture (5 cred.; jr., sr.; † prereq., 11)	III	MTWThS	202Ad	Mr. Storm, Mr. Field, Mr. Nylin

** Open to juniors on the approval of the chief of the division.

†† Broad curriculum approved by the Agricultural Education Division and a position approved by the Agricultural Extension Division are also prerequisites in this course.

‡ 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

§ Offered only to those preparing to teach.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
Agr.Ed.182w	Teaching Agriculture	III	MTWThF	202Ad	
	(Same as 181f)				
Agr.Ed.183s	Teaching Agriculture	III	MTWThF	202Ad	
	(Same as 181f)				
Agr.Ed.191f- 192w-193s	Seminar in Agricultural Education	Ar	Ar	207Ad	Mr. Storm, Mr. Field
	(5 cred.; sr.; prereq., 11 cred. in agr. ed.)				

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	Miss Clousing
	2	III,IV	TThS	207aOPh	Mrs. Hanley
	3	VI,VII	MWF	207aOPh	Mrs. Hanley
ArtEd.20f- 21w-22s	Principles of Harmony in Form and Color				
	(9 cred.; soph., jr., sr.; prereq., 2, 3)				
	Sec. 1	I,II	MWF	207bOPh	Mr. Hilpert
	2	II,III	MWF	207bOPh	Mr. Hilpert
	3	III,IV	MWF	207aOPh	Mr. Hilpert
ArtEd.50f,51w	Commercial and Industrial Design	VI,VII	MWF	207bOPh	Mr. Hilpert
	(3 cred.; jr., sr.; prereq., 1, 2, 3, 4, 5, 7, 8, or ar.)				
ArtEd.55 56,57	Fundamental Art Principles ..	Not offered			
	(1 cred.; all; no prereq.)				
ArtEd.153f, 154w	Design for the Consumer	Not offered			
	(3 cred.; jr., sr.; prereq., 1, 2, 3, 7, 8, 9, and 20, 21, 22, or 50, 51)				

DRAWING

ArtEd.4,5,6f,w,s	Still Life Drawing				
	(3 cred.; all; no prereq.)				
	(Each section limited to 20)				
	Sec. 1	I,II	W	203aOPh	Miss Lutz
	2	I,II	W	203 OPh	Mr. Harmes
	3	III,IV	W	203aOPh	Miss Lutz
	4	III,IV	W	203 OPh	Mr. Harmes
ArtEd.7,8,9f,w,s	Sketch, Course I				
	(3 cred.; all; no prereq.)				
	(Limited to 20)				
	Sec. 1	I,II	F	203 OPh	Miss Lutz
	2	I,II	F	202aOPh	Mr. Harmes
	3	III,IV	F	203aOPh	Miss Lutz
	4	III,IV	F	203 OPh	Mr. Harmes

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
ArtEd.10f-11w-12s	Graphic Composition (3 cred.; all; no prereq.)				
	Sec. 1	I,II	M	203aOph	Miss Raymond
	2	II,III	M	203 OPh	Miss Raymond
	3	III,IV	M	203aOph	Miss Raymond
ArtEd.23,24,25f,w,s	Water Color (3 cred.; soph., jr., sr.; prereq., 4, 5, 6)				
	Sec. 1	I,II	T	203 OPh	Mr. Hilpert
	2	III,IV	T	203 OPh	Mr. Hilpert
ArtEd.26,27,28f,w,s	Charcoal, Pencil, and Pen Techniques (3 cred.; soph., jr., sr.; prereq., 4, 5, 6)				
	Sec. 1	I,II	Th	203 OPh	Miss Lutz
	2	II,III	Th	203aOph	Miss Lutz
ArtEd.29,30,31f,w,s	Sketch, Course II (3 cred.; soph., jr., sr.; prereq., 7, 8, 9)				
	Sec. 1	I,II	S	203aOph	Miss Raymond
	2	III,IV	S	203 OPh	Miss Raymond
ArtEd.60,61,62f,w,s	Advanced Water Color (1 cred each; soph., jr., sr.; prereq., 25)	I,II	M	202 OPh	Mr. Harmes
ArtEd.63,64,65f,w,s	Advanced Techniques (1 cred. each; soph., jr., sr.; prereq., 28)	III,IV	M	202 OPh	Mr. Harmes
ArtEd.66,67,68f,w,s	Advanced Sketch (1 cred. each; soph., jr., sr.; prereq., 31)	I,II	S	203aOph	Mr. Harmes

HANDICRAFTS

ArtEd.32w	Cardboard and Paper Construction (1 cred.; all; no prereq.) (Sections limited to 20)				
	Sec. 1	V(VI,VII)	W	10OPh	Miss Ross
	2	VI(VII,VIII)	W	10OPh	Miss Ross
ArtEd.33w	Bookbinding (2 cred.; all; no prereq.) (Limited to 20)	VI,VII	TTh	10OPh	Miss Ross
ArtEd.35f,w,s*	Clay Modeling (2 cred.; prereq., 4 cred. in sketch)	III,IV	MWF	11OPh	Miss Clousing
ArtEd.37f	Basketry (2 cred.; all; no prereq.)				
	Sec. 1	V(VI,VII)	TTh	11OPh	Miss Ross
	2	VI(VII,VIII)	TTh	10OPh	Miss Ross

* A laboratory fee of \$1.50 is charged for this course.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
ArtEd.38f	Elementary Weaving and Allied Crafts (1 cred.; all) (Limited to 15)	Sec. 1 2	V(VI,VII) VI(VII,VIII)	W 10OPh W 11OPh	Miss Ross Miss Ross Miss Ross
ArtEd.39w	Advanced Basketry (2 cred.; prereq., 37)		VIII,IX	TTh 11OPh	Miss Ross
ArtEd.40f,w	Advanced Weaving (2 cred.; jr., sr.) (Limited to 10)	Sec. 1 (f) 2 (w)	III,IV V,VI	MF 11OPh MF 11OPh	Miss Ross
ArtEd.41f,s*	Elementary Pottery (2 cred.; all; no prereq.)	Sec. 1 2	V(VI,VII) VI(VII,VIII)	MF 10OPh MF 11OPh	Miss Ross Miss Ross
ArtEd.42w*	Advanced Pottery (2 cred.; all; prereq., 41) (Limited to 10)	Sec. 1 2	VI(VII,VIII) VII(VIII,IX)	MF 10OPh MF 10OPh	Miss Ross Miss Ross
ArtEd.43*	<i>Advanced Pottery—Continued</i>		<i>Not offered</i>		
ArtEd.44s	Application of Design to Fabrics (2 cred.; all; prereq., 15 cred. in design)	Sec. 1 2	V(VI,VII) VI(VII,VIII)	TTh 10OPh TTh 10OPh	Miss Ross 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
ArtEd.46s*	Metal Work (2 cred.; soph., jr., sr.; prereq., four terms design) (Limited to 10)		VIII(IX)	MWF 10OPh	Miss Ross

ART HISTORY AND APPRECIATION

ArtEd.70 *Art of the Italian Renaissance* *Not offered*

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)	IV		F 10OPh	Mrs. Hanley
ArtEd.83s	Problems in Art Education (3 cred.; sr.; prereq., 12 cred. in design, 12 cred. in drawing, 6 cred. in handicrafts)	4:00-4:50		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 PubSchs	Miss Raymond

* A laboratory fee of \$1.50 is charged for this course.

† A laboratory fee of \$1 per credit hour is charged for this course.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
<i>ArtEd.189</i>	<i>Application of Esthetic Theories in Public School Art Education</i>				
	(3 cred.; sr., grad.; prereq., 9 cred. in drawing, 9 cred in design, 6 cred. in handicrafts)				<i>Not offered</i>

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	MWF	PsyAm	Mr. Miller
	2	III	MWF	210OL	Mr. Van Wagenen (fall)
	3	VII	MWF	104OLa	Mr. Noll (winter)
Ed.Psy.55w,s	Educational Psychology				Miss Bragdon
	(See 55f)				
	Sec. 1	I	MWF	PsyAm	Mr. Miller
	2	III	MWF	210OL	Mr. Noll
Ed.Psy.56Tf-57Tw	Educational Psychology for Elementary School Teachers	III-IV	S	Psy	Mr. Van Wagenen
	(4 cred.; jr., sr.; prereq., 6 cred. in psy.)				
Ed.Psy.60f	Introduction to Statistical Methods				
	(2 cred.; jr., sr.; prereq., 6 cred. in psy.)				
	Sec. 1	IX-X	T	Psy	Mr. Noll
	2	II	MW	210OL	Mr. Eurich
Ed.Psy.60s	Introduction to Statistical Methods	I-II	S	206Ed	Mr. Eurich
	(See 60f)				
Ed.Psy.111Tf-112Tw	Educational Measurements in the Elementary School (for teachers)	I-II	S	Psy	Mr. Van Wagenen
	(4 cred.; jr., sr., grad.; prereq., 55 or equiv.)				
Ed.Psy.111S	Educational Measurements in the Elementary School	II	MWF	Psy	
	(3 cred.; jr., sr., grad.; prereq., 55 or equiv.)				
Ed.Psy.113f-114w-115S	Psychology of Elementary School Subjects	IX, X	W	Psy	Mr. Van Wagenen
	(2 cred. per qtr.; jr., sr., grad.; prereq., 10 cred. in psy. and ed.)				
Ed.Psy.116w-117S	Advanced Statistical Methods in Education	IX, X	T	Psy	Mr. Van Wagenen
	(4 cred.; sr., grad.; prereq., 60 or equiv.)				

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
Ed.Psy.133w	Systematic Educational Psychology (4 cred.; jr., sr., grad.; prereq., 15 cred. in psy. and ed.)	I	MTWTh	104OLA	Mr. Eurich
Ed.Psy.134f	Mental Tests (2 cred.; sr., grad.; prereq., 55 and 60 or equiv.)	VII, VIII	MW	211Psy	Mr. Noll
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. Noll
Ed.Psy.138f- 139w†	Experimental Educational Psychol- ogy (4 cred.; sr., grad.; prereq., 55 or equiv.)	IX, X	WF	116Psy	Mr. Rockwell
Ed.Psy.141	<i>Psychology of Speech Disorders</i>	Not offered			
Ed.Psy.143f- 144w†	Individual Mental Examination (4 cred.; sr., grad.; prereq., 55 and 111 or 134. Permission of instructor)	Ar	Ar	Psy(fall) (winter)	Mr. Rockwell, Mr. Noll
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. Chamber- lain
Ed.Psy.149f- 150w†-151s	Psycho-Educational Clinic (2 to 6 cred.; sr., grad.; permis- sion 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. Miller, Mr. Rockwell, Mr. Van Wagenen
Ed.Psy.157f	Psychology of Child Development (2 cred.; jr., sr., grad.; prereq., 6 cred. in psy.)	I, II	S	210OL	Miss Bragdon
Ed.Psy.153w	Psychology of Adolescence (3 cred.; jr., sr., grad.; prereq., 55 or equiv.)	VII	MWF	210OL	Miss Bragdon
Ed.Psy.159s	Psychology of Personality (3 cred.; sr., grad.; prereq., 55 and 116 or 134 or parallel)	VII	MWF	210OL	Miss Bragdon
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 Bragdon, Mr. Roulon, Mr. Smith
Ed.Psy.183s	Psychology of Gifted Children .. (2 cred.; jr., sr., grad.; prereq., 55 or equiv.)	III	TTh	210OL	Miss Bragdon

† The entire course must be completed before credit is received for any quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
Ed.Psy.184s	Mental Deficiency (2 cred.; jr., sr.; grad.; prereq., 55 or equiv.)	III,IV			Mr. Rockwell
Ed.Psy.189f	The Human Organism (3 cred.; sr., grad.; prereq., per- mission of the instructor)	III	MWF	Ar	Mr. Rockwell
Ed.Psy.190f	Original Nature of Man..... (3 cred.; sr., grad.; prereq., 55 and 60 or equiv. and permission 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>Seminar: Problems in Subnor- mality</i> (6 cred.; jr., sr., grad.)				<i>Not offered</i>
Ed.Psy.201f-202w- 203s	Seminar in Educational Psychol- ogy (No cred.; grad.)	Ar	Ar	301Psy	Mr. Haggerty, Miss Bragdon, Mr. Eurich, Mr. Miller, Mr. Noll, Mr. Rockwell, Mr. Van Wag- enen

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	Ar1E	Miss Alexander

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
H.Ed.101f	Foundations of Modern Education (3 cred.; jr., sr., grad.; prereq., 6 cred. in psy. and 6 cred. in hist.)	VI	MWF	210OL	Miss Alexander
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	<i>Philosophy of Education</i>	Not offered			
H.Ed.129-130	<i>Educational Classics</i>	Not offered			
H.Ed.131-132	<i>Comparative School Systems</i> ..	Not offered			
H.Ed.140w-141s	Topics in the History of Educa- tion (6 cred.; sr., grad.; prereq., per- mission of instructor)	VI, VII VI	W F	ArOL	Mr. Krey
H.Ed.211-212-213	<i>Seminar in History of Education</i>				

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	Mr. Anderson
H.E.Ed.40w*	Child Training (Same as 40f,s)	Ar	Ar	Ar	Mr. Anderson
H.E.Ed.42f,s†	Special Methods of Teaching Home Economics (3 cred.; jr., sr.; prereq., H.E.13, 83, Psy. 1-2, Agr. Ed. 11 or Ed. Psy. 55)	VIII	MWF	213HE	Miss Rose
H.E.Ed.49f,w,s†	Observation and Teaching: Gen- eral Home Economics. (8 cred.; sr.; prereq., 42‡)	IX	TTh	213HE	Miss Rose, Miss Carlotta Brown, Miss Chadderton, Miss Hadley, Miss Kafka, Miss Nordeen, Miss Sell, Miss Topp
	Lect.	IX	TTh	213HE	Miss Rose, Miss Carlotta Brown, Miss Chadderton, Miss Hadley, Miss Kafka, Miss Nordeen, Miss Sell, Miss Topp
	Teaching	Ar	Ar	Ar	Miss Rose, Miss Carlotta Brown, Miss Chadderton, Miss Hadley, Miss Kafka, Miss Nordeen, Miss Sell, Miss Topp
H.E.Ed.141f	Problems in Vocational Education in Home Economics..... (2 cred.; sr.; prereq., 42)	Ar	Ar	Ar	Miss Clara Brown, Miss Rose

* 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.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
H.E.Ed.142s	Educational Measurement in Home Economics (2 cred.; jr., sr.; prereq., 42, Ed. Psy. 55)	Ar	Ar	Ar	Miss Clara Brown
H.E.Ed.143f,w,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

INDUSTRIAL EDUCATION

Major Adviser: Homer J. Smith

No.	Title	Hour	Day	Bldg.	Instructor
<i>Ind.1</i>	<i>General Shopwork</i>	<i>Not offered</i>			
<i>Ind.2</i>	<i>General Shopwork</i>	<i>Not offered</i>			
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	60La	Mr. McGee
Ind.14w	Methods in Mechanical Drawing. (2 cred.; prereq., 10 cred. in drawing or consent of instructor)	IX, X	F	6AOLa	Mr. McGee
Ind.20s	Industrial History	IX, X	W	112OL	Mr. McGee
Ind.25f	Literature of Industrial Education (2 cred.; no prereq.)	IX, X	T	112OL	Mr. Smith
Ind.30w	Graphic Presentation	III, IV	S	112OL	Mr. Smith
Ind.40f	Analysis	IX, X	Th	112OL	Mr. McGee
Ind.42s	Course Organization	III, IV	S	112OL	Mr. Smith
Ind.50f, 51w,52s	Practice Teaching	Ar	Ar	Ar	Mr. Smith
Ind.60f	Significance of Vocational Education (Social)	IX, X	M	112OL	Mr. Prosser
Ind.61w	Significance of Vocational Education (Econ.)	IX, X	M	112OL	Mr. Prosser

* A laboratory fee of \$1 per credit hour is charged for this course.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
<i>Ind.65</i>	<i>Methods in Non-Vocational Subjects</i>	<i>Not offered</i>			
Ind.66s	Methods in Related Subjects.... (2 cred.; prereq., Ind.40)	IX, X	T	112OL	Mr. Smith
Ind.70f	Methods in Shop Subjects..... (2 cred.; prereq., Ind.40)	IX, X	W	112OL	Mr. Smith
Ind.80w	General Industrial Training.... (2 cred.; no prereq.)	IX, X	T	112OL	Mr. Smith
Ind.90f	Tests in Industrial Subjects.... (2 cred.; prereq., Ed.Psy.55)	III, IV	S	112OL	Mr. Smith
Ind.105w	Industrial Education	IV	MWF	112OL	Mr. Smith
	(3 cred.; jr., sr., grad.; <i>not open</i> to those pursuing the specialized curriculum in industrial education)				
Ind.110s	Guidance in the Schools..... (2 cred.; jr., sr., grad.; prereq., Ed.Psy.55)	IX, X	Th	112OL	Mr. Smith
Ind.150f, 151w, 152s	Problems in Vocational Education (6 cred.; prereq., consent of the instructor)	7:30-9:10p.m.	M	112OL	Mr. Prosser
Ind.170f	Administration of Industrial Education (Day)	IX, X	F	112OL	Mr. Craigie
	(2 cred.; jr., sr., grad.; no prereq.)				
Ind.171w	Administration of Industrial Education (Evening)	IX, X	W	112OL	Mr. Bass
	(2 cred.; jr., sr., grad.; prereq., Ind.170)				
Ind.172s	Administration of Industrial Education (Part time)	IX, X	M	112OL	Mr. Prosser
	(2 cred.; jr., sr., grad.; prereq., Ind.170,171)				

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.

INSTITUTE OF CHILD WELFARE*

Major Adviser: John E. Anderson

No.	Title	Hour	Day	Bldg.	Instructor
C.W.40w†	Child Training	IV	MW	202OLa	Mrs. Foster
	(3 cred.; jr., sr.; prereq., Psy. 1-2)	and 1 hour ar.			
C.W.60f	Modern Aspects of Child Study.	VI	TTh	202OLa	Miss McGinnis
	(2 cred.; jr., sr.; prereq., 6 cred. in psy. and 5 cred. in soc. sci.)				

* 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.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
C.W.80f	Child Psychology (3 cred.; jr., sr.; prereq., Psy. 1-2)	I	MWF	202OLA	Mr. Anderson
C.W.90w	Physical Development of the Young Child (2 cred.; jr., sr.; prereq., Zool. 1-2, Psy. 1-2)	V	TTh	202OLA	Miss Boyd
C.W.120s	Health Care of the Young Child (2 cred.; sr., grad.; prereq., 50-51 and 60 and permission of instructor)	V	TTh	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†-135	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)	VI VI-VII	M WF	202OLA	Miss Good-enough
C.W.170f	Parental Education in Child Care and Training (3 cred.; sr., grad.; prereq., 52-53-54, 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)	II	TTh	202OLA	Miss Good-enough
C.W.230f-231w-232s	Seminar in the Development of the Young Child.....	Ar	Ar	202OLA	Mr. Anderson
C.W.233f-234w-235s	Research in the Development of the Young Child.....	Ar	Ar		Mr. Anderson
C.W.250-251-252	Seminar in Nursery School Education	Ar	Ar		Mrs. Foster

LIBRARY METHODS

Major Adviser: Frank K. Walter

No.	Title	Hour	Day	Bldg.	Instructor
Lib.Meth.101f	Bibliography (3 cred.; jr., sr.; no prereq.)	III	MWF	5Lib	Mr. Russell
Lib.Meth.102f	Cataloging (3 cred.; jr., sr.; no prereq.)	I	MWF	5Lib	Miss Hutchinson

† Two quarters must be completed before credit is received for any quarter.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
Lib.Meth.103w	Cataloging (3 cred.; jr., sr.; prereq., 102)	I	MWF	5Lib	Miss Hutchinson
Lib.Meth.104f	Classification (3 cred.; jr., sr.; no prereq.)	II	TThS	5Lib	Miss Hutchinson
Lib.Meth.105w	Classification (3 cred.; jr., sr.; prereq., 104)	II	TThS	5Lib	Miss Hutchinson
Lib.Meth.106f,w	Current Library Problems. (3 cred.; prereq., 9 cred. or si- multaneously with 101, 102, 104)	IV	MWF	5Lib	Mr. Walter
Lib.Meth.107s	School Library Administration. (3 cred.; prereq., 9 cred. in lib. meth.)	VIII	MWF	5Lib	Miss Scripture
Lib.Meth.108s	Public Library Administration. (3 cred.; prereq., 9 cred. in lib. meth.)	I	MWF	5Lib	Miss Baldwin, Miss Wood
Lib.Meth.109w	Library Work with Children. (3 cred.; prereq., 9 cred. in lib. meth.)	II	MWF	5Lib	Miss McGregor
Lib.Meth.110f	Library Binding (1 cred.; jr., sr.; no prereq.)	III	T	5Lib	Mr. Walter
Lib.Meth.111 f,w,s	Library Practice (9 cred.; sr.; prereq., 15 cred. in lib.meth.)	Ar	Ar	Ar	Mr. Walter
Lib.Meth.112w	Reference (3 cred.; jr., sr.; no prereq.)	III	MWF	5Lib	Miss Hutchinsor
Lib.Meth.113s	Reference (3 cred.; prereq., 112)	III	MWF	5Lib	Miss Hutchinson
Lib.Meth.114s	Selection of Books for Adolescents (3 cred.; prereq., Lib.Meth. 109 or 4 cred. of 115)	IV	MWF	5Lib	Miss McGregor
Lib.Meth. 115f,w,s	Selection of Books for Adults. (6 cred.; jr., sr.)	III	ThS	5Lib	Miss Hutchinson
Lib.Meth.116w	Selection of Books for Children. (3 cred.; jr., sr.; no prereq.)	IV	MWF	5Lib	Miss McGregor
Lib.Meth.117w	Library Printing (1 cred.; jr., sr.)	III	T	5Lib	Mr. Walter
Lib.Meth.118s	Library Publicity (1 cred.; prereq., 9 cred. in lib. meth.)	III	T	5Lib	Mr. Walter

PHYSICAL EDUCATION FOR MEN

Major Advisers: L. F. Keller, F. W. Luehring

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	
	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 (Boxing)	

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
Phys. Ed. 7f,8w,9s	Advanced Leaders (3 cred.; soph., jr., sr.; prereq., 1-2-3)	Lect. IV Lab. Ar	T	206A	Mr. Keller
Phys. Ed. 10f-11w- 12s	Minor Sports (6 cred.; soph., jr., sr.; prereq., 1-2-3)	Lect. IV Lab. IV	S MWF	204A	Mr. Keller
Phys. Ed. 13f,14w, 15s	Corrective Work (3 cred.; by petition only)	Sec. 1 II 2 III IV	TThS TThS MTS	264S	Mr. Iverson
Phys. Ed. 16f,17w, 18s	Drill Substitution (No cred.; by petition only)	Sec. 1 II 2 III 3 IV	MWF MWF MWF	264S	Mr. Iverson
Phys. Ed. 19f-20w- 21s	Gymnastics (3 cred.; jr., sr.; prereq., 1-2-3)	III	TThS	A	Mr. Keller
Phys. Ed. 22f-23w	Kinesiology (4 cred.; jr., sr.; prereq., 1-2-3, Anat. 4)	VI	TTh	204A	Mr. Keller
Phys. Ed. 24s	Technique of Gymnastic Teaching (2 cred.; jr., sr.; prereq., 22-23, Anat. 4)	VI	TTh	204A	Mr. Keller
Phys. Ed. 28f	Physical Examination and Nor- mal Diagnosis (2 cred.; sr.; prereq., Physiol. 57-58)	III	MWF	204A	Dr. Cooke
Phys. Ed. 29w	Orthopedic and Remedial Gym- nastics (2 cred.; sr.; prereq., 22-23, 24, 28)	III	MWF	204A	Dr. Cooke
Phys. Ed. 30s	Athletic Training (2 cred.; sr.; prereq., none)	I	MWF	204A	Dr. Cooke
Phys. Ed. 31f	History of Physical Education... (2 cred.; sr.; prereq., Ed. 1)	II	TThS	204A	Mr. Keller
Ph 5 Ed. 32w	Principles of Physical Education. (3 cred.; sr.; prereq., 31, 10-11- 12, 23, 24)	II	TThS	204A	Mr. Keller
Phys. Ed. 33s	Organization and Administration of Physical Education..... (3 cred.; sr.; prereq., 32)	II	TThS	204A	Mr. Luehring
Phys. Ed. 35	<i>Athletic Organization and Admin- istration</i>	<i>Not offered</i>			
Phys. Ed. 37s	Football Coaching (3 cred.; sr.; no prereq.)	Lect. III Lab. Ar	MWF Ar	202S	Dr. Spears
Phys. Ed. 38w	Basket-Ball (2 cred.; sr.; no prereq.)	VI	MWF	204A	Mr. MacMillan

No.	Title	Hour	Day	Bldg.	Instructor
Phys.Ed.39s	Track Athletics	VI	MWF	202S	Mr. Finger
	(2 cred.; sr.; no prereq.)				
Phys.Ed.42f	Baseball	VI	MWF	202S	Mr. Bergman
	(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.

