

The Bulletin of the University of Minnesota

*Northwest School and Experiment
Station*

*Crookston, Minnesota
Announcement for the Year
1919-1920*



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SCHOOL CALENDAR

1919-1920

1919			
September	9	Tuesday	First term of Teachers' Training Course begins
October	7	Tuesday	First term begins; organization of classes
November	27	Thursday	Thanksgiving Day
December	19	Friday	First term closes; Christmas recess begins
1920			
January	5	Monday	Registration of new students
January	6	Tuesday	Second term begins; organization of classes
February	9-13	Week	Farmers' Week
February	12	Thursday	Lincoln's Birthday; a holiday
March	24	Wednesday	Senior Class Day
March	25	Thursday	Twelfth Annual Commencement; Alumni reunion
March	26	Friday	Second term closes; Easter recess begins
March	29	Week	Junior Short Course
April	3		
May	21	Friday	Teachers' Training Course Closes

THE NORTHWEST SCHOOL AND STATION

FACULTY

MARION LEROY BURTON, Ph.D., D.D., LL.D., President
CYRUS NORTHPROP, LL.D., President Emeritus
ROSCOE W. THATCHER, M.A., Dean of the Department of Agriculture

AT CROOKSTON

CONRAD G. SELVIG, M.A., Superintendent
ESTHER KROOG, Secretary
ARTHUR H. LARSON, B.S., Registrar and Librarian
MARION S. MCCALL, B.S., Matron
VIRGINIA NEWHALL, School Nurse
CORA PAULSBERG, Accountant

AGRICULTURAL ENGINEERING

ARNOLD M. FOKER, Carpentry and Farm Engineering; Superintendent of Buildings
CARL BERG, Farm Motors
SEVERIN RISHOVD, Blacksmithing and Motors

AGRONOMY

ROY O. WESTLEY, M.S., Agronomy and Farm Management
A. M. CHRISTENSEN, B.S., Home Projects and Pure Seed Specialist
H. S. RECORDS, B.S., Assistant in Agronomy

ANIMAL HUSBANDRY

WARD V. GOUSSEFF, B.S. in Animal Husbandry, Animal and Dairy Husbandry
C. EVERARD BROWN, Poultry and Extension in Poultry

HOME ECONOMICS

HAZEL ROCKWOOD, B.S., Domestic Science and Art, Preceptress
ALICE E. GLISE, Dressmaking

HORTICULTURE

THOMAS M. MCCALL, B.S.A., Botany and Horticulture

ACADEMIC SUBJECTS

JELMER P. BENGTON, Mathematics and Civics, Preceptor
JEANNETTE QUALEE, B.A., English and Public Speaking
ARTHUR H. LARSON, B.S., Advanced Subjects and Debating, Preceptor
MAY E. KIMBERLY, Music
ESTHER GILBERTSON, Assistant Instructor of Academic Subjects

TEACHERS' TRAINING COURSE

GRACE B. SHERWOOD, Normal Training

COMMITTEES

Catalog—Registrar and Heads of Departments

School Schedule—Superintendent SELVIG, SHERWOOD, ROCKWOOD, KIMBERLY, BENGTON, FOKER.

School and Station Service—BROWN, GOUSSEFF, WESTLEY, RECORDS, FOKER, SHERWOOD, GLISE.

Athletics—MCCALL, BENGTON, WESTLEY, GLISE, KIMBERLY, QUALEE, GILBERTSON

Student's Work—BENGTON, ROCKWOOD, QUALEE, MCCALL, GOUSSEFF

GENERAL INFORMATION

TIME OF OPENING

The Northwest School of Agriculture opens October 7, 1919, and closes March 26, 1920. The fall term closes Friday, December 19, 1919, and the winter term begins Tuesday, January 6, 1920.

Registration at the beginning of the second term will begin Monday, January 5, 1920, and should be completed by Tuesday, January 6, 1920. All students enrolled during the fall term who expect to return must register for the winter term before they leave for their holiday vacation. All former students entering later than January 13 will be charged a special fee of twenty-five cents a day for each day's delay in registering, unless prevented by illness from entering on time.

Instruction begins promptly at the opening of each term, and students should be present from the first day of the term until the close of the term.

INFORMATION

Students are advised to correspond with the Superintendent of the School, C. G. Selvig, Experiment Farm, Crookston, Minnesota, and make the necessary arrangements for registration. The earlier the student comes to the School, the better the chance of getting a room at the institution. No student will be admitted late except upon presentation of a reasonable excuse.

LOCATION

The Northwest School of Agriculture is located at the Experiment Farm, one and one-half miles north of Crookston, Minnesota. The Northwest School of Agriculture is a part of the University of Minnesota and is governed by the University Board of Regents.

PURPOSE

The Northwest School of Agriculture 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.

COURSES OF STUDY

The course of study offered covers a wide range of subjects and is largely technical in character, but provision is made for some instruction in English and mathematics. The course is briefly outlined on pages 13 to 26. Instruction is given in the workshop, laboratories, barns, and fields, as well as in the classroom. The regular course for young men

requires three winters of six months each for completion, and the regular course for young women requires three winters of six months each. Much of the work is taken in common by the young men and the young women. Some of the subjects, such as blacksmithing, carpentry, field work, handling grain and machinery, are taken by the young men, while the young women pursue courses in cooking, sewing, laundering, and household art. 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.

The Teachers' Training Course aims to prepare teachers for consolidated and other rural schools.

The Advanced Course aims to prepare graduates of the three-year course for college entrance.

HOW TO GET TO THE SCHOOL

Check all baggage to Crookston and bring checks to the School. A charge of ten cents is made by the School teams 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 twenty-five cents is made for transporting trunks at any other time.

Monday and Tuesday, October 6 and October 7 members of the School wearing lettered badges will be at the Great Northern and Northern Pacific Stations at Crookston to meet and direct new students.

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 grounds without permission. The home life of each student is carefully guarded and everything done to promote a healthful and moral atmosphere. The use of tobacco and spirituous liquors of all kind is strictly forbidden. No person will be admitted as a student who is known to have the cigarette habit. Any one 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.

ADMISSION

Applicants who have completed a common-school course in English grammar, arithmetic, history of the United States, and geography will be admitted without examination, provided they can furnish the certificates of high schools or of county superintendents, and boys must have had six months' practical experience on a farm.

Applicants for admission who do not have state certificates or county diplomas showing completion of eighth-grade work should send to the Superintendent for certificates of admission which, when properly filled out by former teachers or superintendents, will be accepted in place of entrance examinations.

Students who are deficient in English grammar and arithmetic will be required to take special work in those subjects at the School before completing the course. Instructions regarding this special work will be given upon admission. All are urged to prepare in all common branches before applying for entrance.

Students over twenty-one years of age who can not pursue the full course, either from lack of time or proper preparation, may make special arrangements for taking such subjects as may be most helpful to them. Students taking special work are required to take enough work to occupy their time while in school.

Parents are advised not to send pupils under sixteen years of age.

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.

REQUIREMENTS FOR GRADUATION

1. *Boys' and Girls' Regular Courses.* The completion of the prescribed course of study, including all of the required work and enough elective work to make a total of 150 credit hours.

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. See Summer Practicums, page 27.

SUMMER PRACTICUMS AND FARM PRACTICE

Six of the 150 credits may be earned by summer practicums. (See page 27.) If summer practicums are not elected, the work in farm and barn practice offered in the school course must be taken.

FEES AND EXPENSES

The necessary expenses for the year do not exceed \$130. This amount does not include the cost of traveling and personal expenses.

Residents of Minnesota are charged an entrance fee of \$5 per school year; non-residents of the state, \$10.

The cost to the student for board, heat, light, and laundry is the actual cost of maintaining the table (including management) and caring for the buildings. Each month's board is paid in advance. The sleeping

rooms are each furnished with a bedstead, mattress, dressing bureau, chairs, and table. They are all lighted by electric light and warmed by steam.

Each student should come provided with sheets, blankets, quilts, one bed spread, one pillow, three pillow cases, towels, napkins, comb, brushes, one glass tumbler, and one teaspoon.

Choice of rooms will be given in the order of application up to the opening of school. After that no rooms will be held. Rooms will then be assigned to the students as they come to the School. There will be no deviation from this rule.

No deduction in charge for board is made for absences of less than three days. If students are compelled to be absent for that length of time, they are allowed half rates if they make arrangements before leaving.

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.

Each student is required to pay for losses of, or damage to, apparatus used in practical work.

For the purpose of supplying, calcimining, and painting the sleeping-rooms, a reserve fund is created by assessing each one occupying them \$3 for the school year, or \$1.50 per term.

A competent nurse is kept on the ground to take care of the sick. To meet this expense each student pays \$1 per term.

A deposit of \$5 is required of each student as a guaranty for the return of all books and other articles borrowed. This deposit is not returned until the student severs his connection with the School.

On entering the School the student, if he is a resident of Minnesota, makes a payment of \$5 entrance fee; \$1 book rent and reading-room; \$19.50 to \$20.00 board and room; \$5 deposit; \$1.50 reserve fund; \$1 maintaining nurse; 25 cents gymnasium fee; total \$34.25 to \$34.75. In addition laboratory fees of from 50 cents to \$1.00 for each per term will be charged for woodwork, forge, motors, sewing, cooking, chemistry, corn studies, or dairying.

Each girl is required to provide herself with at least two large white aprons with bibs to wear while at work in the Domestic Science Laboratory. A gymnasium suit is also required for work in gymnastics. Suitable material is black serge or mohair for bloomers and white Indian head for middie blouse.

The cost of the rooms in all of the dormitories has been graded in price according to the location of the room. The cost of room and board for a month varies from \$19.50 to \$20.00, depending on the location of the room, as some rooms are slightly more desirable than others. These prices include flat laundry only. Flat laundry includes bed linen, towels, and napkins. Full information regarding available rooms will be given on request.

HOSPITAL FUND

The Hospital Fund will be expended under the general direction of the School Nurse. This fund insures, for those contributing to it, the care of the School Nurse and such medicines and materials as the nurse may use.

It does not provide medical treatment by physicians or fees of special nurses.

It does not provide hospital expenses of students rooming off the campus or away from the institution. Students rooming off the campus are not expected to contribute to this fund.

STUDENTS IN DORMITORIES

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 chapel 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.

ASSEMBLY

On each school day at 11:40 a.m., the students assemble in the chapel, 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 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.

A course of lectures on the following subjects will be given beginning the second week of each semester at the regular assembly period. All students will be expected to attend these lectures.

The Aim of the Northwest School. Superintendent.

How to Study. Head of Teachers' Training Department.

Use of Library. Head of English Department.

Personal Conduct. To be appointed.

Good Citizenship. Preceptor of Boys' Dormitory.

Value of an Education. Superintendent.

The following lectures on Hygiene will be given to freshmen by the head of the Home Economics Department, or Physical Director of the School. All freshmen are required to attend these lectures.

General View on Health Problem

Diet

Dress

First Aid to Injured

Care of the Sick

Special lectures: Two, one for young men and one for young women.

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 ORGANIZATIONS

A school band is maintained each year. A competent leader has charge of this work. A school orchestra, glee clubs, and quartettes contribute greatly in 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 8:30. 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.

BUILDING AND EQUIPMENT

The School has seven brick buildings: the Kiehle Building, containing the offices, library, bookstore, gymnasium, and assembly room; Stephens Hall, containing fifty bedrooms, dining-room, and kitchen; Senior Hall, with thirty rooms; Robertson Hall, with thirty-eight rooms; Home Economics Building, containing the kitchen, sewing-rooms, classrooms, model kitchen, and dining-room for serving meals; Owen Building, containing the dairy room, carpentry shop, farm machinery and cement workshop, blacksmith shop, stock-judging room, and drawing classrooms; and Hill Building, which gives adequate quarters for the work in Agronomy, Horticulture, Botany, and Agricultural Science departments. The farm buildings, herds, and machinery are used to give the students the best current ideas regarding methods of farming.

LIBRARY AND READING ROOM

The School of Agriculture Library is being equipped to supply the needs of students. It contains books of general and technical literature,

government reports, pamphlets, and bulletins. The general subject and author card index and the index of publications of the state experiment stations are always at the disposal of all students to aid them in locating the various sources of information which the library affords.

There are complete sets of encyclopedias and dictionaries and files of fifty popular and technical magazines and periodicals.

The librarian is always ready and glad to give whatever assistance she can to those doing reference work in connection with their classes. All those wishing to read or study are made welcome and given whatever privileges the library can provide.

SCHOOL MUSEUM

A room has been fitted up in the Hill Building as a zoological museum and as an exhibit room for farm products and appliances. The School desires donations from friends of the institution.

SCHOLARSHIP AND LOAN FUNDS

The Northwest School of Agriculture considers itself very fortunate in being able to present the following scholarships and 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 larger number, to provide the means of encouraging many to acquire the training which the School offers, and to stimulate greater effort in school work.

AWARDS OF SCHOLARSHIPS

The Scandia-American Bank of Crookston Scholarship

Awarded for general diligence and greatest progress in school work during 1918-19.

1. Carl Narveson, junior class, Twin Valley, \$75
2. Sophie Krebechek, freshman class, Erie, \$50
3. Maurice Bursheim, freshman class, Winger, Honorable Mention
4. Clara Gilbertson, freshman class, Hendrum, Honorable Mention

PARTIAL LIST OF SCHOLARSHIPS FOR 1919-1920

The Scandia-American Bank of Crookston Scholarship

The Scandia-American Bank of Crookston offers a scholarship of \$125 during 1919-20, to be awarded the student who is most diligent in his efforts to accomplish his work, and who shows the greatest progress during the year.

The Crookston State Bank Scholarship

The Crookston State Bank offers a scholarship of \$125 during 1919-20, to be awarded the freshman student who is most diligent in his efforts to accomplish his work, and who shows the greatest progress during the year.

Farm Crop Home Project

The Crookston Milling Company offers five scholarships of \$25 each during 1919-20, to be awarded to the students who show the most satisfactory results in farm crops home project work.

Livestock Home Project

Mr. J. W. Wheeler of St. Paul offers five scholarships of \$25 each during 1919-20, to be awarded to the students who do most satisfactory work in the livestock home project work.

Class of 1917 Prize

The class of 1917 has provided \$140, the interest of which shall be awarded annually to the member of the Home Economics Society who wins first place in the Farmers' Club program contest.

STUDENT LOAN FUNDS

The Gilfillan Trust Fund

This fund of \$50,000 is the gift of the Hon. John B. Gilfillan, of Minneapolis, in trust to the University of Minnesota, the annual income from which shall be at the disposal of the Executive Committee of its Board of Regents either as a gift or a temporary loan to worthy students of the University who are residents of Minnesota. The annual income from the fund is \$2,000 which is loaned to students on their notes in amounts not exceeding \$200 to any one person in one year, at the rate of 5 per cent per annum.

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.

Northwest School Loan Fund

Through the efforts of a committee of Crookston citizens a students' loan fund has been provided for the use of students at the Northwest School of Agriculture to supplement the above-mentioned fund. This committee will provide money for loans as needed. This money will be loaned to students at 6 per cent interest as a temporary loan. For information regarding this loan fund, address the Northwest School of Agriculture, Crookston, Minnesota.

Fairfax-Andover Social Club Loan Fund

The Fairfax-Andover Social Club (a farm club near Crookston) provided \$50 to be used as a students' loan fund. This money will be loaned to students at 6 per cent interest as a temporary loan.

COURSES OF STUDY

CREDIT REGULATIONS REGARDING BOYS' THREE-YEAR COURSE

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

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

One credit per term may be earned by approved work in instrumental music. A special fee will be charged for such courses. The same credit may be earned without 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.

CREDIT FOR HIGH-SCHOOL WORK

A graduate of an approved high-school course shall be allowed a total of 48 credit hours toward graduation.

A graduate of an approved high-school course who presents four units of work in agriculture shall be allowed 96 credits toward graduation.

For each four units of credit of approved high-school work presented on entrance, 12 credit hours shall be granted in the School of Agriculture, and 12 additional credit hours for each unit of agriculture offered.

Capital letters following the names of courses refer to descriptions given on pages 18 to 26.

BOYS' THREE-YEAR COURSE

FIRST YEAR

<i>Fall Term</i>	Required of All	<i>Spring Term</i>
Credit Hours		Credit Hours
5 English A		5 English A
5 Livestock*		5 Livestock*
Poultry G		5 Livestock*
Farm Dairying B		5 Study Breeds A
5 Farm Crops*		5 Farm Crops*
Plant Life A		5 Cereal Crops A
5 Arithmetic A*		5 Arithmetic A*
Personal Hygiene A		5 Personal Hygiene A
Gymnasium		5 Gymnasium
5 Elective from the following:		5 Elective from the following:
25		25
5 Blacksmithing D		5 Carpentry C
5 Farm Motors B		5 Industrial History B
5 Industrial Geography A		1-3 Summer Practicums
5 Music		1 Music

*Will be offered both terms.

Two hours per week of military drill and two hours per week of gymnasium are required of all, but carry no credit. Band work may be substituted for military drill.

Students having a mark of pass plus on State Board certificates in Arithmetic will be given five hours' credit in Arithmetic.

SECOND YEAR

Required of All

Credit Hours		Credit Hours	
5	English B	5	English B
5	Livestock	5	Livestock
	Stock Feeding C		Stock Feeding C
	Stock Judging D		Stock Judging D
5	Farm Crops	5	Farm Crops
	Fruit and Vegetable Crops C	5	Elements of Soils C
5	Forage Crops B	5	Farm Accounts E
	Gymnasium		Gymnasium
5	Elective from the following:	5	Elective from the following:
<hr/>			
25		25	
5	Advanced Blacksmithing	5	Mechanical Drawing E
5	Advanced Carpentry	5	Business Forms
5	Business Forms	5	Modern History C.
5	Ancient History C	1	Parliamentary Law
1	Music	1-3	Summer Practicums
		1	Music

Two hours per week of military drill and two hours per week of gymnasium are required of all, but carry no credit. Band work may be substituted for military drill.

THIRD YEAR

Required of All

Credit Hours		Credit Hours	
5	English C	5	English C
5	Livestock	5	Livestock
	Herd Management E		Livestock Business Management F
5	Farm Crops	5	Farm Crops
	Forestry D		Plant Breeding E
	Soil Management D		Farm Management F
	Gymnasium	5	Civics and Farm Law
5	Elective from the following:		Gymnasium
<hr/>			
25		25	
5	Elements of Business	5	Elective from the following:
	Typewriting		
	Stenography	5	Elements of Business
	Letter Writing		Typewriting
5	Rural Sociology A		Stenography
1	Music	5	Rural Economics B
		1	Music

Two hours per week of military drill and two hours per week of gymnasium are required of all, but carry no credit. Band work may be substituted for military drill.

HOME MAKERS' COURSE

Capital letters following the names of courses refer to descriptions given on pages 18 to 26.

FIRST YEAR

Required of All

<i>Fall Term</i>	<i>Winter Term</i>
Credit Hours	Credit Hours
5 English A	5 English A
3 Physiology and Public Health E	5 Arithmetic A*
3 Foods and Cookery A	3 Physiology and Public Health E
2 Garment Making J	2 Garment Making J
1 Drawing and Design C	3 Foods and Cookery A
1 Music B	1 Music B
1 Social Training O	Physical Training
9 Elective from the following:	6 Elective from the following:
—	—
25	25

GENERAL AND AGRICULTURAL ELECTIVES

	4 Plant Life A†
	3 Farm Dairying B†
2 Poultry G	5 Industrial History B**
5 Industrial Geography A**	Summer Practicum

OFFICE TRAINING ELECTIVES

1 Spelling E	1 Spelling E
1 Penmanship E	1 Penmanship E
3 Business Forms	3 Typewriting

*Required for students who do not have a Pass Plus in Arithmetic on State Board Certificates.

†Offered both terms.

**Required for Advanced and Teachers' Training Courses.

SECOND YEAR

Required of All

Credit Hours	Credit Hours
6 English B	6 English B
3 Foods and Cookery B	3 House Planning and Furnishing H
4 Textiles and Elementary Dressmaking K	3 Dressmaking K
2 Home Nursing I	1 Drawing and Design D
1 Music B	2 Home Nursing I
Physical Training	1 Music B
9 Electives	Physical Training
—	9 Electives
25	25

GENERAL AND AGRICULTURAL ELECTIVES

5 Fruit and Vegetable Crops C	5 Mechanical Drawing G
2 Laundering N	1 Parliamentary Law E
5 Ancient History C**	5 Modern History C**

OFFICE TRAINING ELECTIVES

3 Stenography	3 Stenography
3 Typewriting	3 Typewriting
3 Letter Writing	3 Dictation

**Required for Advanced and Teachers' Training Courses.

THIRD YEAR

Credit Hours		Credit Hours	
4	English C	4	English C
3	Home Management F	5	Civics and Farm Law D
1	Millinery L	3	Home Management F
2	Household Accounts G	3	Dressmaking M
1	Music B	1	Music B
	Physical Training		Physical Training
14	Electives	9	Electives
25		25	

GENERAL AND AGRICULTURAL ELECTIVES

4 Physics A	2 Plant Breeding E
3 Farm Forestry D	3 Farm Management F
2 Floriculture B	5 Rural Sociology B**
5 Rural Economics A**	

OFFICE TRAINING ELECTIVES

3 Duplication and Mimeographing	3 Filing and Indexing
2 Dictation	3 Commercial Law
2 Comptometer Practice	1 Business Ethics

**Required for Advanced and Teachers' Training Courses.

ADVANCED COURSES

A number of courses of a more advanced nature than those taught in the School are offered to graduates and other qualified students of the School of Agriculture.

TEACHERS' TRAINING COURSE

This course at the Northwest School of Agriculture is designed to prepare teachers for one-room rural and consolidated schools. The work will extend through a period of twelve months, including two summer terms of six weeks each, and one year of nine months. The young women will have the opportunity of preparing to direct the household art and science work in such schools. An ungraded demonstration school will be maintained in connection with the department. This course will afford training to graduates of this School and other qualified students of

equivalent preliminary training. A Training Department certificate will be issued to each graduate recommended to receive it.

OUTLINE OF COURSE

Preliminary work to be done at Summer Sessions

Arithmetic (2 periods each day)	Reading (1 period each day)
Grammar (2 periods each day)	Primary Methods (1 period each day)
Physiology (2 periods each day)	Rural School Methods (1 period)
	Electives (3 periods each day)

ADVANCED COURSE

For Graduates of the School of Agriculture

The work offered in this course is arranged to fit young men and women to enter the College of Agriculture. 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 Colleges of Agriculture and Forestry.

OUTLINE OF COURSE

<i>First Term</i>	<i>Second Term</i>
Credit	Credit
Hours	Hours
6 Elementary Algebra B	6 Elementary Algebra B
6 Plane Geometry C	6 Plane Geometry C
6 English D	6 English D
5 Elementary Economics A	5 Rural Sociology B
6 Ancient History B	6 Modern History B
2 Farm Marketing C	2 Farm Marketing C

DESCRIPTION OF COURSES

AGRICULTURE

- A. CEREAL CROPS. A study of the classes of field crops with special study of the most important cereals, as to history, habits, varieties, planting, harvesting, storing, uses and values, pests, including insects, diseases, and weeds. WESTLEY.
- B. FORAGE CROPS. This course is devoted especially to the kinds, methods of storing, description and identification, methods of handling, uses, value, and adaptability of grasses and forage crops. All field crops studied from actual specimens in laboratory. WESTLEY.
- C. ELEMENTS OF SOILS. The principles of elementary chemistry and their applications most important to plant life. The chemical and physical properties of compounds common in water, air, soils, fertilizers, and foods. WESTLEY.
- D. SOILS MANAGEMENT. Consists of study of geology as related to soil formation; classification of soils; soil moisture and soil tillage; relation of these crops to each other in systematic rotation and in their relation to soil fertility. WESTLEY.
- E. FARM ACCOUNTS. Bookkeeping, for the farmer rather than for the merchant. Principle of debits and credits is same. Course aims to help farmer in keeping records that he may know where his profits and losses come from. BENGTON.
- F. FARM MANAGEMENT. Systems of farming; selection of farms; 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. WESTLEY.

AGRICULTURAL ENGINEERING

- A. AGRICULTURAL PHYSICS. Nature of matter and force in application to draft, levers, and pulleys in farm and household machinery, lightning protection, supports in house and bridge building, principles of heating and ventilation; soil formation, heat, and moisture. BENGTON.
- B. FARM MOTORS I. Handling, construction, and repair of stationary and traction gasoline engines. Practical work in repairing and running gasoline engines. Babbiting boxes and soldering taught to enable student to repair worn bearings, leaky gasoline tanks and pipes. BERG.
- C. CARPENTRY. Care and use of tools taught by means of practical farm problems; methods of sharpening tools; practical application of steel

square; farm building construction, including foundation, framing, rafter cutting, estimating and selecting material. FOKER.

- D. 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. FOKER.
- E. DRAWING. Use of tools and value of drawings in designing buildings and machinery. Drawings of carpentry exercises and work from drawings in shop afford direct application. Students design dwellings, etc., estimating quantity of material, cost, etc. FOKER.

DAIRY AND ANIMAL HUSBANDRY

- A. STUDY OF BREEDS. Cattle, horses, sheep, and swine are studied as to origin, quality, breed characteristics, and general adaptation. The work is made practical by scoring and judging stock kept at Experiment Station and near-by farms. GOUSSEFF.
- B. FARM DAIRYING. A study of the principles and practice of producing dairy products, including a discussion on dairy barns, silos, herd management, milk production and testing, including record keeping. GOUSSEFF.
- C. STOCK FEEDING. The principles of feeding as applied to the production of horses, beef cattle, hogs, and sheep are taught. Instruction is given in compounding rations for the different classes of stock. GOUSSEFF.
- D. STOCK JUDGING. Instruction is given on types and breeds of livestock, and attention is called to desirable and undesirable qualities in each. Practice is given in judging animals. GOUSSEFF.
- E. HERD MANAGEMENT. Principles governing breeding and building up herds, with special reference to the value of pure-bred sires. Problems of sanitation and disease. Dressing and curing meats. Animals fitted and trimmed and cared for in competitive contests. GOUSSEFF.
- F. LIVESTOCK BUSINESS MANAGEMENT. This course comprises a study of breed associations, registration, pedigrees, advertising, sales and markets. GOUSSEFF.
- G. FARM POULTRY. The study of breeds; planning and arrangement of poultry houses; feeds and feeding; killing and dressing fowls. BROWN.

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 illustrate fable, allegory, parable, myth, and ballad. **QUALEE.**

PUBLIC SPEAKING, one hour a week. Reading aloud, drilling upon articulation and enunciation, short talks on familiar subjects. Public programs to enable the students to learn to speak clearly and easily before an audience. **QUALEE.**

DEBATING, one hour a week. Principles of argumentation, briefs, debates in class, in public programs, and in debating societies. **LARSON.**

B. JUNIOR ENGLISH. Practical business English. Magore's text. Paragraph 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. **QUALEE.**

PUBLIC SPEAKING. Extemporaneous talks, longer discussions, and a little dramatic work. **QUALEE.**

DEBATING. A development and a continuation of the first year. **LARSON.**

C. SENIOR ENGLISH. Study of whole composition with reference to principles of unity, coherence, and emphasis. Exposition studied in oral and written composition work. Reading of best English writers with view of increasing students' appreciation of good literature. **QUALEE.**

PUBLIC SPEAKING. The dramatization of scenes from literature studied, after-dinner speeches, and talks. **QUALEE.**

D. ADVANCED ENGLISH. Oral and written composition illustrative of forms of discourse and principles of composition previously learned. Study of the novel and the short story; the drama; the essay and the oration; narrative and lyrical poetry. **QUALEE.**

E. SPELLING AND PENMANSHIP. Practical drills closely related to work in other subjects aiming to give proficiency in every-day requirements. **SHERWOOD.**

INDUSTRIAL HISTORY AND CIVICS

A. INDUSTRIAL GEOGRAPHY. Study of climate, rainfall, location, and other geographical conditions affecting the primary industries. **BENGTSON.**

P. INDUSTRIAL AND MODERN HISTORY. A study of the growth of industry, commerce, labor, population, and agriculture in the United States. **LARSON.**

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. **LARSON.**

- D. CIVICS AND FARM LAW. Legislative, judicial, and executive departments and their functions. School district, township, county, and state government. National government is also considered. One hour per week is devoted to essentials of law relating to the farm. BENGTSOON.
- E. PARLIAMENTARY LAW. The essentials of parliamentary practice as necessary in conducting public meetings effectively. LARSON.

RURAL ECONOMICS AND SOCIOLOGY

- A. RURAL ECONOMICS. Attention is given to the consideration of factors affecting agricultural production and farm products. BENGTSOON.
- B. RURAL SOCIOLOGY. The problems of rural communities, of rural health and sanitation, and of rural social institutions will receive attention. BENGTSOON.
- C. FARM MARKETING. Fundamentals in connection with the problems confronting the farmer to-day in disposing of his products. SELVIG.

HOME ECONOMICS

FOODS AND HOUSEHOLD MANAGEMENT

- A. FOODS AND COOKERY. Elementary cooking. Preparation and serving of the carbohydrate, fat, and protein foods; doughs and batters; beverages, desserts, and salads; special emphasis on bread making, meat cooking, and canning. ROCKWOOD.
- B. FOODS AND COOKERY. The aim of this course is to determine by experiments the fundamental scientific principles underlying and controlling cookery processes; correction and perfection of recipes; cooking in large quantities; and outlining menus. ROCKWOOD.
- C. DRAWING AND DESIGN. This course treats of the fundamental principles in design and color harmony, with special emphasis upon design as expressed in clothing, house furnishing, and articles in common use. ROCKWOOD.
- D. DRAWING AND DESIGN. This course teaches the principles developed in Drawing and Design C by means of more advanced problems and illustrations. ROCKWOOD.
- E. PHYSIOLOGY AND PUBLIC HEALTH. Review of structure of human body; digestion, absorption, and metabolism of foods; fundamental principles of human nutrition. The general principles of public hygiene are included. ROCKWOOD.
- F. HOME MANAGEMENT. Distribution of family income; purchasing supplies; planning and serving meals, relation of cost to income; sanitary

cleanliness and application in care of house; labor-saving devices. Students take full charge of a house for six weeks. ROCKWOOD.

- G. HOME ACCOUNTS. Thoro drill by keeping a year's account for a model household; attention to budget, cash paid out, cash received; farm products used in the household, and business forms. BENGTON.
- H. HOUSE PLANNING AND FURNISHING. Location, construction, and planning of farm homes; heating, lighting, ventilation, and equipping house; artistic and economical furnishing with work on cost and schemes of furniture, floor and wall coverings, curtains and pictures for each room. ROCKWOOD.
- I. 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. ROCKWOOD.

CLOTHING

- J. ELEMENTARY GARMENT MAKING. Hand stitches as applied to simple garments and household articles; drafting of patterns for and making of undergarments. Care of sewing machines. GLISE.
- K. TEXTILES AND ELEMENTARY DRESSMAKING. Making of wash dress; lingerie or tailored waist; cotton or wool skirt; silk or woolen dress, using commercial patterns. Study of silk and woolen fabrics and fibers, and tests for adulteration and substitution. GLISE.
- L. MILLINERY. Study of design and color harmony in hats; alteration of frames; making and trimming of simple hats. ROCKWOOD.
- M. DRESSMAKING. This course includes the more advanced problems as modeling on the dress form; underwear and dress for graduation are made in this course. GLISE.
- N. LAUNDERING. This course includes the 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. ROCKWOOD.
- O. SOCIAL TRAINING. This course includes a series of lectures on proper speech, table etiquette, street etiquette and dress, also conversation and social correspondence. ROCKWOOD.
- P. METHODS OF TEACHING HOME ECONOMICS. Prepares for teaching sewing and cooking in one-room rural and consolidated schools. Cooking and serving hot lunches; serving luncheons for school entertainments and other gatherings; state contest work as carried on through girls' club movement. ROCKWOOD.

MATHEMATICS

- A. ARITHMETIC. Drill for speed and accuracy; application of principles to every-day farm problems, as measurements of material, extension, capacity; marketing of grain, stock, and products; purchase of machinery and supplies; cash accounts, business forms, and interest. BENGTON.
- B. ALGEBRA. This work covers *First Course in Algebra*, by Hawkes-Lubby-Touton, or equivalent text, omitting ratio and proportion, graphical representation, and imaginaries. BENGTON.
- 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. LARSON.

MILITARY DRILL

Under the provisions of the act of Congress of 1862 establishing the Land Grant Colleges of the United States, instruction in Military Science and Tactics is required to be given at all institutions which are its beneficiaries. For this purpose the United States Government furnishes the Department of Agriculture with the necessary arms and equipment. All male students of the freshman and junior classes not physically unfit, and not enrolled in the band, are required to attend military drill.

Military instruction is intended to be so conducted as to develop a soldier-like bearing and foster a spirit of gentlemanly courtesy, soldierly honor, and obedience to lawful authority, as well as to familiarize students with battalion maneuvers, guards, and the theoretical and practical use of firearms. BENGTON.

MUSIC AND DRAWING

- A. PIANO AND VOCAL. 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. KIMBERLY.
- 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. KIMBERLY.
- 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. KIMBERLY.
- 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. KIMBERLY.

- C. **MUSIC METHODS.** Music suitable for rural schools will be given. Methods for training ear and voice, sight reading, teaching songs by note, and rote songs for use in the schoolrooms. Student teachers may take special voice work. **KIMBERLY.**

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 coördination 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 body. **BENGTSON.**
- 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. **LARSON.**

WOMEN

- C. **PHYSICAL TRAINING.** The following lectures on Hygiene will be given by head of Home Economics Department. All young women are required to attend. General view on health problems; diet; dress; first aid; care of sick; special lectures. **ROCKWOOD.**

Free-hand gymnastics, aiming to produce correct posture and to correct faults of posture; athletic movements aiming at grace; folk games. **ROCKWOOD.**

PLANT LIFE AND HORTICULTURE

- A. **PLANT LIFE.** 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. **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. **MCCALL.**
- C. **FRUIT AND VEGETABLE CROPS:**
- (1) **FRUIT GROWING.** Importance of farm orchard and small-fruit garden 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. **MCCALL.**

- (2) **VEGETABLE GARDENING.** The value of the home vegetable garden, preparation of the ground, and selection of plants and seeds are given attention. Includes tillage, rotation, transplanting, preparation and care of hotbeds, and insects dangerous to the garden. **McCALL.**
- (3) **POTATO CULTURE.** The importance of the potato as a crop for Minnesota is recognized in this laboratory course. Includes the study of potato soils; seed selection, growing the crop, harvesting, storing, marketing, diseases and their control. **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. **McCALL.**
- E. **PLANT BREEDING.** The factors which cause plants to vary are studied, together with the fundamental principles underlying the breeding and development of plants. Practice work in crossing plants is given in the Experiment Station greenhouse. **McCALL.**

TEACHERS' COURSES

- A. **REVIEWS.** Aims to make the student-teacher familiar with subject matter in the various branches to be taught in rural schools. Includes review of subject-matter in arithmetic, history and civics, grammar, geography, and physiology. **SHERWOOD.**
- B. **MANUAL TRAINING.** The course in manual training is planned to meet the needs of the rural schools. Problems suitable for making in the rural schools will be made. **FOKER.**
- C. **ELEMENTARY AGRICULTURE.** This course will consist of the study of birds, flowers, insects, weeds, grasses, soils, trees, corn, corn breeding, etc. An outline suitable for use in the rural schools will be suggested. **McCALL, WESTLEY.**
- D. **PEDAGOGY.** Deals with the problems of teaching, including types of lessons; questions and questioning; assignments; study and teaching how to study; lesson planning; class management and discipline and the general laws and principles of teaching. **SHERWOOD.**
- E. **RURAL SCHOOL METHODS AND MANAGEMENT.** School law; study of Minnesota public school system; rural school organization and management; school hygiene; rural community problems and other topics that will aid the student-teacher to do efficient work in schoolroom and community. **SHERWOOD.**
- F. **SPECIAL METHODS.** Methods for teaching various common school subjects, also penmanship, physical training, and construction work. Student-teachers given opportunity to see these methods developed in

demonstration school, and later to test their ability in applying them. SHERWOOD.

- G. **OBSERVATION AND TRAINING.** Ungraded demonstration school is maintained in connection with this course. Aim is to give student-teachers actual experience in management and control of schoolroom and in practical application of principles of teaching studied in methods classes. SHERWOOD.

SUMMER PRACTICUMS

The work consists of practical work on the home farm in following up studies taken at the School during the winter. The projects selected must be submitted for approval before March 1. Regular reports of the progress of the summer work are required each month. Some one connected with the School and Experiment Station will inspect the work at least once during the summer. Suggestions regarding the work will be given, and the progress made will be noted. Students will receive credit for this work to apply on the work required for graduation. Those students who are unable to carry on the summer practicum work at home during the two summers will be expected to do extra work in some department of the Northwest Experiment Station to supplement their class work. From one to three hours of credit will be given for the work satisfactorily completed each summer, depending upon the nature of the project and the manner in which it is carried out. The reports of the best summer practicum work will be published in a School circular with the rank secured by each student.

PRACTICAL FARM AND HOME EXERCISES

A certain degree of efficiency in farm operations is required of every young man before graduation. Farm Practice is therefore a definite part of the course and is so planned as to supplement the previous experience of the students and the theoretical instruction of the classroom. Every farm-reared boy, through experience in fundamental operations on the farm, has a working knowledge of such things as harnessing horses, milking cows, plowing, planting, and harvesting, but does not always know the best way of doing them. Practice in such fundamentals is to give a fund of "helpful hints" to make the work easier and better. Farm practice, which constitutes an essential part of the agricultural course, includes two distinct phases: (1) practice during the school course—work in laboratory, field, and barn; (2) vacation work on home farms—summer practicums.

The following is a partial outline of the practice work in the various subjects of the course. It makes no mention of a great number of purely laboratory exercises that are a usual part of every course.

SOIL MANAGEMENT. (1) Making soil samples; (2) making soil moisture determinations; (3) capillary water test; (4) influence of color on temperature; (5) mechanical analysis of soil; (6) study of different soils when wet, and microscopic study of soil types; (7) acid and alkaline soil tests, and absorption of gases; (8) determination of acid insoluble and acid soluble matter; (9) extraction of humus; (10) influence of manure upon moisture content, physical condition, and water-holding capacity of soil types; (11) tests for nitrates, and phosphoric acid; and (12) summary of results as outlined by Snyder (experiment 31), soil from home farm used in tests.

FORAGE CROPS. (1) Identification of grasses and forage crops; (2) comparative study of grasses and forage crops; (3) identification of seeds of forage crops, of annual

and miscellaneous crops, and of legumes; (4) meadow and pasture mixtures; (5) germination tests of seeds of grasses and forage crops; (6) depth of planting.

CEREAL CROPS. (1) Varietal study and judging of wheat, oats, barley, rye, buckwheat, flax, speltz; (2) cleaning and grading of cereals; (3) treatment of wheat, oats, and barley for diseases; (4) cereal crop insect pests and their control; (5) shocking grain; (6) stacking grain.

CORN. (1) Corn types; (2) corn varieties; (3) use of score cards; (4) comparative judging of samples in all leading varieties; (5) individual ear testing; (6) storing seed corn, storage houses; (7) seed corn selections.

FARM MANAGEMENT. (1) Drawing original plans of farms and farmsteads; (2) intermediate plans looking toward an effective rotation for individual farm and owner's condition and type of farming; (3) completed farm plan which should be actually in force at end of transition period (5 to 8 years); (4) completed farmstead plan; (5) farm accounting, working out a complete year's accounts from data gathered in the actual operation of a typical Red River Valley farm; (6) farm business.

ANIMAL HUSBANDRY

DAIRY PRACTICE. (1) Making butter; (2) testing milk, cream, buttermilk, and skim-milk; (3) study and operation of different types of certain separators; (4) pasteurizing milk; (5) making ice cream and cottage cheese.

LIVESTOCK JUDGING. Practice work in judging the following breeds of stock: Short-horn, Holstein, Angus, Hereford, Guernsey, and grade cattle; Percheron, Clydesdale, and grade horses; Shropshire and grade sheep; large Yorkshire, Berkshire, and Duroc Jersey hogs; handling market, feeding, and breeding stock.

LIVESTOCK MANAGEMENT. Practical exercises in feeding, care, and management of horses, cattle, sheep, and swine are given, using Experiment Station stock.

ANIMAL HYGIENE. Castrating, docking, dehorning, trimming feet, testing for tuberculosis, treating animals for lice, dressing wounds, dressing teeth.

BUTCHERING. (1) Killing and dressing swine, beesves, and sheep; (2) salting and care of hides and pelts.

MEATS. (1) Cutting up carcasses; (2) preparing head cheese, pig's feet, etc.; (3) curing and smoking hams and bacon; (4) rendering lard.

POULTRY

HOUSING. Including construction of colony coops, setting-hen coops, fattening crates, shipping crates, interior poultry house fixtures, including trap-nests, etc.

FEEDS AND FEEDING. (1) Preparing and mixing feeds; (2) study of feeding materials; (3) practice feeding of laying stock; (4) practice feeding of breeding stock; (5) feeding chicks.

HATCHING AND BROODING. (1) Testing eggs; (2) study of incubators; (3) management of incubators; (4) artificial brooding, types of brooders, and their management.

FATTENING MARKET POULTRY. (1) Preparing and mixing rations; (2) feeding, methods, etc.; (3) killing and dressing, turkeys, chickens, ducks, geese; (4) drawing and boxing fowls for table.

CAPONIZING.

POULTRY JUDGING. (1) Study of anatomy of fowls; (2) practice work in judging, breeding, and fattening stock; (3) diagnosing poultry diseases.

PLANT LIFE AND HORTICULTURE

PLANT LIFE. (1) Collecting, pressing, mounting, and identifying fifteen weed specimens; (2) parasitic fungi, including work with control of smuts of wheat, oats,

and barley; rusts of small grains and asparagus; fire blight of tree fruits; black knot of plum; and cherry and plum pocket; (3) propagation of plants; planting of hardwood and soft-wood cuttings.

BEEKEEPING. (1) Preparation of hives for winter; (2) study of beekeeping equipment (hives, brood frames, foundations, smokers, extractors, etc.); (3) wintering; (4) management of colonies; (5) swarming, clipping of queens, etc.; (6) extracting honey.

WEED AND SEED IDENTIFICATION. (1) Purity tests of all kinds of farm seed; separation and identification of weed impurities; (2) germination tests using the different types of home-made germinators; (3) the common and noxious weeds in the following plant families are studied and identified: grass, mustard, mallow, morning glory, composite, goose foot, amaranth, buckwheat, plantain, and cockle.

VEGETABLE GARDENING. (1) Actual practice in the making of hotbeds and cold frames; (2) preparation of vegetables for market; (3) marketing packages; (4) preparation and use of garden spray materials; (5) making of a home garden plan of one-half acre, in which at least fifteen types of garden crops are to be grown in quantity sufficient to supply the ordinary sized family one year.

POTATO CULTURE. (1) Identification of the eight standard varieties of potatoes for Minnesota; (2) tuber diseases and their treatment; (3) preparation of treating solutions and sprays; (4) storage cellars; (5) seed selection; (6) potato machinery.

FARM FORESTRY. (1) Identification of deciduous and evergreen trees of value for Northwestern Minnesota; (2) rate of growth of the common deciduous and evergreen trees, determined by actual diameter and height growth (each student measures ten trees of each species); (3) fuel and post production of the different species (determined from figures gathered in exercise 3); (4) making and planting of forest tree cuttings; (5) gathering and storing of dry and fleshy forest and shade tree seeds; (6) plan of windbreak sufficient for protection and shelter of a ten-acre farmstead.

FRUIT GROWING. (1) Propagation of fruits, including cuttings, grafts (root and top), and budding and layers; (2) pruning tree and bush fruits; (3) preparation and application of spray mixtures; (4) winter protection of fruits, including all bush, small, and tree fruits; (5) planting of fruits; (6) plan for one-acre farm fruit garden required of all.

FLORICULTURE. Work in the greenhouse including (1) making of softwood cuttings; (2) potting of rooted cuttings; (3) repotting of rooted plants; (4) separation and division of dahlias, cannas, and crowned plants; (5) plans required for flower beds of bedding plants, annual and perennial plants.

FARM ENGINEERING

FARM MACHINERY. The construction, ease of operation, quality of workmanship, general utility, and manipulation and repairing of farm machinery are studied. The following machines are included: plows, harrows, disks, cultivators, mowing machines, ropes, loading devices, binders, threshing machines, fanning mills, corn machinery, potato machinery, and smut machines.

FARM DRAINAGE. (1) Taking levels and figuring elevation for tile and ditches; (2) practice work in laying tile.

ROPE SPLICING AND BELT LACING.

MECHANICAL DRAWING. (1) Use of tools in drawing straight lines; (2) letter plate; (3) problems with compass; (4) mortise and tenon joint; (5) bench hook; (6) planning and drawing of a farm barn, two floor plans, end and side elevation, cross-section.

BLACKSMITHING. Exercises familiarizing the student with operations necessary for blacksmith repair work on the farm, including the making of: square piece of half-inch iron; chain, 10 or 12 links; ring for chain; hook for chain; bolt tongs; blacksmith tongs; clevis; extra piece.

CARPENTRY. Exercises familiarizing the student with care and use of tools in farm repair and building construction, including: mortise and tenon joint, halved splice, bench hook, drawing board, hammer handle, coat hanger, evener, single-tree, extra piece; making of small farm buildings as needed, chicken coops, hog cots.

HOME ECONOMICS

COOKING. Cooking of all the simple dishes for the home, special emphasis on vegetables, bread, meats, substitutes for meat, dressing poultry; buying, cooking, and serving meals to six people at a given cost and given nutritive value, and keeping accurate accounts.

SEWING. Making of undergarments, dresses at a given cost, quilts; hemming of bed and table linen; embroidery and crocheting.

HOME SANITATION. Cleaning rooms, stove, silver, traps, and other plumbing fixtures; dish washing; washing and ironing clothes; removal of stains.

HOME NURSING. Assisting school nurse in illnesses; bandaging; making beds; preparation of liniments, hand lotions, and healing salves; disinfection of rooms and clothing.

SPECIAL COURSES

A few students are unable to enter in the fall or are unable to attend school for the three years. In order to provide for such students, the course of study for the first year has been so arranged that new students may take the regular work and complete a course of study, beginning January 5, 1920.

DRESSMAKERS

Two three-months' courses, beginning in October, 1919, and January, 1920, are offered. Each student drafts, cuts, fits, and finishes dresses and garments of various kinds. Beginning students are taught to make their own garments and those who have had some experience, to become dressmakers.

JUNIOR SHORT COURSE

The eighth annual junior short course from March 29 to April 3, 1920, is open to boys and girls from 12 to 18 years of age. With the exception of \$2.50 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.

FARMERS' AND WOMEN'S WEEK

A short course for farmers was organized at this school in 1911 to meet the needs of men and women who wish to study the problems of the farm and the home. The exhibit of farm crops in connection with the course was the origin of the annual Farm Crops Show held at Crookston during the second week in February. A six days' meeting at this time with strong programs for both men and women serves the purpose of the original short course.

NORTHWEST EXPERIMENT STATION

Substation of Department of Agriculture, University of Minnesota

ROSCOE W. THATCHER, M.A., Director

ANDREW BOSS, Vice-Director

CROOKSTON STATION STAFF

C. G. SELVIG, M.A., Superintendent

C. E. BROWN, Poultry

T. M. MCCALL, B.S.A., Horticulture and Potato Investigations

A. M. FOKER, Farm Buildings, Drainage

R. O. WESTLEY, M.S., Agronomy and Farm Management

A. M. CHRISTENSEN, B.S., Home Projects and Pure Seed Specialist

W. V. GOUSSEFF, B.S., Animal and Dairy Husbandry

CORA PAULSBERG, Accountant

The Northwest Experiment Station was established in 1895 to investigate agricultural conditions in northwestern Minnesota and to acquire and diffuse among the people of this section practical results from these investigations. The Station contains 480 acres and is one mile north of the city. The land is extremely low and presents a drainage problem of more than usual difficulty. Much valuable information on the subject of farm drainage is being secured.

The Station has well-equipped barns and yards. From a small beginning it has acquired valuable stock which is distributed to farmers in every section of the state. The dairy stock, hogs, and poultry from the Northwest Experiment Station have started an interest in high-quality stock in many places. Various feeding experiments are conducted.

With the aid of the federal Department of Agriculture, the Minnesota Experiment Station, St. Paul, and in coöperation with experiment stations in other states and in Canada, the Northwest Station is actively engaged in the production and distribution of pure seed grain, grasses, corn, and potatoes. This work has already demonstrated its value and will grow to be of the greatest importance to this section of the state. Pure, pedigreed seed will be sold to farmers who agree to maintain its purity and quality. The entire area of the Station is devoted to this work. This Station has begun work which will make it an important corn- and seed-breeding center.

The following outline shows part of the experimental work being done at the Station.

DRAINAGE WORK

The influence of tile and open drainage is noted. In addition a record is kept of the results on crop production, weed control, and soil conditions by the drainage system. In order to determine the best kinds of tile for size, strength, depth, and distance apart of the lines, thirty-two kinds of tile are used.

EXTENSION WORK

This work is carried on in livestock, agronomy, farm management, farm engineering, horticulture, forestry, and poultry.

COOPERATIVE WORK WITH FARMERS AND STUDENTS

The work in this department consists in distribution of improved strains of seeds of cereals, forage crops, root and vegetable crops, and hardy varieties of trees grown at this station to farmers in northwestern Minnesota and recording results. In this work, alfalfa has been distributed to 629 farms, pure-bred seeds in 1918 to 250 farms in 14 counties, and trees have been furnished to rural schools. In addition, students carry on summer practicums and recently the Northwest Experiment Association was organized among the alumni of the School.

FARM MANAGEMENT COOPERATORS' WORK IN FARM ACCOUNTING

This work consists in distributing farm account books to farmers who keep actual records of their farm business.

AGRONOMY SECTION

Cultural Methods with Farm Crops

This deals with rate, date, and method of seeding of various crops. Records are also kept of the results of tractor and horse plowing and discing.

Varietal Tests of Farm Crops

This consists in securing varieties best adapted to northwestern Minnesota. Tests have been made with wheat for flour, flax for fiber, and wheat for rust resistance. In the breeding of corn Minnesota No. 13, 23, and a flint variety are used.

Crop Rotation

In this work the following rotations are practiced: A three-year rotation consisting of corn, wheat, and clover in the sequence given; a five-year rotation of flax, oats, corn, barley, hay, and pasture in sequence given; the six-year rotation of corn, wheat, hay, pasture, oats, and barley in sequence given; a four-year rotation of corn, wheat, hay, and oats; a four-year rotation of corn, wheat, oats, and barley; also continuous cropping of wheat, oats, barley, and corn, and continuous cropping of wheat with eight pounds of clover seeded with the wheat and plowed under.

Fertilizer Tests

These are carried on in cooperation with the Division of Soils, University Farm, St. Paul. One is a three-year rotation of barley, clover, and corn and potatoes with application of nitrogen, potassium, and phosphorus. Another test is a four-year rotation of oats, corn, and potatoes, wheat and clover with treatments of raw rock phosphate and acid phosphate each with and without manure. Another test is alfalfa treated with gypsum, potassium sulphate, acid sulphate, and a combination of the last two.

Fruit Investigations

Investigations are carried on to determine varieties of apple, crab, plum, and cherry best adapted to Red River Valley conditions and to determine varieties of raspberries, gooseberries, blueberries, high bush cranberries, grapes, and strawberries best adapted to northwestern Minnesota conditions.

Field Root Investigations

The purpose of these investigations is to determine varieties best adapted to our soil and cultural conditions and to determine best method of winter storage of stock carrots, of stock rutabagas, stock turnips, and sugar beets.

ANIMAL AND DAIRY HUSBANDRY SECTION

Herd Maintenance and Cost Record

Valuable information regarding feeding, breeding, individual production of animals, cost of keeping and effects of different kinds of shelter, is secured in studying the animals of the Station herd. One project is the study of the influence of overfeeding with protein on the metabolism and on the development of present and future generations by feeding an excess of protein for a month or two during early life in swine feeding. Comparisons are made of the self-feeder with a feeding standard of using peas, milk, barley, and oats in pig feeding.

POULTRY SECTION

Experiments in artificial versus natural incubation of chickens are carried on to determine whether tendency of an artificially reared flock to produce chicks subject to white diarrhea (Bacillary diarrhea) can be checked by reverting to natural methods of hatching and rearing.

Cockerel fattening experiment is for the purpose of determining whether Leghorn cockerels when crate fattened will put on flesh as economically as Barred Rock cockerels.

Poultry House Construction and Influence

An investigation to determine whether concrete walls are a success in the housing of poultry; to determine if straw stored in the attic overhead will absorb sufficient moisture from the interior to prevent the walls and floors from becoming injuriously damp; to determine to what extent, if any, concrete construction affects winter egg production; and to record the difference in each house.

Egg Preservatives

A comparison of four different methods of preserving eggs is made to determine the best method of preserving eggs for winter use, and to determine the right proportions of water glass (sodium silicate) to water for best results in preserving eggs.

Different feeding experiments are conducted to determine the relative

values of cockerels and capons as market fowls and whether breeding geese can successfully be fed on cured alfalfa alone.

BULLETINS OF THE NORTHWEST EXPERIMENT STATION

Installation of an Experimental Drainage System at Crookston, by W. Robertson and J. T. Stewart. Minn. Agr. Exp. Sta. Bul. 110, 1908.

Poultry, by C. E. Brown. Minn. Agr. Exp. Sta. Bul. 119, 1910.

Report of Northwest Experiment Station for 1911 and 1912, by C. G. Selvig. February, 1913.

Two Types of Silos at Northwest Experiment Station, by C. G. Selvig. Minn. Agr. Ext. Div. Bul. 41, 1913.

Crookston Series, vol. 10, no. 1, Report of the Superintendent, 1910-16, Northwest Experiment Station. January, 1917.

Supplement to no. 1, Fruits, Trees, and Shrubs Recommended for Northern Minnesota, by T. M. McCall.

Supplement to no. 1, Building a Farm Poultry House in Northwestern Minnesota, by C. E. Brown.

No. 3, Sow Thistle, by F. L. Kennard. March, 1917.

No. 6, Around the Campus, a booklet containing useful information and illustrated activities of the School and Station. October, 1917.

Report of Northwest Experiment Station, 1917, 1918, by C. G. Selvig. Northwest Experiment Station. May, 1919.

Supplements to 1917, 1918 Northwest Experiment Station Report, Poultry Notes, by C. E. Brown; Pastures and Meadows for Northwestern Minnesota, by C. G. Selvig; Preliminary Report of Yields of the Golden Valley Peat Experimental Fields in 1918, by F. J. Alway and C. G. Selvig.

Northwest Monthly. A monthly publication of the Northwest School and Station.

Send your name to be added to the mailing list of the Northwest School and Station, Crookston, Minnesota.

SUMMARY OF ATTENDANCE

1918-19

Regular School Course	Men	Women	Total
Teachers' Training .....	...	15	15
Seniors	8	4	12
Juniors	30	9	39
Freshmen	110	22	132
	<hr/>	<hr/>	<hr/>
Total regular School course.....	148	50	198
Summer School Session, 1918.....	4	102	106
Junior Short Course, 1918.....	55	33	88
	<hr/>	<hr/>	<hr/>
Total	207	185	392

STUDENTS

1918-1919

TEACHERS' TRAINING—15

Bakken, Alma, Erskine
Bauer, Mariha, Ada
Buhn, Elba, Mentor
Erlandson, Teckla, Kennedy
Horn, Louise, Ada
Kinnan, Velura, Crookston
Kulle, Gerda, Alvarado

Lindfors, Cora, Fosston
Lindfors, Florence, Fosston
Solem, Ruth, Thief River Falls
Stewart, Leah, Luck, Wisconsin
Torske, Luella, Borup
Tunheim, Olga, Newfolden
Ulvin, Rachel, Wannaska
Westphalen, Adelia, Laurel, Nebraska

SENIORS—12

Edman, Lena, Alvarado
Fossbakken, Ella, Fosston
Holland, Elmer, Shelly
Imsdahl, Verna, Oslo
Johnson, Albin, Fertile
Knutson, Oscar, Warren

Mellum, Clayton, Ulen
Nabben, Henry, Thief River Falls
Peterson, Theodore, Fisher
Rutherford, Raymond, Euclid
Spjut, Olga, Strathcona
Steenerson, Tarjje, Climax

JUNIORS—39

Aakre, Einer, Goodridge
Ahlm, Ellen, Argyle
Anderson, Martin, St. Vincent
Andresen, Arthur, St. Paul
Bagge, Henry, Chicago, Illinois
Bakken, Otto, Fosston
Bengtson, Melvin, Wannaska
Brunnell, Joseph, Crookston
Campion, Morrill, Angus
Edman, Louise, Alvarado
Fadness, Adolph, Flaming
Felber, James, Minneapolis
Flikke, John, Shelly
Gronner, Agnes, Underwood
Jenson, Laura, Drayton, N. D.
Johnson, Joseph, Kratka
Johnston, Herbert, Angus
Knudson, Ruby, Goodridge
Larson, Franz, Twin Valley
Lerum, Harold, Strathcona

Lindahl, Eldred, Hallock
Lundberg, Vivian, Kennedy
McEnelly, Guy, Erie
Morris, Lucille, Middle River
Narveson, Carl, Twin Valley
Shager, Elmer, Gatzke
Springmier, Paul, Warren
Sprung, Walter, Ada
Swiers, John, Bejou
Thorkilson, Joseph, Stephen
Tollefson, Ella, Hatton, N. D.
Torgerson, Agnes, Stephen
Tucker, Clarence, Euclid
Tunheim, Willard, Newfolden
Waale, Thom, Kratka
Warner, Milton, Warren
Wiberg, Leonard, Lancaster
Younggren, Roy, Northcote
Zeh, Ernest, Thief River Falls

FRESHMEN—131

Anderson, Floyd, Badger
Anderson, Paul Robert, Drayton, N. D.
Anderson, Richard, Fisher
Anderson, Walter, Gonvick
Arends, Alice, Borup
Arends, George, Borup
Arends, Johanna, Borup
Arveson, Oscar, Oklee
Avery, Carl, Crookston
Barr, Josephine, Page, N. D.
Behn, Augusta, Red Lake Falls

Bendickson, Benjamin, Plummer
Bergh, Hilmer, Wanke
Berndt, Herbert, Mentor
Bollinger, Charles, Crookston
Braaten, Gilman, Ross
Brathovde, Lloyd, Erskine
Bredlie, Elmer, Eldred
Brule, Eldage, Gentilly
Bursheim, Maurice, Winger
Carlson, Alfred, Hallock
Carlson, Martha, Warren

Cleveland, Oliver, Ada
 Danielson, Aron, Malung
 Dorff, Arthur, Lancaster
 Dragseth, Andy, Eldred
 Dufault, David, Red Lake Falls
 Dupuis, Joseph, Crookston
 Eliason, Clary, Kratka
 Erickson, Elmer H., Twin Valley
 Erickson, John A., Goodridge
 Erie, Alfred, Gonvick
 Forder, John, Chisholm
 Gibbons, Veral, Crookston
 Gilbertson, Clara, Hendrum
 Glad, Edward, Hallock
 Green, Clyde, Plummer
 Gullingsrud, Carl, Kratka
 Gunderson, Edwin, Fisher
 Gustafson, Angeline, Fosston
 Hallstrom, Harold, Wylie
 Hammerstrom, Axel, Lancaster
 Hanson, Christ, Drayton, N. D.
 Hanson, Iver, Gonvick
 Hanson, Olaf, Badger
 Hanson, Percy, Newfolden
 Hebert, Harry, Twin Valley
 Hemstock, Fred, Crookston
 Henderson, Myron, Lancaster
 Henrickson, Melvin, Warren
 Hoglin, Martha, Lancaster
 Holt, George, Fosston
 Holte, Gerhart, Gonvick
 Jallo, Olaf, Roseau
 Johnson, Anton, Warren
 Johnson, James B., Goodridge
 Johnson, Vida, Hallock
 Johnston, Wilbur, Angus
 Jorgenson, George, Twin Valley
 Jorgenson, Hilda, Goodridge
 Kasberg, Amos, Eldred
 Kilen, Erwin, Kratka
 Kleppe, Leonard, Clearbrook
 Knudson, Ray, Goodridge
 Knutson, Raymond, Clearbrook
 Krbechek, Sophie, Erie
 Landby, Esther, Swift
 Landby, John, Swift
 Larson, George, Kennedy
 Larson, Marie, Kyle
 Lee, Archie, Pencer
 Lee, Gilmar, Hendrum
 Lee, Lawrence, Gary
 Lindfors, Carl, Fosston
 Logan, Harry, Terrebonne
 Logan, Rufus, Ada
 Lomen, Gjermund, Fosston
 Malmo, George, Gonvick
 Malwitz, Alma, Red Lake Falls
 Marmorine, Milton, Clearbrook
 Mattson, Chester, Hallock
 McDougal, John, Grand Rapids
 Mcleck, Harry, Stratheona
 Merkins, Palmer, Shelly
 Monson, Alon, Climax
 Monson, Kenneth, Orleans
 Moses, Jay, Pelican Rapids
 Nelson, Egon, Hallock
 Nelson, Myrtle, Crookston
 Nelson, Nic, Thief River Falls
 Nelson, Oscar, Hallock
 Nordin, Martin, Lancaster
 Norgrant, Lester, Winger
 Norquist, George, Gonvick
 Norquist, Victor Edward, Gonvick
 Nystrom, Edwin, Fosston
 Odegaard, Lawrence, Ross
 Olson, Hilda, Fosston
 Olson, O. Raymond, Crookston
 Olson, Raymond H., Stephen
 Pawling, Clarence, Thief River Falls
 Pearson, Eddie, Karlstad
 Pearson, John, Crookston
 Perry, Hazel, Crookston
 Roetman, Ernest, Badger
 Sabin, Verl, Crookston
 Sall, Clarice, Plummer
 Sall, Ella, Plummer
 Sather, Edwin, Halstad
 Shannon, Elmer, Fosston
 Simpson, Russell F., Minneapolis
 Skarp, David, Karlstad
 Skime, Elmer, Gonvick
 Skonovd, Emma, Viking
 Solberg, Philip, Winger
 Solberg, Ralph, Winger
 Snustad, George, Hendrum
 Stine, George, Karistad
 Sulerud, Russel, Gary
 Swedin, Martin, Grygla
 Tangjerd, Ralph, Bagley
 Thorblaa, Lloyd, Fosston
 Tucker, Benjamin, Euclid
 Tweten, Burdette, McIntosh
 Underlee, Carl, Hendrum
 Vigan, Anna, Fisher
 Vesledal, Lewis, Erskine
 Vick, Albert, Gonvick
 Waale, Henry, Kratka
 Wilmer, Esther, Kennedy
 Winjum, James, Stratheona

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

West Central School and Station
Morris, Minnesota
Announcement for the Year
1918 - 1919



Vol. XXI No. 12 June 15 1918

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SCHOOL CALENDAR

1918-1919

1918			
October	1	Tuesday	First term opens; registration
October	2	Wednesday	Organization of classes
November	2	Saturday	Field Day
November	28	Thursday	Thanksgiving Day; a holiday
December	14	Saturday	Inter-society Debate
December	20	Friday	First term closes; Christmas vacation begins
1919			
January	6	Monday	Christmas vacation ends; second term opens; registration
January	7	Tuesday	Organization of classes
February	12	Wednesday	Lincoln's Birthday (special exercises)
February	17	Monday	Farmers' Short Course opens
February	22	Saturday	Washington's Birthday (special exercises)
February	22	Saturday	Farmers' Short Course closes
March	24	Monday	Commencement Week
March	27	Thursday	Junior-Senior-Alumni Banquet
March	28	Friday	Commencement Day
March	31	Monday	Junior Short Course opens
April	5	Saturday	Junior Short Course closes
May	30	Friday	Memorial Day; a holiday
June	10	Tuesday	Short Course for Farm Women opens
June	13	Friday	Short Course for Farm Women closes
June	16	Monday	Teachers' Training School opens
July	4	Friday	Independence Day; a holiday
July	25	Friday	Teachers' Training School closes

WEST CENTRAL SCHOOL AND STATION

FACULTY

AT MORRIS

PAUL E. MILLER, B.S., Superintendent
FREDERICK A. STEVER, B.A., Preceptor and Registrar
IRMA HATHORN, B.A., Preceptress
MARY E. KING, B.A., Librarian

AGRICULTURAL ENGINEERING

OLE O. BYE, Carpentry and Farm Structures
ALBERT C. HEINE, Farm Engineering
GERARD QUITNEY, Blacksmithing

AGRONOMY

THEODORE ODLAND, B.S., Agronomy and Farm Management
OTTO SWENSON, Assistant in Agronomy

ANIMAL HUSBANDRY

PHILIP S. JORDAN, B.S., Animal and Dairy Husbandry

HORTICULTURE

JOHN A. ANDERSON, B.S., Botany and Horticulture

HOME ECONOMICS

MILDRED KIMBALL, B.S., Foods and Cookery
GLADYS GOODNOUGH, B.S., Sewing and Dressmaking

SCHOOL

FREDERICK A. STEVER, B.A., Science
MARY E. KING, B.A., Social Science
IDA M. OLIEN, B.A., English and Public Speaking
IRMA HATHORN, B.A., Mathematics
EDWIN J. VOLDEN, Accounting
MAE MIDDLETON, Music and Physical Training

OFFICERS OF ADMINISTRATION

OLE O. BYE, Superintendent of Buildings
CATHERINE LEAHY, B.S., Matron
FLORENCE HULETT, R.N., School Nurse
EDWIN J. VOLDEN, Accountant
ANNA MCCARTHY, Secretary

COMMITTEES

Program.—Superintendent MILLER, JORDAN, STEVER, Miss HATHORN, Miss KING.

Short Course for Farmers.—JORDAN, ANDERSON, BYE, ODLAND.

Short Course for Farm Women.—Miss HATHORN, Superintendent MILLER, STEVER.

Student Affairs.—STEVER, HEINE, ODLAND, Miss KIMBALL, Miss KING.