No.	Title	Hour	Day	Bldg.	Instructor
Phys.Ed.1f	Freshman Physical Education.... (1 cred.; required of all students; no prereq.)				
	Lab. Sec. 1	III	MWF	3,151,153WGm	Ar
	2	IV	MWF	3,151,153WGm	Ar
	3	V	MWF	3,151,153WGm	Ar
	4	VI	MWF	3,151,153WGm	Ar
	5	VIII	MWF	3,151,153WGm	Ar
	6	III	TThS	3,151,153WGm	Ar
Phys.Ed.2w†	Freshman Physical Education.... (See 1f)				
	Lect. Sec. 1	I	T	OPhAud	Ar
	2	II	T	206OLa	Ar
	3	III	W	206OLa	Ar
	4	IV	M	OLAu1	Ar
	5	VI	T	OLAu1	Ar
	6	III	Th	206OLa	Ar
	Lab. Sec. 1	III	MWF	3,151,153WGm	Ar
	2	IV	MWF	3,151,153WGm	Ar
	3	V	MWF	3,151,153WGm	Ar
	4	VI	MWF	3,151,153WGm	Ar
	5	VIII	MWF	3,151,153WGm	Ar
	6	III	TThS	3,151,153WGm	Ar
Phys.Ed.3s‡	Freshman Physical Education.... (See 1f)				
	Lab. Sec. 1	III	MWF	3,151,153WGm	Ar
	2	IV	MWF	3,151,153WGm	Ar
	3	V	MWF	3,151,153WGm	Ar
	4	VI	MWF	3,151,153WGm	Ar
	5	VIII	MWF	3,151,153WGm	Ar
	6	III	TThS	3,151,153WGm	Ar

* A laboratory fee of \$1 is charged for this course.

† 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.

‡ Courses 2w and 3s are not open to students who have not had 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.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
Phys.Ed.4f¶	Preliminary Hygiene (for nurses and dental hygienists)	II	Th	201WGm	Ar
	(No cred.; no prereq.)				
Phys.Ed.4s	Preliminary Hygiene	II	T	206OLa	Ar
	(See 4f)				
Phys.Ed.7f-8w¶	Sophomore Gymnastics	IV	TS	153WGm	Ar
	(1½ cred.; soph.; prereq., 1-2-3)				
Phys.Ed.9s	Sophomore Archery				
	(½ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	II	MW	151WGm	Ar
	2	IV	TS		Ar
Phys.Ed.10f-11w‡	Sophomore Orthopedic and Individual Gymnastics				
	(1½ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	IV	TS	3WGm	Dr. Tolg
	2	VI	TTh	3WGm	Miss Denny
	3	II	MW	3WGm	Miss Denny
Phys.Ed.12s	Sophomore Orthopedic and Individual Gymnastics	IV	TS	3WGm	Dr. Tolg
	(See 10f-11w)				
Phys.Ed.13f-14w-15s*¶	Sophomore Interpretive Dancing . .	VI	TTh	151WGm	Miss Timberman
	(2 cred.; soph.; prereq., 1-2-3)				
Phys.Ed.13f,w-14s*	Sophomore Interpretive Dancing . .	II	MW	151WGm	Miss Timberman
	(1½ cred.; soph.; prereq., 1-2-3)				
Phys.Ed.16f-17w	Sophomore Games and Folk Dancing	I	MW	151WGm	Miss Dickson
	(1½ cred.; soph.; prereq., 1-2-3)				
Phys.Ed.18s	Tennis				
	(½ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	VII	WF	151WGm	Ar
	2	I	TTh	151WGm	Ar
	3	IV	TS	151WGm	Ar
	4	VIII	TTh	151WGm	Ar
	5	VI	TTh	151WGm	Ar
Phys.Ed.19f	Sophomore Hockey				
	(½ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	VII	WF	151WGm	Ar
	2	V	MW	151WGm	Ar
	3	VIII	TTh	151WGm	Ar
Phys.Ed.20w	Sophomore Basket-Ball				
	(½ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	VII	WF	151WGm	Ar
	2	V	MW	151WGm	Ar
	3	VII (3:00)	TTh	151WGm	Ar
	4	VIII	TTh	151WGm	Ar
Phys.Ed.21s	Sophomore Baseball				
	(½ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	VII	WF	151WGm	Ar
	2	V	MW	151WGm	Ar

* The spring quarter is not open to students who have not had the previous quarter.

‡ Students may enter any quarter.

¶ The winter quarter is not open to students who have not had the fall quarter.

|| Students who have not completed the requirement in preliminary hygiene may register for this course or for Preventive Medicine 3.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
Phys.Ed.22f,s- 23w*§	Sophomore Elem. Swimming.....				
	(1½ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	III		MW 51WGm	Miss Starr and others
	2	IV		MW 51WGm	Ar
	3	II		TTh 51WGm	Ar
	4	IV		TS 51WGm	Ar
	5	VII		TTh 51WGm	Ar
Phys.Ed.22f,w,s (See 22f,s-23w)	Sophomore Elem. Swimming.....				
	(See 22f,s-23w)				
	6	VIII (3:30)		TTh 51WGm	Ar
	7	VIII (4:00)		TTh 51WGm	Ar
		VII		MW 51WGm	Ar
Phys.Ed.25f,s- 26w*§	Sophomore Intermed. Swimming				
	(1½ cred.; soph.; prereq., 1-2-3, elementary swimming test)				
	Sec. 1	VIII½ (4:00)		MW 51WGm	Ar
	2	III		TTh 51WGm	Ar
	3	II		WF 51WGm	Ar
Phys.Ed.28f,s- 29w*§	Sophomore Advanced Swimming.				
(1½ cred.; soph.; prereq., 1-2-3, inter. swim. test)		VIII (3:30)		MW 51WGm	Miss Starr
Phys.Ed.30s	Sophomore Life Saving and Water Sports				
(¾ cred.; soph.; prereq., 1-2-3) adv. swim. test)		IX		MW 51WGm	Miss Starr
Phys.Ed.31w||	Sophomore Skating				
	(¾ cred.; soph.; prereq., 1-2-3)				
Sec. 1	VII		WF	Ar	
2	II		TTh		
Phys.Ed.32f,s‡	Sophomore Horseback Riding.....				
	(¾ cred.; soph.; prereq., 1-2-3)				
Sec. 1	VIII		TTh Ar	Miss Starr	
2	IX		TTh Ar	Miss Starr	
Phys.Ed.34f	Sophomore Golf—Advanced				
(¾ cred.; soph.; prereq., 1-2-3)		VI		TTh Ar	Miss Kissock
Phys.Ed.35s	Sophomore Golf—Elementary ...				
	(¾ cred.; soph.; prereq., 1-2-3,				
Sec. 1	I		TTh 151WGm	Miss Kissock	
2	II		TTh 151WGm	Miss Kissock	
3	II		MW 151WGm	Ar	
Phys.Ed.37f- 38w-39s	Freshman Major Sports.....				
I (fall)			TTh 151WGm	Miss Warnock	
VI½ (winter)			MW 151WGm	Miss Jones	
VIII (spring)			TTh 151WGm	Ar	
Phys.Ed.40w	Freshman Major Hygiene				
	(1 cred.; fr.; no prereq.)				
III			W 201WGm		
I			S		

* The winter quarter is not open to students who have not had the fall quarter.

§ No student may register for more than two quarters of swimming without permission, Course 22 is never closed for senior registration.

‡ 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.

|| Class meetings will be sixty minutes in length, since weather and ice conditions will cause omissions at times.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor	
Phys.Ed.43f-44w-45s	Theory and Function of Play .. (½ cred. fall, 3 cred. winter, ½ cred. spring; jr., sr.; prereq., 6 qtrs.)	Lab. Lect. Lab.	II (fall) III (winter) V (spring)	MW MWF MW	151WGm 201WGm 151WGm	Miss Kissock Miss Kissock Miss Kissock
Ph s.Ed.48f	Tennis and Orthopedic Gymnas- tics for Freshman Majors (1 cred.; majors in phys. ed.; no prereq.)		VI½	MWF	Ar	Ar
Phys.Ed.49w	Gymnastics for Freshman Majors (See 48)		II	MWF	151WGm	Ar
Phys.Ed 50s	Baseball for Freshman Majors... (½ cred.; majors in phys. ed.; no prereq.)		VII	WF	151WGm	Miss Dickson
Ph s.Ed.51f-52w	Gymnastics for Sophomore Ma- jors (½ 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
Ph s.Ed.56w-57s	Swimming with Technique and Methods (1 cred.; soph., jr.; prereq., 28f)	Lect. Lab.	VII (winter) VII VI(spring)	M F TTh	201WGm 51WGm	Miss Starr
Ph s.Ed.58w-59s	Advanced Folk Dancing with Technique and Methods..... (2 cred.; jr.; prereq., 6 qtrs.)	Lect. Lab.	I (winter) II I(spring)	M TTh MWF	Ar 151WGm Ar	Miss Bock
Phys.Ed.60f	Minor Sports with Technique and Methods (1 cred.; jr.; prereq., 6 qtrs.)		VI	MTTh	153WGm	Miss Jones
Ph s.Ed.61s	Minor Sports with Technique and Methods (See 60f)		VI	MTTh	153WGm	Miss Kissock. Miss Jones
Phys.Ed. 63f-64w-65s	Major Sports with Technique and Methods (3 cred.; soph., jr.; prereq., 37- 38-50)	63f 64w 65s	VII VI IV	TWF MTTh MTS	151WGm 151WGm 151WGm	Miss Warnock Miss Jones Miss Dickson
Phys. Ed. 66f-67w-68s	Interpretive Dancing (3 cred.; jr.; prereq., 6 qtrs.)		V	TF	151WGm	Miss Bock
Phys.Ed. 69f-70w-71s	Advanced Interpretive Dancing with Technique and Methods... (3 cred.; sr.; prereq., 66-67-68)		IV	MTS	151WGm	Miss Bock

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
Phys.Ed.72f-73w	Gymnastics for Senior Majors... (1 cred.; sr.; prereq., 54-55)	I	(1 hr.)W	151WGm	Miss Warnock
Phys.Ed.75f	History of Physical Education... (1 cred.; soph., jr.)	VII	M	201WGm	Miss Kissock
Phys.Ed.79	Applied Anatomy	II	F	201WGm	Miss Denny
Phys.Ed.80f-81w	Kinesiology	III(winter)	TThS	201WGm	Miss Denny
	(3 cred. fall, 4 cred. winter; jr.; prereq., Anat. 3, Farm Engr. 23)	III(spring)	TThS	201WGm	Miss Denny
Phys.Ed.82s	Physical Examination	III	MWF	201WGm	Dr. Tolg
	(2 cred.; jr.; prereq., 80-81)				
Phys.Ed.83s	Technique of Teaching and Principles of Gymnastics				
	(4 cred.; jr.; prereq., 54-55, 80-81)				
	Lab.	II	MWF	153WGm	Miss Warnock
		III	TTh	153WGm	
	Lect.	VII	M	201WGm	
		VI	F	201WGm	Miss Snell
Phys.Ed.85w-86s	Principles of Physical Education (2 cred. winter, 1 cred. spring; prereq., 44, 84, 91)	II(winter)	MF	201WGm	Miss Warnock
		IV (spring)	W		
Phys.Ed.87f	School Hygiene and Technique of Teaching Personal Hygiene... (3 cred.; sr.; prereq., Physiol. 57-58)	III	MWF	201WGm	Miss Warnock
Phys.Ed.88f-89w-90s	Orthopedic and Remedial Gym. (3 cred.; sr.; prereq., 82)				
	Lab.	II (fall)	TTh	3WGm	Dr. Tolg
	Lect.	I (fall)	F	201WGm	Dr. Tolg
	Lab.	V (winter)	T	3WGm	Dr. Tolg
	Lect.	II (winter)	W	201WGm	Dr. Tolg
					(Practice teaching as
	Lab.	Ar(spring)			
	Lect.	I (spring)	T	201WGm	Dr. Tolg
Phys.Ed.91f	Principles Underlying Dancing .. (2 cred.; sr.; prereq., 66-67-68)	I	TTh	151WGm	Miss Bock
Phys.Ed.92f-93w-94s*	Practice Teaching	Ar	Ar	Ar	Miss Warnock, Miss Kissock
	(6 cred.; sr.; prereq., 43-44-45, 56-57, 63-64-65, 69, 91, 83)				
Phys.Ed.97s	Administration and Physical Education	III	MWF	201WGm	Dr. Norris
	(3 cred.; sr.; prereq., 75)				

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

* A laboratory fee of \$1 per credit is charged for this course.

† With permission of director.

PROGRAM

PREVENTIVE MEDICINE AND PUBLIC HEALTH

Major Adviser: H. M. Diehl

MEDICAL SCHOOL

For specialized curriculum in school health work see Part I, Education bulletin

No.	Title	Hour	Day	Bldg.	Instructor
2f.w	First Aid (1 cred.; prereq., 10 cred. zool.) (Limited to 20 women)	VI, VII	W	§	Miss Fisher
3f.w,§†	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)	IV	TS	101bMH	Dr. Lees and others
50f.w,s	Public and Personal Health..... (3 cred.; jr., sr.; prereq., Zool. 1-2 and Psv. 1-2 or permission of instructor)	V	MWF	101bMH	Dr. O'Brien
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
53f,s	Elements of Preventive Medicine (3 cred.; jr., sr.; prereq., Psy. 1-2; Bact. 41 or equiv.)	II	MWF	101bMH	Dr. Diehl
57w	Health of Infant and Pre-school Child (2 cred.; jr., sr.; prereq., Zool. 1-2, Psv. 1-2; or 50, or 53)	III	TTh	101bMH	Dr. Boynton
58w	Maternal and Child Hygiene..... (2 cred.; jr., sr.; prereq., 50 or 52 or 53) (For public health nurses only)	III	MW	101bMH	Dr. Boynton
59w	Social Hygiene (1 cred.; jr., sr.; prereq., 50, 52, or 53, or permission of instructor)	VII	M	Ar	Ar
60w	Tuberculosis and Its Control... (2 cred.; jr., sr.; prereq., 50 or 52 or 53)	IV	TS	101bMH	Dr. Myers
61w	Mental Hygiene (3 cred.; jr., sr.; prereq., 50 or 52 or 53, Psy. 1-2)	III	TThS	101bMH	Dr. deBerry
62f.w	Principles of Public Health Nursing (3 cred.; jr., sr.; for public health nurses)	Ar	Ar	101bMH	Miss Butzerin

† Students may complete the former requirements in freshman hygiene by registering for this course.

§ Woman's Hall, University Farm.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
63w,s	Special Fields in Public Health Nursing (3 cred.; jr., sr.; public health nurses; prereq., 62 or equivalent)	Ar	Ar	101bMH	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 Count 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
70f,w	Home Nursing and Child Care (3 cred.; public health nurses; prereq., 62, 63, or equiv.)	Ar	Ar	Ar	Miss Butzerin
73w	Occupational Hygiene and Disease (2 cred.; jr., sr.; prereq., 53)	IV	MW	101bMH	Dr. Myers
80w	Health Supervision of the School Child (3 cred.; jr., sr.; prereq., 50 or 52 or 53)	II	MWF	101bMH	Dr. Diehl
102w	Sanitation (Cred. ar.; jr., sr., grad.; prereq., Bact. 101; Anal. Chem. 1-2 or 7; Org. Chem. 2 or 53; Phys. 24, 34, 44)	Ar	Ar	*	Dr. Whittaker
103s	Public Health Bacteriology (3 cred. or ar.; jr., sr., grad.; prereq., Bact. 101, 116)	VII, VIII or ar	MWF or ar	*	Miss Wade
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

PUBLIC SCHOOL MUSIC

Major Advisers: Carlyle M. Scott, Archie Jones

NOTE.—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‡	Class Instrument Teaching (3 cred.; fr.; no prereq.) (Previously Mu Ed.71-72-73)	I	Th	3Mu	Mr. Larusson

* State Board of Health.

‡ Woman's Hall, University Farm.

‡ A special fee of \$3 per credit is charged for this course.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
Mu.Ed.4f-5w-6s‡ 31s§	Advanced Class Instrument Teaching (3 cred.; soph.; prereq., Mu.Ed. 1-2-3) (Previously Mu.Ed.74-75-76)	I	MW	4Mu	Mr. Larusson
Mu.Ed.29f-30w-31s§	Grade 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)	VI	MWF	Ma	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)	Not offered			
Mu.Ed.64f-65w-66s	Orchestra Conducting (6 cred.; jr., sr.; prereq., Mu.Ed. 51-52-53)	VIII Observation	TTh	4Mu 7:30 p.m. W	
Mu.Ed.81f-82w-83s§	Supervision and Teaching (6 cred.; jr., sr.; prereq., 32-33-34)	VII	M	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	Ar
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 special fee of \$3 per credit is charged for this course.
§ A laboratory fee of \$1 per credit is charged for this course.

COLLEGE OF EDUCATION

THEORY AND PRACTICE OF TEACHING

Major Advisers: Leo J. Brueckner, Earl Hudelson

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	Teaching Junior High School Mathematics	<i>Not offered in 1929-30</i>			
T.15f,w,s	Technique of High School Instruction				
	(3 cred.; jr., sr.; prereq., Ed. Psy. 55)				
	Sec. 1	II	TThS	OLaAud	Mr. Lathrop
	2	II	MWF	OLaAud	Miss Smith
T.16f,w,s§	Practice Teaching	Ar	Ar	Ar	Mr. Boardman
	(5 cred.; sr., grad.; prereq., Ed. 15 and Special Methods Course)				
T.17s§	Practice Teaching of Subnormal Children	Ar	Ar	Ar	Mr. Boardman
	(2 cred.; jr., sr.)				
T.18	Teachers' Course in Zoology....	<i>Not offered in 1929-30</i>			
	(3 cred.; jr., sr., grad.; prereq., Zool. 1-2. Ed. 15)				
T.19w	Teachers' Course in Botany.....	VII	MTWThF	213Z	Miss Mygrant
	(5 cred.; jr., sr.; prereq., 18 cred. in bot. and Ed. 15)				
T.20s	Teachers' Course in Chemistry..	IV	MWF	315C	Mr. Geiger
	(3 cred.; jr., sr.; prereq., gen. chem. and qual. chem. and Ed. 15)				
T.21	Teachers' Course in English Composition.....	<i>Not offered in 1929-30</i>			
T.22	Teachers' Course in English Literature	<i>Not offered in 1929-30</i>			
T.23s	Teachers' Course in Geography	VII	MWF	105OL	Miss Stokes
	(3 cred.; jr., sr.; prereq., 15 cred. and Ed. 15)				
T.30f	Principles of Kindergarten and Nursery School Education ..	VIII	MWF	202OLA	Mrs. Foster
	(3 cred.; jr., sr.; prereq., C.W. 80)				
T.31w	Permanent Play Materials	VIII	TTh	202OLA	Mrs. Foster
	(2 cred.; jr., sr.; prereq., Psy. 1-2)				
T.32s	Plastic Materials	VIII	TTh	202OLA	Miss Headley
	(2 cred.; jr., sr.; prereq., C. W. 80)				
T.33w	Rhythms, Games, and Music ...	IX	TTh	202OLA	Miss Boynton
	(2 cred.; jr., sr.; prereq., T. 30)				
T.34s	Story Telling for Young Children	VI	TTh	202OLA	Miss Headley
	(2 cred.; jr., sr.; prereq., T. 30)				
T.35s	Teachers' Course in Norwegian	Ar	Ar	206F	
	(3 cred.; sr., grad.; prereq., Scand. 4-5 or 10-11-12 and Ed. 15)				

§ A special laboratory fee of \$1 per credit is charged for this course.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
T.37	<i>Social Science for Senior High Schools</i>	<i>Not offered in 1929-30</i>			
T.38	<i>Methods and Problems in Secondary School Science</i>	<i>Not offered in 1929-30</i>			
T.39	<i>Social Science for Junior High Schools</i>	<i>Not offered in 1929-30</i>			
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>	<i>Not offered in 1929-30</i>			
T.44f	Children's Literature	III, IV	S	Ar	Miss Smith
T.45	<i>Teaching of Geography and His- tory in the Elementary School</i>	<i>Not offered in 1929-30</i>			
T.46w	Practice Teaching with Special Methods	Ar	Ar	Ar	Mr. Peik
T.47	<i>Field Problems in High School Training Departments</i>	<i>Not offered in 1929-30</i>			
T.50f	The Teaching of Composition in the Junior High School	IX	TTh	Ar	Miss Smith
T.50Ts	The Teaching of Composition in the Junior High School	I-II	S	202Ed	Miss Smith
T.51w	The Teaching of Literature in the Junior High School	IX	TTh	Ar	Miss Smith
T.51Tw	The Teaching of Literature in the Junior High School	I, II	S	202Ed	Miss Smith
T.52f-53w-54s*†	Teachers' Course in English and Practice Teaching	IX	MW	204Ed	Miss Inglis
T.56f-57w-58s*†	Teachers' Course and Practice Teaching in Mathematics	VIII	TTh	205Ed	Mr. Stokes
T.62f-63w-64s*†	Teachers' Course and Practice Teaching in Secondary School Science	IX	MW	Ar	Mr. Johnson, Mr. Jackson
T.66f-67w-68s*†	Teachers' Course and Practice Teaching in Social Science for Senior High Schools	VIII	MWF	210OL	Mr. Krey

* A laboratory fee of \$1 is charged for this course.