Social.—HEINE, ANDERSON, Miss GOODNOUGH, Miss HATHORN, Miss MIDDLETON.

GENERAL INFORMATION

PURPOSE

The West Central School of Agriculture is an institution established primarily for the training of young men for the profession of farming, and young women for the profession of home making. The courses are planned and the subjects are taught with the purpose of making the students masters of this work. The courses are sufficiently extended to give, not only a fairly complete technical knowledge of the business of production, but a working basis for the economic and sociological aspects of farm life. The farmer must have a broad grasp of his profession in its relationships with other callings, as well as a realization of the possibilities of its social development.

LOCATION

The School is admirably situated to serve the west central part of the state. It adjoins the city of Morris and is situated upon 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 young woman who desires technical training in Agriculture and Home Economics. It is desirable that prospective students should have completed the eighth grade altho 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.

TIME OF OPENING

The School of Agriculture will open Tuesday, October 1 and the fall term will close Friday, December 20. 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 students can best be spared from home.

SPECIAL INFORMATION

Old or new students planning to attend the School of Agriculture should write early to the Registrar asking him to reserve a room. Students may reserve rooms in advance by paying a deposit fee of two dollars, which will be refunded upon entering school. If the student is unable to enter school the deposit may be reclaimed before September 15. Each dormitory room is furnished with two single beds, dresser, table, chairs, curtains, sheets, bed spreads, pillows, and pillow cases. Each

student should bring with him quilts and blankets for one single bed, towels, comb, brushes, and other toilet articles. Prospective students are urged to correspond with the Superintendent and make all the necessary arrangements for registration.

Preferences as to roommates should be stated early and will be considered so far as possible.

Students more than two weeks late in entering may not be able to complete all of the term's work without conditions. If a student can not enter before the middle of November, he should wait until January 6 for the new term and new classes to start.

All trains will be met by special committees Tuesday, October 1. Students are urged to enter school promptly at the beginning of the semester.

EXPENSES

The expenses at the institution are as low as it is possible to make them. They are as follows:

Incidental fee (per year).....	\$5.00
Board (per week)	3.00
Room, light, heat, and flat laundry (per week).....	1.25
Deposit (per year; to be returned).....	5.00
Hospital fee (per term).....	1.00

On entering the school each student should bring sufficient money to pay for one month's board and room, and to pay for his books and fees. This will amount to from \$30 to \$35.

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

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

No increases will be made unless living costs necessitate an increase in the cost of board. Board and room are payable one month in advance. 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. When a student drops such a course within two weeks after registration the laboratory fee will be refunded. The five dollar deposit, less deductions for breakage and other damage to school property, will be returned in full at the end of the year.

The buildings are lighted by electricity and heated by steam. The charge for room (\$1.25 per week) covers the entire period during which the room is occupied. No deductions for board will be made unless arrangements are made at the beginning of the semester with the matron. Any student who makes arrangements in advance to be gone regularly Sunday and Monday will receive a pro rata reduction in board. An extra charge will be made for guests.

REQUIREMENTS FOR GRADUATION

1. Completion of the prescribed course of study including all required work and enough electives to make a total of 150 credit hours.
2. Two summers of supervised home project work. This will apply to all classes graduating after 1919.
3. An honorable standing in department.
4. All bills payable either at School or in the city of Morris must be settled.

INCOMPLETES OR FAILURES

The passing grade in all subjects is 75. When students are unable to complete a term's work because of sickness or other unavoidable cause an "incomplete" will be given in that subject which may be made up during the first month of the following semester.

When the average for the term's work is below 75, a failure in that subject will be given and the student will be required to take that subject a second time.

Students who have not been absent more than three times throughout the semester and who have obtained a grade of 90 or above in any subject will be excused from final examination in that subject.

STUDENT LOAN FUNDS

The Gilfillan Trust Fund

This fund of \$50,000 is the gift of the Honorable John B. Gilfillan, of Minneapolis, in trust to the University of Minnesota, the annual income from which shall be at the disposal of the Executive Committee of its Board of Regents either as a gift or a temporary loan to worthy students of the University who are residents of Minnesota. The annual income from the fund is \$2,000 which is loaned to students on their notes in amounts not exceeding \$200 to any one person in one year, at the rate of five per cent per annum.

This fund may be used by students of the West Central 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 West Central School of Agriculture, Morris, Minnesota.

BUILDINGS AND EQUIPMENT

The institution now has nine brick buildings: The Girls' Dormitory with facilities for 75 girls; the Boys' Dormitory with equal accommodations; Music Hall with two studios and numerous practice rooms; Home Economics Building with sewing laboratory, cooking laboratory, kitchen, dining room, pantry, and three lecture rooms; Agronomy Building with farm crops laboratory, chemistry laboratory, and four lecture rooms; Engineering Building with wood shop, forge shop, farm mechanics laboratory, drafting room and three lecture rooms; Stock Judging Pavilion and dairy laboratory; Dining Hall and Gymnasium with large modern dining

room and gymnasium; all laboratories and shops are fully equipped which makes possible the best of instruction.

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

HOME LIFE ON THE CAMPUS

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 the students in their dormitories and the regulations enforced are for the best interests of all students.

From 8 a.m. till 4 p.m. students are busy with their school work. From 4 to 6 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 are permitted to leave the campus only upon permission of the Preceptor or Preceptress.

The use of tobacco and spirituous liquors of all kinds is strictly forbidden. Anyone not in accord with these restrictions and not willing to lend a hand toward strong, moral growth should not come to the School of Agriculture.

ASSEMBLY PERIOD

A forty-minute assembly period is held each morning throughout the school year. Students are required to attend these assembly exercises. A short religious service opens this chapel period and is followed by special music or speaking. It is the purpose of the school to secure prominent speakers to address the student body at these morning exercises.

HOLIDAYS

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

STUDENT ORGANIZATIONS

Students are urged to join a literary society. These societies offer pleasure as well as profit. They afford a training in conducting meetings, parliamentary law, and public speaking obtainable in no other way.

The following societies hold regularly weekly meetings during the school year: The Vincent Literary Society, the Agricolae Literary Society, the Ceres Club.

An intersociety debate cup for the promotion of interest in civic and political questions has been offered by the Superintendent.

Both the Young Men's and Young Women's Christian Associations have local organizations. Sunday mornings and evenings services are conducted under the direction of these associations.

Boys' and Girls' Glee Clubs are organized and trained throughout the school year. These clubs appear at various school functions.

Band and orchestra organizations have been perfected during the past year. Credit will be given for membership and regular attendance at practices and entertainments.

INTERSCHOLASTIC ACTIVITIES

Each year the School is represented by two debating teams which debate similar institutions.

In athletics the school is represented by both football and basket ball teams. These teams schedule games with the high schools of this section.

LECTURE COURSE

During the school year a lecture and entertainment course, consisting of four or five numbers, is given at a cost of one dollar for the series. These entertainments are strictly high grade and furnish a pleasant relaxation from regular school work.

LIBRARY

The library is well equipped to supply the needs of the students. A large number of books has 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 the books they may need in the pursuit of their work.

EXPERIMENT STATION

The West Central School and Station is now conducting extensive experiments in agronomy, soils, horticulture, animal husbandry, and agricultural engineering. Beginning with 1915 a special report has been issued each year reporting the progress of the 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 are always available to the students. The classroom work is supplemented with actual practice either in the field or with crops grown upon 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. Pure-bred Holstein, Guernsey, Shorthorn, and Angus cattle; grade and pure-bred Percheron horses; Shropshire sheep; Duroc-Jersey hogs; White Leghorn and Barred Plymouth Rock chickens are maintained for station and school purposes. These furnish excellent opportunities for students intelligently to study the various courses in animal husbandry.

COURSES

LONG COURSES

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, 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 courses, and all are urged to complete the three sessions.

ADVANCED COURSES

It has been found that the eighteen months of the long course is a very short time in which to give all of 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 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 own 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.

DEPARTMENT OF MUSIC

For those who are interested, credit courses in piano instruction are offered. Ten half-hour and ten 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.

HOME PROJECT WORK

For the last several years students have done some home project work. In 1918 this work was definitely organized and placed on a credit basis. 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 agricultural practice are applied to some branch of the farm which the project is designed to cover. Reports are required throughout the season and the work is at all times in charge of supervisors who make numerous visits to each student.

During 1918 the projects for boys included Sheep Management, management of the Dairy Herd, Corn Growing, Alfalfa Growing, Potato Growing, Fertilizer Tests, Forage Crops, and Farm Accounts. For girls the projects include Canning, Bread Baking, Millinery, Sewing, Home Accounts, Home Decoration, Poultry, Gardening, and Music.

FARMERS' SHORT COURSE

The Annual Farmers' Short Course will be held during the third week in February, 1919. This course, lasting one week, is designed for mature farmers who can not leave their farms for a longer period of time. The days are given over to practical discussions and demonstrations of the problems of the farm. The subjects of livestock feeding and management, dairy production, farm crops, soils, horticulture, farm management, and farm engineering will be discussed by men of experience who are recognized as authorities in these subjects.

A special circular will be issued in January giving full particulars and the complete program.

JUNIOR SHORT COURSE

During the week following the close of the regular school session, will be held the seventh annual Junior Short Course, March 31 to April 5. This course is open to all boys and girls from 12 to 18 years old. A charge of \$3 is made which 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 and stock judging will be held for the boys and the winner of each contest will be given a free trip to the 1919 Minnesota State Fair. For the girls, contests in bread making and canning are held, with scholarships to the School of Agriculture as prizes. A big spelling contest will also be one of the features of this boys' and girls' week. Games, music, entertainments, and a special Junior Short Course party will make the entire week one of great interest to all those who attend. Special moving picture entertainments are given free each evening. A special circular describing this short course will be ready for distribution in February, 1919.

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. This course is offered June 10 to 13, 1919.

TEACHERS' TRAINING SCHOOL

A State Teachers' Training School organized by the Department of Education and conducted under its supervision, will be held at the West Central School of Agriculture from June 16 to July 26, 1919. The faculty will be made up from the staff of the School who will offer the technical work, and a corps of instructors from the State Department who will offer the usual summer courses. The buildings, equipment, and library of the school are available for all teachers who attend.

The purpose of the school is first, to afford academic instruction in the subjects required for common-school certificates, first and second class; second, to offer professional training in the common-school subjects and to provide the means by which teachers who seek to earn a first-class certificate may meet the professional standards in those subjects which are now required by law; third, to offer instruction and professional training in such special subjects as will entitle teachers to receive a first-class certificate or one of higher rank; fourth to give instruction in Agriculture, Manual Training, and Home Training, as now required of teachers of these subjects in consolidated schools.

The special circular describing the summer session may be had by addressing the Superintendent, West Central School of Agriculture, Morris, Minnesota.

COURSES OF STUDY REQUIRED FOR GRADUATION

Three Year Course

BOYS

FIRST YEAR

<i>Fall Term</i>	<i>Winter Term</i>
Credit Hours	Credit Hours
5 English A	5 English B
5 Corn	5 Cereal Crops
5 Farm Accounts	5 Anatomy-Hygiene
5 Types and Breeds	5 Industrial Geography or 3 Gas Engines
2 Carpentry	2 Carpentry
2 Blacksmithing	2 Blacksmithing
1 Milk Testing	1 Stock Judging
1 Spelling	1 Penmanship
1 Gymnasium	1 Gymnasium

SECOND YEAR

Fall Term

REQUIRED SUBJECTS

- 5 English C
- 5 Chemistry
- 1 Gymnasium

AGRONOMY	or	ANIMAL HUSBANDRY	or	AGRL. ENGINEERING
2 Grain Judging		1 Stock Judging		5 Drainage
3 Garden and Orchard		2 Grain Judging		3 Mechanical Drawing
9 Elective		11 Elective		6 Elective

Winter Term

REQUIRED SUBJECTS

- 5 Agricultural Physics
- 5 English D
- 1 Gymnasium

AGRONOMY	or	ANIMAL HUSBANDRY	or	AGRL. ENGINEERING
4 Forage Crops		5 Feeds and Feeding		3 Farm Structures A
5 Feeds and Feeding		4 Forage Crops		3 Rural Sanitation
5 Elective		1 Stock Judging		8 Elective
		4 Elective		

THIRD YEAR

Fall Term

REQUIRED SUBJECTS

- 5 English E
- 1 Gymnasium

AGRONOMY	or	ANIMAL HUSBANDRY	or	AGRL. ENGINEERING
5 Farm Management A		3 Animal Breeding		3 Gas Engines B
14 Elective		1 Stock Judging		3 Farm Structures B
		15 Elective		13 Elective

Winter Term

REQUIRED SUBJECTS

			5 English F		
			1 Gymnasium		
	AGRONOMY	or	ANIMAL HUSBANDRY	or	AGRL. ENGINEERING
2	Farm Management B	3	Animal Diseases	5	Farm Mechanics
5	Soils	16	Elective	14	Elective
12	Elective				

NOTE: In the second and third years, students choosing one group may elect from either of the other two groups, or from the following general list until a total of 25 hours is filled.

ELECTIVE LIST

The following list of electives is open to juniors and seniors, from which they may complete their classification:

3	Beef Production, first term	2	Electricity
3	Dairy Production, second term	3	Mechanical Drawing, first and second terms
3	Poultry, second term	5	Algebra, first and second terms
2	Commercial Seed Production, first term	5	Geometry, first and second terms
5	Advanced Farm Management	2	Business Accounting, second term
3	Garden and Orchard, first term	2	Public Speaking, second term
3	Botany, second term	2	Debate, second term
5	Advanced Carpentry, first and second terms	3	Government and Law, first term
1	Cement Construction, first and second terms	5	United States History, second term
6	Traction Engineering, second term	5	General History, first and second term
6	Steam Engineering	5	Home Literature, first term
		3	Music, first and second terms

GIRLS

FIRST YEAR

<i>First Term</i>	<i>Second Term</i>
Credit Hours	Credit Hours
5 English A	5 English B
2 Garment Making A	2 Garment Making B
3 Foods and Cookery A	3 Foods and Cookery B
5 Home Nursing A	1 Gymnasium A
1 Gymnasium	1 Penmanship
1 Spelling	13 Elective
8 Electives	

ELECTIVES

5	House Planning and Decoration
5	Commercial Geography
5	Home Accounts
5	Garden and Orchard

COURSES OF STUDY

15

SECOND YEAR

5 English C	5 English D
3 Food Preservation	3 Dietetics
2 Dressmaking A	2 Dressmaking B
1 Gymnasium B	1 Gymnasium B
5 General History A	5 General History B
9 Elective	9 Elective

ELECTIVES

5 Algebra	5 House Planning and Decoration
5 Food and Household Chemistry	5 Home Nursing B
2 Piano	2 Textiles

THIRD YEAR

5 English E	5 English F
5 United States History	5 Government
3 Home Management A	3 Home Management B
2 Dressmaking C	3 Dressmaking D
1 Gymnasium C	1 Gymnasium C
9 Elective	9 Elective

ELECTIVES

5 Geometry	5 Home Nursing C
5 Household Physics	2 Music
2 Textiles	5 Government

GENERAL ELECTIVE LIST

2 Piano	2 Public Speaking
1 History of Music	4 Glee Club
1 Theory of Music	2 Dressmaking E
2 Art Needlework	1 Millinery

NOTE: The electives are to be chosen from the special electives for each year or from the general elective list.

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; diseases; silage; varieties and corn judging, supplemented with laboratory practice. Rec. 3 hrs.; Lab. 2, 2 hrs.; 5 credits; fee 50 cents.

GRAIN GROWING. A study of the principal cereal crops. Seed selection; soil and cultural requirements; harvesting. Classroom work supplemented with laboratory practice. Rec. 3 hrs.; Lab. 2, 2 hrs.; 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 pure-bred seed. Lab. 2, 2 hrs.; 2 credits; fee, \$1.00.

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 on the farm. Rec. 2 hrs.; Lab. 2, 2 hrs.; 4 credits; fee, \$1.75.

COMMERCIAL SEED PRODUCTION. The breeding and growing of pure-bred seed corn and grain upon the farm, and the best methods of marketing these products. 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, \$1.00.

FARM MANAGEMENT I. The management of the land, labor, and capital in their relation to the farm business. Rec. 3 hrs.; Lab. 2, 2 hrs.; 5 credits.

FARM MANAGEMENT II. 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. Lab. 2, 2 hrs.; 2 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.

GARDEN AND ORCHARD. The planning, planting, culture, value, and management of the orchard and garden upon the general farm. Rec. 2 hrs.; Lab. 1, 2 hrs.; 3 credits.

BOTANY. The principles of elementary Botany. Intended for students who may wish to use the credit for college entrance. Rec. 2 hrs.; Lab. 2, 2 hrs.; 4 credits.

ANIMAL AND DAIRY HUSBANDRY

TYPES AND BREEDS. The 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 A. The study and practice in the use of the score card, showing the relation of body structure to economical production. Lab. 1, 2 hrs.; 1 credit.

STOCK JUDGING B. Competitive and comparative judging of all classes of livestock. Lab. 1, 2 hrs.; 1 credit.

STOCK JUDGING C. A continuation of Stock Judging B. Lab. 1, 2 hrs.; 1 credit.

STOCK JUDGING D. A continuation of Stock Judging C. Lab. 1, 2 hrs.; 1 credit.

FEEDS AND FEEDING. The general composition of the animal body; the composition and digestibility of foods; feeding standards; methods of feeding. Rec. 5 hrs.; 5 credits.

ANIMAL BREEDING. The theory and practice of animal breeding, including variation, heredity, selection, effect of pure-bred animals in improving types of stock, and pedigrees. Rec. 3 hrs.; 3 credits.

ANIMAL DISEASES. The causes, prevention and cure of animal diseases, including emergency treatment. Rec. 3 hrs.; 3 credits.

BEEF PRODUCTION. The production of beef cattle, both pure-bred and market stock, including from a practical standpoint, feeding and management of the herd, the selection of breeding stock, and the arrangement of buildings and yards. Rec. 2 hrs.; Lab. 1, 2 hrs.; 3 credits.

POULTRY. Practical instruction in the breeding and care of poultry for general farm use. Rec. 2 hrs.; 2 credits.

DAIRY PRODUCTION. An advanced course designed to fit a student for the successful management of a dairy herd. Rec. 2 hrs.; Lab. 1, 2 hrs.; 3 credits.

AGRICULTURAL ENGINEERING

- WOODWORK A. Carpentry: care, use, and sharpening tools; laying off work; making of joints and framing. Work designed to be especially helpful in planning, framing, and construction of farm buildings. Lab. 2, 3 hrs.; 2 credits; fee, \$1.25.
- WOODWORK B. Continuation of Course A. Lab. 2, 3 hrs.; 2 credits; fee, \$1.25.
- FORGE WORK A. Blacksmithing: forging, and welding of iron and steel, making and tempering hand tools. Work designed to be especially helpful in the repair and operation of machinery. Lab. 2, 3 hrs.; 2 credits; fee, \$1.50.
- FORGE WORK B. Continuation of Forge Work A. Lab. 2, 3 hrs.; 2 credits; fee, \$1.50.
- MECHANICAL DRAWING A. The use of drawing instruments, lettering, and the making of working drawings. Lab. 3, 2 hrs.; 3 credits.
- DRAINAGE AND SURVEYING. Practice with level and chain; work in leveling, ditching, locating, laying tile, running lines, figuring areas, staking out buildings, mapping, and estimating costs. Rec. 3 hrs.; Lab. 2, 2 hrs.; 5 credits.
- FARM STRUCTURES A. The 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 from these plans. Lab. 3, 2 hrs.; 3 credits.
- FARM STRUCTURES B. A continuation of Farm Structures A. Designing of buildings needed on the home farm, and the working out of a general plan that will meet the builder's requirements. Lab. 3, 2 hrs.; 3 credits.
- RURAL SANITATION. The lighting, heating, and ventilation of farm buildings; a study of lighting systems; plumbing; systems of water supply and sewage disposal. Rec. 3 hrs.; 3 credits.
- MECHANICAL DRAWING B. A continuation of Mechanical Drawing A. Practice in designing, in isometric drawing, and projection. Drawings are made from parts of such machines as gas engines and cream separators. Lab. 3, 2 hrs.; 3 credits.
- CEMENT CONSTRUCTION. Properties of sand, gravel, cement, and concrete. Practice in proportioning and mixing concrete; in making concrete blocks and fence posts, and in designing foundations. Lab. 1, 2 hrs.; 1 credit; fee, \$1.00.
- GAS ENGINES A. Development, existing types, theory and practice of operation, adjustment, repair, and utility of the internal combustion

engine. Practice in valve and ignition timing, in valve grinding, and the adjustment of bearings. Rec. 1 hr.; Lab. 2, 2 hrs.; 3 credits; fee, \$1.50.

TRACTION ENGINEERING. A course including a study of the construction, repair, and operation of the traction engine. Rec. 3 hrs.; Lab. 3, 2 hrs.; 6 credits.

STEAM ENGINEERING. A study of the construction, operation, and repair of the steam traction engine. The course leads to the state examinations for engineer's license. Rec. 3 hrs.; Lab. 3, 2 hrs.; 6 credits.

ELECTRICITY. A study of electricity with reference to its use on the farm, including lighting and power plants, magnetos, dynamos, and motors. Rec. 1 hr.; Lab. 1, 2 hrs.; 2 credits.

FARM MECHANICS. Farm machinery and farm motors. Selection, use, and care of tilling, seeding, harvesting, threshing, and fertilizing machinery. Work is given with pumping and grinding machinery; transmission of power, grading machinery, etc. Rec. 3 hrs.; Lab. 2, 2 hours; 5 credits; fee, \$1.25.

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.

ENGLISH

ENGLISH A. Reading, spelling, and a brief review of the principles of grammar. Considerable time is devoted to oral reports. Short written themes required. Rec. 5 hrs.; 5 credits.

ENGLISH B. Continuation of English A. Letter writing in connection with simple sentence and paragraph structure. Several selections are memorized. Rec. 5 hrs.; 5 credits.

ENGLISH C. Letter writing and spelling continued. Standard books and selections of interest are read. The outline is used extensively in oral and written work. Rec. 5 hrs.; 5 credits.

ENGLISH D. A continuation of English C. Rec. 5 hrs.; 5 credits.

ENGLISH E. 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 F. Reading and advanced composition of descriptive, expository, and argumentative types continued. The derivation, usage, and meaning of words. Rec. 5 hrs.; 5 credits.

SPELLING. Students are required to secure one credit in spelling. Rec. 1 hr.; 1 credit.

PENMANSHIP. Students are required to secure one credit in penmanship. Rec. 1 hr.; 1 credit.

PUBLIC SPEAKING A. Practice in conducting meetings and presenting material before public gatherings. Rec. 2 hrs.; 2 credits.

PUBLIC SPEAKING B. A continuation of Public Speaking A. Rec. 2 hrs.; 2 credits.

PUBLIC SPEAKING C. Students will be trained to present readings before the public. Rec. 2 hrs.; 2 credits.

PUBLIC SPEAKING D. Continuation of Public Speaking C. Rec. 2 hrs.; 2 credits.

PUBLIC SPEAKING E. Designed to give boys training in extemporaneous speaking and debate. Rec. 2 hrs.; 2 credits.

PUBLIC SPEAKING F. A continuation of Public Speaking E. Rec. 2 hrs.; 2 credits.

MATHEMATICS

FARM ACCOUNTS. For boys. Ledger account forms. Drill is given in rapid calculation and accuracy. Application of the keeping of accounts to farm operations.

HOME ACCOUNTS. For girls. Similar to Farm Accounts for boys except that application is made to home instead of farm work. Rec. 5 hrs.; 5 credits.

ALGEBRA A. Designed to cover the usual first year academic credit work in Elementary Algebra. Rec. 5 hrs.; 5 credits.

ALGEBRA B. Continuation of Course A. Rec. 5 hrs.; 5 credits.

PLANE GEOMETRY A. Planned to cover usual academic course in Plane Geometry. Rec. 5 hrs.; 5 credits.

PLANE GEOMETRY B. Completion of Plane Geometry A. Rec. 5 hrs.; 5 credits.

BUSINESS ACCOUNTING. Business mathematics for those specializing in engineering, carpentry, etc. Rec. 2 hrs.; 2 credits.

PHYSICAL TRAINING

ANATOMY-HYGIENE (For boys). Comparative anatomy and human hygiene. An introduction to the later animal husbandry course and a preparation for the care of the health.

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 exercises, folk dances, and games. 1 credit.

GYMNASIUM (Boys). Credit will be allowed to boys for membership on school teams, and participation in special lines of gymnasium work which they will be allowed to elect. 1 credit.

SOCIAL SCIENCE

COMMERCIAL GEOGRAPHY. Designed to give the student a view of the broad relation of Geography to Commerce. Rec. 5 hrs.; 5 credits.

GENERAL HISTORY. This course is designed to give the student a general outlook upon civilization in the making, and to show what nations and men have helped civilization in its onward course. Rec. 5 hrs.; 5 credits.

AMERICAN HISTORY. This course is designed to present in a clear, concise and connected manner the main events in the history of the American people. Rec. 5 hrs.; 5 credits.

GOVERNMENT AND LAW. Local, state, and national governmental forms and practices. A brief study of common contracts, deeds, mortgages, line fences, etc. Rec. 5 hrs.; 5 credits.

PHYSICS

HOUSEHOLD PHYSICS. The mechanics of solids, liquids, and gases. Application of the principles is made to home problems. One half of the term is devoted to heat in its relation to the household. Rec. 3 hrs.; Lab. 2, 2 hrs.; 5 credits.

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.

CHEMISTRY

GENERAL CHEMISTRY. A general introductory course preparatory to a later course in Food and Household Chemistry. Rec. 3 hrs.; Lab. 2, 2 hrs.; fee, \$1.00.

FOOD AND HOUSEHOLD CHEMISTRY. Continuation of Foods and Cookery B, applying the general principles of chemistry to food in all of its uses. Rec. 3 hrs.; Lab. 2, 2 hrs.; 5 credits; fee, \$1.00.

AGRICULTURAL CHEMISTRY. A general introductory course preparatory for later work in agronomy, animal husbandry. Fee, \$1.00.

HOME ECONOMICS

DOMESTIC ART

GARMENT MAKING A. A gymnasium suit, consisting of bloomers and blouse, a cooking outfit, and a kimono are made in the first term. Rec. 1 hr.; Lab. 2, 2 hrs.; 2 credits.

GARMENT MAKING B. The laboratory work consists in the making of a four-piece suit of underwear. The various kinds of material and their wearing qualities; simple decoration and trimmings and the cost of the finished garments are discussed. Rec. 1 hr.; Lab. 2, 2 hrs.; 2 credits.

DRESSMAKING A. Each girl makes herself a snug-fitting waist and skirt which is placed on a dress form and padded out. This form is used throughout the rest of the course. A shirt waist and wool dress are made during the term. Rec. 1 hr.; Lab. 2, 2 hrs.; 2 credits.

DRESSMAKING B. The making of summer dresses. A house dress and a light summer dress are made. The suitability of material and design, color and lines, and cost of the garments are discussed. Rec. 1 hr.; Lab. 2, 2 hrs.; 2 credits.

DRESSMAKING C. A wool suit is made in this term. Special attention is given to standard materials, color, lines, and cost of outside garments. Materials are purchased under direction of the instructor. Rec. 1 hr.; Lab. 2, 2 hrs.; 2 credits.

DRESSMAKING D. Continuation of the work in Dressmaking C, making an inexpensive graduation dress. Rec. 1 hr.; Lab. 2, 2 hrs.; 2 credits.

DRESSMAKING E. This course is open to any one wishing extra work in dressmaking. Lab. 2, 2 hrs.; 2 credits.

TEXTILES. Manufacture of cloth from wool, cotton, silk, and flax fiber; adulterations of cloth and the methods of detecting such adulterations; relation of clothing to health; clothes budgets, etc.

ART NEEDLE WORK. Color combinations, making designs for embroidering, and stenciling. Several pieces of fancy work are completed during the course. Lab. 2, 2 hrs.; 2 credits.

HOME DECORATION. Selection of furnishings, draperies, etc., for the home. Rec. 5 hrs.; 5 credits.

MILLINERY. Practice in making various sorts of hat trimmings and hat frames, and the completion of one hat. Lab. 2 hrs.; 1 credit; fee, 50 cents.

DOMESTIC SCIENCE

FOODS AND COOKERY A. The laboratory work consists in practice in cooking cereals, soups, vegetables, fruits, and some simple desserts. The

lecture work deals with the source of food products, the digestibility of foods, and the theory of cooking. Rec. 1 hr.; Lab. 2, 2 hrs.; 3 credits; fee, \$1.00.

FOODS AND COOKERY B. The laboratory work includes the making of pancakes, muffins, biscuit, bread, cakes, cookies, etc., and the cooking of meats and eggs. The lecture work is a continuation of that of the first term. Rec. 1 hr.; Lab. 2, 2 hrs.; 3 credits; fee, \$1.00.

FOOD PRESERVATION. The laboratory work consists largely in canning, pickling, preserving, and jelly making. The lecture work includes the study of cold storage, injurious preservatives, curing of meats, and preserving eggs. Rec. 2 hrs.; Lab. 2, 2hrs.; 3 credits; fee, \$1.50.

DIETETICS. Invalid cookery, including the preparation of custards, gelatins, ice creams, and beverages. The lecture work is designed to give an understanding of the proper diet for different disease conditions. Rec. 1 hr.; Lab. 2, 2 hrs.; 3 credits; fee, \$1.50.

HOME MANAGEMENT. This is a summary of the previous work offered. Plans and devices for saving of labor, money, and time are discussed. Each girl is offered two weeks' practice in actual preparation and serving of meals. Rec. 1 hr.; Lab. 2, 2 hrs.; 3 credits; fee, \$1.50.

ADVANCED HOME MANAGEMENT. A continuation of the course in Home Management. Rec. 1 hr.; Lab. 2, 2 hrs.; 3 credits; fee, 50 cents.

HOME NURSING

HOME NURSING A. The structures and functions of the human body. Hygiene and the proper care of the sick. Rec. 5 hrs.; 5 credits.

HOME NURSING B. A continuation of Home Nursing A. Rec. 5 hrs.; 5 credits.

HOME NURSING C. Simple medicines in relation to disease. Rec. 5 hrs.; 5 credits.

HOME NURSING D. Common diseases and methods of prevention; first aid. Rec. 5 hrs.; 5 credits.

MUSIC

PIANO MUSIC

PIANO PLAYING A. 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 1. Solos: Tapper, Sartorio, etc.

PIANO PLAYING B. Exercises for hand and arm control; thumb exercises, major scales, transposition of five-finger exercises, two- and

three-finger exercises. Studies: Streabog's Twelve Very Easy Studies, Czerny Anthology Vol. I. Solos: Graded Pieces, Grade II.

PIANO PLAYING C. Scales with different rhythms, one and two notes, 80 mm.; broken chords. Studies: Concone Twenty-four Melodious Studies; Tapper's Graded Studies, Grade III; Czerny Anthology, Vol. II. Solos: Beethoven, Heller, etc.

PIANO PLAYING D. 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.

PIANO PLAYING E. Lynnes 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 III. Classes in Musical History and Music Theory.

PIANO PLAYING F. 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. Classes in musical history and music theory.

VIOLIN MUSIC

The violin instruction will comprise the correct principles of violin playing. Solo playing will be encouraged and a class in orchestra playing will be a part of the regular study of violin pupils.

Registration for violin lessons will be regulated by the rules governing all musical instruction given at the school.

BAND INSTRUMENTS

Instruction in the various instruments, such as cornet, clarinet, trombone, etc., will be given.

NEW COURSES IN BUSINESS TRAINING

A course in Business Training will be offered to students attending the School of Agriculture beginning with the autumn semester, 1918. The purpose of these business subjects will be to train young women for office positions whereby they may be employed in some gainful occupation until they assume the management of a home of their own. These courses will be elective throughout the three years and they will, in all cases, only supplement the major work in Home Economics. Young men may also elect from this group. The program of subjects and their place in the curriculum is not definitely established. The course will include Stenography, Typewriting, Penmanship, Spelling, Business English, Dictation, Filing and Indexing, Commercial Law, Business Ethics, and Bookkeeping.

STUDENTS

1917-1918

ADVANCED—4

Bolstad, Clara, Floodwood
Keeler, Herbert, Chokio

Sinclair, Wayne, LaMoille
Pehl, Ralph, Campbell

SENIORS—17

Anderson, Stena, Belgrade
Brisbane, Gladys, Morris
Cummings, Kenneth, Dawson
Erdahl, Manford, St. Cloud
Erickson, George, Westport
Ferrell, Herbert, Morris
Hanson, Silas, Harmony
Larson, Julia, Lowry
Lilienthal, Hazel, Glenwood

Mahoney, Francis, Morris
Myrum, Agnes, Louisburg
Pearson, Victor, Grove City
Reisrud, Clara, Starbuck
Rolen, Harold, Clinton
Stotesbery, Lydia, Barry
Ulvestad, Johanna, Morris
Spalinger, Mary, Clinton

JUNIORS—33

Brisbane, Lowell, Morris
Cook, Perry, Donnelly
Dosen, Karen, Starbuck
Dripps, Allen, Morris
Erickson, Ethel, Nelson
Holtan, Joseph, Dawson
Halvorson, Roy, Kerkhoven
Hagestuen, Ida, Starbuck
James, Harold, Glenwood
Kerr, Isabell, Holloway
Larson, Arnold, Kensington
Larson, Earl, Clinton
Lindholm, Godfred, Ortonville
Madsen, Carl, Herman
Myrum, Viola, Louisburg
Mecklenberg, Dora, Nashua
Nord, Richard, Wolverton

Odden, Harold, Echo
Odden, Olga, Echo
Pushor, Kyle, Donnelly
Rolighed, Marvin, Appleton
Roiland, Tilman, Louisburg
Rolin, Vear, Breckenridge
Saterlie, Arthur, Appleton
Shaw, Curtis, Morris
Solvie, Otto, Hancock
Swenson, Alvin, Clinton
Stock, Carl, Kensington
Stegner, Wesley, Beardsley
Thompson, William, Glenwood
Thoen, Elmer, Dawson
Ulvestad, Ruth, Morris
Welfare, Edgar, Morris

FRESHMEN—118

Anderson, Esther, Morris
Anderson, Melvin, Milan
Anderson, Gustav, Belgrade
Anderson, Edwin, Alberta
Althoff, Alfred, Graceville
Berg, Carl, Chokio
Bjork, Oscar, Morris
Bloomquist, Alvin, Starbuck
Brownell, Dale, Granite Falls
Benson, Melvin, Hancock
Behl, Foster, Morris
Barsness, Clarence, Starbuck
Barsness, Sherman, Glenwood
Bode, Alfred, Echo
Clark, Morris, Paynesville
Carter, Harold, Eagle Bend
Crissy, Orville, Morris

Crissy, Raymond, Morris
Cook, Gladys, Chokio
Dare, Edward, Alberta
Dehne, Reuben, Holloway
Dosdahl, Henry, Hancock
Dolvin, Floyd, Boyd
Dell, Mildred, Hardwick
Dale, Selina, Dawson
Erdahl, Selmer, St. Cloud
Erickson, Hjalmer, Osakis
Erickson, Hilder, Glenwood
Evjen, Oscar, Starbuck
Eystad, Julius, Alberta
Eastman, Victor, Beardsley
Ecklund, Emma, Chokio
Ecklund, Joseph, Chokio
Evans, Emily, Correll

Fauskee, Ella, Brooten
 Farness, Lillian, Milan
 Feuser, Edward, Louisburg
 Fiene, Hugo, Echo
 Grindahl, Luella, Belgrade
 Hagestuen, Clarence, Starbuck
 Helgeson, Clarence, Dawson
 Hiland, Lucius, Colgan, N. D.
 Hovde, Brynjolf, Glenwood
 Halvorson, Lavina, Louisburg
 Harris, Fred, Carlos
 Hendrixon, Stella, Kensington
 Hoyum, Lillian, Dawson
 Howard, Myra, Minneapolis
 Jandt, Paul, Wendell
 Jerpseth, Sam, Madison
 Johnson, William, Kerkhoven
 Jensen, Jens, Morris
 Kolodgy, Louis, Donnelly
 Koosman, Gertrude, Correll
 Kleven, Alfred, Milan
 Kirkwold, Clayton, Glenwood
 Kampmeier, George, Alberta
 Koll, Ella, Hardwick
 Lerdahl, Edward, Cyrus
 Lewig, Laura, Nashua
 Leaf, Earl, Homer
 McDermond, Lyle, Bertrum
 Maxwell, Charles, Dawson
 Melin, Berger, Appleton
 Molenaar, Clarence, Raymond
 Marple, Lawrence, Wendell
 Madsen, Alice, Herman
 Nelson, Gust, Ortonville
 Mystuen, Reuben, Morris
 Norberg, Gladys, Kensington
 Nielson, Elenius, Morris
 Nelson, Jessie, Dawson
 Nelson, Marie, Starbuck
 Nordstrom, Lillian, Kensington
 Olson, Walter, Pennock
 Olson, William, Watson
 Ogdahl, Norman, Glenwood
 Olmiem, Edward, Starbuck
 Ostlund, Oscar, Hoffman
 Oldenberg, George, Montevideo
 Palmquist, Clarence, White Rock, S. D.
 Peterson, Norman, Starbuck
 Peterson, Leonard, Starbuck
 Peterson, Oselia, Starbuck
 Parks, Dorothy, Appleton
 Quam, Godeo, Glyndon
 Quitney, Anna, Lowry
 Rhode, Bernard, Maynard
 Rice, George, Renville
 Rike, Adolph, Echo
 Rime, Carl, Murdock
 Romo, Lawrence, Granite Falls
 Ross, William, Morris
 Rixe, Harry, Graceville
 Shervey, Jens, Watson
 Shoquist, Oscar, Clinton
 Skoien, Alvin, Dawson
 Stotesbery, Leslie, Barry
 Schaaf, Valentina, Murdock
 Shroeder, Clarence, Morris
 Stark, Charlotte, Kensington
 Sunde, Bernice, Herman
 Thissen, Philip, Raymond
 Thompson, Peter, Starbuck
 Thompson, Alice, Glenwood
 Thompson, Gladys, Starbuck
 Thompson, John, Glenwood
 Tjosvold, Orton, Granite Falls
 Tollefson, Alfred, Starbuck
 Torgelson, Elmer, Milan
 Thickle, Agnes, Hancock
 Thorstenson, Agnes, Milan
 Tibbets, Elden, Morris
 Volden, Alvin, Watson
 Weaver, Roy, Wendell
 Wenschlag, Herman, Clare City, S. D.
 Wenschlag, Robert, Clare City, S. D.
 Wendt, Leona, Hancock

23.

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

The School for Nurses
Announcement for the Year
1918 - 1919



Vol. XXI No. 9 June 5 1918

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Minneapolis, Minnesota

1918							1919														
JULY							JANUARY							JULY							
Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa	
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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	
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..	31	
SEPTEMBER							MARCH							SEPTEMBER							
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OCTOBER							APRIL							OCTOBER							
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NOVEMBER							MAY							NOVEMBER							
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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	
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..	30	
DECEMBER							JUNE							DECEMBER							
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15	16	17	18	19	20	21	15	16	17	18	19	20	21	14	15	16	17	18	19	20	
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29	30	31	29	30	28	29	30	31	
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UNIVERSITY CALENDAR

1918-1919

1918			
September	11	Wednesday	Registration closes except for new students
September	11-18	Week	Fees payable except for new students
September	17-24	Week	Examinations for removal of conditions and entrance examinations
September	23-24		Registration and payment of fees for new students
September	25	Wednesday	First semester begins
October	17	Thursday	Senate meeting, 4:00 p.m.
November	5	Tuesday	General Election Day; a holiday
November	20	Wednesday	Medical School second quarter begins
November	27	Wednesday	Thanksgiving recess begins 9:00 p.m.
December	2	Monday	Thanksgiving recess ends 8:00 a.m.
December	21	Saturday	Christmas vacation begins 12 m.
1919			
January	2	Thursday	Christmas vacation ends 8:00 a.m.
January	2	Thursday	School of Embalming begins
January	20	Monday	Second semester registration closes except for new students
January	27	Monday	Final examinations begin
January	27	Monday	Payment of second semester fees closes except for new students
January	31	}	Registration and payment of fees for new students
February	1		
February	3	Monday	Second semester begins
February	12	Wednesday	Lincoln's Birthday; a holiday
February	20	Thursday	Senate meeting, 4:00 p.m.
February	22	Saturday	Washington's Birthday; a holiday
March	31	Monday	Medical School fourth quarter begins
April	17	Thursday	Easter recess begins 9:00 p.m.
April	22	Tuesday	Easter recess ends 8:00 a.m.
April	22-28	Week	Condition examinations in certain colleges
May	15	Thursday	Senate meeting, 4:00 p.m.
May	23	Friday	Final examinations begin 2:00 p.m.
May	30	Friday	Memorial Day; a holiday
May	31	Saturday	Second semester closes
June	1	Sunday	Baccalaureate service
June	2	Monday	Senior Class Day exercises
June	4	Wednesday	Alumni Day
June	5	Thursday	Forty-seventh Annual Commencement
June	6	Friday	Summer vacation begins
June	16	Monday	Summer Session begins

The University year for 1919-20 will begin Tuesday, September 16.
Classes will begin September 24.

THE SCHOOL FOR NURSES

LOUISE M. POWELL, R.N., Superintendent

In the year 1909, the Board of Regents of the University of Minnesota directed the organization of the School for Nurses, under the management of the Faculty of the Medical School and in affiliation with the service of the University Hospitals. It is the first school for nurses established anywhere as a university department of instruction and under the University's direct ownership and control.

It is the purpose of the Faculty to conduct a school for the thorough scientific training of the nurse. This is best assured by the association of the School with a teaching hospital also owned and controlled by the University. It is the desire of the Faculty to make it the means of standardizing the education of women for the profession of nursing in the Northwest.

While its stated requirements for admission establish a minimal standard of fitness, it invites to matriculation women of superior education and of large and earnest purpose.

The School for Nurses is subject to the general supervision of the Superintendent of the University Hospitals, Dr. L. B. Baldwin, and is under the immediate direction of the Superintendent of the School, Miss Louise M. Powell, a directress of large institutional experience.

The entire course of study covers a period of three years. The first six months are devoted to preliminary courses of instruction under a special matriculation fee. These courses are conducted in several of the departments of the Medical School by the Superintendent of the School and by a corps of faculty instructors. Examinations are held at the close of this period and must be satisfactorily passed to permit of further advancement.

In the last two months of this period, admission is given to the hospital for practical training in hospital service and economics. Upon the successful completion of this preliminary course, and with due consideration of their general fitness, students are admitted to the full hospital service. In the succeeding two and one-half years, a graded system of hospital education is conducted, during which the student serves in the wards, diet kitchens, pharmacies, laboratories, dressing rooms, and operating rooms, and in the out-patient department and visiting service of the University Hospital. Courses of lectures, classes, and demonstrations are given by the Superintendent of the School and her assistants, and by members of the Faculty. At the close of each year examinations are conducted in both practical and didactic work.

THE MEDICAL SCHOOL

THE ADMINISTRATIVE BOARD

- MARION LEROY BURTON, Ph.D., D.D., LL.D., President
ELIAS P. LYON, Ph.D., M.D., Dean and Director of the Department of
Physiology
RICHARD OLDING BEARD, M.D., Assistant Dean and Secretary of the Medi-
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LOUIS B. BALDWIN, M.D., Superintendent of the University Hospitals
LEONARD G. ROWNTREE, M.D., Chief of the Department of Medicine
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JENNINGS C. LITZENBERG, M.D., Chief of the Department of Obstetrics
ARTHUR D. HIRSCHFELDER, M.D., Director of the Department of Pharma-
cology
HAROLD E. ROBERTSON, M.D., Director of the Department of Pathology,
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JULIUS P. SEDGWICK, M.D., Chief of the Department of Pediatrics
FRANK C. TODD, M.D., Chief of the Department of Ophthalmology and
Oto-Laryngology
EMIL S. GEIST, M.D., Member-elect Representing the Faculty; alternate,
ARTHUR C. STRACHAUER, M.D.
FREDERICK H. SCOTT, Ph.D., M.B., D.Sc., Member-elect Representing the
Faculty

THE SCHOOL FOR NURSES

CORPS OF OFFICERS AND INSTRUCTORS

- LOUISE M. POWELL, R.N., Superintendent of the School
MARION L. VANNIER, R.N., Instructor of Nurses
ELIZABETH PIERCE, R.N., Instructor of Nurses
GERTRUDE THOMAS, Dietitian and Instructor in Dietetics
-
- FRED L. ADAIR, M.D., Associate Professor of Obstetrics 730 LaSalle Bldg.
RICHARD OLDING BEARD, M.D., Assistant Dean, Secretary of the Medical
School, and Associate Professor of Physiology
University of Minnesota
FRANK S. BISSELL, M.D., Roentgenologist and Assistant Professor of
Roentgenology 4412 Harriet Blvd.
EDGAR D. BROWN, Phm.D., M.D., Associate Professor of Pharmacology
3525 3rd Ave. S.
*J. FRANK CORBETT, M.D., Associate Professor of Experimental Surgery

* On military service, 1918-19.

- CHARLES A. ERDMANN, M.D., Associate Professor of Applied Anatomy
612 9th Ave. S. E.
- ARTHUR S. HAMILTON, M.D., Professor of Nervous and Mental Diseases,
in charge of Division 406 Physicians' and Surgeons' Bldg.
- ERNEST M. HAMMES, M.D., Assistant Professor of Nervous and Mental
Diseases 1019 Lowry Bldg., St. Paul
- ARTHUR D. HIRSCHFELDER, M.D., Professor of Pharmacology and Director
of the Department 2364 Lake of Isles Blvd.
- HARRY G. IRVINE, M.D., Assistant Professor of Dermatology and Syphilis
601 Syndicate Bldg.
- CLARENCE M. JACKSON, M.S., M.D., Professor of Anatomy and Director
of the Department 436 S. E. Harvard St.
- WILLIAM H. KIRCHNER, B.S., Professor of Drawing and Descriptive
Geometry 722 10th Ave. S. E.
- WINFORD P. LARSON, M.D., Associate Professor of Bacteriology
516 9th Ave. S. E.
- *ARTHUR A. LAW, M.D., Associate Professor of Surgery
- JENNINGS C. LITZENBERG, M.D., Professor of Obstetrics and Chief of the
Department 910 Donaldson Bldg.
- ELIAS P. LYON, Ph.D., M.D., Dean, Professor of Physiology and Director
of the Department 421 S. E. Union St.
- JOHN S. MACNIE, M.D., Assistant Professor of Ophthalmology and Oto-
Laryngology 310 Donaldson Bldg.
- JAMES E. MOORE, M.D., Professor of Surgery and Chief of the Depart-
ment 2200 Kenwood Pkwy.
- WILLIAM R. MURRAY, M.D., Associate Professor of Ophthalmology and
Oto-Laryngology 309 Physicians' and Surgeons' Bldg.
- J. ANNA NORRIS, M.D., Director of Physical Culture 509 S. E. 6th St.
- CHAUNCEY J. V. PETTIBONE, Ph.D., Assistant Professor of Physiologic
Chemistry 611 S. E. Delaware St.
- WALTER R. RAMSEY, M.D., Associate Professor of Pediatrics
942 Lowry Bldg., St. Paul
- *CHARLES A. REED, M.D., Assistant Professor of Orthopedic Surgery
420 Syndicate Bldg.
- ERNEST T. F. RICHARDS, M.D., C.M., Assistant Professor of Medicine
741 Lowry Bldg., St. Paul
- HARRY P. RITCHIE, M.D., Assistant Professor of Surgery
914 Lowry Bldg., St. Paul
- *HAROLD E. ROBERTSON, M.D., Professor of Pathology and Director of
the Department University of Minnesota
- JOHN P. SCHNEIDER, M.D., Assistant Professor of Medicine
414 Syndicate Bldg.
- FREDERIC W. SCHLUTZ, M.D., Assistant Professor of Pediatrics
820 Donaldson Bldg.
- FREDERICK H. SCOTT, Ph.D., M.B., D.Sc., Associate Professor of Physi-
ology 1307 S. E. 6th St.

* On military service, 1918-19.

- JULIUS PARKER SEDGWICK, M.D., Professor of Pediatrics and Chief of the Department 614 Syndicate Bldg.
 ARTHUR C. STRACHAUER, M.D., Assistant Professor of Surgery 412 Syndicate Bldg.
 *FRANK C. TODD, M.D., Professor of Ophthalmology and Oto-Laryngology, and Chief of the Department 808 Mary Place
 HENRY L. ULRICH, M.D., Assistant Professor of Medicine 408 Syndicate Bldg.
 *S. MARX WHITE, M.D., Professor of Medicine 910 Donaldson Bldg.
-
- ANNE H. BENTON, B.A., Instructor in Bacteriology and Pathology 2024 Queen Ave. S.
 HOWARD S. CLARK, M.D., Instructor in Ophthalmology and Oto-Laryngology 616 Syndicate Bldg.
 WILLIAM H. CONDIT, M.D., Instructor in Obstetrics and Gynecology 2205 Kenwood Pkwy.
 CHARLES R. DRAKE, M.D., Instructor in Medicine 600 Physicians' and Surgeons' Bldg.
 OLGA S. HANSEN, M.D., Instructor in Medicine 910 Donaldson Bldg.
 JAMES A. JOHNSON, M.D., Instructor in Surgery 420 Syndicate Bldg.
 MAY S. KISSOCK, B.A., Instructor in Physical Culture
 JOHN C. MCKINLEY, B.S., Instructor in Pathology 2423 Irving Ave. S.
 FRED J. PRATT, M.D., Instructor in Ophthalmology and Oto-Laryngology 328 E. Hennepin Ave.
 ROBERT I. RIZER, M.D., Instructor in Medicine 219 Meyers' Arcade
 MARION A. TEBBETS, Director of Department of Social Service Glen Lake, Minn.
 MARGARET WARWICK, M.D., Instructor in Pathology and Bacteriology 1516 S. E. 7th St.
 FREDERICK W. WITTICH, M.D., Instructor in Medicine 1042 Metropolitan Bank Bldg.
 WILLIAM A. GREY, D.D.S., Research Assistant in Mouth Infections
 ERNEST S. MARIETTE, M.D., Assistant in Medicine Glen Lake Sanitorium
 ROY E. ST. CLAIR, B.A., Assistant in Anatomy 423 S. E. Oak St.

THE UNIVERSITY HOSPITALS

The ownership of a teaching hospital enables the University to offer the best opportunities for the training alike of students in medicine and in nursing.

While the University Hospitals and the School for Nurses are interdependent, each serving the interests of the other, the Faculty regards the hospitals as the teaching laboratory of the nurse, in which her interests, together with those of the medical student-body, are first considerations.

* On military service, 1918-19.

The number of pupil nurses entered is limited, at present, by the nursing capacity of the hospitals and by the possibilities of suitable housing. Applicants for admission are already in excess of the possibilities of acceptance. Graduate nurses are necessarily employed as directors of the service in the wards and operating rooms.

The University Hospitals are open to free patients who are entered under certificate from local, city, or county physicians, who vouch for their inability to pay ordinary medical fees or hospital charges and who cite the clinical character of each case. Applications come from all parts of the state for the admission of patients, many of whom it is impossible to care for. The hospitals now provide 192 beds, which are almost continually full.

A service building with modern equipment of kitchens, laundries, dining-rooms, etc., adds greatly to the convenience of the hospital system.

UNIVERSITY RELATIONS

The School for Nurses has its headquarters at the University Hospitals. The Nurses' Homes are temporarily situated on the adjoining campus. In the preliminary courses of instruction the students of the School work mainly in the lecture rooms and laboratories of the Medical School.

The medical division of the new university campus includes within it both the hospitals and the laboratory buildings of the Medical School. It occupies the high bluffs overlooking the east bend of the Mississippi River.

The Elliot Memorial Building stands upon the bank of the river and commands a beautiful prospect. This building, provided principally by a gift from the estate of Dr. and Mrs. A. F. Elliot, is the first of the permanent hospital group. The service building connects with the west wing of the Elliot Memorial.

Of the Medical School buildings, Millard Hall and the Institute of Anatomy are situated on the new campus; while upon the old campus still remains the Institute of Public Health and Pathology.

THE OUT-PATIENT DEPARTMENT SERVICE

The Dispensary is the out-patient department of the University Hospitals and is directed by the Superintendent, Dr. L. B. Baldwin. It is conveniently located in Millard Hall in the block adjoining the Hospital. It is manned by members of the Faculty and clinical assistants, under a chief of staff. Its patients are assigned to medical, surgical, gynecological, obstetrical, children's, eye and ear, nose and throat, skin, genito-urinary, nervous and mental, and orthopedic clinics. Fifteen thousand, eight hundred and thirty new patients have been entered and 55,997 visits have been recorded in the past year.

Students of the School for Nurses enjoy opportunities of clinical observation in the out-patient department and are assigned, during their junior and senior years, to its nursing service.

THE LIBRARIES

The medical libraries of the University contain 15,850 bound volumes, 32,859 unbound volumes, monographs, reprints, etc., and 185 current periodicals.

The general University Library contains some 230,842 bound volumes, 52,250 unbound volumes and pamphlets, and about 1,209 current periodicals. In the library catalogs a number of works selected with reference to the needs of students of the School for Nurses are to be found. Students are welcome to the free use of these libraries.

THE COURSE OF TRAINING

REQUIREMENTS FOR ADMISSION

Applicants for admission to the School for Nurses will make application in writing to the Superintendent of the School. Blanks will be furnished on request. Educational credentials are to be sent to the Registrar. All applications are considered by the committee in charge of the School and applicants must meet the committee in person. A class is entered at the opening of each semester.

When a registration card is received by the applicant, it should be forwarded to the Superintendent of the School. Notice of the enrollment meetings of the Committee of the School for Nurses will be sent to each applicant.

Applicants must state age and residence and credentials of graduation from a four-years' high school of the first grade. While a high-school diploma is a prerequisite of admission, preference will be given to women of superior preliminary training. Applicants must not be less than twenty, nor more than thirty-five years of age. They must submit satisfactory evidence to the committee of physical and mental fitness and of good character, and will undergo a general physical examination by the school physician.

All matriculants are required to take the preliminary course of instruction and to pass examinations at its close. The period is one, not only of preliminary training, but of probation. The Faculty reserves the right to pass upon the general fitness of the student to enter the hospital service at the close of the preliminary period.

Information and application blanks may be had, upon request, of Miss Louise M. Powell, Superintendent of the School for Nurses, University Hospitals, Minneapolis.

REGISTRATION AND FEES

Upon acceptance of the candidate by the School Committee, registration is made at the office of the Registrar of the University, and a fee of twenty-five dollars (\$25.00) for the preliminary course of instruction is payable at the office of the University Cashier.

During the preliminary course, students provide their own board and lodging, textbooks and stationery.

No fees are charged during the remaining two and one-half years of the training course. After admission to the hospitals, students reside at the Nurses' Home, where rooms, board, laundry, and hospital uniforms are provided at the expense of the University. Clothing, other than the hospital uniform-dress, students provide for themselves and in character and sufficiency of supply it must conform to the school regulations.

A vacation of two weeks is allotted, in succession, to each nurse in each year, 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 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 other schools, is submitted to the Superintendent in charge.

PLAN OF INSTRUCTION

The entire course of instruction in the School for Nurses covers a period of three years and, successfully pursued, conformably with the rules and regulations of the hospital service, leads to the degree of Graduate in Nursing, which is conferred, upon recommendation of the Faculty, by the Board of Regents of the University of Minnesota.

The first half of the first year is devoted to preliminary and probational courses of instruction.

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 hospital. 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 each year is accompanied by courses of lectures and demonstrations, conducted by the Superintendent of the School for Nurses and by members of the Faculty upon subjects related to each department of practice.

AFFILIATED SCHOOLS

Students from affiliated training schools, or from schools 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 for Nurses 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 of graduation, upon recommendation of the Faculty, from the Board of Regents.

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.

PRELIMINARY COURSES OF INSTRUCTION

SCIENTIFIC COURSES

ANATOMY

- 1a,b. **ELEMENTARY ANATOMY.** The general properties and development of tissue cells; and the development of the human embryo. The description and demonstration of the osseous, muscular, nervous, circulatory, respiratory, excretory, and reproductive systems. Three hours a week. JACKSON, ST. CLAIR.

PHYSIOLOGY

- 3a,b. **ELEMENTARY PHYSIOLOGY.** The 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. Seven hours a week. BEARD or LYON.

CHEMISTRY

- 51a,b. **ELEMENTARY CHEMISTRY.** A brief study of matter and energy; of chemical and physical changes; the fundamental laws of chemistry; chemical elements and compounds; the qualitative and quantitative composition of foods, air, and water. Two hours a week. COHEN.

PHARMACOLOGY

- 1a,b. **ELEMENTARY PHARMACOLOGY.** A study of the history, uses, classification and preparation of drugs; definition of descriptive terms; systems of weights and measures; methods of administration, principles of dosage, etc. Three hours a week. BROWN.

BACTERIOLOGY

- 6a,b. **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. Five hours a week. LARSON, BENTON, MCKINLEY, HERMANN.

PRACTICAL COURSES

PHYSICAL CULTURE

- 7a,b. A course of physical exercises for the personal development of the student, especially directed to the training of the nurse in the adaptation of her movements to the best results in her practical work. Three hours a week. NORRIS, KISSOCK.

LETTERING

- 9a,b. **EXERCISES IN LETTERING.** For training the nurse in the making of records and the charting of clinical observations; the accurate form-

ing of letters in plain architectural type, and of special clinical characters. One hour a week. KIRCHNER.

PRINCIPLES OF NURSING

- 11a,b. THE PRINCIPLES OF NURSING. A study of the personal and professional needs of the nurse; the essentials of conduct in her professional relations. The history, principles and ethics of nursing. The personal hygiene of the nurse. Three hours a week. POWELL.

HOSPITAL ECONOMY

- 13a,b. A STUDY OF HOSPITALS. The general principles of hospital and household economy applied to the practice of nursing. A study of types of hospital buildings; construction, heating, lighting, plumbing; equipment and operation of laundry, linen and serving rooms; general and special kitchens; wards and special departments; cost and care of hospital supplies; household chemicals. Two hours a week. POWELL.

PRACTICAL DIETETICS

- 15a,b. FOOD STUFFS. A course of practical exercises and lectures upon foods; their definition, classes, form; food values; food composition; energy values; caloric index; selection of dietaries; balanced rations; market conditions. One hour a week. THOMAS.
- 17a,b. THE PREPARATION OF FOOD. 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. Three hours a week. THOMAS.

PRACTICAL NURSING

- 21-37. Courses of lectures, demonstrations, and practical exercises. Five hours a week. VANNIER.
- 21a,b. THE ENVIRONMENT OF THE PATIENT; the care of the room or ward; of service room, bath and lavatory; of the serving room; the linen room; the bed and bedding; the detail of bed making.
- 23a,b. THE ADMISSION AND GENERAL CARE OF THE PATIENT; the bed, bath, and toilet; the preparation of the patient for the night; the prevention of bed-sores, stiffness, and cramping of muscles; care of mouth, teeth, and hair; special devices for comfort.
- 25a,b. OBSERVATION OF THE PATIENT; how and what to observe; temperature, pulse, respiration; observation of feces, urine, sputum, and vomites.
- 27a,b. THE EXAMINATION OF THE PATIENT; the preparation for routine examinations; method of assisting examiner; the doctor's order book; the value of the bedside record; the detail and technique of record.

- 29a,b. METHODS AND MECHANISMS OF TREATMENT; the preparation of solutions; the application of heat and cold; counter irritants; the use of enemata; the vaginal douche; catheterization; lavage; gavage; expression of stomach contents.
- 31a,b. BATHS FOR THERAPEUTIC PURPOSES; the reduction of temperature; sedative baths; baths and packs to produce sweating; local baths; medicated baths.
- 33a,b. THE PREPARATION OF PATIENTS FOR OPERATION; details of preparation; the ether bed; post-operative care of patient.
- 35a,b. MEDICINES; the medicine case; medicine trays; system of giving medicines; method of preparing and giving hypodermic injections; method of giving inhalations; method of giving drugs by inunction.
- 37a,b. INFECTIOUS DISEASES; precautions of care; details of disinfection; the care of typhoid fever cases; venereal diseases; preparation of rooms for fumigation.

HOSPITAL TRAINING

Students who have successfully completed the preliminary courses of the first six months are regularly entered in the hospital service. In addition to their hospital duties, which employ fifty-six hours each week, they will attend courses of lectures, demonstrations, and recitations upon subjects in general medicine and surgery and in special branches of practice related to their professional work. These courses include the study of practical dietetics and of advanced problems in household and hospital economics.

UNDERGRADUATE COURSES

HYGIENE AND PUBLIC HEALTH

- 39a,b. HOUSEHOLD HYGIENE; the dwelling, its location, site; lighting, plumbing, heating, ventilation; disposal of waste.
- 41a,b. SCHOOL HYGIENE; the sanitation of school buildings; the health inspection of school children; the duties of school nurses.
- 43a,b. THE HYGIENE OF FOODS; the conditions of food supply; the principles of food preparation; the preservation and adulteration of foods; food inspection laws.
- 45a,b. INDUSTRIAL HYGIENE; the sanitary conditions of employment; the study of industrial diseases and of occupational dangers; the principles of industrial betterment.
- 47a,b. THE HYGIENE OF THE COMMUNITY; the regulation of food, drug, and clothing supplies; the disposal of waste materials; the suppression of public nuisances; the control of offensive trades; the prevention and control of communicable diseases. Twenty hours.

ELEMENTS OF PATHOLOGY

- 49a,b. THE PRINCIPLES OF PATHOLOGY; and the deviation from the normal in the more common diseases. A brief consideration of the normal and pathologic blood and excretions of the body. Twenty hours.

MEDICAL NURSING

- 51a,b. DISEASES OF CIRCULATORY SYSTEM AND BLOOD. Diseases of the heart; pericarditis, endocarditis, myocarditis; hypertrophy and dilatation. Diseases of the blood-vessels; arteriosclerosis, angina pectoris; aneurism; apoplexy; phlebitis. Diseases of the blood; anemia; leukemia.
- 53a,b. GENERAL NURSING MEASURES. Diet, drugs, rest; appliances for comfort. Observation of symptoms. Taking and recording pulse. Recording intake and output of fluids. Treatment of emergencies. Demonstration of enteroclysis. Weight and temperature. Fresh air treatment. Preparation for transfusion.
- 55a,b. DISEASES OF THE URINARY TRACT. Nephritis and complications. Cystitis.

- 57a,b. GENERAL NURSING MEASURES. Discussion of diet; observation of symptoms; technique of collecting specimens. Demonstration exercises; treatment with packs; function tests; blood pressure tests; preparation for phlebotomy and venipuncture; bladder irrigation.
- 59a,b. DISEASES OF RESPIRATORY SYSTEM. Laryngitis; bronchitis; bronchial asthma; bronchial pneumonia. Lobar pneumonia and complications. Pleurisy; empyema; emphysema.
- 61a,b. NURSING CARE. Isolation and disinfection; prevention of infection. Methods of observing and saving sputum. Fresh air treatment. Methods of reducing temperature; packs. Methods of pain relief. Inhalation. Counter irritants. Preparation for aspiration. Dietary.
- 63a,b. DISORDERS OF DIGESTIVE SYSTEM. Pyorrhea; stomatitis; ptyalism. Gastritis; gastric and duodenal ulcer. Carcinoma of stomach. Diarrhoea; constipation; colitis.
- 65a,b. GENERAL NURSING METHODS. Study of oral hygiene; significance of disease; methods of care of mouth. Test meals; lavage; expression of stomach contents. Duodenal catheterization. Abdominal massage. Colon irrigation. Description of stools. Charting. Discussion of diet.
- 67a,b. DISEASES OF LIVER. Cholecystitis. Cirrhosis of liver.
- 69a,b. GENERAL NURSING CARE. Observation of symptoms. Preparation for abdominal paracentesis.
- 71a,b. DISORDERS OF METABOLISM. Diabetes; obesity. Acute articular rheumatism; arthritis deformans; G. C. arthritis.
- 73a,b. NURSING CARE. Accurate collection of specimens. Study of dietary. Measures of comfort for rheumatics. Bier's hyperemia; massage; dental treatment. Vaccines.
- 75a,b. MEDICAL EMERGENCIES. Heat prostration; sunstroke. Cases of poisoning. Fainting.
- 77a,b. NURSING MEASURES IN TREATMENT OF EMERGENCIES.
Courses 51 to 77 cover a period of 32 hours.

TUBERCULOSIS

- 79a,b. STUDY OF TUBERCULOSIS. Cause, prevalence, curability. Classification; tissues and organs involved. Emergencies. Treatment in home and sanatorium. Prevention of tuberculosis. Practical demonstration in sanatorial visits. Five hours.
- 81a,b. CARE OF TUBERCULOSIS. Prevention of infection. Treatment of emergencies; hemoptysis. Fresh air treatment; out-of-door sleeping. Dietary; rest; exercise. Five hours.

COMMUNICABLE DISEASES

- 83a,b. INFECTIOUS AND CONTAGIOUS DISEASES. Typhoid fever. Typhus. Dysentery. Hookworm. Malaria. Yellow fever. Smallpox. Influenza. Mumps. Tetanus. Rabies. Social, economic, and educational factors in the prevention and treatment of communicable diseases. Six hours.
- 85a,b. GENERAL MEASURES. Precautions for protection of nurse and public. Prevention of spread. Special care of room and patient. Measures for destruction of insects. Board of Health regulations concerning communicable diseases. Three hours.
- 87a,b. NURSING CARE. Case charting. Dietary. Bathing; sponge baths; pack baths. Colon irrigation. Technique of vaccination. Pasteur treatment of rabies. Care of patient in convulsions. Emergency treatment of infected wounds. Three hours.

SURGICAL NURSING

89. THE CARE OF SURGICAL CASES; anesthesia and anesthetics. Surgical emergencies; inflammation; wounds; hemorrhage; shock; burns; fractures; dislocations. Surgical infections; toxemia; wound infections; erysipelas, gangrene, etc.; surgical tuberculosis; plastic surgery; orthopedics. Sixteen hours.
91. SPECIAL SURGICAL CONDITIONS; the stomach; carcinoma, gastric ulcer; the liver and gall tract; abscess, gall-stones, etc.; the intestines: appendicitis, obstruction, etc.; the kidneys and bladder; the uterus and appendages; the brain. Sixteen hours.
93. BANDAGING. Demonstrations and practical exercises in the uses and methods of application of bandages of all forms. Ten hours.