† The entire course must be completed before credit is received for any one quarter.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
T.70f-71w-72s*†	Teachers' Course and Practice Teaching in German	IX	TTh	101Ed	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	104OLa	Miss Davidson
	(9 cred.; jr., sr.; prereq., Ed. 15 and consent of instructor)				
T.83w	Teachers' Course in Journalism	VII	MWF	266P	Mr. Johnsen
	(3 cred.; jr., sr.; prereq., Jour. 41 or 51, Ed. 15)				
T.85f-86w-87s	Methods and Observation	Ar	Ar		Miss Boynton, Miss Headlev
	(3 cred.; jr., sr.; prereq., Psy. 1-2, 4-5)				
T.88f-89w-90s	Practice Teaching in Kindergarten or Nursery School	Ar	Ar		Mrs. Foster
	(6 cred.; sr.; prereq., T. 30-34 and T. 85-87)				

COURSES OPEN TO GRADUATE STUDENTS

T.110w	Educational Diagnosis in Secondary Education	IX, X	Th	Ar	Mr. Hude'son
	(2 cred.; sr., grad.; prereq., Ed. Psy. 55)				
T.118	<i>Problems in Junior High School English</i>	<i>Not offered in 1929-30</i>			
T.122s	Literature for Adolescents	IX, X	T	Ar	Miss Smith
	(2 cred.; jr., sr., grad.; prereq., Ed. 15 or junior-senior h.s. teaching experience)				
T.143f-144w†	Teaching of Reading in the Elementary School	I, II	S	Ar	Mr. Peik
	(4 cred.; jr., sr., grad.; prereq., 9 hrs. in ed. incl. Ed. Psy. 55)				
T.15c	<i>Teaching and Administration in Teachers' Colleges</i>	<i>Not offered in 1929-30</i>			
	(4 cred.; jr., sr., grad.; prereq., 15 cred. in ed.)				
T.181w	Technique of Elementary Instruction	I	MWF	Ar	Mr. Peik
	(3 cred.; jr., sr., grad.; 9 hrs. in ed. incl. Ed. Psy. 55)				

* A laboratory fee of \$1 per credit is charged for this course.

† The entire course must be completed before credit is received for any one quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
T.181-182	<i>Technique of Elementary Instruction</i>	<i>Not offered in 1929-30</i>			
	(2 cred.; jr., sr., grad.; prereq., 9 hrs. in ed. incl. Ed. Psy. 55)				
T.185f	Investigation of Problems in Teacher Training	IX, X	W	Ar	Mr. Peik
	(2 cred.; sr., grad.)				
T.193f	Foundations of Secondary School Methods	IX, IV	Th	202Ed	Mr. Hudelson
	(3 cred.; sr., grad.; prereq., Ed. 15)		S		
T.195w	Problems of High School English Composition Teaching	III, IV	S	202Ed	Mr. Hudelson, Miss Smith
	(2 cred.; sr., grad.; prereq., Ed. 15 and 21)				
T.196s	Problems of High School English Literature Teaching	III, IV	S	202Ed	Mr. Hudelson, Miss Smith
	(2 cred.; sr., grad.; prereq., Ed. 15 and 21)				
T.201f-202w-203s	Teaching of History and Social Studies	Ar	Ar	A1	Mr. Krey
	(Open to graduates and teachers)				
T.222f-223w-224s	Seminar in the Technique of High School Instruction	Ar	Ar	Ar	Mr. Hudelson, Miss Smith, Mr. Stokes
	(2 cred.; grad.; prereq., Ed. 15 and 213)				

ANTHROPOLOGY

Major Advisers: A. J. Jenks, W. D. Wallis

No.	Title	Hour	Day	Bldg.	Instructor
41f	Introd. to Anthropology	VI	MTWThF	15F	Mr. Jenks
	(5 cred.; soph., jr., sr.; prereq., 10 cred. sci. or soc. sci.)				
41w	Introd. to Anthropology	VII	MTWThF	15F	Mr. Wallis
	(See 41f)				
41s	Introd. to Anthropology	II	MWThS	15F	Mr. Wallis
	(See 41f)				
53f	Cultural Anthropology: Technology	I	MWF	15F	Mr. Wallis
	(3 cred.; jr., sr.; prereq., 41)				
54w	Cultural Anthropology: Social Organization	VIII	MWF	15F	Mr. Wallis
	(3 cred.; jr., sr.; prereq., 41)				
56f	Primitive Science	II	MWF	15F	Mr. Wallis
	(3 cred.; jr., sr.; prereq., 41)				
62w	Ethnology	I	MWF	15F	Mr. Wallis
	(3 cred.; jr., sr.; prereq., 41)				
80s	The American Indian	III	MWF	15F	Mr. Wallis
	(3 cred.; jr., sr.; prereq., 41)				
106f	Prehistoric Man	III	MWF	12F	Mr. Jenks
	(3 cred.; jr., sr.; prereq., 41)				
108	<i>Philippine Peoples</i>	<i>Not offered</i>			
	(3 cred.; jr., sr.; prereq., 41)				

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
110f	Physical Anthropology (3 cred.; jr., sr.; prereq., 41)	111	TThS	12F	Mr. Wallis
112	<i>The American Negro</i> (3 cred.; jr., sr.; prereq., 41)	<i>Not offered</i>			
113	<i>Peoples of Europe</i> (3 cred.; jr., sr.; prereq., 41)	<i>Not offered</i>			
114f	The American People..... (3 cred.; jr., sr.; prereq., 41)	IV	MWF	15F	Mr. Jenks
121w	Advanced Phys. Anthropology... (3 cred.; jr., sr.; prereq., 110)	Ar	Ar	12F	Mr. Wallis
122f, 123w, 124s	Problems in Anthropology..... (Cred. ar.; jr., sr., grad.; prereq., three courses. For honors course students, permission of instructor)	Ar	Ar	12F	Mr. Jenks, Mr. Wallis
161f	Primitive Religion (3 cred.; jr., sr.; prereq., 41)	VI	MWF	12F	Mr. Wallis

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)				
61f*	Projections (2 cred.; soph.; prereq., Math. 3 or 5)				
62w	Shades and Shadows (2 cred.; prereq., 61 or Draw. 41)				
63s	Perspective (2 cred.; prereq., 61 or Draw. 41)				
81f	Stage Design (2 cred.; jr., sr.; no prereq.)				
84-85-86f,w,s	Modeling (6 cred.; jr., sr.; no prereq.)				

NOTE.—Consult the bulletin of the College of Engineering and Architecture for program of hours, days, buildings, and instructors.

* Drawing 41 covers the same ground as Course 61 and may be substituted for it.

† Two quarters must be completed before credit is received for either quarter.

Senior College Courses

No.	Title	Hour	Day	Bldg.	Instructor
14f-15w-16s	History of Architecture (6 cred.; jr., sr.; prereq., 31-32-33)				
17f-18w-19s	History of Architecture (6 cred.; jr., sr.; prereq., 14-15-16)				
34-35-36f,w,s	Architectural Design (12 cred.; jr., sr.; prereq., 31-32-33, 23, 61-62-63)				
37-38-39f,w,s	Architectural Design (21 cred.; sr.; prereq., 34-35-36)				
51f-52w-53s	Building Construction (6 cred.; jr., sr.; prereq., 31-32-33)				
74f-75w-76s	Freehand Drawing (9 cred.; jr., sr., int. dec.; prereq., 23)				
90-91-92f,w,s	Illustration (3 cred.; jr., sr.; prereq., 21-22-23 or equiv.)				
93-94-95f,w,s	Hand Print Process (3 cred.; jr., sr.; prereq., 21-22-23 or equiv.)				
134-135-136f,w,s	Interior Decoration Design (21 cred.; sr.; prereq., 34-35-36)				
163s	History of Sculpture and Painting (2 cred.; jr., sr.; prereq., 14-15-16)				
182f-183w-184s	Decoration and Allied Arts (9 cred.; sr.; prereq., 17-18-19)				

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: W. O. Beal

No.	Title	Hour	Day	Bldg.	Instructor
11f,w,s§	Descriptive Astronomy (5 cred.; 3d qtr. fr. with cert. of apt., soph., jr., sr.; no prereq.)	III	MTWFS	124F	Mr. Beal
51f	General Astronomy (3 cred.; jr., sr.; prereq., 15 cred. in bot., chem., geol., zool., math., or phys.)	II	MWF	124F	Mr. Beal
51w	General Astronomy (See 51f)	IV	MWF	124F	Mr. Beal
51s	General Astronomy (See 51f)	I	MWF	124F	Mr. Beal
52w	Astrophysics (3 cred.; jr., sr.; prereq., 51 or 11 and prereq. for 51)	II	MWF	124F	Mr. Beal
53s	Stellar Astronomy (3 cred.; jr., sr.; prereq., 52)	II	MWF	124F	Mr. Beal

§ Does not satisfy the junior college requirement for science.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
62	<i>Field Astronomy</i>	<i>Not offered</i>			
	(3 cred.; jr., sr.; prereq., Astron. 11 or 51, and Math. 6, 7)				
101f-102w-103s	Practical Astronomy	Ar	Ar	123F	Mr. Beal
	(9 cred.; jr., sr., grad.; prereq., Astron. 11 or 51, and Math. 50)				
111f-112w-113s	Celestial Mechanics	Ar	Ar	123F	Mr. Beal
	(9 cred.; sr., grad.; prereq., Math. 51)				
140	<i>Method of Least Squares</i>	<i>Not offered</i>			
	(3 cred.; sr., grad.; prereq., Math. 51)				

BACTERIOLOGY

MEDICAL SCHOOL

Major Advisers: W. P. Larson, A. T. Henrici, R. G. Green

No.	Title	Hour	Day	Bldg.	Instructor
41f	General Bacteriology				
	(5 cred.; soph., jr., sr.; prereq., chem. 10 cred. and zool. 8 cred.)				
	Sec. 1	VI, VII, VIII	MWF	MH	Ar
	2	VI, VII, VIII, IX	TTh	MH	Ar
	3	I, II, III	MWF		
41w	General Bacteriology				
	(Sec 41f)				
	Sec. 1	VI, VII, VIII	MWF	MH	Ar
	2	I, II, III, IX	MWF	MH	Ar
41s	General Bacteriology	VII, VIII, IX	MWF	MH	Ar
	(See 41f)				
101f	Special Bacteriology for Medical Students	I, II	ThS	MH	Ar
	(4 cred.; jr., sr.; prereq., 41)	I, II, III	T		
103w	Special Bacteriology for Students of Agriculture	I, II, III	TS	MH	Ar
	(5 cred.; jr., sr.; prereq., 41)	I, II	Th		
114s	Molds, Yeasts, and Actinomycetes (3 cred.; jr., sr.; prereq., 41)	VII, VIII	TTh	MII	Ar
116w	Immunity	VII, VIII	TTh	MH	Ar
	(3 cred.; jr., sr.; prereq., 101 or 103)				
117s	Pathogenic Protozoa	VII, VIII	TTh	MH	Ar
	(3 cred.; jr., sr.; prereq., 101 or 103)				
118w	Morphology and Taxonomy of Bacteria	VII, VIII	TTh	MH	Ar
	(3 cred.; jr., sr.; prereq., 41)				
119w-120s	Bacteriological Chemistry	VI, VII, VIII	TTh	MH	Ar
	(4 cred.; jr., sr.; prereq., 101 or 103; Hum. Physiol. 100-101, or Agr. Biochem. 111-112)				
121w	Industrial Bacteriology	I, II	TTh	MH	Ar
	(3 cred.; jr., sr., grad.; prereq., 41)				

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
122s	Industrial Bacteriology continued (3 cred.; jr., sr., grad.; prereq., 41)	I, II	TTh	MH	Ar
150f-151w or 150w-151s	Advanced Bacteriology (Cred. ar.; jr., sr., grad.; pre-req., see instructor)	VII, VIII	TTh	MH	Ar

BOTANY

Major Adviser: J. A. Harris

REQUIREMENTS OF THE DEPARTMENT

For a teacher's certificate.—Major recommendation, 31 credits in botany as follows: Courses 1-2, 7, 21, 22, and either 12 and 13 or 23 and 63; Course 51 advised.

Minor recommendation in botany 20 credits as follows: Courses 1-2, 7, and either 21 or 22; Course 51 advised.

No. if*	Title	Hour	Day	Bldg.	Instructor
	General Botany				
	(4 cred.; all; no prereq.)				
	Lect. Sec. 1	III	TThS	BotAud	Mr. Huff
	2	{ VI	T		
		{ VI, VII	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... (3 cred.; all; prereq., 1)	III, IV	MWF	1,4,5,8Bot	Mr. Huff
5w	Elem. Plant Histology (3 cred.; all; prereq., 1)	VI, VII, VIII	TTh	1,4,5,8Bot	Mr. Butters
7f,s	Taxonomy of Flowering Plants... (3 cred.; all; prereq., 1)				
	Sec. 1	I, II	MWF	1,4,5,8Bot	Mr. Rosendahl
	2	VI, VII, VIII	TTh		
12f,w,s	Morphology of Algae (3 cred.; all; prereq., 1)	I, II	TThS	1,4,5,8Bot	Miss Tilden
13	Morphology of Fungi..... (3 cred.; all; prereq., 1)	Not offered			
21f	Elementary Ecology (3 cred.; all; prereq., 1)	III, IV	MWF	1,4,5,8Bot	Mr. Cooper
21w,s	Elementary Ecology (See 21f)	VI, VII, VIII	TTh	1,4,5,8Bot	Mr. Cooper
22f,w,s	Elem. Plant Physiology (3 cred.; all; prereq., 1)				
	Lect.	VI	TTh	1,4,5,8Bot	Mr. Burr
	Lab. Sec. 1	III, IV	TS		
	2	VII, VIII	TTh		

* To complete the science requirement a student may elect any two of Courses 2, 5, 7, 12, 13, 21, 22.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
23w	Bryophytes and Pteridophytes... (3 cred.; all; prereq., 2 or 12)	VI, VII	MWF	1,4,5,8Bot	Mr. Huff
51f	Histological Methods (5 cred.; jr., sr.; prereq., 15 cred.)	I, II	MTWThF	01Bot	Miss Wilson
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	Mr. Harris
108w	Pteridophytes (5 cred.; sr., grad.; prereq., 18 cred. incl. 7 and 23)	Ar	Ar	Ar	Mr. Butters
110	<i>Gymnosperms</i> (5 cred.; sr., grad.; prereq., 18 cred. incl. 7 and 63)	<i>Not offered</i>			
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	<i>Cytology</i> (5 cred.; jr., sr., grad.; prereq., 18 cred.)	<i>Not offered</i>			
125s,126f*	Morphology and Taxonomy of Marine Algae (3 to 5 cred.; jr., sr., grad.; prereq., 15 cred. incl. 12, or consent 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
133	<i>Plant Geography of North America</i> (5 cred.; jr., sr., grad.; prereq., 15 cred. incl. 21)	<i>Not offered</i>			
134s	Research Methods in Ecology... (5 cred.; jr., sr., grad.; prereq., 15 cred. incl. 21)	VI, VII, VIII	MWF	214Bot	Mr. Cooper
140	<i>General Plant Physiology</i> (5 cred.; jr., sr., grad.; prereq., 22, elem. inorg. chem.)	<i>Not offered</i>			
141f	Physical Phases of Plant Physiology (5 cred.; jr., sr.; prereq., qual. quant., org., and phys. chem.)	Lect. I Lab. II, III, IV	MWF MF	101Bot	Mr. Burr

* Any quarter may be taken separately.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
142w	Plant Metabolism (5 cred.; sr., grad.; prereq., as for 141)	I II, III, IV	MWF MF	101Bot	Mr. Burr
143s	Plant Metabolism continued..... (5 cred.; sr., grad.; prereq., as for 141)				
	Lect.	I	MWF	101Bot	Mr. Burr
	Lab.	II, III, IV	MF		
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	Mr. Harris
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

Major Adviser:

REQUIREMENTS OF THE DEPARTMENT

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 and 2, or 7 and 6 additional credits in chemistry.

For teacher's certificate in natural science see Specialized Curriculum 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	MWF	225C	Mr. Reyerson
	Lab. Sec. 1	VI, VII, VIII	T	110C	Mr. Reyerson and assts.
	Quiz Sec. 1	VIII	Th	A+C	Mr. Reyerson and assts.
	Lab. Sec. 2	VI, VII, VIII	Th	110C	Mr. Reyerson and assts.
	Quiz Sec. 2	VIII	T	A+C	Mr. Reyerson and assts.

* 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
4f-5w†	Gen. Inorg. Chemistry (pre-med. and pre-dent.) (8 cred.; pre-dent., pre-med. only; prereq., entrance cred. in chem.)				
	Lect.	II	TThS	325C	Mr. Stephens
	or Lect.	VI	MWF	100C	Mr. Stephens
	Lab. Sec. 1	VI, VII, VIII	T	210C	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	
6f-7w†-8s	Gen. Inorg. Chemistry (15 cred.; those entering without chem., fr. with cert. of apt., soph., jr., sr.; no prereq.)				
	Lect.	II	MWF	225C	Miss Cohen
	Lab.	I, II, III	ThS	210C	Miss Cohen and assts.
9f-10w†	Gen. Inorg. Chemistry (10 cred.; fr. with cert. of apt., soph., jr., sr.; prereq., entr. cred. in chem.)				
	Lect.	II	MWF	100C	Mr. Sneed
	Lab.	I, II, III	ThS	290C	Ar
9w-10s†*	Gen. Inorg. Chemistry (See 9f-10w)				
	Lect.	III	MWF	100C	Miss Cohen
	Lab.	VIII, IX	MWF	290C	Ar
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
	Lab. Sec. 1	VI, VII	MW	210C	Miss Cohen and assts.
	(Limit 25) Lab. Sec. 2	VI, VII, VIII, IX	M	210C	Miss Cohen and assts.
	(Limit 25) Lab. Sec. 3	VI, VII, VIII, IX	W	290C	
11s	Qual. Chemical Anal. (pre-med. and pre-dent.) (See 11f)				
	Lect. Sec. 1	II	TThS	325C	Mr. Stephens
	Lab. Sec. 1	VI, VII, VIII, IX	T	210C	Mr. Stephens and assts.
	Lect. Sec. 2	VI	MWF	100C	Mr. Stephens
	Lab. Sec. 2	VI, VII, VIII, IX	Th	210C	Mr. Stephens and assts.
12f-13w†	Qual. Chemical Analysis (10 cred.; all; prereq., 8 or 10)				
	Fall	Lect. I	TThS	325C	Mr. Maynard
		Lab. VI, VII, VIII	MW	290C	
	Winter	Lect. VI	WF	215C	
		Lab. VII, VIII, IX	MWF	290C	

* Students who have failed in 1f or 6f may register for this course without further prerequisite

† Two quarters must be completed before credit is received for either quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
125f	Qual. Chemical Anal. (See 12f-13wf)	Lect. II Lab. I, II, III	MWF ThS	100C 290C	Mr. Sneed Mr. Sneed and assts.
13f†	Qual. Chemical Anal. (See 12f-13wf)	Lect. VI Lab. VII, VIII, IX VI, VII, VIII	WF WF M	49°C 290°C	Ar
101S	History of Chemistry (2 cred.; sr., grad.; prereq., Org. Chem. 52)	Ar	Ar	Ar	Miss Cohen
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	Ar

ANALYTICAL CHEMISTRY

No.	Title	Hour	Day	Bldg.	Instructor	
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 I, II, III or II, III, IV	M W MW F F MF W T Th T Th S S	325C 315C 310C 310C 315C 310C 310C 325C 325C 310C 310C 310C	Mr. Geiger Mr. Sarver
7W,S	Quantitative Analysis (See 7f)	For hours, see 7f.	Sec. 3			

* Course 2S may precede 1W, if desired.

† Two quarters must be completed before credit is received for either quarter.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
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	ArC ArC	Mr. Kolthoff Mr. Kolthoff
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

No.	Title	Hour	Day	Bldg.	Instructor
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 4 VI-IX	MWF Th T T M T W	100C 225C Ar 390C 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 VI-IX 4 I-IV	MWF T T W Th F S	100C 100C Ar 390C 390C 390C 390C	Mr. Smith Mr. Smith
1s†	Elem. Organic Chemistry (See 1f-2w)				For hours, see 1f-2w. Registration limited to lab. secs. 1 and 4. Mr. Lauer
2f†	Elem. Organic Chemistry (See 1f-2w)				For hours, see 1w-2s. Registration limited to lab. secs. 3 and 4. Mr. Smith
51f-52w†-53s	Organic Chemistry (10 or 15 cred.; jr., sr.; prereq., 15 cred. in college chem.)	Lect. III Rec. III Lab. VI, VII, VIII	MWF Th TTh	325C 111C 390C	Mr. Hunter Mr. Lauer Mr. Lauer
101f-102w-103s	Advanced Organic Chemistry... (3 cred. per qtr.; prereq., 53)	III	TThS	315C	Mr. Hunter

For advanced courses in Organic Chemistry, see bulletin of the School of Chemistry.

† Two quarters must be completed before credit is received for either quarter.

PROGRAM

PHYSICAL CHEMISTRY

No.	Title	Hour	Day	Bldg.	Instructor
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 15C, 117C 115C	Mr. MacDougall
110f,w	Physical Chemistry (medic.).... (4 cred.; pre-med. and biol. stu- dents; prereq., Org. Chem. 2)	Lect. VI	TTh F	225C 325C	Ar
	Lab. Sec. 1 I, II, III 2 VII, VIII, IX	Ar	MW TTh	15C, 117C 117C, 15C	
116f-117w-118s	Adv. Physical Chem. (9 or 12 cred.; jr., sr., grad.; prereq., 103 and calculus)	Ar	Ar	Ar	Ar
129	<i>Prin. of Colloidal Chemistry</i>	<i>Not offered</i>			
130s	Appl. of Colloidal Chemistry.... (2 cred.; sr., grad.; prereq., 102)	Ar	Ar	ArC	Mr. Reyerson
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	Ar
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. III Lab. VI, VII, VIII	F TF	215C 217C	Mr. Stoppel Mr. Stoppel
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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

101f-102w-103s‡	Drama (9 cred.; jr., sr., grad.; prereq., jr. coll. requirement in Eng. and foreign lang.)	III	TThS	113F	Mr. Firkins
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‡ The entire course must be completed before credit is received for any quarter.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
105f-106w-107s‡	Criticism	V1	MWF	113F	Mr. Firkins
	(9 cred.; jr., sr., grad.; prereq., jr. coll. requirement in Eng. and foreign lang.)				
110w	Romantic Movement	II	TThS	113F	Mr. Firkins
	(3 cred.; jr., sr., grad.; prereq., permission of instructor)				

COMPARATIVE PHILOLOGY

No.	Title	Hour	Day	Bldg.	Instructor
101-102†	<i>Science of Language</i>	Not offered			
	(4 cred.; jr., sr., grad.; prereq., see note)	(except for graduates)			
103	<i>Universal Language</i>	Not offered			
	(2 cred.; jr., sr., grad.; prereq., see note)				
105	<i>Life of Words</i>	Not offered			
	(2 cred.; jr., sr., grad.; prereq., see note)				
108s	Comparative Phonetics	Ar	Ar	Ar	Mr. Kroesch
	(3 cred.; jr., sr., grad.; prereq., see note)				
109-110-111†	<i>History of German Lang.</i>	Not offered			
	(6 cred.; jr., sr., grad.; prereq., see note)				
141-142-143†	<i>Hist. Gram. of Eng. Lang.</i>	Not offered			
	(6 cred.; jr., sr., grad.; prereq., see note)				

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			411C	Mr. Sheridan
	(6 cred.; all; no prereq.)				
	Sec. 1	I, II	MWF	(fall, winter)	
		I, II	TThS	(spring)	
	2	III, IV	MWF		
	3	VIII, IX	MWF		
44f,w,s	Lettering				
	(1 cred.; all; no prereq.)				
	Sec. 1	IV	T	36EE	Mr. Schuck, Mr. Levens
	2	II	Th	237EE	
45f,w,s	Alphabets	II	TTh	206E	Mr. Kirchner
	(2 cred.; soph., jr., sr.; no prereq.)				
64f	The Graphic Arts: Introduction..	IV	MW	5E	Mr. Kirchner
	(2 cred.; jr., sr.; prereq., 15 cred. of econ.)				
65w	The Graphic Arts: Printing and Layouts	IV	MW	5E	Mr. Kirchner
	(2 cred.; jr., sr.; prereq., 15 cred. of econ.)				
66s	The Graphic Arts: Processes....	IV	MW	5E	Mr. Kirchner
	(2 cred.; jr., sr.; prereq., 15 cred. of econ.)				