GYNECOLOGY

95. GYNECOLOGICAL NURSING; 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. Twelve hours.

OBSTETRICS

97. OBSTETRICAL NURSING; 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; complications; post-partum hemorrhage, puerperal fever, puerperal convulsions, puerperal insanity. Fourteen hours.

NURSING OF INFANTS AND CHILDREN

99. THE NORMAL CHILD; conditions of growth and development; breast feeding; artificial feeding; mixed feeding; preparation of foods in laboratory; general care and nursing.

100. GENERAL DISEASES OF CHILDREN. Stomatitis, marasmus, rachitis, syphilis. Gastro-intestinal disorders; parasitic diseases; disorders of genito-urinary tract. Tuberculosis in children. Rheumatism; tonsillitis; chorea; cardiac complications. Bronchitis; pneumonia; pleurisy; empyema. Surgical conditions in children.
101. CONTAGIOUS DISEASES. Diphtheria; scarlet fever; smallpox; chicken pox; whooping cough; measles; mumps; meningitis; polio-myelitis. Thirty-two hours.

NERVOUS AND MENTAL DISEASES

104. 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. Ten hours.

DISEASES OF THE EYE, EAR, NOSE, AND THROAT

106. THE EYE, EAR, NOSE, AND THROAT; their anatomy and physiology. The general and local care of diseases; instruction in applications to the eye; douches and other remedies to the ear, nose, and throat. Recognition and care of foreign bodies in eye, ear, nose, and throat. The use of artificial and ordinary leech. The prevention and treatment of ophthalmia neonatorum. Preparation for operation and care after operation. Ten hours.

MASSAGE

- 107a,b. TRAINING IN MASSAGE. A course of training 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. Twenty-four hours.

DISEASES OF THE SKIN

108. THE NURSING CARE OF THE SKIN; a course upon methods of treatment of disorders of the skin of general occurrence. Ten hours.

THE DIETETIC TREATMENT OF DISEASE

110. THE DIETARY OF DISEASE. The conditions of digestion and metabolism in disease; the influence of age and sex; the relation of food and water supply to functional inactivity, tissue loss, and elimination.
112. THE DIETETIC TREATMENT OF SPECIAL DISEASES; the dietary of continued fevers; gastro-intestinal disorders; respiratory disorders; disorders of nutrition; renal diseases, cardiac disorders and diabetes. Eight hours.

SCHOOL FOR NURSES

SPECIAL THERAPEUTICS

114. 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. Six hours.

INVALID OCCUPATIONS

- 115a,b. OCCUPATIONAL TREATMENT; lectures, demonstrations, and practical exercises designed to teach nurses typical methods of occupation for invalids and, especially, for children. Elective in the third year. Twenty-four hours.

SPECIAL TOPICS

Arrangements will be made, from time to time, for formal lectures upon special topics, to be delivered by available lecturers of large institutional and educational experience, to which the students of the training schools of the Twin Cities will be invited.

STUDENTS

GRADUATES

Ames, Margaret (Mrs. Samuel Anderson), Hutchinson
Anderson, Ruth E., R.N., Houston
Angle, Maude E. F., R.N., Minneapolis
Babcock, Lana, R.N., Minneapolis
Baudin, Jane E., R.N., Duluth
Berg, Esther L., R.N., Duluth
Bertie, Mildred L., R.N., (Mrs. H. T. Woltmann), Minneapolis
Brockway, Mary G., R.N., Royalton
Burns, Elizabeth C., R.N., Graceville
Chaffee, Bessie C., R.N., Detroit
Colberg, Ruth M., R.N., St. Paul
Cornish, Mary E., R.N., Vernon Center
Covert, Emily C., R.N., Billings, Mont.
Curry, Marie M., R.N., (Mrs. L. A. Calkins), Minneapolis
Dunn, Margaret, R.N., Windom
Fleming, Agnes, R.N., Minneapolis
Gosman, Anna, R.N., Minneapolis
Greenwalt, Dorothy, R.N., Withrow
Hasle, Eva, R.N., Park River, N. D.
Hayashi, Fuku, R.N., Kyoto, Japan
Hollo, Myrtle M., Ph.B., R.N., Marshall
Hulett, Florence G., R.N., Minneapolis
Joach, Celia E., R.N., New Prague
Johnson, Alma D., R.N., Minneapolis
Jorstad, Esther O., R.N., Kenyon
Knutson, Mabel A., R.N., Fertile
Lemstrom, Bera, R.N., Minneapolis
Lindquist, Signa, R.N., Minneapolis
Madsen, Christenia A., R.N., Minneapolis
Manger, Caroline A., R.N., McIntosh
Mark, Mary E., R.N., St. Peter
Marvin, Mary M., R.N., Zumbrota
Moore, Mabelle H., R.N., Austin
Moulton, Myra D., R.N., Dawson
Nightingale, Mary M., R.N., Minneapolis
Ofsthun, Olive I., R.N., (Mrs. Arthur Fretland), Glenwood
Price, Katherine A., Minneapolis
Redpath, Mary, R.N., La Crosse, Wis.
Rosenthal, Cecilia A., R.N., St. Paul
Runnerstrom, Elva, Waseca
Schwarg, Carolyn, R.N., Dodge Center
Schlutz, Mathilda, R.N., New Richland
Selleseth, Ellen A., R.N., Glenwood
Skonnard, Olga B., R.N., Minneapolis
Smitka, Ella M., R.N., Minneapolis
Stewart, Lena B., R.N., (Mrs. Ralph Williams), Minneapolis
Swenson, Mathilda E., R.N., Crookston
Thompson, Barbara, R.N., Glenwood
Thompson, Lena, R.N., Enderlin, N. D.
Waters, Vera, R.N., Beatrice, Nebraska
Watland, Annie M., R.N., Jackson
Winter, Clara, R.N., (Mrs. Arthur Stevens), Minneapolis
Vollbrecht, Agnes E., R.N., Hanover
Vos, Katherine, R.N., Minneapolis

THIRD YEAR

Adams, Marjorie, B.A., Fergus Falls
Andreason, Esther, Valley City, N. D.
Bjeldanes, Ragnhild, Madison
Corliss, Ione, St. Paul
Flinn, Irma, B.A., Minneapolis
Fryckman, Hazel, Minneapolis
Garry, Lucile, Minneapolis
Hilmen, Amanda, Crookston
Johnson, Inez, Mayville, N. D.
Kurtzman, Mrs. D., Minneapolis
Larsen, Effie, LaCrosse, Wis.
Maguire, Inalane, Excelsior
Ostergren, Alice, St. Paul
Rood, Augusta, Minneapolis
Schey, Jennie, Sedan
Semling, Mabel, Ada

SECOND YEAR

Anderson, Francis, Buffalo
Bowser, Martha, Kettle Falls
Burmeister, Milre, Mankato
Curry, Vernie I., B.A., Minneapolis
Hanson, Olga, Glen Flora, Wis.
Haupt, Alma, B.A., St. Paul
Hilbert, Hortense, B.A., Albany
Joach, Hetty, New Prague
Johnson, Esther V., New Richland
Johnson, Mabel E., Waseca
Jones, Anna, B.A., Minneapolis
Larson, Anna, St. Paul
Lough, Alice, Jordan
Lund, Nora, Glenwood
Magnus, Edna, Glen Flora, Wis.
McIver, Pearl, Lowry
Olson, Luella, Mankato
Ouren, Selma, Hanska
Peterson, Dora, Frost
Saeter, Martha, Fosston
Smitka, Helen, Minneapolis
Warner, Florence, Minneapolis

SCHOOL FOR NURSES

FIRST YEAR

Batchelder, Kathryne C., A.B., M.A., Faribault	Hunt, Helen, Vashti, N. D.
Blain, Gleva L., Redfield, S. D.	Kuester, Edna V., Redwood Falls
Brubaker, Bertha, St. Paul	McLeod, Lucile, Slayton
Campbell, Loneta M., St. Charles	Proshok, Antoinette, New Prague
Crane, Olive B., Garvin	Phillips, Lorena I., Northfield
Christenson, Inga S., New Richland	Tilden, Helen M., St. Paul
Larsen, Mabel J., B.S., Cooperstown, N. D.	Tompkins, Helen I., Mankato
	Townsley, Laurine, Minneapolis
	Wedge, Ruth A., Zumbrota

PRELIMINARY STUDENTS

Andrews, Millie B., Ph.B., Hubbard, Iowa	Gasmann, Mary, Minot, N. D.
Briggs, Joyce, St. Paul	Holzheid, Florence B., White Bear Lake
Clarke, Edna A., Moscow, Idaho	Huderle, Edna B., Hector
Doolittle, Alice T., Minneapolis	Lutes, Marion, Duluth
Drolet, Grace D., Duluth	Nelson, Lucille M., Hector
	Urstad, Marie, Kiester

ACCREDITED NURSES

Carter, Nina B., Hill Crest Surgical Hospital, Minneapolis	King, Mary, Naeve Hospital, Albert Lea
Dahlgren, Edna P., Red Wing City Hospital, Red Wing	Larson, Hanna, Naeve Hospital, Albert Lea
Hagerson, Gertrude M., Naeve Hospital, Albert Lea	Nelson, Ellen, Red Wing City Hospital, Red Wing
Heaton, Isabel G., St. Mary's Hospital, Rochester	Nolan, Nettie M., St. Mary's Hospital, Rochester
Imsdahl, Inga, Warren Hospital, War- ren	Pank, Anna M., St. John's Hospital, Red Wing
Kerkow, Helene A., Naeve Hospital, Albert Lea	Schaefer, Elsie H., Winona General Hospital, Winona
	Stack, Merle I., Hill Crest Surgical Hospital, Minneapolis

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

General Extension Division
Announcement of Evening Courses
1918-1919



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CALENDAR

1918-1919

1918

September	23-28	Week	Registration week
September	27	Friday	Annual opening of Extension Courses, 8:15 p.m. St. Paul
September	28	Saturday	Annual opening of Extension Courses, 8:15 p.m. Minneapolis
September	30	Monday	Regular class work begins
November	28	Thursday	Thanksgiving holiday
December	21	Saturday	Christmas recess begins
December	30	Monday	Class work resumed

1919

January	20-24	Week	Examination week, first semester
January	24	Friday	First semester ends
February	3	Monday	Second semester begins
February	3	Monday	Merchants' Short Course begins
May	19-23	Week	Examination week, second semester
May	23	Friday	Second semester ends

GENERAL EXTENSION DIVISION

FACULTY

MARION LEROY BURTON, Ph.D., D.D., LL.D., President

CYRUS NORTHROP, LL.D., President Emeritus

RICHARD R. PRICE, M.A., Director of University Extension

JOHN R. ALLEN, M.E., Dean of the College of Engineering and Architecture, Professor of Mechanical Engineering

LOTUS D. COFFMAN, Ph.D., Dean of the College of Education, Professor of Education

JOHN B. JOHNSTON, Ph.D., Dean of the College of Science, Literature, and the Arts, Professor of Comparative Neurology

WILLIAM R. VANCE, Ph.D., LL.D., Dean of the Law School, Professor of Law

FRANCIS B. BARTON, Ph.D., Assistant Professor of Romance Languages

EMMET L. BENNETT, M.A., Secretary of Municipal Reference Bureau

GISLE BOTHNE, M.A., Professor of Scandinavian Languages and Literatures

WILLIAM E. BROOKE, B.C.E., M.A., Professor of Mathematics and Mechanics

CARLETON BROWN, Ph.D., Professor of English

OSCAR C. BURKHARD, Ph.D., Assistant Professor of German

RICHARD BURTON, Ph.D., Professor of English

ALVIN S. CUTLER, C.E., Assistant Professor of Railway Engineering

JAMES DAVIES, Ph.D., Assistant Professor of German

JOHN D. DODSON, Ph.D., Instructor in Psychology

JOHN F. EBERSOLE, M.A., Professorial Lecturer in Economics

OLIVER C. EDWARDS, M.E., Assistant Professor of Mechanical Engineering, General Extension Division

DANIEL FORD, M.A., Assistant Professor of Rhetoric

JAMES H. FORSYTHE, M.A. in Arch., Assistant Professor of Architecture

JULES T. FRELIN, B.A., Assistant Professor of Romance Languages

ROBERT W. FRENCH, B.S., Assistant Professor of Drawing

JOHN S. GARNES, B.A., Instructor in Story Telling, General Extension Division

CYRIL A. HERRICK, B.A., Instructor in Rhetoric

STANLEY B. HOUCK, LL.M., Instructor in Business Law, General Extension Division

ALBERT E. JENKS, Ph.D., Professor of Anthropology

ALFRED E. KOENIG, M.A., Dr. Theol., Assistant Professor of German

AUGUST C. KREY, Ph.D., Associate Professor of History

LEE KUEMPEL, Instructor in Railroad Traffic and Rates, General Extension Division

EDWARD M. LEHNERTS, M.A., Assistant Professor of Geography, General Extension Division

ALBERT J. LOBB, LL.B., Ph.B., Lecturer in Political Science

RUPERT C. LODGE, M.A., Assistant Professor of Philosophy

FRANKLIN R. McMILLAN, C.E., Assistant Professor of Structural Engineering

GEORGE A. MANEY, C.E., M.S., Instructor in Civil Engineering

FREDERICK M. MANN, M.S. in Arch., C.E., Professor of Architecture

JOHN V. MARTENIS, M.E., Assistant Professor of Mechanical Engineering

MAC MARTIN, Professorial Lecturer in Advertising, General Extension Division

WALTER R. MYERS, Ph.D., Assistant Professor of German

MORTON M. NEWCOMB, B.A., Instructor in Business Management, General Extension Division

CHARLES W. NICHOLS, Ph.D., Assistant Professor of Rhetoric

EVERETT W. OLNSTED, Ph.D., Professor of Romance Languages

JOSEPH PETERSON, Ph.D., Assistant Professor of Psychology

CHARLES H. PRESTON, B.A., Associate Professor of Business Administration, General Extension Division.

ALBERT W. RANKIN, B.A., Professor of Education

FRANK M. RARIG, M.A., Associate Professor of Rhetoric and Public Speaking

WILLIAM H. RICHARDS, Instructor in Carpentry and Pattern Work

CLARE L. ROTZEL, B.C.S., C.P.A., Associate Professor of Accounting, General Extension Division

FRANK B. ROWLEY, M.E., Assistant Professor of Experimental Engineering

MARTIN B. RUUD, Ph.D., Instructor in Rhetoric

WILLIAM T. RYAN, E.E., Assistant Professor of Electrical Engineering

CHARLES A. SAVAGE, Ph.D., Professor of Greek

COLBERT SEARLES, Ph.D., Professor of Romance Languages

GEORGE D. SHEPARDSON, D.S., Professor Electrical Engineering

CHARLES F. SHOOP, B.S., Assistant Professor of Experimental Engineering

ANDREW A. STOMBERG, M.S., Professor of Scandinavian Languages and Literatures

FLETCHER H. SWIFT, Ph.D., Professor of Education

JOSEPH M. THOMAS, Ph.D., Professor of Rhetoric

HUBERT M. TURNER, B.S., Instructor in Electrical Engineering

PERCIVAL W. VIESSELMAN, M.A., LL.B., Instructor in Political Science

HOWARD T. VIETS, M.A., Instructor in Business English

NORMAN WILDE, Ph.D., Professor of Philosophy and Psychology

HERBERT WOODROW, Ph.D., Associate Professor of Psychology

JEREMIAH S. YOUNG, Ph.D., Professor of Political Science

OTTO S. ZELNER, B.S., Assistant Professor of Surveying

EXTENSION SERVICE

The Extension Service of the University of Minnesota is organized to include:

A. Evening classes, in Minneapolis, St. Paul, Duluth, and other cities.

1. Courses leading to credit in the College of Science, Literature, and the Arts.

2. Courses in business administration, accountancy, and finance.

3. Practical courses in engineering.

B. Correspondence courses.

C. Extension lectures, singly or in groups, and lyceum lectures, concerts, and entertainments.

D. The Municipal Reference Bureau, which compiles and furnishes to city officials information pertaining to municipal government and administration.

E. The Bureau of Visual Instruction, through which loan collections of lantern slides and films are furnished to schools and clubs.

F. University cooperation with local educational effort as exemplified by the "University Weeks."

G. Drama Service, through which dramatic clubs and school societies are given advice about the production of amateur theatricals, and copies of plays are lent for reading and selection.

H. Agricultural Extension, including lectures, demonstrations, institutes, and short courses under the direction of the College of Agriculture, Forestry, and Home Economics.

EVENING COURSES

GENERAL INFORMATION

ADMISSION TO COURSES

It is not intended that any regulation should debar from the privileges of these courses any person who can pursue them profitably. Those persons desiring credit toward a University degree must of course comply with the regulations laid down by the college in which credit is desired. Those not desiring such credit may be admitted, provided they are sufficiently mature (more than eighteen years of age) and can satisfy the departments in which they wish to study that they are able to carry the work profitably to themselves and without hindrance to the classes.

CREDIT FOR EXTENSION COURSES

Credit toward a degree will be given students who satisfy the entrance requirements of the college in which credit is desired and who successfully complete any of the extension courses of university grade. This applies to all the courses listed under academic or collegiate courses, unless otherwise specified. It also applies to nearly all of the business courses. The courses listed under engineering do not carry credits. Such credits will be recorded upon matriculation in the University. Courses requiring one evening (two hours) a week for recitation normally carry two credits. Those requiring more time usually carry correspondingly more credit.

The statement concerning credit for the Certificates in Accountancy, in Finance, and General Business will be found on pages 19 and 20.

Students *must indicate at the time of registration whether or not they desire university credit in the courses pursued.*

Regulations Concerning Credit in the College of Science, Literature, and the Arts

1. All courses for which credit is given in the College of Science, Literature, and the Arts must be authorized with the credits by the Advisory Committee. But credit shall be given only to those extension courses which are conducted in essentially the same manner as the corresponding courses in the University and which are carried on under similar conditions as to attendance, term's work, quizzes, and examinations.

2. Each credit course shall be directly in charge of a member of the Faculty.

3. Any regularly enrolled University student successfully completing an approved course shall receive the appropriate credit.

4. Any person shall receive a certificate upon satisfactorily completing an approved course. The certificates entitle the holder to the corresponding University credits whenever he has earned thirty credits in residence. The Registrar or the Administrative Board shall in all cases pass upon the qualifications of the student.

5. The maximum credit towards a degree for work done in extension courses shall not exceed one half the unit hours required for graduation. At least twelve credits in the major subject shall be completed in regular college classes and of these, six must be from starred courses.

6. Credit for an amount not exceeding one quarter of the unit hours required for graduation may be given at the University of Minnesota to students of such other extension schools or departments as may be approved by the Advisory Committee, provided that such credit shall be subject to the same provisions as govern credits in the General Extension Division of the University of Minnesota.

RESIDENT STUDENTS

1. No University student may enroll for extension courses for the purpose of removing a condition or failure.

2. No University student may enroll for an extension course if this would increase his credit hours beyond what the rules allow.

3. Any University student who wishes to enroll for an extension course must first obtain the approval of the dean of his college.

FEES

Collegiate courses meeting one evening a week require a fee of \$5 a semester of sixteen weeks. For collegiate courses meeting two evenings a week, the fee is \$10 a semester.

The fee for business and engineering courses is \$45 per year, payable \$22.50 each semester, when registering for three subjects; or \$30 per year, payable \$15 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials.

The fee does not include the cost of texts or material. The cost of these items varies from \$1 to \$3.

All fees are payable at the time of registration, and registration should not be deferred longer than the second meeting of class. Checks should be made payable to the University of Minnesota. *No fee will be refunded on account of withdrawal from any course, unless application for refund be made within ten days after registration.*

Special arrangements are made with organizations, clubs, and business concerns, whereby instruction may be given to groups of students within the organization at a sum which will somewhat reduce the individual rate per member.

PLACES FOR CONDUCTING CLASSES

Most of the classes in engineering will be held in the Main Engineering Building, Electrical Engineering Building, or the Mechanical Engineering Building.

Other classes in Minneapolis are conducted at the University, at the Public Library, at the City Hall, and in some of the public school houses. Definite locations for each class will be announced in a circular to be published about September 15.

In St. Paul the work will be carried on at the Mechanic Arts High School, the City Hall, and the Public Library. Additional accommodations will be provided for in some cases.

NUMBER FOR WHOM CLASSES WILL BE ORGANIZED

Classes will not be organized for a smaller enrollment than fifteen, and in some courses a larger registration will be required.

TIME OF MEETING

Classes ordinarily meet at 7:30 and dismiss at 9:30. Classes in business subjects frequently meet at 6:30.

ENROLLMENT

Registration for the first semester takes place during the week preceding the organization of classes (September 23-28). Students may also register with the instructor at the class.

PROGRAM OF CLASSES

Folders will be issued about September 15, giving the program of classes and schedules of meeting places. It should be understood that not all the courses listed in this bulletin are given in any one year. Final announcements may be found in the special folders. Folders will be issued for the collegiate courses, the business courses, and the engineering courses. Separate bulletins are also issued for each of these courses.

LOCATION OF EXTENSION OFFICES

The offices of the General Extension Division may be found on the third floor of Millard Hall on Washington Avenue and Union Street S. E. To telephone the office call N. W. East 2760 or T. S. 41811 and ask the University central for the General Extension Division.

COURSES OF INSTRUCTION

The courses of instruction naturally group themselves into four divisions, viz., (1) those corresponding to the regular college courses given in the College of Science, Literature, and the Arts, and conveying credit toward a degree from that college; (2) those furnishing a preparation for business (most of which also carry credit toward a degree from the above college); (3) engineering courses. A separate bulletin of each of these groups may be obtained on request. The description of courses will therefore be grouped in this order. The first group will be designated collegiate courses.

DEPARTMENT OF COLLEGIATE INSTRUCTION

The following courses are given extension students with two purposes in view: First, an opportunity is afforded those who are candidates for degrees, but who are unable to pursue their entire college course in regular residence, to complete a part of their work while otherwise occupied during the day.

Second, the advantage of university training in cultural subjects is offered those who can devote one or more evenings a week to such work, regardless of any desire for university credit.

The General Extension Division is now prepared to offer the following evening courses. Others will be given provided a sufficient registration is assured, usually fifteen. Those interested in forming such classes are advised to correspond with the Director.

A special folder announcing specific dates and places for holding classes will be issued early in September. This folder, containing the class program, will be sent to all requesting it.

FEEES

Each course listed as a collegiate course requires a fee of \$5 for the semester of sixteen weeks, the class meeting one evening a week for two hours. For collegiate courses meeting two evenings a week the fee is \$10 a semester.

CHEMISTRY

1 (1-2*). ELEMENTARY CHEMISTRY. First semester, metals. Second semester, metals and qualitative analysis. Lectures, recitations, and laboratory work. A study of the common elements and their principal compounds together with discussions of the principles, laws, and

*The number in parentheses is that of the corresponding course in the regular University bulletins.

theories of chemistry. Special attention to be given to the practical applications of chemistry. Those wishing to work on special problems will be accommodated as far as possible. Two credits a semester (two evenings a week). By doing extra laboratory work a well-qualified student may earn three credits a semester.

EDUCATION

- 1 (1a). BRIEF HISTORY OF EDUCATION. The origin and development of schools, more particularly in the modern period, as a preparation for the understanding of the educational systems, theories, and practices of the present. Ranks as a junior and senior course in the University. Open to teachers and prospective teachers who have met the college entrance requirements. Two credits (one evening a week); first semester. SWIFT.
- 2 (3a). SOCIAL ASPECTS OF EDUCATION. This course deals with conditions within the school itself,—such as the socialized recitation and the social activities of students. It also discusses educational activities outside the school, including the various institutions which influence society. It treats of the necessity of coördinating the social activities within and without the school so that each may become more effective. Two credits (one evening a week); first semester. RANKIN.
- 3 (119). THE SCHOOL CURRICULA. An attempt is made to discover fundamental principles governing the material and methods of education in a democracy. To this end it discusses the nature of what we mean by a democratic society. The aims and methods of the enterprise of education are considered from this point of view. Two credits (one evening a week); second semester. RANKIN.

ENGLISH

- 1 (58). NINETEENTH CENTURY PROSE. Studies in the more important prose writers of the nineteenth century from Carlyle to Matthew Arnold, with consideration of their styles, personalities, opinions, and relations to their period. Two credits (one evening a week); first semester. RUUD.
2. THE EIGHTEENTH CENTURY NOVEL. A study of the great novels produced in the eighteenth century, particularly the works of Richardson, Fielding, and Smollet. Two credits (one evening a week); first semester. NICHOLS.
- 3 (55). AMERICAN LITERATURE. Lectures on American Literature, with extensive readings from the principal poets and prose writers of the United States. Two credits (one evening a week); second semester. HERRICK.

- 4 (108). THE ROMANTIC POETS. A study of the Romantic School of Poets from Wordsworth to Keats, and of the influence of the French Revolution upon them. Two credits (one evening a week); second semester. BROWN.
5. STORY TELLING TO CHILDREN. (1) Story telling; its place and value; (2) choice of the story: qualities, desirable and undesirable; (3) preparation of the story; application of the short-story ideals of "singleness of impression" and "dramatic struggle"; reconstruction of the story from the child's view-point; (4) the problem of delivery: the group, consciousness, holding attention, self-effacement, vocal and verbal adaptation. No University credit (one evening a week); first semester. GARNES.
6. ADVANCED COURSE IN STORY TELLING. Twofold emphasis throughout the course upon (1) the problem of delivery, and (2) the search for material. Fundamentals in training of voice and body for story telling. Principles of vocal expression as they apply in the story-teller's art. The use of dialects and impersonation in story telling. Material: myths, great epic cycles, fairy stories, biographical and historical stories, Bible stories. Planning the story program. No University credit (one evening a week); first semester. GARNES.

GEOLOGY AND GEOGRAPHY

- 1 (1). GENERAL GEOLOGY. The materials of the earth, the forces and processes operating upon them, and the effects produced. Physiographic, dynamic, and structural geology, with a brief introduction to historical geology. Two credits (one evening a week); first semester. LEHNERTS.
- 2 (29). GENERAL PHYSIOGRAPHY. Principles of earth sculpture; physiographic changes in progress, and agencies causing them; hydrography and oceanography; planetary relations; climatology; field excursions. Two credits (one evening a week); first semester. LEHNERTS.
- 3 (34). METEOROLOGY. The earth's atmosphere, its properties, movements, and phenomena. Storms and weather forecasting. Climate and its relation to plant, animal, and human life. Two credits (one evening a week); second semester. LEHNERTS.
- 4 (37). COMMERCIAL GEOGRAPHY. The materials of industry and commerce, and the principles which underlie their occurrence, production, conservation, and utilization. Two credits (one evening a week); first semester. LEHNERTS.
- 5 (4). GEOGRAPHY AND GEOLOGY OF MINNESOTA. Rocks and soils; minerals and mines; building stones, clay beds, and glacial deposits;

rivers and lakes; scenic features; waterways and water powers; artesian well basins; prairie, forests, and agricultural lands; problems of state-wide interest, such as immigration, agriculture, drainage, reforestation, construction of state highways; utilization of natural resources, and development of old and new industries. Prerequisite, Course 1. Two credits (one evening a week); second semester. LEHNERTS.

6. **PHYSIOGRAPHY OF THE EASTERN UNITED STATES.** A study of the regional physiography of the eastern half of the United States. Prerequisite, Course 1 or 2. Two credits (one evening a week); first semester. LEHNERTS.
7. **PHYSIOGRAPHY OF THE WESTERN UNITED STATES.** A study of the regional physiography of the western half of the United States. Courses 5 and 6 give training in physiographic study and interpretation and serve as a preparation in the fundamentals of the geography of our country. Prerequisite, Course 1 or 2. Two credits (one evening a week); second semester. LEHNERTS.
- 8 (55). **THE TEACHING OF GEOGRAPHY.** The organization and treatment of the subject matter of school geography. Prerequisite, six credits in geography and geology. Two credits (one evening a week); first semester. LEHNERTS.
9. **MAP INTERPRETATION.** Reading and interpretation of maps; construction and use of maps and of geographic diagrams, including block diagrams of land forms. Two credits (one evening a week); second semester. Prerequisite, Course 1 or 2. LEHNERTS.

GERMAN

- 1 (1-2). **BEGINNING GERMAN.** Pronunciation, grammar, conversation, and composition; selected reading in easy prose and verse. Eight credits (two evenings a week); both semesters. Open to all who have had no German. Both semesters must be completed before credit is given for the first semester. DAVIES.
- 2 (5-6) **PROSE AND POETRY.** Geography, history, and legend. Review of German grammar throughout the year. Open to all with two years of German. Not open to those who have obtained credit in Course 2. Both semesters must be completed before credit is given for the first semester. Eight credits (two evenings a week); both semesters. MYERS.
- 3 (27-28). **ELEMENTARY CONVERSATION.** Conversation on topics of everyday life, aiming at fluency in the use of idiom. Not a course in composition. Organized on the laboratory basis—one hour credit with two hours recitation and at least one hour of outside preparation.

Intended for those who have had at least one year of German. Two credits (one evening a week); both semesters. BURKHARD.

- 4 (11-12). RAPID READING. Short stories and dramas by Storm, Heyse, Baumbach, Lessing, Goethe, Schiller, Hebbel, and Sudermann. Class-work and discussions are conducted in German. Open to all who have had at least one year of German. Four credits (one evening a week); both semesters. KOENIG.

GREEK IN ENGLISH

1. GREEK MYTHOLOGY. No knowledge of Greek is required for this course. A course of lectures and readings dealing with the legends and myths which appear in the literature and art of ancient Greece. The quaint and beautiful stories of Greek gods and heroes found in Homer and in the tragic and lyric poets will be presented and interpreted, and the whole course will be richly illustrated with the stereopticon. The origin and evolution of the myth, its relations to Greek literature, philosophy, and religion, and its influence upon later literature, will also be touched upon. Two credits (one evening a week); second semester. SAVAGE.
2. GREEK LITERATURE AND LIFE. This is a course dealing with the literature, life, and art of the ancient Greeks, for which no knowledge of Greek is required. The course consists of lectures and illustrative readings by the instructor and assigned readings in translation and textbook work by the class; conferences and informal discussions will also be held. The character and influence of Greek culture, especially along the lines of literature, philosophy, and art, will be discussed; and the whole course will be richly illustrated with the stereopticon. Especially designed for those interested in language and literature. Two credits (one evening a week); first semester. SAVAGE.
- 3 (59-60). GREEK ART. This is a course of illustrated lectures designed to set forth the spirit of the ancient Greeks as manifested in their sculpture and architecture. The development of Greek sculpture will be traced; the famous statues will be shown and described; and the personalities of the great artists will be considered; stereopticon views of temples, theatres, houses, and other buildings will be shown, and the characteristics of the three great orders of Greek architecture will be set forth. Two credits (one evening a week); first semester. SAVAGE.

HISTORY

- 1 (1). EUROPEAN HISTORY I. The development of Europe from 800 to about 1500 A. D. with special emphasis upon the political, social, and

- economic institutions of the period. Open to all. Two credits (one evening a week); first semester. KREY.
- 2 (2). EUROPEAN HISTORY II. The development of Europe from c. 1500 to 1789. In this period are treated the Reformation, Religious Wars, and the causes of the French Revolution. The political growth of the nations of Europe is especially emphasized. Two credits (one evening a week); second semester. KREY.
3. EUROPEAN HISTORY III. The development of Europe from 1789 to the present time. Political history especially emphasized. Social and economic problems are treated in their international aspects. Two credits (one evening a week); second semester. KREY.

PHILOSOPHY

- 1 (20). PRESENT DAY PHILOSOPHY. A popular discussion of the most important types of contemporary philosophy. Among the men and movements included are: Haeckel, Eucken, Bergson, Nietzsche, Pragmatism, Idealism, and Neo-Realism. Two credits (one evening a week); first semester. WILDE.
2. HUMAN NATURE. A course in modern philosophy and psychology, as applied to the chief problems of practical life. The course will be untechnical, and will include a number of simple experiments to illustrate the subjects treated, and to serve as basis for the discussion. Among the subjects dealt with, the following will be included: the analysis of character into its elements; the significance of laziness, fatigue and sleep; efficiency, and the chief factors in attaining it; the meaning of education: its various stages, and final goal; memory, and the laws of forgetfulness; thought transference, automatic writings, and kindred subjects. No University credit (one evening a week); first semester. LODGE.
3. THE MEANING AND VALUE OF LIFE. A course in the modern philosophy of life, dealing in a simple and untechnical way with the deeper values which underlie life as it is lived to-day. Among the subjects dealt with will be included: the philosophy of social life; the philosophy of pleasure; the philosophy of pain; the meaning and value of work; practical idealism, etc. No University credit (one evening a week); second semester. LODGE.
- 4 (9). PHILOSOPHY AND THE WAR. A discussion of the influence of German philosophy on the militarism of Germany to-day; a study of the contrasting ideals of autocracy and democracy; an examination of the relation of the individual to the state and of states to one another. The course is a study of the philosophical issues involved in the present international situation. Two credits (one evening a week); first semester. WILDE, SWENSON, LODGE.

POLITICAL SCIENCE

1. AMERICAN FEDERAL GOVERNMENT. An elementary course in American government and politics designed for those studying the problems of citizenship, and for teachers. The course treats of the origin and nature of the federal system of government; of the political party system; the federal constitution; structure and organization of the national government; powers and functions of Congress; the executive, and the judiciary; the civil service; the regulatory commissions; national finance; the conduct of foreign affairs; war powers of the government. Texts, *American Government and Politics* by C. A. Beard, and *The New American Government and Its Work* by J. T. Young. Two credits (one evening a week); first semester. BENNETT.
2. STATE AND LOCAL GOVERNMENT. A complementary course to I preceding. The constitutional basis of state government; relation of the states to the national and local governments, and to the citizen; organization, functions, and actual workings of state governments, and of county, township, and city governments; public opinion and popular control in state governments; nominations and elections, initiative, referendum, and recall; taxation and finance; social and regulatory legislation. Texts, Beard's *American Government and Politics* and *The New American Government and Its Work* by J. T. Young. Two credits (one evening a week); second semester. BENNETT.

PSYCHOLOGY

- 1 (1-2). GENERAL PSYCHOLOGY. A brief survey of the fundamental facts of human nature, with particular reference to mental processes. Two credits (one evening a week); first semester. DODSON.
- 2 (107). SOCIAL PSYCHOLOGY. The instinctive and acquired factors in the behavior of the individual toward society and its various forms and groupings, and in the growth of ideas of self and of social attitudes. Two credits (one evening a week); first semester. PETERSON.

RHETORIC AND PUBLIC SPEAKING

- 1 (1). ENGLISH RHETORIC I. Practical training in writing, exposition, narration, and description. Analysis of prose selections and of compositions written by the class. Two credits (one evening a week); first semester. FORD.
- 2 (2). ENGLISH RHETORIC II. A continuation of the preceding course, open to those who have had a one half-year course in freshman Rhetoric, or its equivalent. Two credits (one evening a week); second semester. FORD.

- 3 (11). **EXPOSITION AND DESCRIPTION.** Analysis of specimens; short themes and fortnightly essays, with emphasis on planning and amplification. Informal exposition during the first half of the first semester, followed by description. Open to those who have completed the equivalent of Course 1-2 in college Composition and Rhetoric. Two credits (one evening a week); first semester.
- 4 (12). **NARRATION.** A continuation of Course 3. Open to those who have completed the equivalent of three half years of college Rhetoric. Two credits (one evening a week); second semester.
- 5 (41-42). **A GENERAL COURSE IN PUBLIC SPEAKING.** The principles of analysis and organization. Extemporaneous speaking based on outlines. Study of model speeches. Attention is given to correctness and effectiveness in delivery. Open to ministers, lawyers, teachers, and others who are able to carry the work. Four credits (one evening a week); both semesters. RARIG.
- 6 (83). **ADVANCED PUBLIC SPEAKING.** The distinctive characteristics of oratorical style; analysis of the styles of representative orators. Written and extemporaneous speeches. Individual criticism and direction. Two credits (one evening a week); first semester. RARIG.
- 7 (110). **SHORT-STORY WRITING.** An advanced course in writing for those who have had experience in writing for publication or have had preliminary training in the technique of writing. Open for credit only to those who have had at least two years of college courses in writing or the equivalent. Four credits (one evening a week); both semesters. THOMAS.

ROMANCE LANGUAGES

- 1 (1). **BEGINNING FRENCH.** Grammar, pronunciation, reading and practice in speaking. Open to all. Both semesters must be completed before credit is given for the first semester. Four credits (one evening a week); both semesters. SEARLES.
- 2 (3). **INTERMEDIATE FRENCH READING, GRAMMAR, AND COMPOSITION.** French grammar review; readings from modern authors. Open to all who enter the University with two years of French. Both semesters must be completed before credit is given for the first semester. Four credits (one evening a week); both semesters. BARTON.
- 3 (7-8). **ELEMENTARY FRENCH CONVERSATION AND COMPOSITION.** Four credits (one evening a week); both semesters. Prerequisite French 1. FRELIN.
- 4 (31). **BEGINNING SPANISH.** Grammar, pronunciation, reading, and practice in speaking. Open to all. Both semesters must be completed

before credit is given for the first semester. Four credits (one evening a week); both semesters. OLMSTED.

- 5 (35-1). INTERMEDIATE SPANISH (FIRST COURSE). Not given in 1918-19. This course is to alternate with Course 6 (35-2).
- 6 (35-2). INTERMEDIATE SPANISH (SECOND COURSE). Reading from modern authors. Grammar review. Composition work devoted chiefly to correspondence and commercial practice. Spanish will be as largely as possible the language of the classroom. Open to those who have had Spanish 5 (35-1) and to those who have had Spanish 4 (31) and are approved by the teacher. Four credits (one evening a week); both semesters. OLMSTED.

SCANDINAVIAN

- 1 (1-2). BEGINNING NORWEGIAN. Grammar, select reading in easy prose and poetry. Both semesters must be completed before credit is given for the first semester. Eight credits (two evenings a week); both semesters. BOTHNE.
- 2 (5). BEGINNING SWEDISH. Grammar, conversation, composition, modern texts. Open to all who have had no Swedish. Both semesters must be completed before credit is given for the first semester. Four credits (two evenings a week); first semester. STOMBERG.

SOCIOLOGY AND ANTHROPOLOGY

- 1 (113). THE AMERICAN PEOPLE I. Dominant characteristics of the diverse foreign peoples now in the United States; their modification in America; the importance of these peoples to the American nation. Lectures, reading, and essay. Two credits (one evening a week); first semester. JENKS.
- 2 (114). THE AMERICAN PEOPLE II. A continuation of Course 1. Essential and unique historical Americanisms, and their value and virility for the future; facts and forces of amalgamation and assimilation in America; America's ethnic problems. Lectures, readings, and essay. Two credits (one evening a week); second semester. JENKS.

ADDITIONAL COURSES

Many advanced courses not listed in this bulletin will be given upon the request of any responsible individual or group willing to organize a sufficiently large class to insure the success of the undertaking.

DEPARTMENT OF BUSINESS INSTRUCTION

The following courses are arranged with a view to meet the needs of those who desire special training for the higher business positions. Business is rapidly becoming a profession, or rather the business field is opening up several professions, among which are accountancy, banking and finance, advertising, and salesmanship. The University through its General Extension Division is attempting to afford a preparation for these professions, as it has long done for the profession of law, medicine, engineering, and the like.

The time appears to be approaching when it will be just as necessary for one to secure special training for business positions as it is now to secure training for the learned professions. It is recognized, too, that the rewards for those trained for the business professions are fully as great both financially and in a social way as they are for those trained for the so-called learned professions. Moreover, experience is proving that the very people whom the General Extension Division is reaching can, while being actively employed during the day, best comprehend and appreciate the kind of instruction the evening classes afford.

The subjects of instruction are divided into three groups of courses of study, viz: those aiding in the preparation for accountancy, those aiding in the preparation for banking, and those having for their object a general business training. In each of these courses certain fundamental subjects, such as business law, economics, and business English, are required. Upon the completion of one of these courses a University Certificate to that effect will be granted.

THE HERBERT C. PALIN ADVERTISING PRIZE

Mr. Herbert C. Palin of Los Angeles, California, has presented a silver loving cup to the advertising class. On this cup is to be inscribed each year the name of the student who, after taking a full year's course in advertising, submits the most constructive plan for an advertising campaign. The cup is to remain in the possession of the winner for one year.

FEEES

The fee for these courses is \$45 per year, payable \$22.50 each semester, when registering for three subjects; or \$30 per year, payable \$15 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials.

Special arrangements are made with organizations, clubs, and individual business concerns, whereby instruction may be given to groups of students within the organization at a sum which will somewhat reduce the individual rate per member.

COURSE IN ACCOUNTANCY

This course is designed to meet the needs of two classes of students, namely, those who wish to prepare to take the state C.P.A. examination with a view to becoming public accountants, and those who aim to fit themselves for responsible positions with private business firms.

For the student who wishes to pursue either object we recommend that he plan to take the regular course herein outlined and thus secure a broad foundation for his work.

Upon the satisfactory completion of this course, the University Certificate in Accountancy will be granted.

Beginning with the year 1917-18 the course requires a total of thirty credits, each one-semester subject counting for two credits. Each subject requires one two-hour class recitation per week for one semester of sixteen weeks.

In order to secure the University Certificate in Accountancy, fourteen credits in Accounting are necessary, including Principles of Accounting A, Principles of Accounting B, Accounting Laboratory A, Accounting Laboratory B, Accounting Practice and Procedure A, and Accounting Practice and Procedure B; six credits in Business Law including Business Law A and Business Law B; two credits in Economics, and two credits in Business English. The student may elect subjects to cover the remaining four credits.

Students of experience and some maturity may join the classes by registering as auditors, in case they do not care to secure credit for the course toward a certificate in Accountancy. These students will not be called upon to take part in the discussions nor to turn in work which is required of students registering for credit. In this way the University hopes to make available the benefits of the courses to those who feel they lack the opportunity or time to do the work regularly required in the course.

The following subjects are required for the course:

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|--|--------------------------------|------------|
| 1. Principles of Accounting A (2) | 7. Auditing A (2) | } elective |
| 2. Principles of Accounting B (2) | 8. Auditing B (2) | |
| 3. Accounting Laboratory A (2) | 9. Cost Accounting (2) | |
| 4. Accounting Laboratory B (2) | 10. Business Law A (2) | |
| 5. Accounting Practice and Procedure A (2) | 11. Business Law B (2) | |
| 6. Accounting Practice and Procedure B (2) | 12. Business Law C, D or E (2) | |
| | 13. Economics (2) | |
| | 14. Business English (2) | |
| | 15. Elective Subjects | |

COURSE IN BANKING AND FINANCE

This course is designed to meet the needs of two kinds of students: (1) those who are preparing for, or who are now engaged in, such financial callings as banking, corporation management, stock and bond brokerage, credit work, or financial journalism; and (2) business men who wish

to utilize in the upbuilding of their particular business all of the modern scientific knowledge of a practical financial nature.

University Certificate in Finance

Those students who wish to secure a thoro knowledge of finance, and an adequate knowledge of general business for a financial occupation, are urged to arrange their registration so as to obtain the Certificate in Finance as offered by the University.

Beginning with the year 1917-18 this certificate will be granted to those who complete a total of thirty credits distributed as follows:

Principles of Economics (2)	Principles of Accounting B (2)
Banking Practice (2)	Business Law A (2)
Investments and Speculation (2)	Business Law B (2)
Corporation Finance (2)	Business Law C or D (2)
Business English (2)	Elective subjects (10)
Principles of Accounting A (2)	

The American Institute of Banking

The American Institute of Banking recognizes the evening courses of the General Extension Division at the University of Minnesota as fulfilling all the requirements of its educational department. Students who complete these courses in Finance are accredited by the Institute without further examination or formality.

By this arrangement, the members of the Minneapolis, St. Paul, and Duluth chapters of the American Institute of Banking may obtain the A. I. B. Certificate upon completion of Economics (2 credits), Banking (2 credits), and Business Law (4 credits).

The advanced courses in Finance coincide with the requirements of those who wish to receive the title of Associate from the Institute for postgraduate study.

GENERAL BUSINESS COURSE

For the benefit of those students who do not care to specialize in either accounting or in finance, yet wish to secure recognition as having completed a definite group of subjects, the following course is arranged. It is likely that certain of the subjects herein outlined will be more fully developed, and later, together with the fundamental subjects, form courses in themselves.

It is planned that each of these courses will furnish a preparation for a definite calling, such as advertising, salesmanship, and sales management, railroad traffic, and office management.

The University Certificate in General Business

Beginning with the year 1917-18 this certificate will be granted to those who successfully complete a total of thirty credits distributed as follows:

Business English (2)	Elective subjects (18)
Business Law A (2)	(These electives should be selected
Business Law B (2)	with a view to specializing in some par-
Economics A (2)	ticular field, as in Advertising and Sell-
Principles of Accounting A (2)	ing, in Railroad Traffic, and the like.)
Principles of Accounting B (2)	

DESCRIPTION OF SUBJECTS

ACCOUNTING

The various courses in Accounting are designed to subdivide the work in order that there may be proper sequence as well as to make possible sufficient emphasis on each phase of the subject. In the first year the subdivision is as follows: first, a series of lectures and discussions in the principles of accounting; and second, the putting of those principles to practical application by the working out of specific problems. Students not desiring to specialize in Accounting may elect to omit this latter course, i.e., Accounting Laboratory A and B, but all taking the laboratory courses are required to take the corresponding courses in Accounting Principles.

1. PRINCIPLES OF ACCOUNTING A. Fundamental classification of the balance sheet and operating accounts. The books and records primarily essential to disclose the data necessary for such balance sheets and operating accounts. Special discussions on the trading margin, operating expenses, etc. Various bookkeeping and accounting operations, such as accruals, deferred charges; special systems of handling accounting data, such as departmentization of accounts, imprest cash systems, the treatment of controlling accounts and auxiliary ledgers; preparation of simple working sheets and statements. Two credits (one evening a week); first semester.
2. PRINCIPLES OF ACCOUNTING B. Continuation of Principles of Accounting A with more special reference to manufacturing and corporation accounts; treatment of good-will and depreciation, accountant's working sheet; adjusting of surplus, sinking funds and reserve accounts; drafting condensed balance sheets and income statements. Two credits (one evening a week); second semester.
3. ACCOUNTING LABORATORY A. The working out of practical problems covering the subject matter discussed in Principles of Accounting A, under the guidance of an instructor. One credit (one evening a week); first semester. PRESTON.

4. ACCOUNTING LABORATORY B. Work of a similar kind covering the subject matter discussed in Principles of Accounting B. One credit (one evening a week); second semester. PRESTON.
5. ACCOUNTING PRACTICE AND PROCEDURE A. An advanced course for the accounting student following the study of Accounting Principles. The object of the subject is twofold; first, to familiarize the student with the peculiar accounting problems of business; and, second, to afford the student the means to secure that necessary insight and skill which practicing accountants must possess in order to meet the demands made upon them. The subject matter is presented chiefly by means of a more or less exhaustive study of a representative business. The work consists of the following: (a) a study of the distinctive group of accounting problems which are likely to arise in a business organization through a series of years and the scientific solution of those problems; (b) a study of the accounting problems peculiar to representative business other than manufacturing and selling. The manner of presenting the subject is essentially practical, the students being required to work out for themselves problems similar to the ones studied. Two credits (one evening a week); first semester. ROTZEL.
6. ACCOUNTING PRACTICE AND PROCEDURE B. A continuation of Course 5. Two credits (one evening a week); second semester. ROTZEL.
7. COST ACCOUNTING. The elements of cost, i.e., prime cost and indirect expense or burden, kinds of cost accounting, continuous process and production order costs. The materials ledger. Methods of accounting for labor. Methods of distributing indirect or "overhead" expense. The machine rate method, and when applicable. Methods of compensating labor. Predetermined standard costs, and their relation to "scientific management." The cost ledger and its relation to the general ledger.

Modern industry demands that each plant be equipped with adequate accounting facilities for ascertaining the cost of operation. These costs are necessary to show, first, the profitability of each branch of the industry so as to enable the management to push the profitable, and to drop the unprofitable, lines, or to place them upon a paying basis; second, the cost of each article as a basis of price making; third, so far as possible, the cost of each operation, so as to enable the management to plan economies in the operation of the plant. Two credits (one evening a week); first semester. PRESTON.
8. AUDITING A. This course is essentially practical and is intended only for those whose previous training in the principles of accounting has been sufficient to enable them to be benefited by this advanced work. The chief aim will be to give students the training necessary to enable them to conduct audits and investigations either as private auditors

or public accountants; to set up accounts for various purposes as a result of such audits or investigations and to prepare suitable reports thereon. Two credits (one evening a week); first semester. ROTZEL.

9. AUDITING B. A continuation of Course 8. Two credits (one evening a week); second semester. ROTZEL.

BANKING AND FINANCE

21. BANKING. The documents created by transactions in goods; the function of a bank in aiding industry; the steps in organization of national or state banks; corporate powers, rights, and liabilities of stockholders and directors; bank administration and the various offices and departments; deposits, depositors, and receiving tellers; bank reserves and circulating notes; the clearing-house, handling country checks, and transit departments; collections; domestic exchanges; foreign exchange; discounts and collateral loans; credit department; how profits are made on government deposits, by note issue, in buying and selling exchange, by analysis of depositor's accounts; accounting methods and general balances; examination; supervision and reports; and bank policy from the analysis of local bank reports.

This course aims to explain the various functions of an up-to-date bank and to teach the methods by which its work is accomplished. A careful survey will be made of the economic basis, legal status, accounting methods, and financial problems of banking as carried on by large commercial institutions having a full complement of banking operations including city, country, and foreign business. The method of presentation comprises reading references, lectures, review questions, and use of the blackboard for all computations. Two credits (one evening a week); first semester. EBERSOLE.

22. MONEY AND CREDIT. The origin, evolution, and functions of money; the gold standard, forms of money current in the United States; government paper, bank notes, and deposit currency described and analyzed; credit and its effects; the causes of general price changes; various types of standards and currency systems including bimetallism and the gold exchange standard; discount rates, the problem of securing an elastic currency, and the distribution of the world's gold between the nations; the problem of securing an ideal money. Text-book and money-market articles in current newspapers will furnish material for discussion.

A thoro understanding of the character and functions of money and of the principles of credit is the cornerstone of modern business intelligence. This course in money and credit constitutes an interesting and scientific treatment of the forces that determine value and prices, of the processes of exchange, and of the many forms of media of payment represented by monetary and credit instruments. Two credits (one evening a week); second semester. EBERSOLE.

- 23 (145). **CORPORATION FINANCE.** The evolution of the private corporation and its relation to other business units; the organization of a corporation; charters and articles of association; directors and officers, manner of their selection, their functions and responsibilities; forms of corporation stocks and bonds and their respective legal and financial characteristics; the marketing of securities; capital and revenues; intangible values; books and accounts; dissolutions, consolidation, and reorganization; trust and holding companies; the taxing of corporations; corporation statistics; the preparation and analysis of corporation reports; the corporation before the law.

Modern business in all of its major forms is directed through corporate organization. The course in corporation finance is designed to give the student such a knowledge of corporations and their administration as to make clear the general organization of industry and commerce. Texts will be extensively supplemented by informal lectures, class discussions, and topical essays. Two credits (one evening a week); second semester. **EBERSOLE.**

- 24 (142). **INVESTMENTS AND SPECULATION.** Stocks, bonds, endowments, annuities, and other forms of investment considered with regard to their security, income, and opportunity for rise or fall in value. The social process of saving and investment; the investment fund; various classes of investments; the criteria of a good investment applied to government, corporation, and real estate loans; railroad, industrial, timber, and mining securities compared; the laws of investment values. Stock exchange operations; money market and other influences affecting prices; analysis of present fundamental conditions. The actual operations upon the stock and produce exchanges are used to illustrate the study of speculation, and the course of the markets and the bank rates is closely followed as a basis of deduction in the analysis of cause and effect. Textbook and interpretation of financial quotations and reports. Two credits (one evening a week); second semester. **EBERSOLE.**

BUSINESS LAW

NOTE: The subjoined courses in Business Law give credit toward a University degree only to those students who have earned six credits in Political Science or six in Economics or three in each. Students who have not met these prerequisites may, however, take these courses for credit toward one of the University Certificates in business. Specially qualified and mature extension students may petition for University credit.

31. **BUSINESS-LAW A—CONTRACTS AND AGENCY.** Contracts: Definition of a contract; offer and acceptance; special formality; consideration; capacity of parties; contractual powers of minors, of persons mentally deficient, and of married women; reality of consent, mistakes, misrepresentation, fraud, undue influence, legality of object; the operation of contracts; assignment of contracts; interpretation of contracts; methods of discharging contracts.

Agency: Methods of forming agencies; methods of terminating agency; the rights and obligations of principles, agents, and third parties. Text, lectures, and cases. Two credits (one evening a week); first semester. LOBB.

This course is fundamental and must be completed before registration will be accepted for other courses in business law.

32. BUSINESS LAW B—SALES AND NEGOTIABLE INSTRUMENTS. Sales: Sales of personal property; definition of a sale and its distinction from a bailment; when the title passes to the buyer; what title passes; rights of the seller (a) to set the contract aside on the ground of fraud, (b) to enforce lien for the purchase money, (c) to obtain stoppage in transit; rights of the purchaser (a) to demand goods of a certain quality, (b) to demand warranty of the purchaser's title.

Negotiable Instruments: Nature and characteristics: (a) definitions and characteristics, (b) uniform negotiable instrument law; form; (a) what a negotiable instrument must and must not contain, (b) non-essential, (c) effect of blanks and delivery; negotiation: (a) negotiation, indorsement, and delivery, (b) holder in due course and his rights; maker's and acceptor's contract: (a) maker's contract on a promissory note, (b) acceptor's contract on a bill of exchange, (c) presentment of a bill of exchange for acceptance; drawer's and indorser's contract: (a) drawer's contract on a bill of exchange, (b) indorser's contract on a bill or note, (c) presentment for payment, (d) notice of dishonor, (e) protest, (f) checks, (g) position of indorser after liability is fixed. Text, lectures, and cases.

Two credits (one evening a week); second semester. For those who have completed Course 31. LOBB.

33. BUSINESS LAW C—PARTNERSHIP AND CORPORATIONS. Partnerships: Formation of partnership; articles of co-partnership; methods of terminating partnerships; rights and obligations of partner (a) toward his co-partners, (b) as an agent of the firm, (c) toward the firm's creditors, (d) for an accounting; special partners; limited partnerships.

Joint Stock Companies: How distinguished from ordinary partnerships; how like ordinary partnerships; statutory requirements.

Corporations: Formation of corporations of various classes; terminations of corporations; membership in corporations, methods of transferring interest, fraudulent issuance of stock by corporate officers; rights of stockholders (a) to dividends, (b) to inspect and control corporate affairs; liabilities of stockholders (a) on stock subscriptions, (b) to pay assessments, (c) for the corporate debts; the doctrine of ultra vires; rights and obligations of corporate directors; corporate mergers and consolidations; domestic and foreign corporations. Text, lectures, case assignments, and class discussions.

For those who have completed Course 31. Two credits (one evening a week); first semester. VIESSELMAN.

34. BUSINESS LAW D—REAL PROPERTY, MORTGAGES, BANKRUPTCY. Real Property: Estates in land, estates held jointly or in common, equitable estates, relative rights of adjoining owners, trespass, easements, sales of real property, the contract to sell, conveyances, wills, mortgages, and liens; landlord and tenant, the lease, assignment and subletting, rent, and remedies for non-payment. Insolvency and bankruptcy. Two credits (one evening a week); second semester. HOUCK.

ECONOMICS AND COMMERCE

- 41 (1a). ELEMENTS OF ECONOMICS. Utility and valuation; price and the laws of price as applied to competitive and monopolistic conditions; price and the cost of production; the factors of production; the law of diminishing returns; division of labor and its relation to the development of industry; the forces and factors involved in the concentration of industry, including the difference between the agricultural and the mechanical industries; wages, rent, interest, capitalization, enterprise, and business profits, finally, some attention is given to money, credit, banking, and international trade. Two credits (one evening a week); first semester.

This course aims to ground the student in principles that are basic in all economic discussions. The study naturally centers in value and the laws of valuation under the various applications.

- 42 (3a). PRACTICAL ECONOMIC PROBLEMS (ADVANCED ECONOMICS). Taxation—the tariff, general property tax, corporation taxes, income taxes; labor problems—unionism, trade agreements, strikes and lock-outs, law in reference to labor unions, injunctions, employers' liability, workmen's compensation; railway problems—theory of rate-making, state and federal control; monopoly problems—economics of big business, intensive study of U. S. Steel Corporation, Sherman Anti-Trust Act, and important legal decisions relating to restraint of trade. Two credits (one evening a week); second semester.

The aim of this course is to study economic principles in their relation to some of the leading questions of to-day.

43. PRINCIPLES OF BUSINESS MANAGEMENT. Principles of organization showing comparative values and uses of line, staff, and combination types. Methods of saving time, money, and energy in the moving of work and materials. Making a scientific analysis of a particular operation, the operation of a department, and the operation of a plant. How to make use of the analysis in reducing waste time, energy, money, and material. Principles underlying the establishment and maintenance of the improved methods and conditions obtained by the above study. These principles include a method of determining upon proper and clearly defined policies and a study of their use and value; the necessity for and proper means of profiting by the experience of others. How to develop business judgment in yourself

and your subordinates. The principles governing executive control and the maintenance of discipline; discussion of methods of determining upon a wage scale and legitimate profits; the relation of physical condition to success, and its bearing upon production. Some principles underlying proper management of finances. The relation of home management to industrial and commercial efficiency; the organization and management of the sales department; training the salesman. The general problem of selection of help with a brief outline of a modern system of scientific selection and placement by a study of individual characteristics. No credit toward a degree (one evening a week); first semester. NEWCOMB.

51. **ELEMENTARY ADVERTISING.** This course is intended for those who desire sufficient knowledge of the elements of advertising to prepare reasonably satisfactory copy for newspapers, magazines, street car cards, circulars, and booklets. The fundamental elements of display, layout, headings, and copy are carefully outlined and the student is given practice in the preparation of advertisements.

This course is intended to acquaint the student with what may be called "the tools of advertising" before he undertakes either of the two advanced courses in the planning and preparation of advertising campaigns. No credit toward a degree (one evening a week); first semester. MARTIN, assisted by Miss CLEVELAND.

52. **NATIONAL ADVERTISING.** A study of advertising from a new angle. The student puts himself in the place of one having a product for sale, and from the first lesson to the last each lecture is so planned as to give the methods pursued in conducting the many different steps in an advertising campaign.

The student first analyzes the product from the standpoint of its advertisability. He considers the planning of a trademark, the organization of the sales force, the selling points, the prices, and the profits. He then thoroly analyzes the market, chooses the advertising mediums most adaptable to his particular campaign, and decides on the appropriation.

Students will be furnished with pamphlets for these lectures which will give reference to practically everything which has so far been published on subjects taken in the course. In this way the experience of probably three hundred of the leading advertising men of this country will be available to the student. No credit toward a degree (one evening a week); second semester. MARTIN, assisted by Miss CLEVELAND.

61. **SALESMANSHIP.** A course for insurance men, specialty men, traveling salesmen. Lectures and demonstrations on the principles underlying successful salesmanship, as follows: the proper approach; securing attention; arousing interest; creating desire; closing the sale; the

psychology of salesmanship; the use of suggestion in selling; the use of argument.

The chief feature of the work will be the demonstration sales. So far as possible each student will be given an opportunity to take part in a sufficient number of demonstrations that he may apply the principles laid out in the course. One evening a week; each semester.

71. RAILWAY TRAFFIC AND RATES. The course covers the changed conditions under which the traffic of the country is now being handled. The railroads do not compete but are operated by the United States Railroad Administration. The orders, rules, and regulations of the Administration are studied and the lessons further embrace the practical application of the Act to Regulate Commerce and other laws and regulations; the correct compilation of tariffs; methods under which rates are published by other than the line over which they are applicable; the classifying of freight; classifications and their peculiar exceptions; the principal rate bases, such as all-rail, rail-and-lake, etc.; tariffs, rules and regulations governing domestic, export, and import traffic and the principal commodities; the routing and mis-routing of freight; various methods of loading and offering freight for shipment; tracing of freight; presentation and adjustment of claims; the cancellation, suspension, and restoration of rates and tariffs; "privileges" such as transit handling of grain, storage, diversion, etc.; rulings of the Interstate Commerce Commission are referred to in the lectures and rates are quoted from current tariffs and classifications. Four credits (one evening a week); both semesters. KUEMPEL.

ENGLISH AND SPANISH

BUSINESS ENGLISH. Not a lecture course nor a dry, prosy study of technical English grammar and composition, but a new practical course designed for business men and women who recognize the value of a command of English for business and every-day writing and conversation. The main object of the course is to acquaint the student with the various types of business letters, reports, etc., and to teach him how to write and use them effectively. A secondary object of the course is to show students how training in expression—written or oral—is primarily training in thinking and analysis and hence is a very real stimulus to general business efficiency. The types of letter to be studied include complaint and answer, reminder, acknowledgment, recommendation, application, collection, form, follow-up, sales, inter-departmental, and composite. Students will be expected to write letters and take part in the weekly discussions of actual problems in business correspondence. No textbook is required. Typewritten synopses of lessons, furnished each week, provide the student with a cumulative text. Ability to write simple, grammatically correct English is a prerequisite to this course. No

DEPARTMENT OF ENGINEERING INSTRUCTION

The demand for men specially trained in engineering has been steadily increasing each year. Every branch of the profession has been calling for the services of trained men. By trained men is meant those who can plan work and use good engineering judgment in any given project.

President Woodrow Wilson emphasizes this when he says:

"My attention has lately been called in particular to the falling off in the number of engineering students and this has given me a good deal of concern, because it is not only immediately necessary that as many students as possible should prepare themselves for engineering duties in the Army and Navy, but it is also of the first consequence to the country that there should be an adequate supply of engineers for the period of reconstruction which must follow the war. Not only has technical training become of enormous importance in military operations, but the rôle of the engineer has become more and more important in every process of our industrial life."

To meet this demand the General Extension Division now offers groups of courses in Architecture, Civil Engineering, Electrical Engineering, and Mechanical Engineering. These course groups are arranged to be completed in either two- or three-year periods and are planned primarily for workers in industrial establishments.

The subject of engineering is one that requires very thoro study, and no step should be neglected. These courses have been laid out with great care, and are especially adapted to the needs of men working in shops and other industrial and manufacturing establishments, to the end that such men may have added to their practical training a technical and theoretical knowledge which will enable them to advance more rapidly in their chosen line of work.

It has been found that many persons register who can not take the work with any great profit to themselves because of inadequate preparation. For this reason it is desirable that students should consult with the Director of the General Extension Division before taking up any course, so that they may have proper guidance and direction.

Students who have had sufficient preparation need not start at the beginning, but may take up the work at the point where they can pursue it with advantage.

These courses also offer an opportunity to college graduates, who may wish to specialize in some subject not covered in their regular college work.

When the student completes any one of these consecutive courses, a certificate to that effect from the University of Minnesota will be given.

Each student will be required to take a course in "English for Engineers" before a certificate will be granted.

FEES

The fee for these courses is \$45 per year, payable \$22.50 each semester, when registering for three subjects; or \$30 per year, payable \$15 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials.

Special arrangements are made with organizations, clubs, and individual business concerns, whereby instruction may be given to groups of students within the organization at a sum which will somewhat reduce the individual rate per member.

THREE-YEAR COURSE

The following courses, arranged to be completed in three years of two evenings a week, may also be finished in two years of three evenings a week. The work is divided into two semesters per year, and each semester of the engineering extension classes will be sixteen weeks long.

ARCHITECTURE

FIRST YEAR

First Semester
Elementary Architectural Design

Second Semester
Elementary Architectural Design

SECOND YEAR

First Semester
Intermediate Architectural Design
Shop Mathematics

Second Semester
Intermediate Architectural Design
Mechanics, Strength of Materials

THIRD YEAR

First Semester
Advanced Architectural Design
Structural Design

Second Semester
Advanced Architectural Design
Reinforced Concrete

If a class of twelve or more request it, the two following subjects may be taken during the first year:

Freehand Drawing

Architectural History

CIVIL ENGINEERING (For Office Men)

FIRST YEAR

First Semester
Shop Mathematics
Mechanical Drawing

Second Semester
Shop Mathematics—Advanced
Structural Drafting

SECOND YEAR

First Semester
Applied Mechanics
Elements of Structural Design

Second Semester
Strength of Materials
Structural Design—Advanced

THIRD YEAR

First Semester
Reinforced Concrete
Roof Trussed Bridges—Design

Second Semester
Reinforced Concrete Design
Bridge and Building Design

CIVIL ENGINEERING (For Field Men)

FIRST YEAR

First Semester
Shop Mathematics
Lettering and Sketching

Second Semester
Shop Mathematics—Advanced
Mapping

SECOND YEAR

First Semester
Plotting and Calculation
Plane Surveying

Second Semester
Stadia and Topographical Surveys
Curves and Earthwork

THIRD YEAR

First Semester
Highways
Municipal Engineering

Second Semester
Railways
Municipal Engineering

ELECTRICAL ENGINEERING

FIRST YEAR

First and Second Semesters
Shop Mathematics
Elementary Electricity

SECOND YEAR

First Semester
Alternating Currents
Mechanical Drawing
or
Applied Mechanics

Second Semester
Alternating Currents
Mechanical Drawing
or
Strength of Materials

THIRD YEAR

First Semester
Direct and Alternating
Current Machinery
or
Telephony
Steam Boilers and Engines
or
Electrical Measurements

Second Semester
Central Power Stations
or
Telephony
Engine Testing
or
Electrical Measurements

Alternates in the third year will be given only every other year.