† Two quarters must be completed before credit is received for any quarter.

‡ The entire course must be completed before credit is received for an quarter.

ECONOMICS

SCHOOL OF BUSINESS ADMINISTRATION

Major Adviser: R. A. Stevenson

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
1f	Business Organization: Marketing (5 cred.; fr. only; no prereq.)				
	Lect.	IV	TS	150Ph	Mr. Vaile and others
	Div. I	IV	MWF	206OLa	
	Div. II Sec. 1	I	MWF	109B	
	2	I	MWF	110P	
	3	II	MWF	110P	
	4	II	TThS	109B	
	5	III	TThS	102B	
	6	III	TThS	109B	
	7	V	MWF	109B	
	8	VI	MWF	109B	
9	VII	MWF	109B		
10	VIII	MWF	109B		
1w	Business Organization: Marketing (See 1f)				
	Lect.	IV	TS	202B	Mr. Vaile and others
	Sec. 1	I	MWF	303B	
	2	III	TThS	303B	
	3	V	MWF	303B	
4	VI	MWF	209B		
1s	Business Organization: Marketing (See 1f)				
	Lect.	IV	TS	202B	Mr. Vaile and others
	Sec. 1	II	TThS	209B	
2	IV	MWF	303B		
2f	Business Organization: Production (5 cred.; fr. only; no prereq.)				Mr. Black and others
	Lect.	III	Th	303B	
	Sec. 1	III	MWFS	3F	
	2	V	MTWF	6R	

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
2w	Business Organization: Production (See 2f)	Lect. IV Sec. 1 I 2 I 3 II 4 II 5 III 6 IV 7 V 8 VI 9 VII 10 VIII	T MWFS MWFS MWFS MWFS MWFS MTWF MWThF MWThF MWThF	150Ph 209OL 206P 102F 5F 206P 206P 109B 5F 5F 5F	Mr. Black and others
2s	Business Organization: Production (See 2f)	Lect. III Sec. 1 II 2 III 3 V 4 VII	W MWFS TThFS MTWF MWThF	OPhAud 2F 4aOPh 6B 6B	Mr. Black and others
3f	The Mechanism of Exchange.... (5 cred.; 3d qtr. fr., soph., jr., sr.; no prereq.)	Lect. III Sec. 1 I 2 III 3 VI	TTh TThS MWF MWF	301F 202B 109B 102B	Mr. Stehman, and others
3w	The Mechanism of Exchange.... (See 3f)	Lect. III Sec. 1 I 2 II 3 V 4 VI	TTh TThS MWF MWF MWF	301F 303B 109B 6B 4aOPh	Mr. Stehman, and others
3s	The Mechanism of Exchange.... (See 3f)	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 MWF MWF TThS MWF MWF MWF MWF MWF MWF MWF MWF MWF MWF	OLAud 303B 209B 209OL 202B 221OL 104OPh 4aOPh 202B 303B 209B 102B 303B 2cOPh 109B	Mr. Stehman, and others

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
4†	Principles of Economics..... (5 cred.; soph.; prereq., 1 or 2 and 3)	Lect. II Sec. 1 I 2 II 3 III 4 IV 5 V 6 VII 7 VIII	Th TThFS MWFS TThFS MWFS MTWF MWThF MWThF	OPhAud 9F 5F 6F 104OPh 209B 102B 209B	Mr. Hansen and others
4w	Principles of Economics..... (See 4f)	Lect. IV Sec. 1 II 2 III	T MWFS TThFS	303B 205F 6B	Mr. Hansen and others
4s	Principles of Economics..... (See 4f)	Lect. II Sec. 1 II 2 IV 3 V 4 VI	Th MWFS MWFS MTWF MWThF	301F 5F 111OL 102B 104OPh	Mr. Hansen and others
4w-†	Principles of Economics—General Course..... (10 cred.; soph., jr., sr.; no prereq. Not open to students who have received credit in Econ. 4)	Lect. III Sec. 1 I 2 II 3 IV 4 V 5 VI 6 VI 7 VII	W TThFS MWFS MWFS MTWF MWThF MWThF MWThF	OPhAud 5F 4aOPh 5F 102B 6B 104F (fall only) 6B	Mr. Hansen and others
6w-7s†	Principles of Economics—General Course..... (See 6f-7w)	Lect. II Sec. 1 I 2 II 3 IV 4 V	T TThFS MWFS MWFS MTWF	OPhAud 6B(w) 9F(s) 303B(w) 25F(s) 6B 209B	Mr. Hansen and others
6s†	Principles of Economics—General Course..... (First qtr. of 6-7. See 6f-7w)	Lect. III Sec. 1 II 2 V 3 VI 4 VII	W MWFS MTWF MWThF MWThF	206OLa 200OLa 109B 109B 6B	Mr. Hansen and others

† The entire course must be completed before credit is received for any quarter.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
7†	Principles of Economics—General Course (2d qtr. of 6-7. See 6f-7w)				Mr. Hansen and others
	Lect.	IV	T	206OLa	
	Sec. 1	II	MWFS	206P	
	2	IV	MWFS	6B	
	3	V	MTWF	202B	
14f	Elements of Statistics..... (5 cred.; soph., jr., sr.; prereq., 4 or 6-7)				Mr. Mudgett and others
	Sec. 1	I	MWThFS	6B	
	2	II	MWThFS	303B	
	3	IV	MTWFS	302B	
	4	VI	MTWThF	303B	
14w	Elements of Statistics..... (See 14f)				Mr. Mudgett and others
	Sec. 1	III	MTWFS	109B	
	2	IV	MTWFS	302B	
	3	VI	MTWThF	109B	
	4	VII	MTWThF	301B	
14s	Elements of Statistics..... (See 14f)				Mr. Mudgett and others
	Sec. 1	I	MWThFS	6B	
	2	II	MWThFS	109B	
	3	III	MTWFS	6B	
	4	IV	MTWFS	301B	
	5	VI	MTWThF	301B	
	6	VII	MTWThF	301B	
20f*	Elements of Accounting..... (3 cred.; 3d qtr. fr., soph.; no prereq.)				Mr. Heilman and others
	Sec. 1	I	MWF	303B	
	2	II	TThS	6B	
	3	III	TThS	301B	
	4	IV	MWF	301B	
	5	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	301B	
20s*	Elements of Accounting..... (See 20f)				Mr. Heilman and others
	Sec. 1	I	MWF	301B	
	2	I	TThS	301B	
	3	II	MWF	301B	
	4	III	TThS	302B	
	5	IV	MWF	302B	
	6	V	MWF	302B	
	7	VI	MWF	302B	
	8	VII	MWF	302B	

* Students who have had high school training or other experience in bookkeeping and who pass the placement test may be exempt from this course and admitted to Economics 25.

† The entire course must be completed before credit is received for any quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor	
25f-26w††	Principles of Accounting (6 cred.; soph., jr., sr.; prereq., 20 or placement test)				Mr. Heilman and others	
		Sec. 1	I	TThS 302B (fall only)		
		2	I	MWF 301B		
		3	I	TThS 301B		
		4	II	MWF 301B		
		5	VI	MWF 302B		
		6	VII	MWF 302B		
25w-26s††	Principles of Accounting (See 25f-26w)				Mr. Heilman and others	
		Sec. 1	I	TThS 302B		
		2	II	MWF 302B		
		3	III	MWF 301B		
		4	IV	MWF 301B (winter only)		
		5	VI	MWF 303B		
25s††	Principles of Accounting (First qtr. of 25-26. See 25f- 26w)	Sec. 1	II	MWF 303B	Mr. Heilman and others	
		2	III	TThS 303B		
26f††	Principles of Accounting (2d qtr. of 25-26, see 25f-26w)	III	MWF	301B	Mr. Heilman and others	
32f§-33w-34s*†	Secretarial Training: Typewriting (3 cred.; 3rd qtr. fresh., soph., jr.; no prereq.)	III	TThS		Miss Donaldson	
		V	MW	1B		
32s*	Secretarial Training: Typewriting (First qtr. of 32-33-34, see 32f- 33w-34s)	IV	MTWFS	1B	Miss Donaldson	
33f-34w*†	Secretarial Training: Typewriting (2nd and 3rd qtrs. 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*	Secretarial Training: Elementary Shorthand (3 cred.; soph., jr.; prereq., 32)	Rec. Sec. 1	II	MWF	1B	
		(For pre-commercial education students only)				
		Sec. 2	III	MWF	1B	
		(For pre-secretarial students only)				
38w-39s*†	Secretarial Training: Shorthand (6 cred.; soph., jr.; prereq., 37)	Lab.	II	TThS	1B	Miss Donaldson
		(For both sections above)				
40f-41w-42s*†	Secretarial Training: Dictation . . (9 cred.; soph., jr., sr.; prereq., 39)	Rec.	II	MWF	1B	Miss Donaldson
		Lab.	II	TThS	1B	
		Rec.	I	MWF	104B	Miss Donaldson
		Lab.	VII	TThF	1B	

* 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.

‡ Open to pre-business students only.

§ Students may be exempt from this course and admitted to 33 by passing a placement test.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
54f†	Accounting Survey I..... (3 cred.; jr., sr.; prereq., 4 or 6-7)	III	TThS	104B	Mr. Heilman and others
55w†	Accounting Survey II..... (3 cred.; jr., sr.; prereq., 54)	III	TThS	104B	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> (3 cred.; jr., sr., grad.; prereq., 101-102 or 103-104 or consent of instructor)	Not offered			
106s	<i>History of Economic Ideas (The Critics of the Classical Economists)</i> (3 cred.; jr., sr., grad.; prereq., 101-102 or 103-104 or consent of instructor)	VII	MWF	102B	Mr. Hansen
108w	Marketing Organization: Agricultural Products (3 cred.; jr., sr., grad.; prereq., 85. Not open to agr. bus. stud.)	VIII	MWF	109B	Mr. Price
113w-114s	Theory of Statistics (6 cred.; jr., sr., grad.; prereq., 14)	I	MWF	102B	Mr. Mudgett
124f	Comparative Banking, British Systems (3 cred.; jr., sr., grad.; prereq., 141)	III	MWF	104B	Mr. Myers
125w	Comparative Banking, European Systems (3 cred.; jr., sr., grad.; prereq., 141)	III	MWF	104B	Mr. Myers
127s	Comparative Banking, South American Systems (3 cred.; jr., sr., grad.; prereq., 141)	II	MWF	104B	Mr. Myers
141f	Monetary and Banking Policy... (3 cred.; jr., sr., grad.; prereq., 3, and 4 or 6-7)				Mr. Marget and others
	Sec. 1	I	MWF	102B	
	2	III	TThS	209B	
	3	IV	MWF	209B	
	4	VI	MWF	209B	
141w	Monetary and Banking Policy... (See 141f)				Mr. Marget and others
	Sec. 1	I	MWF	209B	
	2	II	TThS	6B	
	3	IV	MWF	209B	

† The entire course must be completed before credit is received for any quarter.

‡ Not open to School of Business Administration students.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
141s	Monetary and Banking Policy... (See 141f)				Mr. Marget and others
	Sec. 1	III	MWF	209B	
	2	VII	MWF	209B	
149f	Business Cycles (3 cred.; sr., grad.; prereq., 3 and 4 or 6-7)	VIII	MWF	202B	Mr. Myers
149w	Business Cycles (See 149f)				Mr. Marget, Mr. Myers
	Sec. 1	I	MWF	109B	
	2	VIII	MWF	102B	
149s	Business Cycles (See 149f)	III	MWF	102B	Mr. Marget
154f	Public Utilities (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. incl. Econ. 4 or 6-7)	III	TThS	202B	Mr. Garver
154w	Public Utilities (See 154f)	III	TThS	102B	Mr. Garver
154s	Public Utilities (See 154f)	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	202B	Mr. Hansen
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
163s	Economic Aspects of Population and Immigration (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. including Econ. 4 or 6-7)	IV	MWF	202B	Mr. Hansen
164s	Labor Legislation and Social In- surance (3 cred.; jr., sr., grad.; prereq., 161)	III	TThS	209B	Mr. Stead
166w	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
17es	Land Economics (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. including Econ. 4 or 6-7)	2:30-4:00	TTh	302HH	Mr. Black

‡ Not open to School of Business Administration students.

No.	Title	Hour	Day	Bldg.	Instructor
172f*	Economics of Transportation.... (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. including Econ. 4 or 6-7)	VIII	MWF	102B	
176f	Commercial Policies	I	MWF	2c2B	Mr. Blakey
	(3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. including Econ. 4 or 6-7)				
176s	Commercial Policies	I	MWF	202B	Mr. Blakey
	(See 176f)				
191f-192w†	Public Finance	III	MWF	209B	Mr. Blakey
	(6 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. including Econ. 3 and 4 or 6-7)				
193s	State and Local Taxation.....	III	MWF	104B	Mr. Blakey
	(3 cred.; jr., sr., grad.; prereq., 191-192)				

ENGLISH

Major Advisers: C. W. Nichols, Rewey B. Inglis, Dora Smith

REQUIREMENTS OF THE DEPARTMENT

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	150Pl (f,w) 166Pl (s)	Mr. Thomas
	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 or for a teacher's certificate. Three quarters recommended. Limited to students with an average of 2/3 honor points 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.

PROGRAM

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
51	<i>Spenser</i> (3 cred.; jr., sr.; prereq., 21-22 or 55-56)	<i>Not offered</i>			
53	<i>Seventeenth-Century Lyriists</i> (4 cred.; jr., sr.; prereq., 21-22, or 55-56)	<i>Not offered</i>			
55f-56w†	Shakespeare (6 cred.; jr., sr.; prereq.‡)				
	Sec. 1	I	TThS	204F	Mr. Bush, Mr. Dunn
		VI	MWF	205F	Mr. Dunn
		VII	MWF	305F	Miss Jackson
55w-56s†	Shakespeare (See 55f-56w)				
	Sec. 1	VI	MWF	303F	Mr. Hessler
	2	IV	MWF	204F	Mr. Hillhouse
55s†	Shakespeare (First qtr. of 55-56. See 55f- 56w)	VI	MWF	205F	Mr. Nichols
58f-59w†	Nineteenth-Century Prose (6 cred.; jr., sr.; prereq., C or 23, or 31-32)	II	TThS	204F	Mr. Beach
61	<i>American Pronunciation</i> (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. Dunn
62s	Milton (See 62f)	VII	MTWF	205F	Mr. Hessler
63	<i>American Usage</i> (3 cred.; jr., sr.; prereq.‡)	<i>Not offered</i>			
50	<i>Browning and Tennyson</i> (4 cred.; jr., sr.; prereq.‡)	<i>Not offered</i>			
70f	Elizabethan Drama (4 cred.; jr., sr.; prereq., 55-56)	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	Mr. Ruid
	2	V	MTWF	204F	Mr. Hillhouse
75s	Chaucer (See 75f)				
	Sec. 1	II	MTWF	205F	Mr. Bush
	2	V	MTWF	204F	Mr. Dunn
77-78†	<i>Classic Myths and the Classic Tradition in English Poetry</i> ... (6 cred.; jr., sr.; prereq.‡)	<i>Not offered</i>			
81-82†	<i>Survey of Middle English</i> (6 cred.; jr., sr.; prereq.‡)	<i>Not offered</i>			
86f-87w†	Forms of English Verse..... (6 cred.; jr., sr.; prereq.‡)	II	TThS	303F	Mr. Nichols

† 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.

§ English A-B-C, or Composition 4-5-6, or exemption from requirement.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
100f	Old English (4 cred.; jr., sr., grad.; prereq., 8 cred. above 50)	III	TThFS	306F	Mr. Ruud
101	Middle English (2 cred.; jr., sr., grad.; prereq., 75 and 100)	<i>Not offered</i>			
102w	Old English Poetry (3 cred.; jr., sr., grad.; prereq., 100)	II	MWF	204F	Mr. Ruud
103s	Beowulf (3 cred.; jr., sr., grad.; prereq., 100)	VII, VIII VII	T Th	217F	Mr. Ruud
105w-106s†	Eighteenth-Century Poetry (6 cred.; jr., sr., grad.; prereq., 8 credits above 50)	VII	MWF	204F	Mr. Moore
107-108†	Eighteenth-Century Prose (6 cred.; jr., sr., grad.; prereq., 8 credits above 50)	<i>Not offered</i>			
109f-110w†	Romantic Poets (6 cred.; jr., sr., grad.; prereq., 8 credits above 50)	III	TThS	205F	Mr. Beach
111f-112w†	Seventeenth-Century Prose (6 cred.; jr., sr., grad.; prereq., 8 credits above 50)	III	MWF	205F	Mr. Bush
123f-124w-125s†	Technique of the Novel..... (9 cred.; sr., grad.; prereq., 8 credits above 50 and permis- sion of instructor)	4:00 to 6:00	T	205F	Mr. Beach
126-127†	Drama, 1660-1880 (6 cred.; jr., sr., grad.; prereq., 8 cred. above 50)	<i>Not offered</i>			
129	Modern Drama (4 cred.; jr., sr., grad.; prereq., 55-56)	<i>Not offered</i>			
133w	Ballads (3 cred.; jr., sr., grad.; prereq., 8 credits above 50)	I	MWF	204F	Mr. Ruud
136	Advanced Shakespeare (4 cred.; jr., sr., grad.; prereq., 55-56)	<i>Not offered</i>			
140s	Advanced Chaucer (4 cred.; jr., sr., grad.; prereq., 8 credits above 50, including 75)	II	MTWF	204F	Mr. Ruud
141-142-143†	Historical Grammar (6 cred.; jr., sr., grad.; prereq., 8 cred. above 50, including 75 or 81-82)	<i>Not offered</i>			
146-147†	Metrical Romances (6 cred.; jr., sr., grad.; prereq., 8 credits above 50, including 75 or 81-82)	<i>Not offered</i>			
148-149†	Arthurian Romances (6 cred.; jr., sr., grad.; prereq., 8 credits above 50, including 75 or 81-82)	<i>Not offered</i>			

† The entire course must be completed before credit is received for any quarter.

PROGRAM

59

No.	Title	Hour	Day	Bldg.	Instructor
150	<i>Victorian Poetry</i>	<i>Not offered</i>			
	(4 cred.; jr., sr., grad.; prereq., 8 credits above 50)				
151s	Recent Poetry	III	TWThF	204F	Mr. Beach
	(4 cred.; jr., sr., grad.; prereq., 8 credits above 50)				
152w-153s†	Pre-Elizabethan Drama	III	TThS	302F	Mr. Bush
	(6 cred.; jr., sr., grad.; prereq., 55-56)				
154w-155s	American Novel	VI	MWF	204F	Mr. McDowell
	(6 cred.; jr., sr., grad.; prereq., 73-74)				
156f	The American Drama	IV	MWF	302F	Mr. Nichols
	(3 cred.; jr., sr., grad.; prereq., 8 cred. above 50, including 73-74)				
157-158†	<i>Elizabethan Non-Dramatic Literature</i>	<i>Not offered</i>			
	(6 cred.; jr., sr., grad.; prereq., 8 credits above 50, including 51 or 70 or 55-56)				
159s	Colonial Literature in America..	IV	MWF	302F	Mr. Nichols
	(3 cred.; jr., sr., grad.; prereq., 8 cred. above 50, including 73-74)				
160	<i>History of English Language</i>	<i>Not offered</i>			
	(2 cred.; jr., sr., grad.; prereq., 100)				
162f	Restoration Literature	IV	MTWF	204F	Mr. Moore
	(4 cred.; jr., sr., grad.; prereq., 8 credits above 50)				
164s	Dante in English.....				
	(See Italian 164s)				
171f-172w-173s	Honors Course	Ar	Ar	Ar	Mr. Dunn, Mr. Hessler, Mr. McDowell, Miss Atkins
	(Credits arranged; 9 cred.; pre- req., permission of the depart- ment)				

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.

† The entire course must be completed before credit is received for any quarter

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor	
Af-Bw-Cs	Freshman English (15 cred.; all; prereq., placement test)	I	MWThFS	Ar	Ar	
		II	MWThFS			
		III	MTWFS			
		IV	MTWFS			
		V	MTWF			
		III	Th			
		VI	MTWThF			
		VII	MTWThF	(fall, winter)		
		VII	MWThF			
		V	T	(spring)		
Aw-Bs	Freshman English (2 qtrs. of A-B-C. See Af-Bw-Cs)	II	MWThFS	Ar	Ar	
		IV	MTWFS			
		VI	MTWThF			
Cf	Freshman English (3rd qtr. of A-B-C. See Af-Bw-Cs)	II	MWThFS	Ar	Ar	
		IV	MTWFS			
		VI	MTWThF			
4f-5w-6s	Freshman Composition (9 cred.; all; prereq., placement test)	(Pre-med. only) Sec. 1	I	MWF	Ar	Ar
		(Pre-med. only; no fresh.) 2	I	TThS		
		3	II	MWF		
		(Pre-med. only) 4	II	TThS		
		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		
3	V			MWF		
Ar	Ar			Ar		
4s	Freshman Composition (First qtr. of 4-5-6. See 4f-5w-6s. For those only who have passed subfresh.)	Ar	Ar	Ar		
6f	Freshman Composition (3rd qtr. of 4-5-6. See 4f-5w-6s)	II	MWF	311F	Ar	
10s	Organization of Source Material (3 cred.; soph., jr., sr.; prereq. A-B-C or 4-5-6 or exemption from requirement)	V	MWF	303F	Mr. Hillhouse	
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	305F	Mrs. del Plaine
		4	V	MWF	304F	Miss Armstrong
		5	II	TThS	304F	Miss Gable
		6	III	TThS	304F	Mr. Hessler
		7	IV	MWF	213F	Miss Anderson

† 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.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
11w-12s†‡	Description; Narration (See 11f-12w)				
	Sec. 1	II	MWF	306F	Miss Christie
	2	IV	MWF	303F	Mr. Appel
	3	VI	MWF	304F	Miss Gable
11s	Description; Narration (First qtr. of 11-12. See 11f-12w)	III	MWF	306F	Mrs. del Plaine
		V	MWF	302F	Ar
18f-19w†‡	Types of Writing (6 cred.; soph., jr., sr.; prereq., A-B-C or 4-5-6 or exemption from requirement)				
	Sec. 1	III	MWF	305F	Miss Atkins
	2	V	MWF	303F	Miss Anderson
	3	VII	MWF	306F	Miss Armstrong
18w-19s†‡	Types of Writing (See 18f-19w)				
	Sec. 1	II	MWF	305F	Miss Armstrong
	2	VI	MWF	306F	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	MWF	303F	Mrs. del Plaine
	2	III	MWF	302F	Mr. Nichols
	3	V	MWF	304F	Miss Atkins
	4	III	TThS	306F	Miss Gable
31w	Technical Writing	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, 10 or 20, or 18-19, 10 or 20)	IV	MWF	304F	Mrs. Phelan
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, 10 or 20, or 18-19, 10 or 20)	VIII, IX	W	304F	Mrs. Phelan
111f-112w-113s‡	Essay Writing (9 cred.; jr., sr., grad.; prereq., 11-12, or 18-19, and 10 or 20)	III	MWF	304F	Mr. Nichols
119f-120w-121s‡	Seminar 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	Ancient and Early Christian Art (3 cred.; soph., jr., sr.; no pre- req.)	III	TThS	OPhAud	Mr. Upjohn
2w	Medieval, Renaissance, and Mod- ern Art (3 cred.; soph., jr., sr.; prereq., 1)	III	TThS	OPhAud	Mr. Upjohn
10s	Medieval Art (3 cred.; soph., jr., sr.; prereq., 2 or permission of instructor)	III	TThS	OPhAud	Mr. Upjohn

GEOGRAPHY

Major Adviser: D. H. Davis

REQUIREMENTS OF THE DEPARTMENT

For the teacher's certificate in geography.—Major recommendation: a minimum of 28 credits from the following courses in Geography: 11, 41, 71, 101, 102, 110, 111, 120, 133, 235, 241, 251-252-253.