MECHANICAL ENGINEERING

FIRST YEAR

First Semester
Shop Mathematics
Mechanical Drawing

Second Semester
Shop Mathematics—Advanced
Mechanical Drawing

SECOND YEAR

First Semester
Applied Mechanics
Advanced Shop Work
or
Elementary Electricity

Second Semester
Strength of Materials
Heat Engines
or
Plumbing

THIRD YEAR

First Semester
Shop Management and Pattern
Construction
or
Heat Engines
Heating and Ventilation
or
Mechanical Equipment of Buildings

Second Semester
Steam and Gas Laboratory
or
Central Stations
Alternating Currents
or
Elementary Machine Design

DESCRIPTION OF COURSES

1. ARCHITECTURAL HISTORY. Twelve lectures illustrated with lantern slides, covering the ancient and Renaissance periods. One evening a week; second semester. FORSYTHE.
2. ELEMENTARY ARCHITECTURAL DESIGN. Shades and shadows and wash rendering. Architectural elements such as doors, windows, moldings, and the architectural orders; general drawing, exercises, and lectures in the application of these elements to simple problems in design and a survey course of lectures in architectural history illustrated by lantern slides. Open to high-school students who have had mechanical drawing, to those who have had one year or more in an architect's office, and to those who, in the opinion of the instructors, have had equivalent experience. Two evenings a week; both semesters. Monday and Thursday evenings, 7:30-9:30. FORSYTHE.
3. INTERMEDIATE ARCHITECTURAL DESIGN. Regular Class B "Analytique" or Order Problems of the Society of Beaux Arts Architects, or equivalent designs in architectural problems from the regular course of the University of Minnesota. Open only to those who have completed Course 2, or who have had two years or more in an architect's office, or have had equivalent preparation in an architectural school. Two evenings a week; both semesters. Monday and Thursday evenings, 7:30-10:00. Fee, \$5 a problem, or \$10 a semester.

4. **ADVANCED ARCHITECTURAL DESIGN.** Class B, Plan Problems, and Class A, Problems of the Society of Beaux Arts Architects, or equivalent design problems from the regular course in architecture at the University of Minnesota. Open only to those who have completed the required "Analytique" or Order Problems, or to those who have had one or more years of design in any architectural school. Two evenings a week; both semesters. Monday and Thursday evenings, 7:30-10:00. Fee, \$5 a problem, or \$10 a semester. MANN.

Note.—Regular instruction will be given on Monday and Thursday evenings, but students in these classes may work in the drafting rooms of the architectural department on other evenings, except Sunday.

5. **FREEHAND DRAWING.** Drawing from casts and from memory. Details of the figure and architectural ornament in charcoal, pencil, pen and ink. Two evenings a week; both semesters. Tuesday and Friday evenings, 7:30-9:30. Fee, \$7.50 a semester. FORSYTHE.
6. **MAP DRAWING.** (a) Farm and city plats. (b) Real estate display maps. (c) Landscape architect's maps. (d) Topographic and hydrographic symbols. One evening a week; second semester. ZELNER.
7. **LETTERING AND TITLES FOR ENGINEERS.** Principally freehand Reinhardt lettering. Title lay-outs and lettering. One evening a week; first semester. ZELNER.
8. **PLANE SURVEYING.** Elements of plane surveying relating to method of chain, compass, transit and stadia surveys; leveling; methods of keeping field notes; determination of area of irregular plots; computation and plotting of field notes; care, use, and adjustment of instruments; methods of subdivision of the United States public lands. One evening a week; first semester. CUTLER.
9. **CURVES AND EARTHWORK.** Mathematics of simple, compound, and spiral curves; preliminary and location surveys; plotting or profiles; vertical curves; cross-sectioning and computation of earthwork volume; methods of computation of overhaul; mass diagram, right-of-way and station ground maps. One evening a week; second semester. CUTLER.
10. **CONCRETE MATERIALS; SELECTION AND TESTS.** This course will cover the selection of materials entering into concrete, their properties and the tests to be applied. A study will be made of the proper combinations to obtain the best mixtures for given constituent materials at the lowest cost. Local materials will be used and those pursuing the course will make their own specimens and perform all the tests. One evening a week; first semester. McMILLAN.
11. **REINFORCED CONCRETE.** Covers the elements of the theory and practical design of reinforced concrete structures, including floors, roofs,

- walls, columns, foundations, and retaining walls. One evening a week; both semesters. McMILLAN.
12. STRUCTURAL DESIGN. This course will include a treatment of structural mechanics and stress computation, and the elements of the principles and practice governing the design of tension and compression members, beams, girders, and columns. Prerequisite: An elementary working knowledge of mathematics through trigonometry, and some knowledge of elementary physics. One evening a week; both semesters. MANEY.
 13. ELEMENTARY ELECTRICITY. This course will start with the simple laws of magnetism, and advance through the theory of direct current machinery. Special attention will be given to direct current motors and generators, armature windings, commutators, and wiring diagrams. The course will be of value to those who wish to take up the study of alternating current machinery and power plants. Experiments will be made throughout the course. One evening a week; both semesters. EDWARDS.
 14. ELEMENTS OF ALTERNATING CURRENTS. An experimental study of alternating currents, including the modifications of Ohm's law to include effects of inductance and capacity, the fundamental principles of the impedance coil, transformer, generator, motor, telephone transmitter and receiver, and the like. One evening a week; both semesters. TURNER.
 15. DIRECT AND ALTERNATING CURRENT MACHINERY. The operation and maintenance of direct and alternating current generators, motors, and electrical measuring instruments. A textbook by J. H. Morecroft will be used. One chapter will be taken each week, and a number of experiments will be made throughout the course. One evening a week; first semester. RYAN.
 16. POWER STATION ELECTRICAL APPARATUS. A study of the problems involved in the operation and maintenance of direct and alternating current generators and motors, switchboards, electrical measuring instruments, and storage batteries. This course is designed for men connected with central stations and isolated plants. One evening a week; second semester. RYAN.
 17. ELEMENTS OF TELEPHONY. Nature of voice sounds, construction and operation of receivers and transmitters, reading blue-prints and circuits, magneto and central-energy circuits, the electro-magnet as used in telephony, batteries and other generating apparatus, signalling apparatus. Some previous knowledge of alternating currents is desirable, but not absolutely necessary. The treatment will be elementary, using only simple mathematics. Experimental illustrations will be given so far as practical. One evening a week; second semester. SHEPARDSON.

18. **SHOP MATHEMATICS.** This course is designed to meet the needs of shopmen, and affords an opportunity to take up engineering work of a higher grade. Practical shop problems will be thoroly discussed. This course together with one in drafting is essential for all other engineering branches. It will cover the subject of fractions, decimals, percentage, weights of materials, areas and volumes, thread cutting, gearing, belts and pulleys, the milling machine, and a general drill in equations and the use of formulae. One evening a week; both semesters. EDWARDS.
19. **ALGEBRA.** A thoro course in elementary algebra, including the fundamentals, factoring, law of exponents, simple, simultaneous and quadratic equations, square and cube root, and the general application of the subject to practical problems. One evening a week; both semesters. EDWARDS.
20. **GEOMETRY.** A short course covering the first five books of plane geometry with numerous original exercises and theorems. One evening a week; both semesters.
21. **TRIGONOMETRY.** This course is designed for those who have had the subjects of algebra and geometry and wish to pursue civil engineering studies. The solution of right and oblique triangles will be thoroly discussed and practical plane surveying problems will be given special attention. One evening a week; both semesters. EDWARDS.
22. **ELEMENTARY APPLIED MECHANICS.** A short, practical course in elementary mechanics designed to meet the needs of students who have had a limited training in mathematics. Numerical calculation, simple graphical calculations, forces, simple machines, work, power, and energy. One evening a week; first semester. BROOKE.
23. **STRENGTH OF MATERIALS.** An elementary course on the strength of materials, designed to follow the course in applied mechanics. The subjects to be treated are: the properties of materials, stress and strain, elastic and ultimate strength, deformations, principle of moments, moment of inertia, simple stresses, shear, riveted joints, the general elementary theory of beams, columns, and shafts. One evening a week; second semester. BROOKE.
24. **TESTING OF MATERIALS.** Investigation of the physical properties of various metals and other engineering materials, including the more common grades of commercial steels, wood, cement, concrete, ropes, cables, belting, chains, etc. Supplemented by lessons on the various materials of construction and standard methods of testing. One evening a week; first semester. SHOOP.
25. **ENGINE AND POWER PLANT TESTING.** This course is intended for stationary engineers who wish to become more efficient in their line

- of work. The course will consist of lessons supplemented by experimental demonstrations illustrative of certain portions of the work. Actual problems arising in power plant testing will be worked out in class with complete explanations and instruction for their solution. The laws of mechanics, heat, power, work, and energy will be applied to engine and power plant testing. One evening a week; first semester. SHOOP.
26. HEAT ENGINES. This is an elementary course required for all engineering students. It relates especially to the steam engine and boiler, the steam turbine, and the gas engine. Attention is given to the different types of engines, boilers, and gas engines. The general problem of a modern power plant is considered for the benefit of those who do not devote further time to the subject. One evening a week; both semesters. ALLEN.
 27. PATTERN MAKING. A series of lessons on the theory and practice of pattern making. Open to mechanics and apprentices who are able to take the work with profit to themselves. A further course is offered to teachers who are now teaching manual training and desire to take up a more advanced branch of the work. This course can also be taken advantageously by those of mature years who wish to become teachers of manual training. One evening a week; first semester. RICHARDS.
 28. PLUMBING. This course is designed to meet the needs of the practical shop man and will cover the principles of plumbing and the best practice in use at the present time. It is hoped that a standard text will be available. One evening a week; second semester. MARTENIS.
 29. HEATING AND VENTILATING. The course will cover present heating and ventilating practice and is designed for heating contractors and others desirous of obtaining a fundamental knowledge of the subject. The plan of instruction includes a study of heat; methods employed for heating and ventilating buildings of various kinds; piping systems and temperature regulation. One evening a week; first semester. MARTENIS.
 30. ELEMENTARY MECHANICAL DRAWING. This is a beginning course and includes the use of the drawing materials and instruments, lettering, drawing views, dimensioning, reading from blue-prints, making of machine and structural drawings, etc. The various steps are taken up in order and the amount of progress possible is largely dependent on the amount of outside time at the student's disposal. One evening a week; both semesters. FRENCH.
 31. TEACHERS' COURSE IN MECHANICAL DRAWING. This is a special course offered to those who teach drawing in the grade and high schools and who wish to acquaint themselves better with standard drafting room practice. One evening a week; both semesters. FRENCH.

32. **MECHANICAL DRAWING FOR WOMEN.** This is a special course offered to women students preparing them to meet the recently increased demand for their services in drafting rooms on tracing work, drawing work, etc. This course will be in part similar to Course 30. One evening a week; both semesters. FRENCH.
33. **ADVANCED MECHANICAL DRAWING.** A practical course in drafting and drafting room methods taking up the detail of machine parts as fastenings, screws, bolts, rivets, and rivet joints; keys, cotters and pins; pipe and pipe fastenings; bearings and journals, pulleys and belting; spur gears, bevel gears, and spiral gears; cams, link motions, etc.; the application of empirical design and the principles of mechanics; assembly, diagrammatic and layout drawings. It is assumed that the student has a previous knowledge of drawing equivalent to Course 30. One evening a week; both semesters. ROWLEY.
34. **ENGLISH FOR ENGINEERS.** A course in practical English, designed to meet the professional needs of engineering students. The material of this course will include business letters—about twelve types; reports; estimates; instructions, etc. Some attention will be given to oral English. The underlying purpose of this course is to acquaint the student with the various kinds of business letters, reports, etc., and to teach him how to prepare and use them effectively. A secondary purpose is to show the prospective engineer that training in expression—written or oral—is training in clear, straight thinking and hence is a real stimulus to general efficiency. Students will be expected to do a certain amount of writing and to take part in the weekly discussions of problems bearing upon the work of the course. Ability to write simple, grammatically correct English is a prerequisite to this course. One evening a week; both semesters. NICHOLS, VIETS.
35. **CALCULUS.** A short course in calculus will be offered to those who have completed trigonometry. Stress will be laid upon the various derivatives and their application to tangents, normals, evolutes, involutes, envelopes, and maxima and minima. A few of the more important integrals relating to engineering will be given. This course is intended to give the student a working knowledge of calculus and the value it has in the engineering field. One evening a week; both semesters. EDWARDS.
36. **THEORY OF ENGINEERING.** A general course given to those students who have had two years training in engineering work. This course includes the practical application of the fundamentals to engineering problems. Only students who have taken Courses 11, 12, 13, 14, 18, 21, 22, 23, 24, 31, are eligible. Kent's *Mechanical Engineers' Pocket Book* will be used as a text. One evening a week; both semesters. EDWARDS.

PROFESSIONAL COURSES IN LAW

The professional courses in law heretofore given by the law Faculty under the direction of the General Extension Division, will be suspended during the session 1918-19.

AGRICULTURAL EXTENSION DIVISION

For details relative to extension courses offered by the College of Agriculture, Forestry, and Home Economics, address the Agricultural Extension Division, University Farm, St. Paul.

OTHER BULLETINS

In addition to the present publication, the General Extension Division also issues the following:

Bulletin of Correspondence Courses

Bulletin of Extension Lectures and the University Lyceum

They will be sent free to any interested person upon request. All inquiries should be addressed to the

General Extension Division,
The University of Minnesota,
Minneapolis

BUSINESS CERTIFICATE HOLDERS OF 1917

On May 25, 1917, the following persons were granted University business certificates in the courses indicated:

Certificates in Accounting

Bayley, Charles S., Minneapolis	McHenry, Robert D., Minneapolis
Cottor, Emil F., St. Paul	Schwartz, Solomon, Minneapolis
Davis, Charles A., Minneapolis	Smith, Arthur V., Minneapolis
Haselbeck, Henry, St. Paul	Wing, Llewellyn F., Minneapolis
Loberg, James M., Minneapolis	Wood, George, Minneapolis

Certificates in General Business

Gruber, J. Jeffry, St. Paul	Kennedy, Thomas F., Minneapolis
	Rose, Carrol H., Minneapolis

Certificates in Finance

Berry, Harry E., Minneapolis	Johnson, Evan M., Minneapolis
Danielson, Andrew W., St. Paul	Jones, Earl R., Minneapolis

CERTIFICATE HOLDERS OF 1918

On May 28, 1918, the following persons were granted University business certificates in the courses indicated:

Certificates in Accounting

Erbalang, Alphonse A., St. Paul	Welliver, Le Roy, Minneapolis
Gustafson, Victoria, Minneapolis	Linnerooth, Sidney, St. Paul
	Nimmerfroh, Gertrude, Minneapolis

Certificates in General Business

Corcoran, John J., St. Paul	Melamed, Louis, St. Paul
	Schaffelke, Henry A., St. Paul

Certificates in Finance

Oberg, Ezra

In Absentia

Hauge, Arthur, Certificate in General Business
Shannon, Thomas, Certificate in Accounting

REGISTRATION 1917-1918

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Allen, Frances, 2320 Newton Av. S.
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Alseen, Myrtle, 1207 Oliver Av. N.
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Altnow, Olga, 907 S.E. 8th St.
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Amonson, Nettie, 1800 13th Av. S.
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Anderson, Herald, 1710 S.E. 4th St.
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Armstrong, Orra F., 228 8th Av. N.E.
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Baldwin, Grace, 515 E. 17th St.
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Barney, Edith M., 2118 Cedar Av.
Barry, Florence M., 3133 Chicago Av.
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Benton, Anne G., 2024 Queen Av. S.
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Berg, Mrs. R. D., 1557 Midway Parkway
Berry, Edna, 1115 N. Bryant
Berry, Bernice, 137 E. Grant St.
Bettridge, J. C., 1210 Logan Av. N.
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Bills, L. W., 524 15th Av. S.E.
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Bisby, G. R., 2309 Priscilla Av., St. Paul
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Bowman, A. W., 88 Spruce Place
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Brandl, Robert B., 1070 Ashland Av., St. Paul
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Brennan, J. H., 2002 S. 2nd St.
Brisley, Mary S., 4437 York Av. S.
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Brown, Percy A., 1086 12th Av. S.E.
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- Budd, Clara, 16 Oak Grove St.
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 Bullard, Irma L., 3213 2nd Av. S.
 Bullock, E. F., 525 11th Av. S.E.
 Bullock, Adelle L., 2437 Aldrich Av. S.
 Bunge, Amanda, 2109 Fremont Av.
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 Burke, J. W., 213 S.E. Beacon St.
 Burkleo, Jane, 519 9th Av. S.E.
 Bushnell, J. W., University Farm
 Byrnes, Mary S., 325 Franklin Av.
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 Canadion, E. D., 914 17th Av. S.E.
 Carey, Agnes F., 2604 Fremont Av. S.
 Carlsten, Esther, 1612 Stevens Av.
 Carney, Clara, 1305 Cleveland Av. N.,
 St. Paul
 Carpenter, Martha, 1915 2nd Av. S.,
 Flat No. 4
 Carroll, Catherine, 4055 Pleasant Av.
 Carroll, Teresa, 4055 Pleasant Av.
 Chaline, Edith, 2735 Garfield S.
 Challman, Esther, 1600 1st Av. S.
 Champlin, J. E., Y. M. C. A.
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 Chapple, Dora E., 1430 Spruce Place
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 Clark, Lois, 721 S.E. 12th St.
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 Cohen, Harry K., 1040 Irving Av. N.
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 Conroy, Mary H., 620 E. Franklin Av.
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 Cramer, Isabel M., 1019 University Av.
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 Crawford, Myrtle, 1612 Stevens Av.
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 Crossdale, Inez S., 1805 2nd Av. S.
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 Cross, Norton M., 2103 2nd Av. S.
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 Davis, Anna J., 3932 Elliot Av.
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 S.
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 Estes, Florence A., 212 E. 36th St.
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 Foster, Mrs. W. K., 652 S.E. Erie St.
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 Graves, Mrs. R. A., 1816 19th Av. N.
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 Hage, Lillian C., 2201 Bryant Av. S.
 Hage, Maud, 2201 Bryant Av. S.
 Hainer, Gertrude, 2623 1st Av. S.
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 Haven, Kittie, 3145 Stevens Av.
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 Hawkinson, Alida, 1051 15th Av. S.E.
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 Hays, Ada S., 3356 Park Av.
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 Hildebrandt, Ruth A., 323 S.E. Church St.
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 Johnson, Dora, Curtis Court
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 Johnson, Lael, 510 12th Av. S.E.
 Johnson, Nancy L., 3016 Bryant Av. S.
 Johnson, Rae, 631 E. 18th St.
 Johnson, Stewart W., 3116 10th Av. S.
 Johnson, Will R., 4525 York Av. S.
 Johnstone, Harriet, 815 S.E. 6th St.
 Johnstone, Jane, 815 S.E. 4th St.
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 Jones, Gwen M., 1013 Park Av.
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 Jones, Ruth J., 1600 1st Av. S.
 Jordan, Helen, 1400 W. 25th St.
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 Jurgenson, Anna, 1522 Fremont Av. N.
 Kearney, Norman, 1910 2nd Av.
 Keating, Anna B., 3128 Irving Av. S.
 Kehne, Elizabeth, 780 Curfew Av., St. Paul
 Kelley, Evie F., 3129 Portland Av.
 Kellett, Josie, 1425 Vine Place
 Kelly, Mary C., 131 Oak Grove St.
 Kennedy, Cecelia, 1421 Lyndale Av. N.
 Kennedy, Kathryn, 610 S.E. 6th St.
 Kent, M. A., 3116 Stevens Av.
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 Keyes, Leonard, 621 S.E. 7th St.
 King, J. D., 1716 S.E. 4th St.
 King, Grace E., 3136 Humboldt Av. S.
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 Koehler, Elsa I., 508 University Av. S.E.
 Koenig, A. E., 602 S.E. 7th St.
 Koenig, Myra, 602 S.E. 7th St.
 Krishef, J. L., 1012 Bryant Av. N.
 Kriskey, Imogen, 1680 Hennepin Av.
 Krogstadt, Marie, 4336 Aldrich Av. S.
 Kuehn, Henry E., 1831 Irving Av. N.
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 Kvam, Julien A., 1029 S.E. 4th St.
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 Lackersteen, Wynne, 610 S.E. 5th St.
 Ladner, Emily, 2112 Garfield Av.
 La Du, Mrs. Blanche, 1067 17th Av. S.E.

- Lambert, Mrs. E. M., 1086 12th Av. S.E.
- Lane, Bessie, 417 11th Av. S.E.
- Langvick, Clara, 1501 Linden Av. N.
- Langvick, Emma, 1302 E. 18th St.
- Larson, Alvin H., 1206 S.E. 5th St.
- Larson, Beatrice, 303 Wash. Av. S.E.
- Larson, Vera E., 3105 E. 25th St.
- Larsen, Vilhelm, 3010 20th Av. S.
- Lawrence, Clara F., 4234 Garfield Av.
- Leahy, Alice M., 713 E. 14th St.
- Leavitt, Madeline, 2109 Bryant Av. S.
- Lee, E. J., 333 Wilder Av., St. Paul
- Lee, Bessie M., 312 19th Av. S.E.
- Leitzman, Lorraine, 406 20th Av. S.
- Lembeck, Anna, 2915 W. 44th St.
- Lennon, Mary M., 221 N.E. 2nd St.
- Leonard, H. J., 2130 Lyndale Av. N.
- Leonard, Josephine M., 1176 Curtis Court
- Lewis, Luisa K., 3304 48th Av. S.
- Liedl, Rose M., 716 S.E. 6th St.
- Lien, Clara, 3025 James Av. S.
- Lilienfeld, Anne, 1315 S. 7th St.
- Lillegren, Demaris E., 4118 Nicollet Av.
- Linehan, P. J., 2201 N.E. Grand St.
- Linne, Award, 409 S.E. Oak St.
- Livermore, H. J., 352 Bates Av. N., St. Paul
- McAndrews, Byda, Hastings Hotel
- McAuliffe, Gertrude, 303 Curtis Court
- McAuliffe, Kate, 1512 Harmon Place
- McCall, Bessie A., 3044 Harriet Av.
- McCall, Florence, 3114 18th Av. S.
- McCann, Alice L., 321 N. Newton
- McClellan, Fred, 2016 Kenwood Pky.
- McConnell, Daisie C., 3035 Oakland Av.
- McCormack, Katherine, 2001 Aldrich Av. S.
- McCue, Elizabeth, 1207 S.E. 5th St.
- McDonald, H., 1112 16th Av.
- McDonald, William H., 4123 N.E. 5th St.
- McGregor, Lulie, 502 W. Franklin Av.
- McGuane, Anna, 2817 Colfax Av. S.
- McHugh, Mayoma, 1234 Oliver Av. N.
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- McIntyre, M. R., 1710 Stevens Av.
- McIntyre, Alice M., 4410 Lake Harriet Blvd.
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- McKnight, Lucile, 617 14th Av. S.E.
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- McLaughlin, Josephine A., 4300 Lyndale Av. S.
- McLean, Alice, 1551 Hillside Av.
- McPherson, Gertrude K., 4325 Grimes Av.
- McShane, Catherine, 835 Holly Av., St. Paul
- MacMullan, Kathryn V., 2817 Colfax Av. S.
- Madden, Adeline, 2612 Chicago Av.
- Madison, Mamie L., 2420 Harriet Av.
- Madsen, Leo H., 1320 S.E. 7th St.
- Maguire, Helen, The Angus Hotel, St. Paul
- Malmsten, Agnes, 2117 Western Av.
- Malmsten, Edith, 2117 Western Av.
- Malmsten, Julia C., 2117 Western Av.
- Maleitzka, W. C., 1142 Lyndale Av. N.
- Manley, Marjorie, 3236 Holmes Av.
- Manlove, Marjorie, 1614 Girard Av. N.
- Marsh, Olive V., 4939 Girard Av. N.
- Martell, Ned A., 316 12th Av. S.E.
- Martin, John H., 311 7th Av. S.E.
- Martin, Leo H., 3309 University Av. S.E.
- Martin, Mary L., 320 Jackson St.
- Mathes, Mr. A. C., 1601 S.E. 7th St.
- Mathes, Mrs. A. C., 1601 S.E. 7th St.
- Mattand, J. N., 3524 Stevens Av.
- Mead, C. H., The Rosslyn Apts.
- Meason, Georgina, 1208 W. Franklin Av.
- Meek, Mabel, 1777 Colfax Av. S.
- Meeker, Mary K., 2548 Clinton Av.
- Melamed, Louis, Corning - Firestone Agency., St. Paul
- Mendow, H. Z., 921 14th Av. S.
- Miao, Yun tai, 1127 S.E. 4th St.
- Miley, Grace L., 2306 17th Av. S.
- Millar, Pearl, 3124 Bryant Av. S.
- Miller, O. H., 3345 2nd Av. S.
- Miller, Bessie P., 707 Summit Av.
- Miller, Charles J., 2909 Irving Av. S.
- Miller, Helen, 3212 Irving Av. S.
- Miller, Jane S., 1873 Marshall Av., St. Paul
- Milne, C. P., 1921 Colfax Av. S.
- Mo, Einar, 701 15th Av. S.E.
- Molan, Kathleen, 3523 Garfield Av.
- Montgomery, Minnie, 1416 Portland.
- Mooney, Edward, 105 S.E. Warwick St.
- Moorman, Lucile, 108 E. 15th St., Apt. No. 25.
- Morrison, V. E., 1015 Mary Place
- Morse, Anna J., 1420 Portland Av., Apt. No. 32
- Mozzara, Adeline, 3539 Harriet Av.
- Mullins, Ella, 1916 2nd Av. S.
- Murphy, J. F., 514 7th Av. S.E.
- Murphy, Mrs. J. F., 514 7th Av. S.E.
- Murphy, Sylvester, 114 Thomas Av. N.
- Murray, Agnes R., 2445 Aldrich Av. S.

- Muth, Mrs. Edna, 137 E. Grant
 Myhre, Aimer W., 2310 Penn Av. N.
 Nelson, F. C., 1300 Central Av.
 Nelson, Albert F., 2753 Colfax S.
 Nelson, Dorothea, 2605 E. 22nd St.
 Nemire, Emma M., 524 12th Av. S.E.
 Nessel, M. E., 1704 Park Av.
 Neubauer, August, 1206 5th St. S.E.
 Neumeier, C. J., 3820 Garfield Av.
 Newell, Bernice, 3505 Portland Av.
 Newell, Bertha, 3104 James Av. S.
 Newell, Margaret, 1116 S.E. 5th St.
 Newell, Margaret M., 1219 S.E. 4th St.
 Newton, Elizabeth, 1229 Selby Av., St. Paul
 Noosinow, Lillian, 524 Emerson Av. N.
 Nordenson, D. H., 4240 12th Av. S.
 Norrgard, E. F., St. Louis Park
 Norris, Edgar H., 5031 Colfax Av. S.
 North, J. M., 2724 Chicago Av.
 Nye, Ellen S., 1801 4th Av. S.
 Nyland, Ed, 779 Dayton Av., St. Paul
 Nyquist, Ann S., St. Barnabas Hospital
 O'Brien, Michael, 3633 4th Av. S.
 Ochs, Minnie K., 51 Melbourne Av. S.E.
 O'Connor, J. L., 1711 University Av. S.E.
 O'Dell, Thomas E., 4728 27th Av. S.
 Ohman, Arthur, 1429 S. 8th St.
 Olsen, Christian M., 1712 19th Av. N.
 Olson, P. L., 217 S.E. Walnut St.
 Olson, Carrie, 2232 N. E. Lincoln St.
 Olson, Edward A., 2710 S. 9th St.
 Olson, Edward J., 162 Emerald S.E.
 Olson, Margaret, Eitel Hospital
 Olson, Mina, 1253 Lafond
 Orr, Loretta M., 2500 Emerson Av. N.
 Pahl, William A., Y. M. C. A.
 Palfy, Louis, 1817 Washington Av. S.
 Patch, Alice S., 972 Curtis Court
 Patchen, George A., 1811 1st Av. S.
 Pattison, Edith S., 2646 Fremont Av. N.
 Paulsen, Lillian, 2317 Humboldt Av. S.
 Paulson, Arthur C., 525 11th Av. S.E.
 Peabody, E. S., 325 Wilder Av., St. Paul
 Pearson, Belle S., 408 W. Lake St.
 Pease, Vinnie, 303 Washington Av. S.E.
 Peck, Dr. A. E., 1912 Emerson Av. S.
 Peck, Anna M., 1912 Emerson Av. S.
 Peck, Helene D., 576 N. Lexington, St. Paul
 Peck, Jean F., 576 N. Lexington Av., St. Paul
 Perine, Mrs. E. G., 517 9th Av. S.E.
 Perkins, Alfred, 1780 Wakefield, St. Paul
 Perkins, Marrion, 1612 Stevens Av.
 Peterson, A. R., 2705 Colfax Av. S.
 Peterson, Caroline, 3924 Pillsbury Av.
 Pfeiderer, H. T., 2917 Harriet Av.
 Phelps, Aura, 719 5th Av. S.E.
 Phillips, Anna, 1808 Stevens Av.
 Phillips, Bertha, 51 N. 15th St.
 Phillips, Bertha I., 3120 James Av. S.
 Plummer, Bel, 1111 Hawthorne Av.
 Poehler, Harriet, 2433 Garfield S.
 Polacek, Florence L., 907 S.E. 8th St.
 Polley, Jessie M., 4748 Chicago Av.
 Pool, Zada, 2810 15th Av. S.
 Porter, Mrs. H. W., 121 11th St.
 Porterfield, Doris, 620 13th Av. S.E.
 Postlethwaite, B. K., 4910 Emerson Av. S.
 Powell, Mrs. Mary A., Hotel Berkeley
 Pratt, Agnes A., Washburn Home
 Prindeville, Helen, 1801 1st Av. S.
 Prushek, Emil, Y. M. C. A.
 Purcell, Abby, 1013 Park Av.
 Putnam, Mary P., 1615 Girard Av.
 Pybus, Emma M., 608 E. 15th St.
 Raab, Frank, 12 Barton Av. S.E.
 Radaatz, Agnes, 1800 1st Av. S.
 Radosch, Dorothea, 721 S.E. Erie St.
 Radosch, Minna, 721 S.E. Erie St.
 Raymond, F. A., 419 S. 9th St.
 Randall, Ada M., Hopkins, Minn.
 Randall, Grace A., 3110 S.E. 4th St.
 Ranny, Laura M., 614 E. 22nd St.
 Rasmussen, Rasmus C., 2010 Minnehaha Av.
 Records, Mrs. Elizabeth, 101 W. 48th St.
 Reed, Katherine, St. Barnabas Hospital
 Reed, Margaret, 2204 Grand Av.
 Regan, Grace H., The Leamington
 Reid, Mary D., 604 11th Av. S.E.
 Reque, A. D., 307 W. 15th St.
 Reque, Marie, 307 W. 15th St.
 Reynolds, G. W., 3811 10th Av. S.
 Reynolds, Gertrude M., 3811 10th Av. S.
 Rhame, R. D., 209 S.E. State St.
 Rhame, W. S., 209 S.E. State St.
 Rhame, Mrs. W. S., 209 S.E. State St.
 Rheberg, Rachel, 2220 Oakland Av. S.
 Richards, Nellie, 4244 Linden Hills Blvd.
 Richey, Edmund, 1419 5th Av. S.
 Rise, Mathilde, 825 4th Av. S.
 Ritze, Bertha, 1805 2nd Av. S.
 Rizer, Mrs. R. I., 610 S.E. 5th St.
 Robinson, Harriet M., 2720 Elliot Av. S.
 Rodde, Elsa, 1312 17th Av. N.
 Rogers, Edna M., The Antlers

- Rogers, Fay, 1206 18th Av. N.
 Rogers, Herman C., 2009 Portland Av.
 Rollins, Carl, 3130 Emerson Av. S.
 Rood, Mary B., 116 Oak Grove St.
 Roundy, Ann L., 4657 Colfax Av. S.
 Rowe, Ina B., 2116 Como Av. W.
 Rowell, Ora M., 2217 Fremont Av. N.
 Rudoy, Edith, 915 14th Av. S.
 Rush, Clara, 1723 Elliot Av.
 Rush, Mrs. Samuel, 5800 Portland Av.
 Russell, Clara H., 1306 Portland Av.
 Russell, Clementine R., 1306 Portland Av.
 Rutledge, Elizabeth, 3435 2nd Av. S.
 Ryan, W. T., 1827 Melbourne Av.
 Ryan, Mrs. W. T., 1827 Melbourne Av.
 Ryberg, Anna B., Bethel Academy, St. Paul
 Rydell, Edmund, 2114 Dupont Av. N.
 Rynder, Ethel, 364 King St.
 Saam, Selma L., 3100 Elliott Av.
 St. Amaut, Rudolph C., 2736 4th Av. S.
 Sanborn, G. B., 4342 Pleasant Av.
 Sanford, Esther, 1901 Park Av.
 Sauer, Laura M., Eitel Hospital
 Scales, Kate M., 2300 Nicollet Av.
 Scherer, Lydia, 34 21st Av. S.
 Schoening, Ida, 2109 Fremont Av. S.
 Schoonover, G. C., 202 E. Franklin Av.
 Schoonover, Mrs. G. C., 202 E. Franklin Av.
 Schussler, Emma W., 2722 Bloomington Av.
 Schussler, Rose A., 2722 Bloomington Av.
 Schwartzbach, Merriam S., 612 Girard Av. N.
 Scott, Alice, 3032 Dupont Av. S.
 Scroggins, M. E., 3130 Emerson Av. S.
 Sederholm, Oscar J., 2308 28th Av. S.
 Seeleman, Rosamond, 306 N.E. Quincy St.
 Seeley, Edna, 1306 S.E. 7th St.
 Seeley, Jennic L., 1916 2nd Av. S.
 Seipel, Raymond, 1120 S.E. 8th St.
 Sellhorn, Minnie D., 1612 Stevens Av.
 Sengir, Barbara, 912 6th Av. S.
 Sessions, Orié A., 707 Summit Av.
 Seward, Minnie M., 1317 2nd Av. S.
 Seward, Sarah, 206 W. 27th St.
 Seyller, Blanche L., Berkeley Hotel.
 Sharbach, Ward J., 3544 Oakland Av.
 Shea, Ray L., St. Cloud, Minn.
 Shelley, Clarence, 409 4th Av. S.E.
 Shephard, Adelene V., 2411 Oliver Av. S.
 Sherin, Mabel, The Antlers.
 Sherman, Mrs. V. C., 2209 Humboldt Av. S.
 Sikes, Lena A., 2107 James Av. N.
 Simon, Clara J., 1065 Van Slyke Av., St. Paul.
 Simon, Ellen M., 1065 Van Slyke Av., St. Paul.
 Simpson, Jean, 2124 Girard Av. S.
 Slattengren, Hattie, Murray School, St. Paul.
 Smilowitch, D. J., 1203 S. 7th St.
 Smith, Cleora F., 1816 Stevens Av., Flat No. 2.
 Smith, Eva, 1915 Aldrich Av.
 Smith, Fred G., 1704 Humboldt Av. S.
 Smith, Herschel H., 2604 Clinton Av.
 Smith, Irene A., 3125 16th Av. S.
 Smith, Lois A., 816 S.E. Beacon St.
 Smith, Loretta L., 2186 Dayton Av., St. Paul.
 Smith, Louise P., 3827 W. Lake St.
 Smith, Lyle L., 1853 Iglechart Av., St. Paul.
 Smith, Marguerite M., 2600 5th Av. S.
 Smith, Ora K., 3312 3rd Av. S.
 Snyder, Marion L., 600 11th Av. S.E.
 Snyder, Mary, Webster School.
 Solien, Tilla, 226 S.E. Harvard St.
 Sowle, F. B., 228 W. 27th St.
 Speake, Weltha, Hotel Waverly.
 Sprague, D. W., 517 8th Av. S.E.
 Stanchfield, F. E., 1110 13th Av. S.E.
 Stanchfield, Lois, Curtis Court.
 Stanchfield, Steele S., 1110 13th Av. S.E.
 Stanton, Alta Loren, 827 S.E. 6th St.
 Stark, Inez A., 4716 Oakland Av.
 Stark, Marcus P., 4716 Oakland Av.
 Steen, J. H. A., 225 Nelson Av., Flat No. 7.
 Steffens, Leon A., 621 Oak Av., St. Paul.
 Stephens, Maude M., 2217 Scudder Av., St. Paul.
 Stevens, Benj. A., 1280 Raymond Av., St. Paul.
 Stewart Alex W., 4416 Thomas Av. S.
 Stoker, Ruth M., 2619 Dupont Av. N.
 Stothard, C. F., 6 E. 26th St.
 Stover, Zelma E., 4003 Blaisdell Av.
 Straka, George, 621 Ontario St. S.E.
 Strate, Nettie M., 3032 Colfax Av. S.
 Stromme, Minnie, 1013 13th Av.
 Strong, Harvey W., 502 2nd Av. S.E.
 Stultz, Laura R., 926 Hudson Av.
 Sugarman, N. J., 50 Highland Av.
 Sullivan, Margaret.
 Sumner, Bernice, 2806 Humboldt Av. N.
 Swanson, E. E., 3932 18th Av. S.
 Swennes, Agnes E., 813 E. 22nd St.