An additional 5 credits from the following courses in Geology: 1-2, 1-3, 8, or 29.

Minor recommendation: 18 credits from the following courses in Geography: 11, 41, 71, 101, 102, 110, 120.

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†	Introd. to Human Geography... (10 cred.; fr.; no prereq.)				
	Lect.	II	MWF	103OL	Mr. Davis
	Sec. 1	I	WF	105OL	
	2	IV	TS	105OL	
	3	VI	TTh	103OL	
	4	VII	TTh	103OL	
11f	Human Geography (5 cred.; 3rd qtr. fr., soph., jr., sr.; no prereq.)	III	MTWFS	103OL	Mr. Brown
11w	Human Geography (See 11f)	III	MTWFS	103OL	Mr. Brown
11s	Human Geography (See 11f)				
	Sec. 1	I	MWThFS	103OL	Mr. Dickenson
	2	II	MWThFS	103OL	Mr. Davis
	3	III	MTWFS	103OL	Mr. Brown
41f	Geography of Commercial Pro- duction (5 cred.; soph., jr., sr.; prereq., 5 cred. in geog., or 10 cred. in econ. or soc. or 15 cred. in hist.)	IV	MTWFS	103OL	Mr. Hartshorne
41w	Geography of Commercial Pro- duction (See 41f)	IV	MTWFS	103OL	Mr. Hartshorne

† The entire course must be completed before credit is received for any quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
418	Geography of Commercial Pro- duction (See 41f)	IV	MTWFS	103OL	Mr. Hartshorne
43f	Political Geography (5 cred.; soph., jr., sr.; prereq., 1-2, or 11, or 41, or 10 cred. in hist. or pol. sci.)	I	MWThFS	103OL	Mr. Hartshorne
71f	Geography of North America.... (3 cred.; jr., sr.; prereq., 11 or 41, or 20 cred. in soc. sci. incl. at least one course in geog.)	II	TThS	103OL	Mr. Brown
101S	Geography of Europe (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. incl. 10 cred. in geog.)	II	TThS	105OL	Mr. Dicken
102W	Trade Routes and Trade Centers (3 cred.; jr., sr., grad.; prereq., 41)	II	TThS	103OL	Mr. Hartshorne
110W	Geography of South America... (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. to incl. 11 or 41)	I	TThS	103OL	Mr. Brown
111S	Cartography (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)	III	MWF	105OL	Mr. Hartshorne
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
133S	Climatology (3 cred.; jr., sr., grad.; prereq., 11)	IV	MWF	105OL	Mr. Brown
235S	Geography of Minnesota..... (3 cred.; jr., sr., grad.; prereq., 12 cred., or 20 cred. in soc. sci. incl. at least 9 cred in geog.; permission of instructor re- quired. Limited to 15.)	I	MWF	105OL	Mr. Davis
241	Field Course in Geography..... (3 cred.; sr., grad.; prereq., 18 cred.; permission of instructor required)	<i>Not offered in 1929-30</i>			
251f-252w 253S	Seminar in Geography..... (3 cred.; sr., grad.; prereq., 20 cred. or permission)	VII	Th	105OL	Mr. Davis, Mr. Brown Mr. Hartshorne
301f,w,s	Research Problems in Geography	Ar	Ar		Mr. Davis, Mr. Hartshorne

COLLEGE OF EDUCATION

GEOLOGY AND MINERALOGY

Major Adviser: G. A. Thiel

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w*†	General Geology (Dynamic and Historical) (10 cred.; fr. with cert. of apt., soph., jr., sr.; no prereq.)	Lect. Sec. 1 I Lab. I, II or VI, VII VII	TThFS MW MW MTWTh TTh	210P 212P 210P 110P 212P	Mr. Thiel Mr. Dutton
1f-3w*†	General Geology (Dynamic and Economic) (10 cred.; fr. with cert. of apt., soph., jr., sr.; no prereq.)	Lect. III Lab. III, IV or VI, VII	TThFS MW TTh	110P 212P(fall), 100P(winter)	Mr. Emmons
1w-2s*†	General Geology (Dynamic and Historical) (See 1f-2w)	Lect. IV Lab. VI, VII	MTWF TTh	110P 212P	Mr. Downs
1w-3s*†	General Geology (Dynamic and Economic) (See 1f-3w)	Lect. II Lab. I, II	MWFS TTh	208P(w), 110P(s) 212P	Mr. Emmons, Mr. Thiel
1s*†	General Geology (Dynamic and Historical or Economic)..... (First qtr. of 1-2 or 1-3. See 1f-2w)	Lect. III Lab. III, IV	MWThF TS	110P 212P	Mr. Dutton
2f*†	General Geology (Dynamic and Historical) (2nd qtr. of 1-2. See 1f-2w)	Lect. III Lab. III, IV	MWThF TS	206P 212P	Mr. Downs
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

* 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. May be followed by Course 2 or 4 with instructor's permission.

§ Not open to students who have had 1 or 29.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
11f	Elements of Paleontology (5 cred.; all; prereq., 1)				
	Lect.	II	MWF	105P	Mr. Stauffer
	Lab.	I-II	ThS		
158f	Minerals and Rocks (1 cred.; jr., sr.; prereq., 1 or 2)	Ar	Ar	100P	Mr. Gruner
23w-24st	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		
275f	Outlines of Mineralogy..... (1 cred.; jr., sr.; no prereq.)	Ar	Ar	100P	Mr. Gruner
29f‡	General Physiography (5 cred.; soph., jr., sr.; no pre- req.)	III	MTWFS	208P	Ar
49s	Physiography of the United States (5 cred.; jr., sr.; prereq., 2 or 3)				
	Lect.	II	TThS	206P	Ar
	Lab.	Ar	Ar	Ar	
61f	Blowpipe Analysis (3 cred.; jr., sr.; prereq., 24)	Consult Mines program			Mr. Gruner
67f	Mineralogy of Chemical Materials (3 cred.; jr., sr.; prereq., Chem., 5 cred.)	Consult Chemistry 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	Ar	Mr. Thiel, Mr. Gruner
91f-92w-93s	Index Fossils of North America (9 cred.; jr., sr.; prereq., 2, 3, or 11)				
	Lect.	I	F	105P	Mr. Stauffer
	Lab.	VI, VII	MW	105P	Mr. Stauffer
101f	Sedimentation (3 cred.; jr., sr., grad.; prereq., 24)	Ar	Ar	Ar	Ar

† The entire course must be completed before credit is received for any quarter.

‡ Not open to students who have had Geol. 1 or 8; may be followed by Course 2, 4, or 11.

§ Does not count for a senior college course. Not open to sophomores. See Course Numbering, page 4, Science, Literature, and the Arts bulletin, Part II.

¶ Does not satisfy the junior college requirement for science.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
102w-103s	Micropaleontology	II, III	TThS	103P	Mr. Stauffer
	(6 cred.; jr., sr., grad.; prereq., 11 or 91)				
105f	Rock Study				
	(3 cred.; jr., sr., grad.; prereq., 24)				
	Lect.	VI	TTh	110P	Mr. Grout
	Lab. Sec. 1	VII, VIII	T	200P	
	2	VII, VIII	Th	200P	
106w	Petrography	VII, VIII	TTh	200P	Mr. Grout
	(3 cred.; jr., sr., grad.; prereq., 105)				
107f-108w-109s	Paleontologic Practice	Ar	Ar	103P	Mr. Stauffer
	(9 cred.; jr., sr., grad.; prereq., 91-92-93)				
111f	Ore Deposits	I	TThS	110P	Mr. Emmons
	(3 cred.; sr., grad.; prereq., 2, 3, or 11, and 105)				
112w	Geology of Petroleum.....	I	TThS	110P	Mr. Emmons
	(3 cred.; sr., grad.; prereq., 111)				
113s	Prob. in Ore Deposits.....	VI-IX	Th	Ar	Mr. Emmons
	(3 cred.; sr., grad.; prereq., 112)				
121f	Crystallography	Ar	Ar	100P	Mr. Gruner
	(3 cred.; jr., sr.; prereq., Math. 7 and Inorg. Chem. 6-7-8 or 9-10)				
124w-125s	Struct. and Metamorphic Geol. .	VI	MWF	110P	Mr. Schwartz
	(6 cred.; jr., sr., grad.; prereq., 2, 3, or 11, and 105)	(II	MTWThFS,	208P	
		spring, to May 1)			
127f	Geol. of Lake Sup. Region.....	Ar	Ar	Ar	Mr. Thiel
	(3 cred.; jr., sr., grad.; prereq., 124-125)				
131f-132w-133s	Adv. Petrology				
	(9 cred.; jr., sr., grad.; prereq., 106)				
	Lect.	III	TThS	200P	Mr. Grout
	Lab.	Ar	F	200P	
137w	Testing Econ. Minerals.....				
	(3 cred.; jr., sr., grad.; prereq., 2, 3, or 11, and 105)				
	Lect.	VI	T	200P	Mr. Grout
	Lab.	VIII, IX	MW	200P	
140w-141s	Applied Petrography				
	(6 cred.; jr., sr., grad.; prereq., 131)				
	Lect.	II	F	200P	Mr. Grout
	Lab.	I, II	MW		
144w-145s	Interp. of Geologic Maps.....	VII, VIII, IX	TTh	Ar	Mr. Pettijohn
	(6 cred.; jr., sr., grad.; prereq., 2, 3, or 11, and 124)				
149s	Methods of Field Geology.....	Ar	Ar	Ar	Mr. Schwartz
	(No cred.; jr., sr., grad.; to be taken with 150; prereq., 2, 23- 24, 106, 124-125)				
150s	Field Geol. (Black Hills).....	Ar	Ar	Ar	Mr. Emmons, Mr. Schwartz
	(Cred. ar.; jr., sr., grad.; see members of department)				

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
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
166w-167s	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, 56-57-58, 62 or 63, 64, 66, 67, 108, and nine additional credits in courses numbered above 50. Course 65 may be substituted for either Course 66 or 67.

Minor recommendations: Courses 50-51-52, 108, and eight additional credits in courses numbered above 50.

Credit may be earned for either Course 62 or Course 63, but not for both courses.

No.	Title	Hour	Day	Bldg.	Instructor
1f*	Beginning A (5 cred.; fr. with cert. of apt., 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 1f)				
	Sec. 1	II	MWThFS	209F	Ar
	2	VII	MTWThF	207F	Ar
1s*	Beginning A (See 1f)				
	Sec. 1	II	MWThFS	213F	Ar
	2	VI	MTWThF	209½F	Ar
2f*	Beginning B (5 cred.; fr. with cert. of apt., soph., jr., sr.; prereq., 1 or one yr. prep. German)				
	Sec. 1	II	MWThFS	207F	Ar
	2	IV	MTWFS	113F	Ar

* Credit is usually not given for more than one beginning language. See paragraph 2, page 4, Science, Literature, and the Arts bulletin, Part II.

COLLEGE OF EDUCATION

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 W	207F	Ar
3f	Beginning C (5 cred.; fr. with cert. of apt., soph., jr., sr.; prereq., 2)				
	Sec. 1	IV	MTWFS	104F	Ar
	2	VII	MTWThF	209F	Ar
3w	Beginning C (See 3f)				
	Sec. 1	II	MWThFS	207F	Ar
	2	IV	MTThFS	113F	Ar
3s	Beginning C (See 3f)				
	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 V	MTThF W	209½F	Ar
4f	Intermediate German (5 cred.; fr. with cert. of apt., soph., jr., sr.; prereq., 3)				
	Sec. 1	II	MWThFS	209F	Ar
	2	III	MTWFS	213F	Ar
	3	IV	MTWFS	212F	Ar
	4	VII	MTWThF	102F	Ar
4w	Intermediate German (See 4f)				
	Sec. 1	IV	MTWFS	104F	Ar
	2	VII	MTWThF	209F	Ar
4s	Intermediate German (See 4f)				
	Sec. 1	II	MWThFS	207F	Ar
	2	IV	MTWFS	113F	Ar
24f-25w-26s†	Begin. for Chemists..... (12 cred.; chemists, miners; no prereq.)				
	Sec. 1	IV	MTWF	209½F	Ar
	2	IV	MTWF	209F	Ar

* Credit is usually not given for more than one beginning language. See paragraph 2, page 4, Science, Literature, and the Arts bulletin, Part II.

† The entire course must be completed before credit is received for any quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
27f	Elem. Chem. German..... (3 cred.; chemists, miners; pre-req., 26 or 2 yrs. prep. German)				
	Sec. 1	I	MWF	108F	Ar
	2	I	MWF	212F	Ar
28w-29s†	Adv. Chemical German..... (6 cred.; chemists, miners; pre-req., 27 or 4)				
	Sec. 1	II	MWF	226F	Ar
	2	II	MWF	113F	Ar
30f	Medical German (5 cred.; pre-med.; prereq., 3, or 3 yrs. prep. German)	1	MWThFS	102F	Ar
31f-32w†	Medical German (6 cred.; pre-med.; prereq., 4 or 30)	1	MWF	205F	Ar
31w-32s†	Medical German (See 31f-32w)				
	Sec. 1	I	MWF	212F	Ar
	2	I	MWF	109F	Ar
	3	I	TThS	205F	Ar
	4	I	TThS	212F	Ar
31s†	Medical German (1st qtr. of 31-32. See 31w-32s)	I	MWF	217F	Ar
32f†	Medical German (2nd qtr. of 31-32. See 31w-32s)	I	TThS	108F	Ar
50f-51w-52s†	Composition (6 cred.; jr., sr.; prereq., 4 or 4 yrs. prep. German)	IV	TS	213F	Mr. Lussky
56f-57w†	Essay Writing (6 cred.; jr., sr.; prereq., 52)	I	TThS	114F	Mr. Kroesch
62w‡	Nineteenth-Century Prose (5 cred.; jr., sr.; prereq., 4, or 4 yrs. prep. German)	III	MTWFS	209F	Mr. Kroesch
62s‡	Nineteenth-Century Prose (See 62w)	III	MTWFS	209F	Mr. Lussky
63f‡	Modern Drama (3 cred.; jr., sr.; prereq., 4 or 62)	IV	MWF	217F	Mr. Davies
64w	Classic Drama (3 cred.; jr., sr.; prereq., 4 or 62)	IV	MWF	217F	Mr. Davies
65f	Survey through Reformation.... (3 cred.; jr., sr.; prereq., 3 cred. above 60)	III	TThS	209½F	Mr. Kroesch
66w	Eighteenth-Century Survey (3 cred.; jr., sr.; prereq., 3 cred. above 60)	III	TThS	209½F	Mr. Burkhard
67s	Nineteenth-Century Survey (3 cred.; jr., sr.; prereq., 3 cred. above 60)	III	TThS	209½F	Mr. Burkhard
77s	Faust I (3 cred.; jr., sr.; prereq., 62 or 64 or 6 cred. above 60)	IV	MWF	217F	Mr. Burkhard

† The entire course must be completed before credit is received for any quarter.

‡ Students may not receive credit for both 62 and 63.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
108s	Phonetics (3 cred.; sr., grad.; prereq., 9 senior college cred. in mod. lang.)	III	MTWF	209½ F	Mr. Kroesch
109-110-111†	<i>Hist. of German Language</i> (9 cred.; sr., grad.; prereq., see statement under Comp. Phil.)	Not offered			
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)	Not offered			
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—The Drama of Kleist, Grillparzer, and Hebbel (9 cred.; sr., grad.; prereq., 67 and 11 cred. above 60)	VIII, IX, X	T	301Lib	Mr. Burkhard
160-161-162†	<i>Lyric Poetry</i> (9 cred.; sr., grad.; prereq., 66 or 67 and 11 cred. above 60)	Not offered			
163f-164w-165s†	German and English Literary Relations, 16th, 17th, 18th Centuries (9 cred.; sr., grad.; prereq., 65 or 67 and 11 cred. above 60)	VIII, IX, X	M	301Lib	Mr. Davies
200-201-202†	<i>Middle High German</i> (9 cred.; grad., sr. with completed major sequence)	Not offered			

GREEK

Major Adviser: C. A. Savage

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†-3s	Beginning Greek (15 cred.; fr. with cert. of apt., soph., jr., sr.; no prereq.)	IV	MTWFS	114 F	Mr. Savage
14f	History: Herodotus (3 cred.; all; prereq., 1-2-3)	III	TThS	108F	Ar
15w	History and Epic: Herodotus and Homer (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	Ar
17f,w	Greek Sources (Everyday Greek) (2 cred.; soph., jr., sr.; prereq., 1 yr. of any foreign language)	VIII	TTh	114F	Mr. Savage
17s	Greek Sources (Everyday Greek) (See 17f,w)	I	TTh	114F	Ar
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.

‡ Two quarters must be completed before credit is received for either quarter.

PROGRAM

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	Advanced Greek Composition.... (2 or 3 cred.; jr., sr.; prereq., 2 years of Greek)	Not offered			
99s§	New Testament (3 cred.; jr., sr.; prereq., 51 and 52)	Ar	Ar	112F	Ar
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

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

REQUIREMENTS OF THE DEPARTMENT

For a teacher's certificate.—Major recommendation: at least 45 credit hours; at least 15 credits must be in senior college courses, and of these one course (3 credits) must be numbered from 151 to 200.

Minor recommendation: a minor recommendation will be given upon the completion of at least 18 credit hours 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 99 are offered alternately.

¶ Does not count in a major or minor sequence. Not open to sophomores. (See Course Numbering, page 21, Science, Literature, and the Arts bulletin, Part II.)

COLLEGE OF EDUCATION

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
11-2w†	Modern World (10 cred.; all; no prereq.)	Lect. II Secs. I I II II	TThS MTh WS MW MW	OLAud 2F 2F 2F 209OL (fall) 211OL (winter)	Mr. Ford
		III III III IV IV IV V V VI VI VII VII VIII VIII	MTh TF WS MW TF TS MW TF MW TTh MW TTh MW TTh	2F 2F 2F 2F 2F 111OL 2F 2F 2F 2F 2F 2F 2F 2F	
4f-5w†	England to 1815..... (10 cred.; fr. with cert. of apt., soph., jr., sr.; no prereq.)	Lect. VII Sec. 1 I 2 II 3 II 4 III 5 VI 6 VII 7 VII 8 VII	MW MWF TThS TThS TThF TThF TThF TThF	OLAud 112OL 209OL (fall) 209OL 112OL 113F 6F 9F	Mr. White 9F (winter)
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 2 I 3 VII 4 VII	MWThFS MWThFS MTWThF MTWThF	211OL 200OLa 206OLa 211OL	Mr. Stephenson. Mr. Osgood, Mrs. Tyler
9s	Recent American History..... (5 cred.; soph., jr., sr.; prereq., 10 cred. in hist. or pol. sci.)	Sec. 1 I 2 I 3 VII	MWThFS MWThFS MTWThF	211OL 200OLa 211OL	Mr. Stephenson. Mr. Osgood, Mrs. Tyler

† The entire course must be completed before credit is received for any quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
111-12W-13S†‡	Medieval History (10 cred.; mu. and mt. dec. only, no prereq.)	Lect. IV Sec. 1 IV* 2 IV*	MF W T	221OL 221OL 221OL	Miss Thompson
14-15-16†‡	<i>Foundations of Modern Europe to 1648</i> <i>Not offered</i> (9 cred.; soph., jr., sr.; prereq., 10 cred. in hist.)				
17S†	Europe in the Middle Ages....	II	MWThFS	3F	Ar
33S	English Legal Institutions..... (5 cred.; 3d qtr. fr., soph., jr., sr.; prereq., 4-5)	II	MWThFS	112OL	Mr. White
801-81W†	Introduction to Economic History (6 cred.; jr., sr.; prereq., 15 cred. in hist. or 10 cred. in econ., pol. sci. or sociol.)	II	TThS	221OL	Mr. Heaton
82	<i>Economic History of the United States: Colonial Period</i> <i>Not offered</i> (3 cred.; jr., sr.; prereq., 15 cred. in hist. or 10 cred. in econ., pol. sci., or sociol.)				
83	<i>Economic History of the United States: Early National Period</i> (See 82) <i>Not offered</i>				
84	<i>Economic History of the United States since 1860</i> <i>Not offered</i> (See 82)				
90W-01S†	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
103f	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. MacDonald
104	<i>Near East: Modern</i> <i>Not offered</i> (3 cred.; jr., sr., grad.; prereq., 1-2 and 10 cred. in soc. sci.)				
105W	History of Rome (5 cred.; jr., sr., grad.; prereq., as for 103)	IV	MTWFS	112OL	Mr. MacDonald
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. 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 more than one of the following courses: 11-12-13, 14-15-16, 17, 16 of previous years.

§ With the permission of the instructor, a student may enter the second or third quarter.

¶ May be taken at the same time.

COLLEGE OF EDUCATION

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	101F	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
113-114-115§	<i>Econ. Hist. of Europe since 1750</i> (9 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci.)	<i>Not offered</i>			
116f-117w-118s§	<i>Econ. Hist. of Europe, 1300-1750</i> (9 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci.)	III	TThS	221OL	Mr. Heaton
119S	Renaissance and Reformation (5 cred.; jr., sr., grad.; prereq., 15 cred.)	III	MTWThF	112OL	Mr. Krey
120f	Medieval Civilization (5 cred.; jr., sr., grad.; prereq., 15 cred.)	III	MTWThF	112OL	Mr. Krey
121W	English Backgrounds and American Colonization (5 cred.; jr., sr., grad.; prereq., 20 cred. in hist. or pol. sci.)	II	MWThFS	209OL	Mr. White
122	<i>American Colonies in the 17th Century</i> (5 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 15 cred. in hist.)	<i>Not offered</i>			
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	213F	Mr. Krey
129S	Civil War and Reconstruction . . . (3 cred.; jr., sr., grad.; prereq., 15 cred., incl. 7-8)	II	MWF	211OL	Mrs. Tyler
130	<i>Introduction to the History of Russia</i> (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. incl. Hist. 1-2 or 14-15-16)	<i>Not offered</i>			

† 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.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
131-132†	<i>France under Louis XIV and Louis XV</i>	Not offered			
	(6 cred.; jr., sr., grad.; prereq., 15 cred. in hist. or 20 in soc. sci. incl. 10 in hist.)				
133f	Near East: Old Orient.....	VI	MTW	111OL	Mr. MacDonald
	(3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 15 cred. in hist.)				
134w	Ancient Civilization: Greek and Roman I	VI	MTW	111OL	Mr. MacDonald
	(3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. incl. 103 or 105 or equiv., or major in Greek or Latin and consent of instr.)				
135s	Ancient Civilization: Greek and Roman II	VI	MTW	111OL	Mr. MacDonald
	(3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. incl. 103 or 105 or equiv., or major in Greek or Latin and consent of instr.)				
136-137†	<i>Far Eastern Government and Politics</i>	Not offered			
	(See Political Science 153-154)				
138f-139w†	Far Eastern Diplomacy	See Political Science		191-192	
141f	West in Amer. Hist. to 1815....	III	TThS	211OL	Mr. Buck
	(3 cred.; jr., sr., grad.; prereq., History 7-8* and 10 cred. in soc. sci. or 5 cred. in hist.)				
142w	West in Amer. Hist., 1815-1865	III	TThS	211OL	Mr. Shippee
	(3 cred.; jr., sr., grad.; prereq., see 141)				
143s	West in American History since 1865	III	TThS	15F	Mr. Buck
	(3 cred.; jr., sr., grad.; prereq., see 141)				
144w	American Political Parties.....	II	MWF	221OL	Mr. Stephenson
	(3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 15 cred. in hist. incl. 7-8 or equiv.)				
149s	American Colonies in the 18th Century	II	NWThFS	102F	Mr. Osgood
	(5 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 15 cred. in hist.)				
152	<i>Select Topics, West to 1815</i>	Not offered			
	(5 cred.; sr., grad.; prereq., 20 cred. incl. 7-8 or equiv.)				
153	<i>Topics, West since 1865</i>	Not offered			
	(5 cred.; sr., grad.; prereq., 20 cred. incl. 7-8)				
154w	Topics, Minnesota	VI, VII	WF	315Lib	Mr. Blegen
	(5 cred.; sr., grad.; prereq., 20 cred. incl. 7-8)				

* May be taken at the same time.

† The entire course must be completed before credit is received for any quarter.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
150	<i>U. S. Reconstruction</i>	Not offered			
	(5 cred.; sr., grad.; prereq., 20 cred. incl. 7-8)				
157-158-159‡	<i>Topics in Modern European History</i>	Not offered			
	(15 cred.; sr., grad.; prereq., 20 cred., French or German and consent of instr.)				
162	<i>Beginnings of Parliament</i>	Not offered			
	(Maximum of 5 cred.; sr., grad.; prereq., 20 cred., knowledge high school Latin)				
164	<i>Studies in Crusades</i>	Not offered			
	(Maximum of 5 cred.; sr., grad.; prereq., 20 cred., knowledge high school Latin. consent of instr.)				
166f	Topics, Hist. of Immigration....	VIII, IX	MW	315Lib.	Mr. Stephenson
	(5 cred.; sr., grad.; prereq., 20 cred., consent of instr.)				
168s	Topics, American Foreign Relations	VIII, IX	TTh	330Lib	Mr. Shippee
	(5 cred.; sr., grad.; prereq., 20 cred. in hist. incl. 9, or 20 cred. in pol. sci., French or German, consent of instr.)				
169s	Topics in Economic History....	III	TThS	211OL	Mr. Heaton
	(3 cred.; sr., grad.; prereq., 20 cred. in hist. or econ.)				
171f	Topics in Recent American History	VIII, IX	WF	315Lib	Mr. Blegen
	(5 cred.; sr., grad.; prereq., 20 cred. incl. 9)				
183s	Stuart Period	VIII, IX	MW	328Lib	Mr. Willson
	(5 cred.; sr., grad.; prereq., 20 cred. incl. 4-5)				
184s	Topics in Modern English History	VIII, IX	TTh	315Lib	Mr. Willson
	(5 cred.; sr., grad.; prereq., 20 cred.)				
197f-198w-199s	Honors Course	Consult Mr. 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	I, II	MTWThF	311,307HE	Miss Little
	(5 cred.; all; no prereq.) (Limited to 24)				
4f	Textiles (Ed., S., L., & A.).....	VI, VII	MWF	311,307HE	Miss Weller. Miss Liitt.
	(3 cred.; not open to students in H.E.; no prereq.) (Limited to 24)				

‡ Students may enter any quarter.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor	
48	Textiles (Ed., S., L., & A.)..... (See 4f)	Sec. 1	VI, VII	MWF	307,311HE	Miss Weller
	(Limited to 24 each)	2	VI, VII	MWF	304HE	Miss Little
11f,s	Clothing Planning and Construction A		I, II	MWF		
	(3 cred.; all; no prereq.)	Sec. 1	I, II	MWF	304HE	Miss Little, Miss Gorham, Miss Sell
	(Limited to 24)	2	I, II	TThS	304HE	Miss Little, Miss Gorham
		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	Clothing Problems					
	(3 cred.; 3d qtr. fr., soph., jr.; prereq., 3, 51)	Lect.	II	S	313HE	Miss Weller.
	(Limited to 30)	VI	Th			Miss Gorham
		Lab.	VI, VII, VIII	T		
15s	Clothing Problem					
	(See 15f,w)	Lab.	VI, VII, VIII, IX	T	313HE	Miss Gorham
	(Limited to 30)	Lect.	VI, VII	Th		
50f,w	Color and Design I.....					
	(3 cred.; no prereq.)	Sec. 1	I, II (f)	MWF	402HE	Miss Topp
	(Limited to 20)	2	III, IV (w)	MWF	402HE	Miss Segolson
		3	I, II	TThS	402HE	Miss Segolson
			III, IV (f)	MWF	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)	Sec. 1	I, II	MWF	401HE	Miss V. Goldstein
	(Limited to 20 each)	2	I, II	TThS	401HE	Miss V. Goldstein
51w	Color and Design II.....					
	(See 51f)	Sec. 1	III, IV	MWF	401HE	Miss V. Goldstein
	(Limited to 20 each)	2	I, II	TThS	401HE	Miss V. Goldstein
51s	Color and Design II.....					
	(See 51f)	Sec. 1	VI, VII, VIII	TTh	402HE	Miss V. Goldstein
	(Limited to 20 each)	2	I, II	MWF	401HE	

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor	
53f	Advanced Design (3 cred.; soph., jr., sr.; prereq., 51 or 56) (Limited to 20)	Sec. 1 2	VI, VII VI, VII	MWF MWF	402HE	Miss H. Goldstein Miss Segolson
53w	Advanced Design (See 53f) (Limited to 20)	Sec. 1 2	VI, VII I, II	MWF MWF	402HE 402HE	Miss Segolson Miss H. Goldstein
53s	Advanced Design (See 53f)	Sec. 1 Sec. 2	I, II 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. Goldstein
70f	Nutrition Survey (2 cred.; all; no prereq.)		IV	WF	203HE	Miss Beister
70w	Nutrition Survey (See 70f)		III	TTh	203HE	Miss Beister
70s	Nutrition Survey (See 70f)		VII	TTh	OPH 212	Miss Beister
80f	Foods and Cookery (5 cred.; prereq., Agr. Biochem. 3 and 4*) (Limited to 20)		I, II	MTWThF	209HE	Miss Hovlid
80w,s	Foods and Cookery (See 80f) (Limited to 20 each)	Sec. 1 2	VI, VII 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	Miss Hovlid
83s	Food Management (See 83f,w) (Limited to 20 each)	Sec. 1 2	III, IV VI, VII, VIII	MWF TTh	203,207HE 203,207HE	Mrs. Niles Mrs. Niles
150f,w,s	Art History and Appreciation... (3 cred.; jr., sr.; prereq., per- mission of instructor)		VIII	MWF	213HE	Miss H. Goldstein

Senior College Courses

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

* Course 80 may be taken parallel with Agricultural Biochemistry 4.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
131f	Home Management: House Planning and Equipment (5 cred.; jr., sr.; prereq., 53) (Limited to 20)	III, IV	MTWFS	401HE	Miss Morse
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) (Limited to 20)				
	Sec. 1	III, IV	MTWFS	401HE	Miss Morse
	2	VI, VII	MTWThF	401HE	Miss Morse

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.

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
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)	Hours to be published later			
59s	Human Physiology (6 cred.; jr., sr.; prereq., Zool. 1-2 or 5-6-7; Inorg. Chem. 1-2-3 or 4-5)	Hours to be published later			
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		

* Students may register for lectures without laboratory.

† Div. A, B, primarily for medics; C primarily for others.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
1031*	Physiology of Muscles, etc. (8 cred.; jr., sr.; prereq., zool. and org. chem.)	Lect. II VI	MWThF T		Dr. Scott, Dr. Lyon, Dr. Greis- heimer, Dr. King, and others
	Rec. Sec. A	III	TTh		
	B	II	TS		
	Lab. Sec. A	VI, VII, VIII	M		
		III, IV	F		
	B	III, IV, VI, VII, VIII	W F		
104w*	Physiol. of Nervous System, etc. (7 cred.; lect. only, 4 cred.; jr., sr.; prereq., zool. and org. chem.)	Lect. IV III	MWF S	301MH	Dr. Lyon, Dr. Scott, and others
	Rec. Div. A	VI	M		
	B	II	T		
	Lab. Div. A	9-11	F		
		1, II	S		
	B	9-11	MW		

For other courses see Medical School bulletin and programs.
All the above courses are repeated in the summer quarter.

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	301P	Mr. Desmond	
5s	The American Newspaper (See 5f)	I	MWF	301F		
13f	Introduction to Reporting..... (3 cred.; soph., jr., sr.; prereq. Eng. A-B-C, Comp. 4-5-6, or exemption)	I	MWF	206OLA	Mr. Desmond	
44w-155†	Newspaper Reporting and Corre- spondence	I	MWF	206OLA	Mr. Desmond	
	(6 cred.; soph., jr., sr.; prereq., 5 or 13 or practical experience, and Comp. 11-12 or 18-19§)					
17s‡	Newspaper Reference Library... (2 cred.; soph., jr., sr.; prereq., 14)	III	TTh	301F	Mr. Desmond	
41w	Principles of Editing..... (3 cred.; jr., sr.; prereq., 13, and a professional or vocational major in colleges other than S. I. & A.)	Lect. I Lab. Sec. 1 2 3	I VIII, IX I, II VII, VIII	MW M T Th	10P 6P 6P 6P	Mr. Kilday

* Students may register for lectures without laboratory.

† 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.

PROGRAM

81

No.	Title	Hour	Day	Bldg.	Instructor
51-52w†	Copy Reading and Newspaper Make-Up				
	(6 cred.; jr., sr.; prereq., 15)				
	Lect.	III	TTh	10P	Mr. McCoy
	Lab. Sec. 1	IV, V	M	6P	
	2	IV, V	T	6P	
	3	VIII, IX	W	6P	
	4	I, II	Th	6P	
		VII, VIII	F	6P	
55ff	Advertising Typography				
	(3 cred.; jr., sr.; prereq., 41 or 51)				
	Lect.	IV	T	10P	Ar
	Lab. Sec. 1	VIII, IX	MW	8P	
	2	I, II	TTh	8P	
	3	VI, VII	TTh	8P	
56wf	Newspaper Typography				
	(3 cred.; jr., sr.; prereq., 41 or 51)				
	Lect.	III	S	10P	Ar
	Lab. Sec. 1	VIII, IX	MF	8P	
	2	I, II	TS	8P	
	3	VI, VII	TTh	8P	
	4	IV, V	MF	8P	
57ff	Magazine Typography				
	(3 cred.; jr., sr.; prereq., 41 or 51)				
	Lect.	IV	T	10P	Ar
	Lab. Sec. 1	VIII, IX	MF	8P	
	2	I, II	TS	8P	
58s	Advanced Typography	VIII, IX	TTh	8P	
	(2 cred.; jr., sr.; prereq., 55, 56, or 57)				
60f-61w†-62s	The Community Newspaper.....	I	MWF	10P	Mr. McCoy
	(9 cred.; jr., sr.; prereq., 15)				
65f	Women's Departments	I	TThS	10P	Mr. Kildow
	(3 cred.; jr., sr.; prereq., 15 or 69)				
69s	The Writing of Special Articles	I	MWF	206P	Mr. Kildow
	(3 cred.; jr., sr.; prereq., 15 or 41)				
70f-71w†	Trade and Technical Journals..	IV	MWF	10P	
	(6 cred.; jr., sr.; prereq., 15 or 69)				
73f-74w†	Newspaper and Magazine Articles	VI	MWF	10P	Mr. Steward
	(6 cred.; jr., sr.; prereq., 15 or 41)				
75s	Law of the Press.....	III	TThS	10P	Mr. McCoy
	(3 cred.; jr., sr.; prereq., 52)				
76f	Critical Writing	III	TThS	6P	Mr. Desmond
	(3 cred.; jr., sr.; prereq., 15 or 69)				
78s	Press Relations	IV	MWF	10P	Mr. Steward
	(3 cred.; sr.; prereq., 69 or 73)				

† Two quarters must be completed before credit is received for either quarter.

* Credit will be allowed for only one quarter of Courses 55, 56, and 57.

No.	Title	Hour	Day	Bldg.	Instructor
82s	Supervision of School Publications (3 cred.; jr., sr.; prereq., 41 or 51)	VIII	MWF	10P	Mr. Kildow
95	<i>Editorial Administration</i> (3 cred.; sr.; prereq., 52)	<i>Not offered</i>			
96s	Financial Writing (3 cred.; sr.; prereq., 69 or 73, and 20 credits in econ., or bus. adm.)	I	TThS	10P	Mr. McCoy
100f	Analysis of News Interests. (3 cred.; sr., grad.; prereq., 69 or 73, and 20 cred. in soc. sci.)	II	TThS	10P	
101w	The Reporting of Public Affairs (3 cred.; sr., grad.; prereq., 52 and 10 cred. in pol. sci.)	II	TThS	10P	
104s	Editorial Writing (3 cred.; sr., grad.; prereq., 73, and 25 credits in soc. sci.)	II	TThS	10P	
110f	History of Journalism. (3 cred.; jr., sr., grad.; prereq., 41 or 51, 10 cred in hist.)	II	MWF	10P	
111w	Foreign News Sources. (3 cred.; jr., sr., grad.; prereq., 41 or 51 and a hist. or pol. sci. course in international relations)	II	MWF	10P	
112s	Current Newspaper Problems. (3 cred.; sr., grad.; prereq., 100 or 101 or 110)	II	MWF	10P	
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	6P	
190f-191w-192s	Topics Course (9 cred.; sr., grad.; prereq., 20 cred. and consent of instructor)				
	Seniors Sec. 1	VIII. IX	T	10P	
	Graduates 2	VIII. IX	Th	10P	

LATIN

Major Adviser J. B. Pike

REQUIREMENTS OF THE DEPARTMENT

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.

† The entire course must be completed before credit is received for any quarter.

Junior College Courses

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†§	Beginning Latin (10 cred.; fr. with cert. of apt., soph., jr., sr.; no prereq.)	VI	MTWThF	109F	Mrs. Babcock
3s	Caesar (5 cred.; fr. with cert. of apt., soph., jr., sr.; prereq., 1-2, or 1 yr. Latin)	VI	MTWThF	109F	Mrs. Babcock
11f	Virgil I and II (5 cred.; fr. with cert. of apt., soph., jr., sr.; prereq., 1-2, 3, or 2 yrs. Latin)	III	MTWFS	109F	Mr. Cram, Mrs. Babcock
12w	Virgil III and IV (5 cred.; fr. with cert. of apt., soph., jr., sr.; prereq., 1-2, 3, or 2 yrs. Latin)	III	MTWFS	109F	Mrs. Babcock
13s	Ovid (5 cred.; fr. with cert. of apt., soph., jr., sr.; prereq., 1-2, 3, or 2 yrs. Latin)	III	MTWFS	110F	Mrs. Babcock
21f	Selections (5 cred.; fr. with cert. of apt., soph., jr., sr.; prereq., 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. with cert. of apt., soph., jr., sr.; prereq., 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. with cert. of apt., soph., jr., sr.; prereq., 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

5f	Pliny's Letters (3 cred.; jr., sr.; prereq., any two of 21, 22, 23, or equiv.)	Not offered			
52w	Horace's Satires and Epistles.... (3 cred.; jr., sr.; prereq., any two of 21, 22, 23, or equiv.)	I	TThS	109F	Mr. Cram
53	Suetonius, Selected Lives..... (3 cred.; jr., sr.; prereq., any two of 21, 22, 23, or equiv.)	Not offered			
62	Horace Odes and Epodes (3 cred.; jr., sr.; prereq., any two of 21, 22, 23, or equiv.)	Not offered			

† 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 paragraph 2, page 4, Science, Literature, and the Arts bulletin, Part II.

No.	Title	Hour	Day	Bldg.	Instructor
63s	Apuleius (3 cred.; jr., sr.; prereq., any two of 21, 22, 23, or equiv.)	I	TThS	109F	Mr. Cram
71f	Cicero's De Amicitia and De Senectute (3 cred.; jr., sr.; prereq., any two of 21, 22, 23, or equiv.)	I	TThS	109F	Mr. Cram
73s	Advanced Grammar and Composition* (3 cred.; jr., sr.; prereq., 51 and 52, or 71 and 62)	III	MWF	109F	Mr. Pike
121f	Advanced Virgil (3 cred.; jr., sr., grad.; prereq., any two of 51, 52, 53, or equiv.)	II	MWF	109F	Mr. Pike
122	Cicero's Letters (3 cred.; jr., sr., grad.; prereq., any two of 51, 52, 53, or equiv.)	<i>Not offered</i>			
123	Medieval Latin (3 cred.; jr., sr., grad.; prereq., any two of 51, 52, 53, or equiv.)	<i>Not offered</i>			
131	Juvenal (3 cred.; jr., sr., grad.; prereq., any two of 51, 52, 53, or equiv.)	<i>Not offered</i>			
132w	Seneca's Epistles (3 cred.; jr., sr., grad.; prereq., any two of 51, 52, 53, or equiv.)	II	MWF	109F	Mr. Pike
133s	Vulgar Latin (3 cred.; jr., sr., grad.; prereq., any one of 51, 52, 53, or equiv.)	II	MWF	109F	Mr. Pike
201-202-203	Grad. Seminar: Tacitus..... (9 cred.)	<i>Not offered</i>			
211-212-213	Grad. Seminar: Lucretius..... (9 cred.)	<i>Not offered</i>			
221-222-223	Graduate Seminar: Cicero's Phil. Works (9 cred.)	<i>Not offered</i>			
231f-232w-233s	Graduate Seminar: Cicero's Rhetorical Works (9 cred.)	VIII, IX	T	314Lib	Mr. Pike
241f-242w-243s	Graduate Seminar: Introduction to Classical Philology (9 cred.)	VIII, IX	Th	314Lib	Mr. Cram

LIBRARY METHODS

For specialized curriculum for school librarian, see page 7. For library training, see page 9, 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.

* Required of students who expect a teaching recommendation.

No. 1f,w,s§	Title Use of Books and Libraries..... (2 cred.; fresh., soph. only; no prereq.)	Hour	Day	Bldg.	Instructor
	Sec. 1	II	MW	3Lib	Miss Firkins
	2	IV	MW	3Lib	Mr. Russell, Miss Moen
	3	VI	MW	5Lib	Miss Grondahl

MATHEMATICS

Major Adviser: A. L. Underhill

REQUIREMENTS OF THE DEPARTMENT

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, 6, and 8, students who fail to pass certain tests will be dropped from the course during the first two weeks. A student who is dropped from Course 4, or 6, or 8 must complete Course 3 or 5 before taking any other course in Mathematics. A student dropped from Course 3 or 5 must pass Subfreshman Mathematics in the Extension Division before returning to Course 3 or 5.

Junior College Courses

No.	Title	Hour	Day	Bldg.	Instructor
3f*	Higher Algebra, Short Course... (4 cred.; all; prereq., 1 yr. elem. alg.)	III	MTWTF	133Ph	Ar
3w*	Higher Algebra, Short Course... (See 3f)				
	Sec. 1	II	MWThF	210P	Ar
	2 (agr. stud. only)	IV	MTWTF	105F	Ar
4f*	Trigonometry, Short Course..... (4 cred.; all; prereq., 3 or 5 or prep. higher alg.)	II	MWThF	206OLa	Ar
4w*	Trigonometry, Short Course..... (See 4f)	III	MTWTF	133Ph	Ar
4s*	Trigonometry, Short Course..... (See 4f)				
	Sec. 1	II	MWThF	166Ph	Ar
	2 (agr. stud. only)	IV	MTWTF	104F	Ar
5f	Higher Algebra..... (5 cred.; all; prereq., 1 yr. elem. alg.)				
	Sec. 1	II	MWThFS	133Ph	Ar
	2	VI	MTWThF	133Ph	Ar

* For pre-med. and pre-dent. students, and others who desire only the mathematics necessary in the first course in physics.

‡ 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.

§ For students in College of Science, Literature, and the Arts. Others must obtain a special card from the junior college office.

No.	Title	Hour	Day	Bldg.	Instructor
5w	Higher Algebra (See 5i)	VI	MTWThF	166Ph	Ar
5s	Higher Algebra (See 5f)	I	MWThFS	133Ph	Ar
6f¶	Trigonometry (5 cred.; fr. with cert. of apt., 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
7s¶	College Algebra (See 7f)	VI	MTWThF	104F	Ar
8f¶	Commerce Algebra (5 cred.; pre-bus. stud.; prereq., 5 or prep. high. alg.)	I	MWThFS	OPhAud	Ar
8w¶	Commerce Algebra (See 8f)	II	MWThFS	OPhAud	Ar
8s¶	Commerce Algebra (See 8f)	VI	MTWThF	105F	Ar
20w	Mathematics of Investment (5 cred.; all; prereq., 8 or 47, or 6 and 7)	I	MWThFS	OPhAud	Mr. Hart
20s	Mathematics of Investment (See 20w)	II	MWThFS	OPhAud	Mr. Hart
21s	Elements of the Mathematics of Life Insurance (3 cred.; all; prereq., 20)	I	MWF	104F	Mr. Hart
30f	Analytic Geometry (6 cred.; all; prereq., 6 and 7)	III	MTWThFS	104F	Ar
30w	Analytic Geometry (See 30f)	I	MTWThFS	104F	Ar
30s	Analytic Geometry (See 30f)	II	MTWThFS	104F	Ar
47f¶	Mathematics for Students of Sta- tistics I (5 cred.; soph., jr., sr.; prereq., 5 or prep. higher algebra)	I	MWThFS	105F	Mr. Brink
48w	Mathematics for Students of Sta- tistics II (5 cred.; soph., jr., sr.; prereq., 47, or 6 and 7, or 6 and 8)	I	MWThFS	105F	Mr. Brink
49s	Mathematics for Students of Sta- tistics III (3 cred.; soph., jr., sr.; prereq., 48)	I	MWF	105F	Mr. Brink

¶ 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.

Senior College Courses

No.	Title	Hour	Day	Bldg.	Instructor
50f	Calculus I	III	MTWFS	105F	Mr. Jackson
	(5 cred.; jr., sr.; prereq., 30)				
50w	Calculus I	III	MTWFS	104F	Ar
	(See 50f)				
51w	Calculus II	III	MTWFS	105F	Mr. Jackson
	(5 cred.; jr., sr.; prereq., 50)				
51s	Calculus II	III	MTWFS	104F	Ar
	(See 51w)				
52f	Calculus III	II	MWThFS	101F	Mr. Underhill
	(5 cred.; jr., sr.; prereq., 51)				
52s	Calculus III	III	MTWFS	103F	Mr. Jackson
	(See 52f)				
60s	S ynthetic Metric Geometry.....	VI	MWF	102F	Miss Gibbens
	(3 cred.; jr., sr.; prereq., 30)				
62w	Theory of Equations I.....	VII	MWF	101F	Mr. Bussey
	(3 cred.; jr., sr.; prereq., 50)				
63	<i>Theory of Equations II.....</i>	<i>Not offered</i>			
	(3 cred.; jr., sr.; prereq., 62)				
70	<i>Hist. of Elem. Math.....</i>	<i>Not offered</i>			
	(3 cred.; jr., sr.; prereq., 30)				
71s	Solid Analytic Geometry.....	VII	MWF	101F	Mr. Bussey
	(3 cred.; jr., sr.; prereq., 50)				
102-103-104	<i>Adv. Analytic and Synthetic Geometry</i>	<i>Not offered</i>			
	(9 cred.; jr., sr., grad.; prereq., 50)				
106f	Differential Equations	III	MWF	101F	Mr. Hart
	(3 cred.; jr., sr., grad.; prereq., 51)				
107w-108s	Advanced Calculus	III	MWF	101F	Mr. Hart
	(6 cred.; jr., sr., grad.; prereq., 52)				
115f-116w-117s	Differential Geometry	III	TThS	101F	Mr. Underhill.
	(9 cred.; jr., sr., grad.; prereq., 51)				
118f-119w-120s	Vector Analysis	Ar	Ar	Ar	Mr. Jackson
	(9 cred.; jr., sr., grad.; prereq., 51)				
121-122-123	<i>Math. Theory of Statistics.....</i>	<i>Not offered</i>			
	(9 cred.; jr., sr., grad.; prereq., 51 or 47.48.49)				
206-207-208	<i>Theory of Functions.....</i>	<i>Not offered</i>			
	(9 cred.; sr., grad.; prereq., 106, 107-108, or Math. and Mech. 151, 152-153*)				

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.

* See bulletin of the College of Engineering.

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.

No.	Title	Hour	Day	Bldg.	Instructor
11f.w.s. 12f.w.s, 13f.w.s	Elem. Shop Practice..... (2 cred. per qtr.*; pre-dent. only; no prereq.)	VII, VIII, IX†	MW MF	ME(f,w) (spring)	Mr. Shipley and others

MUSIC

Major Advisers: C. M. Scott, A. Pepinsky

For specialized curriculum in Public School Music see Part I of Education bulletin.

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.) Sec. 1 2	II VI	MWF	103Mu	Mr. Scott Mr. Scott
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	Miss Malcolm
7f-8w-9s†	Ear Training (3 cred.; fr., soph. mu.; no pre- req.)	VI	TTh	Mu	Mr. Killeen, Miss Reeves, Miss Kendall
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

* Does not carry credit except for pre-dental students.

† The entire course must be completed before credit is received for any quarter.

‡ Students having conflicts with this program may register with one of the engineering or chemistry sections, with permission from Mr. Shipley.

§ 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.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
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
40f-41w-42s*	Orchestra	7:30 p.m.	W	MuAud	Ar
	(3 cred.; jr., sr.)				
43f-44w-45s†	University Chorus‡	IX	T	MuAud	Mr. Killeen
	(3 cred.; fr. and soph. mu., acad. jr., sr.; prereq., consent of director)				
86f-87w-88s	Normal Piano	VII	MWF	Mu	Miss Reeves
	(6 cred.; jr.; prereq., 2 yrs. piano)				
89f-90w-91s	Advanced Normal Piano.....	VIII	MWF	Mu	Miss Reeves
	(6 cred.; sr.; prereq., 86-87-88)				
100-101-102	Composition-Orchestration	<i>Not offered</i>			
	(6 cred.; jr., sr.; prereq., 1-2-3, 4-5-6)				
103f-104w-105s	Analysis	VII	Th	4Mu	Miss Kendall
	(3 cred.; soph., jr., sr.; prereq., 1-2-3)				
106f-107w-108s†	History of Music.....	II	MWF	4Mu	Mr. Egilsrud
	(9 cred.; jr., sr.; prereq., 1-2-3)				
109-110-111	Bach and Beethoven.....	<i>Not offered</i>			
	(9 cred.; sr.; prereq., 106-107-108)				
112f-113w-114s	Ensemble				
	(6 cred.; jr.)				
	Instrumental Sec. 1	II	TTh	4Mu	Ar
	Vocal 2	II	TTh	104Mu	Miss Hall
115f-116w-117s	Adv. Ensemble: Voice.....	VI	MW	4Mu	Mr. Killeen
	(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	Ar	Ar	Mu	Mr. Scott
	(6 cred.; jr.; prereq., 4-5-6)				
127-128-129	Advanced Composition	<i>Not offered</i>			
	(6 cred.; sr.; prereq., 100-101-102)				

* Students majoring in music may take 4 years of orchestra.

† The entire course must be completed before credit is received for any quarter.

‡ Does not carry credit for academic freshmen and sophomores.

¶ Students may receive credit for 2 years of chorus.

COLLEGE OF EDUCATION

ORIENTATION

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†	Orientation				
	(10 cred.; entering freshmen with cert. of apt.; no prereq.)				
	Lect.	III§	Th	OLAud	
	Sec. 1	I	MWThFS	101F	
	2	II	MWThFS	200OLA	
	3	III	MTWFS	200OLA	
	4	VI	MTWThF	200OLA	
	5	VII	MTWThF	200OLA	
1w-2s†	Orientation	III	MTWFS	6F	
	(See 1f-2w)				

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	IV	MTWFS	321F	Mr. Conger
	(See 1f)				
2f	Logic				
	(5 cred.; soph., jr., sr.; no pre-req.)				
	Sec. 1	III	MTWFS	322F	Mr. Swenson
		IV	MTWFS	321F	Ar
2w	Logic	VI	MTWThF	321F	Ar
	(See 2f)				
2s	Logic				
	(See 2f)				
	Sec. 1	III	MTWFS	321F	Ar
	2	VII	MTWThF	321F	Ar
3f	Ethics	I	MWThFS	322F	Mr. Wilde
	(5 cred.; soph., jr., sr.; no pre-req.)				
3w	Ethics	I	MWThFS	321F	Ar
	(See 3f)				
3s	Ethics				
	(See 3f)				
	Sec. 1	I	MWThFS	322F	Mr. Wilde
	2	VI	MTWThF	322F	
10s	Science and Religion	VII	TTh	204F	Mr. Swenson
	(2 cred.; soph., jr., sr.; prereq., 10 cred. in phil. or a science)				

† The entire course must be completed before credit is given for any quarter.

§ There will be five meetings of the class each week, sometimes five recitations, sometimes four recitations and one lecture.

PROGRAM

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No.	Title	Hour	Day	Bldg.	Instructor
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 Philosophy (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. Conger
103S	Esthetics (3 cred.; jr., sr., grad.; prereq., 10 cred.)	II	MWF	322F	Ar
104	<i>History of Esthetic Theory.....</i> (3 cred.; jr., sr., grad.; prereq., 10 cred.)	<i>Not offered</i>			
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

COLLEGE OF EDUCATION

PHYSICS

Major Adviser: H. A. Erikson

REQUIREMENTS OF THE DEPARTMENT

For a teacher's certificate.—Sixteen quarter credits in physics.

For university teacher's certificate in natural science, see specialized curriculum. Part I of Education bulletin.

Introductory Courses

No.	Title	Hour	Day	Bldg.	Instructor	
3f	Elem. of Mechanics..... (3 cred.; all; prereq., Math. 4, or 6)	Lect.	VIII	MWF	150Pl.	Mr. Erikson
		Quiz	II or IX	Th	150Pt.	
3w	Elem. of Mechanics..... (See 3f)	Lect.	VIII	MWF	150Ph	Mr. Erikson
		Quiz	IX	F	150Pt.	
3s	Elem. of Mechanics..... (See 3f)	Lect.	III	TThS	150Ph	Mr. Erikson
		Quiz	IX*	F	150Pt.	
4f	Elem. of Mechanics Lab..... (1 cred.; all; prereq., 3 or reg. in 3)	Sec. 1	VI, VII	T	153Ph	Mr. Buchta and assistants
		2	VIII, IX	T	153Ph	
		3	I, II	Th	153Pt.	
		4	VIII, IX	Th	153Pt.	
		5	VI, VII	F	153Ph	
4w	Elem. of Mechanics Lab..... (See 4f)	Sec. 1	VI, VII	M	153Ph	
		2	I, II	T	153Ph	
		3	VI, VII	T	153Ph	
		4	VI, VII	Th	153Ph	
		5	VI, VII	F	153Ph	
4s	Elem. of Mechanics Lab..... (See 4f)	Sec. 1	VI, VII	M	153Ph	
		2	I, II	T	153Ph	
		3	VI, VII	T	153Ph	
		4	VI, VII	Th	153Ph	
		5	VIII, IX	T	153Ph	
9s‡	Acoustics..... (3 cred.; all; no prereq.)	VIII	MWF	133Ph	Mr. Buchta	
23f	Heat..... (3 cred.; all; prereq., 3)	Lect.	III	TThS	166Ph	Mr. Miller
		Quiz	IX	Th	166Ph	Mr. Miller

* Students who take Inorganic Chemistry 108 laboratory at VIII, IX, MWF should try to arrange with Mr. Erikson for another quiz hour.

‡ Does not count as part of the pre-medical requirement in physics.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
23w	Heat (See 23f)				
	Lect. Sec. 1	II	MWF	150Ph	Mr. Miller
	2	VI	MWF	150Ph	
	Quiz Sec. 1	II	Th	150Ph	
	2	IX	Th	150Ph	
24f	Heat Laboratory (1 cred.; all; prereq., 4, 23, or reg. in 23)				
	Sec. 1	VI, VII	M	244Ph	Mr. Miller and assistants
	2	VIII, IX	M	244Ph	
	3	VI, VII	T	244Ph	
	4	VIII, IX	T	244Ph	
24w	Heat Laboratory (See 24f)				
	Sec. 1	VI, VII	T	244Ph	Mr. Miller and assistants
	2	VIII, IX	T	244Ph	
	3	I, II	Th	244Ph	
	4	VIII, IX	Th	244Ph	
33f	Optics (3 cred.; all; prereq., 3)				
	Lect.	I	TThS	133Ph	Mr. Valasek
	Quiz	IX	F	133Ph	
33s	Optics (See 33f)				
	Lect.	IV	MWF	133Ph	Mr. Valasek
	Quiz	IX	F	133Ph	
	Ar		Th	236Ph	
34f,s	Optics Laboratory (1 cred.; all; prereq., 4 and 33 or 35 or reg. in 33 or 35)				Mr. Valasek and assistants
43w	Electricity (3 cred.; all; prereq., 3)				
	Lect.	III	TThS	166Ph	Mr. Zeleny
	Quiz	IX	Th	160Ph	
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	T	231Ph	Mr. Zeleny and assistants
	2	VIII, IX	T	231Ph	
	3	VI, VII	W	231Ph	
44s	Electricity Laboratory (See 44w)				
	Sec. 1	VI, VII	M	231Ph	Mr. Zeleny and assistants
	2	VI, VII	T	231Ph	
	3	VIII, IX	T	231Ph	
	4	I, II	T	231Ph	

Intermediate Courses

52f,w,s	Laboratory Arts (3 cred.; jr., sr.; prereq., 16 cred. and approval of depart- ment)	VI, VII, VIII	TTh	39Ph	Ar
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COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
101f-103w-105s	Theoretical Physics (15 cred.; jr., sr., grad.; prereq., 12 cred. in phys., Math. 51)	V	MTWFS	145Ph	Mr. Tate
104	<i>Precision Mechanics</i> (3 cred.; jr., sr., grad.; prereq., 12 cred. and Math. 51)	<i>Not offered</i>			
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)	Ar	Ar	145Ph	Mr. Erikson

POLITICAL SCIENCE

Major Adviser: W. Anderson

REQUIREMENTS OF THE DEPARTMENT

For a teacher's certificate in government.—Major recommendation: at least 36 credits in political science including American Government, State or Municipal Government, Introduction to 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 American Government, Introduction to Political Science, and either State or Municipal or Comparative European Government.

NOTE.—The following courses in other departments carry credit also in this department:

Economics 154, Public Utilities; 169, Labor and Socialist Movement in Europe; 191-192, Public Finance; and 193, State and Local Taxation.

PROGRAM

History 33-34, English Legal Institutions; 106-107-108, Europe 1815-1914; 109, Modern England; 146-147, Constitutional History of the United States; 153, The West in American Politics since 1865; 168, Topics in American Foreign Relations.

Sociology 140, History of Social Theory.

Civil Engineering 53, Municipal Engineering.

Philosophy 129, Modern Political Thought.

No.	Title	Hour	Day	Bldg.	Instructor	
11,w,s	American Government (5 cred.; soph., jr., sr., and tr. with 10 cred. in hist. or econ. no prereq.)	Lect.	IV	WF	OLAud	Mr. Young
		Sec. 1	I	MWF	221OL	
		2	I	TThS	15F(f), 221OL(w), 112OL(s)	
		3	II	TThS	111OL(f), 25F(w), 209OL(s)	
		4	III	TThS	111OL	
		5	III	MWF	111OL	
		6	VI	MWF	221OL	
Af-Bw†	Introduction to Government and Politics (10 cred.; soph., jr., sr.; no prereq.)	Lect.	III	MTWFS	5F	Mr. Saunders
		1				
		2				
		3				
		4				
		5				
		6				
21,w,s	State Government (5 cred.; soph., jr., sr.; prereq., 1)	Lect.	IV	MW	211OL	Mr. Lambie, Mr. Field
		Sec. 1	IV	TFS	211OL	
		2	II	TThS	124F	
3f,w,s	Comparative European Govern- ment (5 cred.; soph., jr., sr.; prereq., 1)	Lect.	II	MWThFS	112OL(f,w), 111OL(s)	Mr. Starr
		1				
11f,s	Municipal Government (5 cred.; soph., jr., sr.; prereq., 1)	Lect.	I	MWThFS	209OL	Mr. Anderson
15f,w,s	Elements of Political Science (5 cred.; soph., jr., sr.; prereq., 1)	Lect.	VI	MTWThF	209OL	Mr. Saunders and others
25f,w,s	World Politics (5 cred.; soph., jr., sr.; prereq., 1, or Hist. 1-2)	Lect.	III	MTWFS	25F	Mr. Mills
51f-52w-53s†	Business Law (9 cred.; jr., sr.; prereq., 10 cred. in pol. sci. or 10 cred. in econ. or 5 cred. in each)	Lect.	IV	TS	OLAud	Mr. Young, Mr. Dalzell
		Sec. 1	I	M	5F	
		2	II	M	204F(f), 9F(w), 301F(s)	
		3	III	M	217F	
		4	I	T	201F	
		5	II	T	201F	
		6	III	T	3F(f), 322F(w), 109F(s)	
7	IV	M	Ar			

† The entire course must be completed before credit is received for any quarter.

‡ Alternative beginning course. Students who take this course should not take and will not receive credit for Courses 1, 2, or 15.

No.	Title	Hour	Day	Bldg.	Instructor
81f-82w-83s†	Readings for Honors..... (Junior course. Cred. ar.)				Mr. Anderson, Mr. Quigley, and others
91f-92w-93s†	Reading and Theses for Honors (Senior course. Cred. ar.)				Mr. Anderson, Mr. Quigley, and others
101f-102w†	Constitutional Law (6 cred.; jr., sr., grad.; prereq., 15 cred.)	VI	MWF	221OL	Mr. Field
103s	State Constitutional Law..... (3 cred.; jr., sr., grad.; prereq., 15 cred.)	VI	MWF	221OL	Mr. Field
104f	Problems in State Government... (3 cred.; jr., sr., grad.; prereq., 2)	I	TThS	221OL	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	111OL	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
108	<i>Legislative Power and Methods</i> (3 cred., jr., sr., grad.; prereq., 15 cred.)	<i>Not offered</i>			
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			
113s	Administrative Law (3 cred.; jr., sr., grad.; prereq., 15 cred.)	I	TThS	221OL	Mr. Field
116	<i>Municipal Powers and Func- tions</i> (5 cred.; jr., sr., grad.; prereq., 15 cred. incl. 11)	<i>Not offered</i>			
119*	Jurisprudence (2 cred.; grad., and sr. of suit- able prep.)	See Law School bulletin			Mr. Rottschaefcr
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
137w	Municipal Administration (5 cred.; jr., sr., grad.; prereq., 10 cred. incl. 11)	III	MTWFS	112OL	Mr. Anderson

* Second semester.

† The entire course must be completed before credit is received for any quarter.

PROGRAM

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No.	Title	Hour	Day	Bldg.	Instructor
145w-146s†	Comparative Federal Govern- ment (6 cred.; jr., sr., grad.; prereq., 15 cred.)	3:30-4:45	MF	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
153-154†	<i>Far Eastern Government and Poli- tics</i> (6 cred.; jr., sr., grad.; prereq., 3 or 10 cred. and Hist. 1-2)	<i>Not offered</i>			
161w-162s†	Current Political Thought..... (6 cred.; jr., sr., grad.; prereq., 20 cred.)	IV	TS and ar	209OL	Mr. Anderson
163f	American Political Ideas..... (3 cred.; jr., sr., grad.; prereq., 15 cred.)	3:30-4:45	MF	12Lib	Mr. Saunders
165w	Develop. of Political Thought... (5 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. or 10 cred. in phil. Same as Phil. 129)	I	MWThFS	322F	Mr. Wilde
169	<i>Problems of Democracy</i> (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci., incl. 10 cred. in pol. sci.)	<i>Not offered</i>			
171s	Political Psychology (3 cred.; jr., sr., grad.; prereq.‡)	See Psychology 141			
175	<i>Political Parties</i> (3 cred.; jr., sr., grad.; prereq., 15 cred.)	<i>Not offered</i>			
181f-182s†‡	International Law (6 cred.; sr., grad.; prereq., 20 cred. in soc. sci., incl. 10 cred. in pol. sci.)	IV	MWF	209OL	Mr. Quigley
183	<i>International Organization</i> (3 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci.)	<i>Not offered</i>			
184	<i>Problems in International Law</i> .. (3 cred.; sr., grad.; prereq., 181- 182)	<i>Not offered</i>			
187f-188w†	American Diplomatic History... (6 cred.; jr., sr., grad.; prereq.. 20 cred. in hist. and pol. sci. or 15 cred. in hist. or pol. sci.)	III	MWF	221OL	Mr. Shippee
189s	Topics in American Foreign Re- lations (5 cred.; jr., sr., grad.; prereq.. 20 cred. in hist. incl. 9, or 20 cred. in pol. sci.)	VIII. IN	TTh	339Lib	Mr. Shippee
191f-192s†‡	Far Eastern Diplomacy..... (6 cred.; jr., sr., grad.; prereq., 20 cred. in soc. sci. incl. 25, or 10 cred. in pol. sci. and Hist. 1-2)	VII	MWF	209OL	Mr. Quigley

† The entire course must be completed before credit is received for any quarter.

‡ Students should notice that the second quarter is offered in the spring.

§ 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.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
193	<i>Problems of the Pacific</i> (3 cred.; jr., sr., grad.; prereq., 153-154 or 191-192)	Not offered			
1958	Colonization	VI	MWF	112OL	Mr. Mills
	(3 cred.; jr., sr., grad.; prereq., 15 cred. or 20 cred. in soc. sci. incl. 10 cred. in pol. sci.)				

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.

PSYCHOLOGY

Major Advisers: R. M. Elliott, D. G. Paterson, C. Bird, M. A. Tinker

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†	General Psychology				Mr. Elliott and others
	(6 cred.; soph., jr., sr.; no pre- req.)				
	Sec. 1	I	MWF	OLAud	
	2	III	MWF	OLAud	
1w-25†	General Psychology	Ar	Ar	Ar	
	(See 1f-2w. Registration limited. Written permission must be ob- tained from junior college of- fice‡)				
18,28	General Psychology	Ar	Ar	Ar	
	(6 cred.; see 1f-2w. Registration limited. Written permission must be obtained from junior college office§)				
38	Psychology Applied to Daily Life	III	MWF	301F	Mr. Paterson and others
	(3 cred.; soph., jr., sr.; prereq., 1-2)				
4f-5w†	Introd. Lab. Psychology.....				
	(4 cred.; soph., jr., sr.; with or after 1-2) (Sections limited to 48)				
	Sec. 1	I, II	TTh	211Psy	Mr. Tinker
	2	III, IV	TS	211Psy	and others
	3	VI, VII	TTh	211Psy	
	4	VIII, IX	TTh	211Psy	
	5	III, IV	MW	211Psy	
78	Introd. Lab. Psychology.....				
	(Identical with 4-5 combined. See 4f-5w)				
	Sec. 1	VI, VII	MTThF	211Psy	Mr. Tinker
	2	III, IV	MTWTF	211Psy	and others
98	Introd. to Animal Psychology....	III	MWF	109Psy	Mr. Heron
	(3 cred.; soph., jr.; prereq., 1-2)				
158	Psychology of Sensation.....	II	TThS	211Psy	Mr. Tinker
	(3 cred.; soph., jr., sr.; prereq., 1-2)				

† The entire course must be completed before credit is received for any quarter.

‡ Offered VII MWF, VIII MWF.

§ Offered II MTWThFS, III MTWThFS.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
56w*	Psychology of Advertising..... (3 cred.; jr., sr.; prereq., 1-2, and Prin. of Econ.)	VII	MWF	133Ph	Mr. Longstaff
101f-102w†-103s	Experimental Psychology..... (3 cred. per qtr.; and 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
108f	Systems of Psychology..... (3 cred.; jr., sr., grad.; prereq., 1-2; 4-5 or 7)	III	TThS	109Psy	Miss Heidbreder
109f,w	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	Miss Heidbreder
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	Psychology 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 honors 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
137s	Psychology of Learning..... (3 cred.; jr., sr., grad.; prereq., 124 or equiv.)	III	TThS	109Psy	Mr. Heron
140w	Social Psychology..... (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. Bird
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) 166Ph(s)	Miss Heidbreder
151f-152w†-153s	Animal Psychology..... (3 cred. per qtr.; cred. ar. for honors 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	Perception of Space..... (3 cred.; jr., sr., grad.; prereq., 101-102 or permission of instr.)	Not offered			
172f	Reaction Time..... (3 cred.; jr., sr., grad.; prereq., 101-102 or permission of instr.)	II	TThS	109Psy	Mr. Heron

* Cannot be counted for a minor sequence.

† 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.

COLLEGE OF EDUCATION

ROMANCE LANGUAGES

Major Adviser: F. B. Barton

REQUIREMENTS OF THE DEPARTMENT

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; 50-51-52, 53-54-55 (or 20); 63, and 103-104-105.

Minor recommendation: 18 credits in one language in courses numbered above 4.

NOTE.—One credit less for each recommendation to be accepted if the student elects 20 in place of 50-51-52 and 53-54-55.

Courses in French and Spanish conversation.—May be taken only when accompanied by the corresponding courses in composition. No credit will be given for work done in a course in conversation unless the course in composition is passed also. Courses in composition may be taken separately.

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. with cert. of apt.,	II	MWThFS	227F	Ar
	soph., jr., sr.; no prereq.)	IV	MTWFS	227F	Ar
		VI	MTWThF	226F	Ar
1w-2s†*	Beginning French	VII	MTWThF	202F	Ar
	(See 1f-2w)	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
	(2nd qtr. of 1-2. See 1f-2w)	VI	MTWThF	202F	Ar
3f-4w	Intermediate French	I	MWThFS	213F	Ar
	(10 cred.; fr. with cert. of apt.,	III	MTWFS	226F	Ar
	soph., jr., sr.; prereq., 1-2, or	VII	MTWThF	213F	Ar
	2 yrs. high school French)				
3w-4s	Intermediate French	I	MWThFS	202F	Ar
	(See 3f-4w)	VI	MTWThF	213F	Ar
3s	Intermediate French	I	MWThFS	213F	Ar
	(First qtr. of 3-4. See 3f-4w)	II	MWThFS	227F	Ar
		IV	MTWFS	227F	Ar
		VI	MTWThF	226F	Ar
		VII	MTWThF	202F	Ar
4f	Intermediate French	II	MWThFS	113F	Ar
	(2nd qtr. of 3-4. See 3f-4w)	IV	MTWFS	124F	Ar
		VI	MTWThF	202F	Ar
8f-9w-10s§	Scientific French (pre-med.)...	I	MWF	201F	Ar
	(9 cred.; pre-med.; prereq., 3 or				
	equiv.)				

* Credit is usually not given for more than one beginning language. See paragraph 2, page 4, 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.

PROGRAM

101

No.	Title	Hour	Day	Bldg.	Instructor
20f	Oral and Written French.....	III	MTWFS	303F	Mr. Boyer
	(5 cred.; all; prereq., 4 or 3 yrs. high school French)	VII	MTWThF	227F	Mr. Frelin
20s	Oral and Written French.....	I	MWThFS	204F	Ar
	(See 20f)	III	MTWFS	226F	Ar
		VII	MTWThF	213F	Mr. Frelin
21f-22w-23s†	Survey of French Lit.	II	TThS	226F	Mr. LeCompte
	(9 cred.; all; prereq., 3-4 or 20 or 4 yrs. high school French)	III	MWF	201F	Mr. Clefthon
		VII	MWF	201F	Mr. Searles
24w-25s†	Survey of French Lit.	III	MTWFS	303F	Mr. Owens
	(10 cred.; all; prereq., 3-4 or 20 or 4 yrs. high school French)	VII	MTWThF	226F	Mr. Humiston
49f,w,s	French Pronunciation	VIII	MWF	207F	Mr. Owens
53f	French Composition	III	TThS	201F	Mr. Olmsted
	(3 cred.; jr., sr.*; prereq., 3-4)	VI	MWF	201F	Mr. Borglum
54w-55s	French Conversation	III	TThS	201F	Mr. Olmsted
	(4 cred.; jr., sr.*; prereq., 53 or 20)	VI	MWF	201F	Mr. Borglum
62w	Practical French Phonetics.....	VIII	MWF	203F	Miss Guinotte
63f	Adv. French Composition	II	MWF	203F	Miss Guinotte
	(3 cred.; jr., sr.*; prereq., 53 or 20 with a grade of B)	VII	MWF	203F	Mr. Barton
64w-65s	Adv. French Conversation	II	MWF	203F	Miss Guinotte
	(6 cred.; jr., sr.*; prereq. 54, 55 or 20 with a grade of B)	VII	MWF	203F	Mr. Borglum
80f-81w-82s	French Lit.: 19th Century.....	IV	MWF	201F	Mr. Barton
	(9 cred.; jr., sr.*; prereq., 21-22-23 or 24-25)	VII	MWF	206F	Mr. Clefthon
100s	French Oral Diction.....	VIII	MTWF	203F	Miss Guinotte
103f-104w-105s†	French Syntax and Comp.	VI	F	217F	Mr. Barton
	(3 cred.; jr., sr., grad.; prereq., 63)				
115f	Fr. Lit.: 17th Cent.: Formation of Classic Ideal	IV	MTWF	205F	Mr. Searles
116w	Fr. Lit.: 17th Cent.: Molière, Racine, LaFontaine	IV	MTWF	205F	Mr. Searles
	(4 cred.; jr., sr., grad.; prereq., 21-22-23 or 24-25)				
117s	Fr. Lit.: 17th Cent.: Moral and Didactic Literature	IV	MTWF	205F	Mr. Searles
118f-119w-120s	French Lit.: 18th Century.....	III	TThS	217F	Mr. Sirich
	(9 cred.; jr., sr., grad.; prereq., 21-22-23, or 24-25)				

* 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.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
121f-122w-123s	French Lit.: 16th Century..... (9 cred.; jr., sr., grad.; prereq., 80-81-82, or 115-116-117 or 118- 119-120)	III	M, F	203F	Mr. Searles
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
153s	Contemporary French Lyric Poetry (4 cred.; jr., sr., grad.; prereq., 20-21-22 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 credit for Italian 1-2 in addition to one other beginning language.

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†	Beginning Italian (10 cred.; fr. with cert. of apt., soph., jr., sr.; no prereq.)	IV	MTWFS	226F	Miss Nissen
3s	Intermediate Italian (First qtr. of 3-4; 10 cred.; fr. with cert. of apt., soph., jr., sr.; prereq., 1-2)	IV	MTWFS	226F	Miss Nissen
4	Intermediate Italian (See 3s)	<i>Not offered</i>			
70	Survey of Italian Lit. (3 cred.; jr., sr.*; prereq., 3-4†)	<i>Not offered</i>			
71w	Modern Poetry (Leopardi, Car- ducci) (3 cred.; jr., sr.*; prereq., 3-4†)	II	TThS	217F	Miss Nissen
72f	Modern Drama (Giacosa, Bracco, Pirandello) (3 cred.; jr., sr.*; prereq., 3-4†)	II	TThS	217F	Miss Nissen
73	Boccaccio (3 cred.; jr., sr.*; prereq., 3-4†)	<i>Not offered</i>			
74s	Petrarch (3 cred.; jr., sr.*; prereq., 3-4†)	II	MWF	217F	Miss Nissen
159f-160w	Dante (6 cred.; jr., sr., grad.; prereq., one course above 50)	II	MWF	217F	Miss Nissen

* Open without permission to sophomores with 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.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
161-162	<i>The Sixteenth Century</i>	<i>Not offered</i>			
	(6 cred.; jr., sr., grad.; prereq., one course above 50)				
164s	Dante (in English).....	II	TThS	212F	Miss Nissen
	(3 cred.; jr., sr., grad.; prereq., French 21-22-23 or 24-25, or 8 cred. in Eng. above 50)				

SPANISH

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w†	Beginning Spanish	I	MWThFS	226F	Ar
	(10 cred.; fr. with cert. of apt., soph., jr., sr.; no prereq.)	IV	MTWFS	125F	Ar
		VII	MTWThF	212F	Ar
1w-2s†	Beginning Spanish	VII	MTWThF	227F	Ar
	(See 1f-2w)			(winter)	
		{ VII	MTThF	(spring)	
		{ V	W	(spring)	
1s†	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. with cert. of apt., 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
		{ VII	MTThF	212F	Ar
		{ V	W		
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	Ar
	(3 cred.; jr., sr.*; prereq., 3-4)				
54w-55s	Spanish Conversation	II	MWF	304F	Ar
	(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-67s†	Survey of Spanish Lit.	II	TThS	302F	Mr. LeFort
	(9 cred.; jr., sr.*; prereq., 3-4)				
68w-69s†	Survey of Spanish Lit.	VI	MTWThF	227F	Mr. LeFort
	(10 cred.; jr., sr.*; prereq., 3-4)				

* Open without permission to sophomores with 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 paragraph 2, page 4, Science, Literature, and the Arts bulletin, Part II.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor
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)				
115-116-117	Spanish Lit.: 17th Century	Not offered			
	(9 cred.; jr., sr., grad.; prereq., 65-66-67, or 68-69)				
141S	Modern Spanish Novel	VII	MTThF	102F	Ar
	(4 cred.; jr., sr., grad.; prereq., 65-66-67, or 68-69)				
150	Modern Spanish Drama	Not offered			
	(4 cred.; jr., sr., grad.; prereq., 65-66-67, or 68-69)				
156f-157W-158S	Spanish Lit.: 16th Century	II	TThS	305F	Mr. Arjona
	(9 cred.; jr., sr., grad.; prereq., 65-66-67, or 68-69)				
174f-175W-176S	Contemporary Spanish Literature: Lectures in Spanish	IX	TTh	202F	Mr. Arjona
	(6 cred.; jr., sr., grad.; prereq., 20 (or 53-54-55) and 65-66-67)				

SCANDINAVIAN

Major Adviser: A. A. Stomberg

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w||	Beginning Norwegian	I	MWThFS	206F	Ar
	(10 cred.; fr. with cert. of apt., soph., jr., sr.; no prereq.)				
3S	Intermediate Norwegian	I	MWThFS	206F	Ar
	(5 cred.; fr. with cert. of apt., soph., jr., sr.; prereq., 1-2, or 1 yr. high school)				
4f-5W	Adv. Norwegian (Survey)	III	MTWFS	206F	Ar
	(10 cred.; soph., jr., sr.; prereq., 1-2-3 or 2 yrs. high school)				
7f-8w||	Beginning Swedish	II	MWThFS	206F	Mr. Stomberg
	(10 cred.; all; no prereq.)				
9S	Intermediate Swedish	II	MWThFS	206F	Mr. Stomberg
	(5 cred.; all; prereq., 7-8 or 1 yr. high school)				
10f-11W	Adv. Swedish	I	MWThFS	110F	Mr. Stomberg
	(10 cred.; soph., jr., sr.; prereq., 7-8-9 or 2 yrs. high school)				
12S	Ancient and Medieval Scandinavian History	I	MWThFS	110F	Mr. Stomberg
	(5 cred.; soph., jr., sr.; prereq., 10-11, or 4-5, or Hist. 1-2)				
45S	Scandinavian Mythology	IV	MWF	206F	Mr. Stomberg
	(3 cred.; jr., sr.§; prereq., none)				
101f-102W-103S	Modern Norwegian Lit.	II	TThS	110F	Ar
	(9 cred.; jr., sr., grad.; prereq., 4-5)				

* Open without permission to sophomores with an average of C in all of their previous work and in the prerequisite courses.

|| Credit is usually not given for more than one beginning language. See paragraph 2, page 4, Science, Literature, and the Arts bulletin, Part II.

§ Does not count as a senior college course. Not open to sophomores. See Course Numbering, page 21, Science, Literature, and the Arts bulletin, Part II.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
104f-105w	Mod. Scand. History..... (6 cred.; jr., sr., grad.; prereq., 10-11-12, or 4-5, or 15 cred. in hist.)	IV	MWF	206F	Mr. Stomberg
107f-108w-109s	Modern Swedish Lit. (9 cred.; jr., sr., grad.; prereq., 10-11-12)	VI	MWF	206F	Mr. Stomberg
110w	Ibsen (3 cred.; sr., grad.; prereq., 101- 102-103)	Ar	Ar	110F	Ar
111f-112w-113s	Old Norse (Icelandic)..... (6 cred.; sr., grad.; prereq., con- sent of instructor)	Ar	Ar	Ar	Ar
114f	Strindberg (3 cred.; sr., grad.; prereq., 107- 108-109)	Ar	Ar	Ar	Mr. Stomberg
117s	Earlier Norwegian Lit. (5 cred.; jr., sr., grad.; prereq., 4-5)	III	MTWFS	206F	Ar
130-131-132	<i>Danish Lit. of the 19th Century..</i> (9 cred.; jr., sr., grad.; prereq., 4-5)	<i>Not offered</i>			
134-135	<i>The Landsmaal Movement.....</i> (6 cred.; sr., grad.; prereq., 101- 102-103, or 130-131-132)	<i>Not offered</i>			
136s	Björnson (3 cred.; sr., grad.; prereq., 101- 102-103, or 130-131-132)	II	MWF	110F	Ar

SOCIOLOGY AND SOCIAL WORK

Major Adviser: M. M. Willey

REQUIREMENTS OF THE DEPARTMENT

Major in social theory.—36 or 37 credits as follows: 1, 6, 14, 53 or 45, 49, 100-101-102, 110, 114 or 140, 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, 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.

No.	Title	Hour	Day	Bldg.	Instructor
if,w	Introd. to Sociology..... (5 cred.; soph., jr., sr., and 3d qtr. fr. with cert. of apt.; no prereq.)				
	Lect.	I	TTh	OLAud	Mr. Willey and others
	Sec. 1	I	MWF	4aOPh	
	2	III	MWF	104OPh	
	3	IV	MWF	109OPh	
	4	V	MWF	109OPh	
	5	VI	MWF	104OPh	
	6	VII	MWF	4aOPh	
	7	III	TThS	109OPh	
	(Univ. Farm. 3 cred.)	8	IV	MWF	

* Consult the bulletin of the College of Agriculture, Forestry, and Home Economics.

COLLEGE OF EDUCATION

No. is	Title	Hour	Day	Bldg.	Instructor
	Introd. to Sociology..... (See 1f)				
	Lect.	I	TTt.	OLAud	Mr. Willey and others
	Sec. 1	I	MWF	4aOPh	
	2	II	MWF	4aOPh	
	3	III	MWF	104OPh	
	4	IV	MWF	109OPh	
	5	V	MWF	109OPh	
	6	VI	MWF	109OPh	
	7	VII	MWF	104OPh	
	8	VII	MWF	109OPh	
	9	II	TThS	104OPh	
	10	III	TThS	109OPh	
	(Univ. Farm, 3 cred.)	11	IV	MWF	*
6f,w	Social Interaction				
	(3 cred.; soph., jr., sr.; prereq., 1)				
	Lect.	II	WF	OPhAuc(f), OLAud(w)	
	Sec. 1	I	T	4aOPh	
	2	II	M	2cOPh	
	3	II	T	104OPh	
	4	IV	T	109OPh	
6s	Social Interaction				
	(See 6f)				
	Lect.	III	MF	OPhAuc	
	Sec. 1	III	T	104OPh	
	2	III	W	4aOPh	
	3	III	Th	104OPh	
	4	II	T	4aOPh	
14f,w,s	Rural Sociology				Mr. Sorokin, Mr. Zimmerman, and others
	(3 cred.; soph., jr., sr.; prereq., 1)				
	Lect.	IV	MW	OPhAuc	
	Sec. 1	III	S	2cOPh	
	2	IV	F	2cOPh	
	3	VI	Th	109OPh	
	4	VI	F	2cOPh	
45f,w	Social Statistics	VII	MTWThF	109OPh	
	(5 cred.; soph., jr., sr.; prereq., 1)				
49f,w,s	The Occurrence of the Socially Inadequate	I	MWF	109OPh	Ar
	(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	Ar
	(3 cred.; jr., sr.; prereq., 49; 90 to be taken simultaneously)				
53f,w,s	Elem. of Criminology	III	MWF	109OPh	Mr. Sutherland, Mr. Vold
	(3 cred.; jr., sr.; prereq., same as for 49)				
55w	Housing Problems	I	MWF	9F	Miss Salsberry
	(3 cred.; jr., sr.; prereq., same as for 49)				
60f,w	Social Protection of the Child...	VI	MWF	109OPh	Mrs. Doyle
	(3 cred.; jr., sr.; prereq., 49 and 52)				
70f,w	Group Work in the Community	I	MWF	2cOPh	Miss Mead
	(3 cred.; jr., sr.; prereq., 49)				

* Consult the bulletin of the College of Agriculture, Forestry, and Home Economics.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
71t,w	Elementary Field Training in Group Work (2 cred.; jr., sr.; prereq., 49, 70, or simultaneously)	r	Ar	Ar	Mrs. Mudgett, 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. Mudgett,
		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. Mudgett,
		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. Mudgett,
		2	VI, VII, VIII	WF	Mrs. Fenlason
		3	II, III, IV	TTh	
		4	VI, VII, VIII	TTh	
100f	Social Psychology (3 cred.; primarily for sociology students; jr., sr., grad.; prereq., Soc. 1, Psy. 1-2, and 11 cred. in soc. sci., educ., phil., and psy.)	II	TThS	109OPh	
101W	Social Organization (3 cred.; jr., sr., grad.; prereq., 4 courses in soc., or Soc. 1 and 15 cred. in soc. sci., educ., phil., or psy.)	II	TThS	109OPh	Mr. Sorokin
102S	Social Control (3 cred.; jr., sr., grad.; prereq., same as for 101)	II	MWF	109OPh	Mr. Willey
103S	Sociology of Conflict (3 cred.; jr., sr., grad.; prereq., same as for 101)	II	MWF	2cOPH	Mr. Sutherland
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
110f	The Family (3 cred.; jr., sr., grad.; prereq., same as for 101)	III	TThS	104OPh	Mr. Sutherland

* Consult the bulletin of the College of Agriculture, Forestry, and Home Economics.

No.	Title	Hour	Day	Bldg.	Instructor
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	2cOPh	
122w-123s	Methods of Social Investigation... (6 cred.; jr., sr., grad.; prereq., same as for 101)	VIII	MWF	109OPh	Mr. Sutherland
126s	Technique of Leadership in Group Work (3 cred.; sr., grad.; prereq., 70, 71)	I	TThS	104OPh	Miss Mead
128s	Principles of Administration Ap- plied to Social Work..... (2 cred.; jr., sr., grad.; prereq., same as for 101)	VIII, 1A	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	
132	<i>Juvenile Courts and Probation...</i> (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)	III, IV and ar	S and ar	4aOPh	Miss Gardiner
134s	Legal Protection of the Child... (3 cred.; jr., sr., grad.; prereq., same as for 101 incl. 60)	I	MWF	2cOPh	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	Mrs. Mudgett
138w-139s	Mental Case Work..... (6 cred.; sr., grad.; prereq., 52, 90, 91 and Psy. 144-145, or Prev. Med. 61, or simultane- ously)	III, IV	S and ar	104OPh	Miss Leahy
140w	History of Social Theory..... (3 cred.; jr., sr., grad.; prereq., same as for 101)	II	MWF	109OPh	Mr. Sorokin
141s	Contemp. Social Theor..... (3 cred.; jr., sr., grad.; prereq., same as for 101)	II	TThS	109OPh	Mr. Sorokin
152	<i>Seminar: Problems of Institu- tional Administration</i> (2 cred.; sr., grad.; prereq., con- sent 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	Mrs. Mudgett, Miss Jones
158	<i>The Sociology of Revolution...</i> (3 cred.; jr., sr., grad.; prereq., same as for 101)	<i>Not offered</i>			

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
160f	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	4aOPH	Mr. Sorekin

SPEECH

Major Advisers: F. M. Rarig, B. Bryngelson

No.	Title	Hour	Day	Bldg.	Instructor
41f-42w†-43s*	Fundamentals of Speech (9 cred.; soph., jr., sr.; prereq., Eng. A-B-C or Comp. 4-5-6 or exemption)				Mr. Rarig and others
	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	MWTF	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	III	MTWFS	5F	
	2	IV	MTWFS	6F	
	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†*	Arg. and Debating (9 cred.; jr., sr.; prereq., 41-42- 43 or 45-46)	{ VII VII, VIII	{ T Th }	OLAud	Ar

* Students taking these courses are required to pay a laboratory fee of \$1 each quarter.
 † Two quarters must be completed before credit is received for either quarter.
 ‡ The entire course must be completed before credit is received for any quarter.

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Bldg.	Instructor	
61f	Speech Correction (4 cred.; jr., sr.; prereq., 41-42-43 or 45-46; Psy. 1-2)	VI	MTThF	306F	Mr. Bryngelson	
675*	Phonetics (3 cred.; jr., sr.; prereq., 41-42-43 or 45-46)	IV	MWF	402F	Mr. Bryngelson	
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	MWF TThS	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.ws	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)	III	TThS	409F	Mr. Rarig, 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	Ar	
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	Mr. Bryngelson	

ZOOLOGY

Major Adviser: J. E. Wodsedalek

REQUIREMENTS OF THE DEPARTMENT

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: 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.

‡ Speech Clinic. A service clinic is conducted for university students who have particular speech defects, whether or not registered in courses in Speech. 410F. Mr. Bryngelson.

§ Open to the representative of the University in the Northern Oratoric League and to members of the intercollegiate debate squad.

PROGRAM

111

No.	Title	Hour	Day	Bldg.	Instructor
1f-2wf†	General Zoology (10 cred.; fr. with cert. of apt., soph., jr., sr.; no prereq.)				Mr. Minnich
	Lab. Sec. 1	III, IV	MWF	101Z	
	(Limit, 160) Lect.	III	TThS		
		IV	T	313Z	
	Lab. 2	VI, VII	MWF	101Z	
	(Limit, 160) Lect.	VI, VII	TTh	313Z	
1w-2sf†	General Zoology (See 1f-2w)				
	Lab. Sec. 1	I, II	MWF	101Z	Ar
	Lect.	I	T		
		II	TThS	313Z	
1sf†	General Zoology (First qtr. of 1-2. See 1f-2w)				
	Lab.	VI, VII, VIII	WF	101Z	Ar
	Lect.	VI, VII	MTh	313Z	
5f-6w-7sf†	General Zoology (12 cred.; pre-medical and pre- dental students, fr. with cert. of apt., soph., jr., sr.; no pre- req.)				
	Lab. Sec. 1	I, II	ThS	101Z	Mr. Ringoen
	(Pre-dental) Lect.	I	MWF	313Z	
	Lab. 2	III, IV	TS	101Z	
	(Pre-medical) Lect.	IV	MWF	313Z	
	(Spring) Lab.	III, IV	WF	101Z	
	Lect.	IV	MTS	313Z	
8f-9w	Survey Course (6 cred.; all; no prereq.)	III	MWF	313Z	Ar
14f-15w-16sf†	General Zoology (9 cred.; Agr., For.; no prereq.)	See College of Agriculture bulletin.			
17f-18wf†	General Zoology (6 cred.; H.E.; no prereq.)	See College of Agriculture bulletin.			
21sf†	Introd. to General Physiology... (5 cred.; fr., soph., jr., sr.; pre- req., 1-2, chem. or phys. desir- able)	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)	VI, VII, VIII	MW	211Z, 401Z	Mr. Chapman
		VI, VII, VIII, IX	F		
23f	Introd. Entomology (5 cred.; soph., jr., sr.; prereq., 1-2)				
	Lect.	VI	MWF	211Z	Mr. Mickel
	Lab.	VI, VII, VIII	TTh	208Z	
24f	Introd. Animal Parasitology.... (5 cred.; soph., jr., sr.; prereq., 1-2)	VI, VII, VIII	MWF	208Z	Mr. Riley
25w	Histology (5 cred.; soph., jr., sr.; prereq., 1-2 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

† The entire course must be completed before credit is received for any quarter.

‡ Not open to pre-medical 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. V Ar	Th	211Z	Miss Slider
371-38w-39s†	General Entomology (9 cred.; soph., jr., sr.; prereq., 1-2)	Lab. I, II	Ar	213Z	Mr. Mickel
46w-47s†	Ornithology (6 cred.; soph., jr., sr.; prereq., 1-2 and permission of instruc- tor)	VI, VII, VIII	MW	314Z	Dr. Roberts
75s	Nature Study (3 cred.; jr., sr.; prereq., 20 cred. incl. 1-2)	VI, VII, VIII	TTh	213Z	Ar
107f	Protozoology (5 cred.; jr., sr., grad.; prereq., 15 cred. incl. 1-2)		Ar	Ar	Ar
1091-110w-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. incl. 1-2)	VI, VII, VIII	TTh	401Z	Mr. Chapman
120su	Advanced Ecology (5 cred.; jr., sr., grad.; prereq., 117-118-119)	Ar	Ar	Ar	Ar
125f-126w-127s	Advanced Entomology (9 cred.; jr., sr., grad.; prereq., 1-2 and 37-38-39)	Ar	Ar	208Z	Mr. Mickel
139f-140w	Histol. and Develop. of Insects (6 cred.; jr., sr., grad.; prereq., 1-2 and 37-38-39)	I, II and ar	TTh	208Z	Mr. Riley
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	Mr. Riley
148f-149w-150s†	Histology and Organology..... (9 cred.; jr., sr., grad.; prereq., 1-2, and 15 cred. in zool. or 1-2 and 1 yr. chem. and per- mission of head of dept.)	III, IV	MWF	201,212Z	Mr. Ringoen
181f-182w	Embryology (6 cred.; jr., sr., grad.; prereq., 1-2 and 25 or equiv.)	VI, VII, VIII	TTh	202Z	Mr. Ringoen
183s	Genetics and Eugenics..... (3 cred.; jr., sr., grad.; prereq., 1-2 and 5 other cred. in zool. or botany)	IV V	TS Th	211Z	Mr. Wodsedalek
197f-198w-199s	Problems (5 or more cred.; jr., sr., grad.; prereq., 1-2 and special require- ments)	Ar	Ar	Ar	Ar

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.

† The entire course must be completed before credit is received for any quarter.