- Swenson, Egbert, 714 S.E. Delaware St.
- Tanke, Ruth L., 1501 Linden Av.
- Taylor, Sarah E., Ogdan Apartments.
- Taylor, Susan E., Ogdan Apartments.
- Telfair, Nellie M., 2444 Chicago Av.
- Thomas, Gertrude, 417 S.E. Delaware St.
- Thomas, Le Roy, 1206 S.E. 6th St.
- Thomas, Lucy Agatha, 2105 Bryant Av. S.
- Thomas, Miriam E., 2640 16th Av. S.
- Thompson, Ella May, St. Barnabas Hospital.
- Thompson, Mildred, 2724 1st Av. S.
- Thorpe, Ilene, 1612 Stevens Av.
- Tift, Lowell, Glencoe, Minn.
- Tilden, Josephine E., 2235 Como Av. N.
- Tilden, Rose E., 52 S. 10th St.
- Tinkham, Bertha L., 1915 2nd Av. S., Flaj 4.
- Tolson, Edgar, 856 Albemarle St., St. Paul.
- Tomlinson, Bessie A., 3115 13th Av. S.
- Toncheff, Stanil, 1529 S.E. 4th St.
- Trainor, Teresa, 1712 Portland Av.
- Underwood, Elizabeth, 2620 Hennepin Av.
- Van Camp, Kate, 405 S.E. Oak St.
- Vance, Katherine, Fairmont Apartments.
- Van Kleek, Maude, Curtis Court.
- Van Solen, E. E., 2518 Emerson Av S.
- Vievering, William, 2360 Hampden Av., St. Paul.
- Vincent, Jean, 1303 Yale Place.
- Voight, Alfreda, 26 Oak Grove St.
- Vreeman, Anton, 322 13th Ave. S.E.
- Waaen, Carl A., 326 Flour Exchange.
- Wade, Henry H.
- Waiste, L. B., 4717 Washburn S.
- Waite, Beatrice M., 1786 Hennepin Av., Apartment No. 3.
- Wallace, J. G., 3916 Lyndale Av. S.
- Walquist, Ann, 2528 Elliott Av.
- Walsh, Leo J., 2155 Selby Av., St. Paul.
- Walsh, W. C., 503 15th Av. S.E.
- Wambold, Clara T., 904 W. Franklin Av.
- Wanrich, Gertrude, 1801 University Av.
- Ward, Susan, 4410 Lake Harriet Blvd.
- Warner, Mrs. G., Angus Hotel, St. Paul.
- Warner, Elizabeth S., 910 21st Av. S.E.
- Warwick, Margaret, 1516 S.E. 7th St.
- Watkins, Leona, 2818 Fremont Av. N.
- Watson, Louise H., 3133 Fremont Av. S.
- Watts, Effie E., 2410 Pierce St.
- Weatherhead, Louesa, Williamson Hall.
- Weaver, G. A., 3037 Columbus Av. S.
- Webster, J. F., 3036 Oakland Av.
- Wedin, A. E., 4147 Dupont Av. N.
- Welch, Esther, 76 S. 12th St.
- Welles, Nancy, 2873 Irving Av. S.
- Welliver, L. R., 163 S.E. Bedford St.
- Werket, Inga, 2204 Grand Av.
- Wesner, F. E., 217 S.E. Walnut St.
- Wetherbee, F. C., 311 S.E. Walnut St.
- Wheeler, Eva G., 70 S. 12th St.
- White, Helen, 1316 S.E. 7th St.
- Wichman, A. H., 731 E. 28th St.
- Wicklund, Evelyn, 920 Oliver Av. N.
- Wicklund, Hazel E., 920 Oliver Av. N.
- Wilkinson, Sarah, 1908 Hennepin Av.
- Williams, Maude, 2010 Park Av.
- Willinger, A. J., 2216 Clinton Av.
- Willis, Bessie E., 1213 12th Av. N.
- Wind, Kate, Linden Hills Station.
- Wittlin, Julia C., Tuttle School.
- Wohlgemuth, Anne, Hamilton School.
- Wolean, Alma, 200 S.E. Harvard St.
- Wolfe, Beatrice G., 714 S. 10th St.
- Wolfe, Vera, 2317 Buchanan St.
- Wood, Adelia, 3341 2nd Av. S.
- Woodruff, Pearl E., 1208 W. Franklin.
- Woodward, Agnes Y., 2222 Dupont Av. N.
- Woodward, M. Myrtle, Pillsbury School.
- Wright, Ralph C., 512 Newton Av. N.
- Yankoski, Frances E., 2344 S. Aldrich Av.
- Yerxa, Clifford M., 608 S.E. 7th St.
- Young, Marie L., 2420 Elliott Av.
- Young, Walter, 143 S.E. Bedford St.
- Zierold, Arthur A., 4219 Colfax Av. S.
- Zimmerman, Sarah, 1614 Stevens Av.

ST. PAUL

- Angell, Fred J., 605 Ottawa Av.
- Barnard, Helen E., 117 N. Victoria St.
- Bassford, M. Hannah, 441 Iglehart Av.
- Betow, Herman F., St. Paul Milling Co.
- Binet, Lucia M., 1870 Laurel Place.
- Binet, Mae H., 1870 Laurel Place.
- Birnberg, Margaret, 654 Hall Av.
- Birnberg, Rose, 654 Hall Av.
- Biskup, Frances, 667 Woodbury St.
- Blake, Frances E., 2413 Bayless Av.
- Blandin, A. A., 655 Portland Av.
- Borden, Gertrude, 2026 Laurel Av.
- Borup, Sophie C., 723 Portland Av.
- Bradish, Anna, 353 Carroll Av.
- Bragg, Goldye, 320 3rd Av.
- Brash, Jean, 42 E. Piedmont Apartmn. set

- Bray, Josephine E., 2299 Long Av.
 Brennan, Margaret S., 760 Carroll Av.
 Brennan, Mary F., 760 Carroll Av.
 Brennan, Rebecca, 243 Grove St.
 Broderick, May, 1076 Lincoln Av.
 Brokaw, Frederic, 1805 Carroll Av.
 Buckley, Margaret, 873 Fairmount Av.
 Burns, Catharine, 999 Portland Av.
 Burns, Elizabeth, 999 Portland Av.
 Burns, Maria, 999 Portland Av.
 Byrne, Katherine M., 1336 Dayton Av.
 Callahan, Elizabeth, 72 E. George St.
 Cameron, Mrs. W. A., 829 Tuscarora Av.
 Carroll, Kathleen G., 44 W Delos St.
 Carson, Wm. James, City and County Hospital.
 Caulfield, Mary G., 774 Laurel Av.
 Chamberton, Sherman R., 702 E. 7th St.
 Clark, Keith, 1470 Wesley Av.
 Colberg, Ruth M., 1220 Burr St.
 Collins, Elizabeth, The Seville, Flat 7.
 Collins, Frances M., 815 Ashland Av.
 Converse, Lula, 231 Arundel.
 Cooper, Margaret, 1144 Ashland Av.
 Corcoran, John J., 667 Como Blvd.
 Corteau, Stella, 742 St. Peter St.
 Cox, L. C., 1701 Capitol Av.
 Daily, Gertrude B., 1901 Goodrich Av.
 Daily, Frances, 1901 Goodrich Av.
 Daley, Mary E., 77 Sherburne Av.
 Davis, Esther Jean, 1671 Ashland Av.
 Dempsey, Helen, 875 Aurora Av.
 Dilley, Antoinette, 954 Selby Av.
 Dimond, Winifred, 624 Ashland Av.
 Dolan, Agnes J., 2169 Goodrich Av.
 Dolan, Charles, 985 Matilda Av.
 Dougherty, Theresa C., 1071 Portland Av.
 Doyle, Mary C., 327 Carroll Av.
 Duncan, Marion, 147 River St.
 Dunlap, Morris O., 530 Capitol Blvd.
 Dunn, Teresa M., 331 Geranium St.
 Early, Alice B., 724 Hudson Av.
 Edwards, Annie, 423 Laurel Av.
 Edwards, Fannie C., 1890 Marshall Av.
 Egan, Anastasia, 872 Hague Av.
 Egan, Margaret, 969 Marvel St.
 Elfstrom, Roy J., 895 Keany St.
 Emery, Marion Grace, 93 Kent St., Apartment No. 8.
 Enright, Verne, 231 Arundel St.
 Faricy, James R., 202 Aurora Av.
 Farley, Mary B., 269 Selby Av.
 Feeney, Agnes E., 583 Lincoln Av.
 Felsted, Jessie M., 1996 Carroll Av.
 Fichtenan, Florence, 731 Butternut Av.
 Fitzgerald, Margaret, 1687 Berkeley Av.
 Foote, Elizabeth, 1632 Blair St.
 Fosnes, Edith, 749 Lowry Bldg.
 Foster, J. Maude, 574 Selby Av.
 Francis, Chas. C., 1769 St. Anthony.
 Franke, Wilhelmine, 220 Fairview.
 Franzen, Helvine A., 53, The Piedmont.
 Frederick, B. Gladys, 389 Dayton Av.
 Froberg, Marie, 1907 Lincoln Av.
 Froelich, Paul A., 720 Cedar St.
 Fulton, Louise A., 97 Kent St.
 Gallup, Nellie M., 591 Ashland Av.
 Gaughan, Katherine, 301 Dayton Av.
 Gaughan, Sarah, 301 Dayton Av.
 Gearing, Maude P., 9 W. Delos.
 Geraghty, Bridget, 308 Como Av.
 Gill, Mary, 818 Ashland Av.
 Ginsberg, Daisy, 1744 Laurel Av.
 Gorman, Mary G., 217 N. St. Albans.
 Gottlieb, Mathew M., 515 Ashland Av.
 Grace, Lillian M., 335 Iglehart Av.
 Grant, Mary, 648 Brown Av.
 Greene, M. Susan, 806 Holly Av.
 Gries, Stella M., 237 Arundel St.
 Griffin, John F., 232½ Western Av. S.
 Gundlach, Caroline, 846 Fairmount Av.
 Gundlach, Lucy, 846 Fairmount Av.
 Haan, Ora B., 225 Arundel St. Flat No. 3.
 Haggard, Laura A., 679 Lincoln Av.
 Hand, Richardine, 591 Ashland Av.
 Hanson, C. A., 2675 University Av.
 Hartman, Ben H., 282 W. Central Av.
 Heal, Pearl A., 1462 Capitol Av.
 Heyd, Nellie C., 742 Laurel Av.
 Hickman, J. H. Jr., 526½ W. Central Av.
 Hinners, Gertrude, 1850 Summit Av.
 Holland, Mary D., 724 Holly Av.
 Holmes, Margaret, 1156 Summit Av.
 Horeish, John H., 17 Wilkin St.
 Hough, Bertha F., 238 Nelson Av.
 Hull, Harriet Belva, 703 Grand Av.
 Hurley, Anne, 723 Dayton Av.
 Hyde, Alice, 308 Winifred St.
 Jefferson, Jennie V., 705 Manomen Av.
 Jensen, J. R., 476 Laurel Av.
 Johnson, Alice May, 233 4th Av. N.
 Johnson, Ida A., 177 Nelson Av.
 Johnson, Lydia, 433 Carroll Av.
 Johnson, Mathilde J., 540 Capitol Blvd.
 Kamman, Ira S., 128½ Eaton Av.
 Katzmarek, John E., Y. M. C. A.
 Kearney, Hazel G., 131 E. Colorado St.
 Kelley, Agnes P., 274 Dayton Av.
 Kelley, Elizabeth, No. 3 Hillcrest Apts.
 Kelley, Everett, Y. M. C. A.
 Kernkamp, Ella, Central School, South St. Paul.
 Kilroy, Anna I., 1144 Hague Av.

- Kinsey, Helen M., 207 E. Page St.
 Koch, Wm. C., 759 Holly Av.
 Koeneman, Clara, 594 Marshall Av.
 Kroeger, Louise, 399 Ashland Av.
 Krokauer, Rose, 682 Holly Av.
 Kuehne, Bertha F., 402 Dayton Av.
 Lamb, Jane Ellen, 1169 Ashland Av.
 Larpenteur, Ethel, 737 Hudson Av.
 Larson, Helen I., 541 Rondo St.
 Leavitt, F. A., 633 Dayton Av.
 Linehan, Lenore, 147 Summit Av.
 Logue, Mrs. W. J., 885 Dayton Av.
 Luckert, Margaretta, 472 Iglehart Av.
 McCann, Elizabeth, 1461 Wynne St.
 McCauley, Anna M., 681 Holly Av.
 McCauley, Clara J., 1083 Hague Av.
 McCleary, Nellie M., 801 Goodrich Av.
 McClellan, Mary F., 88 Kent St.
 McCormack, Elizabeth, 632 St. Peter St.
 McGriffin, Catherine, 1845 Iglehart Av.
 McGuire, Alice, 538 Dayton Av.
 McGuire, Helen B., 769 Marshall Av.
 McGuire, Margaret, 769 Marshall Av.
 McGuire, Mary, 769 Marshall Av.
 McKee, E. F., 1872 Dayton Av.
 McKellar, Walter A., 224 W. Linden St.
 McNally, Genevieve, 293 Nelson Av.
 McTigue, Howard F., 630 Ashland Av.
 McVay, Mary, 1988 Princeton.
 McVay, Secundella, 1988 Princeton.
 MacKnight, Mary V., 355 St. Anthony Av.
 MacLeod, Mrs. A., 634 Iglehart Av.
 Mahoney, Margaret, 2170 Marshall Av.
 Mann, Helen S., 766 Iglehart Av.
 Mathews, Josephine, St. Francis Hotel.
 Maxwell, Olive L., 569 Oakland Av.
 Melamed, Louis, 867 Iglehart Av.
 Metcalf, Mrs. Ruth, 1621 Ashland Av.
 Meyer, Hattie, 528 Marshall Av.
 Miller, Jane S., 1873 Marshall Av.
 Miller, Myrtle, Central School, South St. Paul.
 Minter, Esther, 892 Hague Av.
 Mitchell, Maude, 696 Grand Av.
 Mohan, Sarah, 118 Western Av.
 Monnia, I. A., 306 Rondo St.
 Morice, Agnes M., 950 Arkwright St.
 Morrissey, Winifred, 133 5th Av. N., South St. Paul.
 Mulcare, F. D., 106 E. Acker St.
 Murphy, Etta, 873 Laurel Av.
 Murray, Albert S., 1242 W. Minnehaha St.
 Nahinsky, David, 275 E. 13th St.
 Neal, W. E., 2131 Dayton Av.
 Neill, Adelaide, 118 Western Av.
 Nelson, Florence, 1877 Beech St.
 Newton, Elizabeth, 1229 Selby Av.
 Newton, Millicent, 1043 Goodrich Av.
 Newton, Muriel, 1807 Wordsworth Av.
 Niedorf, Katherine, Crowley School.
 Niedorf, Lillian K., 237 St. Albans.
 Oace, Sophie, 662 Rondo St.
 O'Brien, Frances, 583 St. Peter St.
 O'Brien, Minnie M., The Seville.
 O'Hair, Grace, 806 Holly Av.
 Ohr, Winifred, 556 Ashland Av.
 Olsen, Carolyn, 271 Selby Av.
 Owens, Belle M., Public Library.
 Parks, Mabel A., 617 Elfelt St.
 Patterson, Georgie L., 61 St. Albans.
 Paulson, Lillian, 925 Albenmarle St.
 Pearce, Mary E., 733 Grand Av.
 Pearson, Katie, 185 Concord St.
 Pewter, Winifred C., 973 Manvel St.
 Pliefke, Oda, 601 Burgess St.
 Poirier, J. A., 2882 Humboldt Av S., Minneapolis.
 Powers, Florence, 2029 Grand Av.
 Prendergast, Katherine, 408 Ashland Av.
 Price, Mary A., 1937 Ashland Av.
 Prout, Sadie, 1555 Goodrich Av.
 Reidenger, Leone, 1037 4th Av.
 Richter, Florence L., 755 Ohio St.
 Rittle, Katherine, 2101 Princeton Av.
 Rohrer, Mertie, 766 Iglehart Av.
 Rosenholtz, Jennie, 819 Portland Av.
 Rouse, Evangeline, 2413 Territorial Road.
 Routh, Margaret, 537 Holly Av.
 Roverud, Ella M., 643 Laurel Av.
 Rowles, May, 1958 Selby Av.
 Rush, Alice G., 1087 Gorman Av.
 Russell, Irene, 1615 Hague Av.
 Ryan, Helen C., 1144 Asinland Av.
 Rydner, Ethel, 639 King St.
 Sanders, Grace, 710 Ashland Av.
 Sather, George L., 701 York St.
 Scanlan, Susan, 1072 Minnehaha.
 Schroeder, Marie, 717 York St.
 Scott, Edith, No. 7, The Seville.
 Sexton, K., 695 Carroll Av.
 Sexton, Mary J., 790 Dayton Av.
 Seymour, Mary B., 1794 Carroll Av.
 Shepard, A. S., 23 E. 6th St.
 Sherlock, Minnie S., 1795 Hague Av.
 Simmonds, Edith F., 1079 Goodrich Av.
 Sinclair, Gertrude, 20 N. St. Albans.
 Sinclair, Susan, 1072 E. Minnehaha.
 Sladek, Jerome C., 649 Delaware Av.
 Sliney, Ellen, 736 Holly Av.
 Small, Hazel, 137 4th Av. N.
 Smalley, Flora M., 897 Marshall Av.
 Smith, Mrs. C. R., 494 Ashland Av.
 Smith, C. Grace, 20 W. Congress.

Springer, Frances, 526 Canada St.
 Stapleton, Julia M., 102 Western Av. N.
 Stern, Dr. G. M., 1265 Como Blvd.
 Stern, Marie, 1265 Como Blvd.
 Stewart, Beth M., 387 Stryker Av.
 Stoven, Adolph C., 676 Stryker Av.
 Sullivan, Hanna, 1074 Lombard Av.
 Swain, Mary C., 787 Osceola Av.
 Swanstrom, M. M., 805 Hague Av.
 Talbot, Georgina, 770 Selby Av.
 Tallman, Corrine, 1168 Ashland Av.
 Tallman, Kate E., 476 Laurel Av.

Taylor, Mary E., 130 E. Delos St.
 Timme, Cora H., 1148 Orange St.
 Tonsley, Sarah E., 659 S. Robert St.
 Tschida, Katherine, 307 N. Dale St.
 Tucker, Florence, 766 Iglehart Av.
 Vestrom, Mabel, 334 4th Av. S., Minneapolis
 Upell, Agnes, 690 St. Peter St., Apt. 7.
 Wharton, Beulah, Gen'l Del., St. Paul.
 Wind, Kate, 315 N. Snelling Av.
 Wiprud, Agnes, 849 Cronwell Av.
 Yost, L., 60 W. Summit Av.

DULUTH

Allensworth, C. L., 319 Y. M. C. A.
 Anderson, Hilma M., 922 11th Av. E.
 Bartling, Emma, 510-B.-W. 2nd.
 Bell, Pearl, 316 9th Av. E.
 Bell, Phoebe, 111 Park Terrace.
 Bickley, Ethel M., 313 2nd Av. W.
 Brand, Anna R., 203 Commonwealth Av.
 Brooks, La Vange, 1417 E. 3rd St.
 Casey, Kathleen, 931 E. 3rd St.
 Crowley, Jane M., 115 E. 3rd St.
 Duclett, Betsy N., 1020 E. 6th St.
 Flaherty, Belle, 227 W. 3rd St.
 Fuller, Frances O., 403 E. 2nd St.
 Gage, Leslie, 1524 E. 4th St.
 Giles, Edna, 5333 E. Wyoming St.
 Grant, Anna, 1007 E. 7th St.
 Helweg, C. A., 1930 E. 4th st.
 Hicken, Estelle, 4627 Cooke St.
 Hilder, Bertha, 2 Chester Terrace
 Hoover, Harriet M., 119 E. Victoria St.
 House, Harold G., 201 W. Faribault St.
 House, Susan M., 201 W. Faribault St.

Joyce, Isabel Rice, 104 S. 16th Av. E.
 Kristensen, Edith, 106 W. Orange St.
 Kunerth, Mrs. Ethel M., 111 Park Terrace
 Long, Ruth C., 403 E. 2nd St.
 MacIntyre, Evelyn, 429 E. 2nd St.
 MacQuat, Frances M., 1227 E. 3d St.
 Meehan, Katherine, 329 5th av. W.
 Meinhardt, Anna W., 1531 E. 4th St.
 Meinhardt, Lillian, 1531 E. 4th St.
 Niswander, Charlotte, 831 11th Av. E.
 Nortrup, Anna C., 203 E. 3rd.
 Onsgard, Allie B., 517 S. 71st Av. W.
 Peterson, Anna C., 1330 W. 5th St.
 Phillips, Margaret, 4 Waldorf Apts.
 Rowley, Edith M., 421 W. 3d St., Flat F.
 Schmidt, Irene E., 1415 E. 3d St.
 Sellhorn, Bertha M., 203 E. 3d St.
 Sidenberg, Emma, 1228 E. 1st St.
 Sinion, Clara, 422 E. 3d St.
 Smith, Frances E., 224 5th av. E.
 Wilkinson, Dr. Stella, 405 New Jersey Bldg.
 Woodward, Laura J., 4617 Cooke St.
 Yager, Minnie, 220 2nd Av. E.

RED WING

Anderson, J. V.
 Arthur, Jessie G., Dakota St.
 Aubrey, Effie C., 431 4th St.
 Boog, Jno. J., 712 East Av.
 Bryan, Mrs. E. C., 716 Central Av.
 Busch, Regina, 426 7th St.
 Crawford, Ruth, West Av.
 Cremer, Dorothy E., 906 W. 4th St.
 Featherstone, Edithe, 720 Central Av.
 Featherstone, Ora M., 1527 N. 4th.
 Graham, Helen O., 625 W. 5th St.
 Hawkins, Florence N., 427 4th St.
 Hoyt, Hazel F., 300 Hill St.
 Johnson, Effie S., 117 8th St.
 Jorgenson, Louise, 428 6th St.
 McGuigan, Catherine

Meyer, L. V., Kingman Hill.
 Middlemass, W. S., 529 6th St.
 Middlemass, Mrs. W. S., 529 6th St.
 Neely, Ora, 448 8th St.
 Nelson, Edna C., 121 4th St.
 Nelson, Elizabeth O., 4th St.
 Remshardt, Mollie, 452 5th St.
 Rose, Laurence C., 710 College Av.
 Rucker, C. W., Central Av.
 Sargent, Ralph, 718 East Av.
 Smith, Dr. M. W., 724 East Av.
 Smith, Grace G., 724 East Av.
 Theri, John N.
 Thomas, Marie E., 710 W. 4th St.
 Wiggen, Charlotte A., 822 Main St.

DEPARTMENT OF BUSINESS INSTRUCTION

MINNEAPOLIS

- Abrahamson, Agnes, 3100 47th Av. S.
 Abrahamson, Ellen, Nurses' Home,
 City Hospital
 Addy, W. C., 4924 Pleasant Av.
 Agnew, Mary, 3301 Aldrich Av. S.
 Alberg, Albert, 824 27th Av. N.E.
 Albinson, Paul, 1718 11th Av. S.
 Alm, Robert, 1248 Edgerton Av., St.
 Paul
 Alvord, S. W., 4013 Sheridan Av. S.
 Anderson, H. M., 719 S.E. Fulton St.
 Anderson, O. W., 720 E. 16th St.
 Anderson, W. L., 720 E. 16th St.
 Anderson, Gordon, 2904 Girard Av. S.
 Anderson, Harry, 1098 11th Av. S.E.
 Anderson, Walter, 415 E. 14th St.,
 Apt. No. 2
 Antisdell, Ernest, 2415 W. 42nd St.
 Aschenbeck, Laura, 731 4th Av. N.
 Asplin, Harold, 3136 Oakland Av.
 Asselin, R. A., 4334 Nicollet Av.
 Aynsley, Catherine A., 358 Pleasant
 Av., St. Paul
 Bacon, Mabel, 1501 11th Av. S.
 Baker, R. K., 3225 Elliott Av.
 Ballard, Earle R., 1154 Portland Av.,
 St. Paul
 Bardill, O. H., 1717 Thomas Av. N.
 Barton, A. D., 3631 Dupont Av. N.
 Bauman, Herman, 1725 Girard Av. N.
 Beal, Ralph, 925 17th Av. S.E.
 Beck, Frieda, 4400 Washburn Av. S.
 Bedard, Raleigh, 1531 22nd Av. N.
 Beisang, Anthony, 122 Yale Place
 Berg, S. E., 3549 Stevens Av.
 Berglund, Wallace, 1902 Penn Av. N.
 Bertelson, Arthur, 3917 10th Av. S.
 Beveridge, G. G., 3832 Stevens Av.
 Birr, C. H., 115 S. 4th St.
 Bitceek, Eugene, 1922 7th St. S.
 Blackberg, S. E., 4206 Dupont Av. N.
 Blackney, V. W., 22 E. 15th St.
 Boody, F. J., 3755 Lyndale Av. S.
 Booker, A. W., 327 E. 16th St. no. F.
 Borovansky, F. J., 399 Superior St.,
 St. Paul
 Bortinek, Louis, 1132 Humboldt Av. N.
 Boulay, J. A., 428 S. 8th St.
 Brandl, R. B., 1070 Ashland Av., St.
 Paul
 Brink, W. F., 5149 30th Av. S.
 Brockman, R. M., 191 Macalester Av.,
 St. Paul
 Erokaw, F. A., 1805 Carroll Av., St.
 Paul
 Brown, E. H., 2700 Elliot Av.
 Brown, I. G., 175 Iglehart Av., St.
 Paul
 Brown, T. C. W., 3753 Dupont Av. S.
 Brown, Paul, 504 Ridgewood Av.
 Buck, J. W., 1120 Dupont Av. N.
 Bullis, H. E., 2323 Garfield N.E.
 Burns, Anne L., 310 12th Av. S.E.
 Camp, C. S., 921 Chicago Av.
 Carlson, C. O., 510 Queen Av. N.
 Carlson, R. V., 1920 Crystal Lake Av.
 N.
 Carlson, W. C. E., 276 21st Av. S.
 Carlstrom, A. H., 2123 Emerson Av.
 N.
 Carr, C. A., 3506 14th Av. S.
 Carrington, H. J., 112 E. 37th St.
 Cederberg, William, 4516 15th Av. S.
 Chailquist, F. R., 3639 Sheridan Av. N.
 Champlin, J. E., Y. M. C. A.
 Chapsky, Louis M., 1415 Douglas Av.
 Chase, R. L. 3137 40th Av. S.
 Cheney, R. C., 2309 32d Av. S.
 Christensen, W. A., 969 Edmund St.,
 St. Paul
 Clute, R. V., 2111 Marshall av., St.
 Paul
 Cohen, J. G., 1203 N. Aldrich
 Condit, L. A., 1810 Clinton Av.
 Crawford, Mabelle, 1819 Lyndale Av.
 S.
 Cumming, H. F., 2502 Sheridan Av. N.
 Cunningham, E. E., 2195 Carter Av.,
 St. Paul
 Curtis, E. B., 1608 Clinton Av.
 Dahl, N. H., 130 E. 38th St.
 Dahl, Ed, 2827 N. 3d St.
 Danforth, M. L., 3110 Fremont Av. S.
 Darst, Ethel, 519 S. 9th St.
 Davey, C. H., 3737 Portland
 Davies, Margaret, 149 Summit Av., St.
 Paul
 Davis, J. L., 4339 Pleasant Av.
 Dearth, L. W., 2867 James Av. S.
 Derby, L. M., 108 W. Rustic Lodge
 Av.
 Dietrich, W. F., 2419 Chicago Av.
 Dietrich, Arthur, 1423 Morgan Av. N.
 Dillahunt, W. G., 5531 Colfax Av. S.
 Dirba, Charles, 2309 5th Av. S.
 Dixon, N. D., 2519 Emerson Av. S.
 Dobs, R. F., 1706 Hawthorne Av.
 Doerr, H. H., 3700 16th Av. S.
 Doimer, Arne L., 2011½ S. 6th St.
 Dolney, Ann C., 612 S.E. Ontario St.

- Donavon, Claire, 440 Roy St., St. Paul
- Dowlan, Rosalie, 1779 Carroll Av., St. Paul
- Drinkwater, C. H., 3429 Portland av.
- Duffy, G. L., 2010 3d Av. S.
- Dunn, Eva L., 1705 25th Av. N.
- Dunn, Ross E., 4346 1st Av. S.
- Dupwick, A. E., 4915 Garfield Av.
- Earenfight, Linnette, 3634 N. Dupont
- Eastman, H. V., 4321 Elliott Av.
- Edsten, Doris, 4549 Abbott Av. S.
- Eielby, Walter, 3135 46th Av. S.
- Ekblad, E. G., 3112 43d Av. S.
- Ellsworth, C. O., 1810 Clinton Av. S.
- Elser, L. B., 3641 Park Av.
- Emmons, R. D., 1535 N.E. Adams St.
- Engman, Fridolph, 2446 Chicago Av.
- Erblang, A. A., 299 W. 6th St., St. Paul
- Evans, J. W., 3521 W. 28th St.
- Exworthy, Frances, 1910 N.E. McKinley St.
- Fares, G. M., 2309 Elliott Av.
- Farmer, E. H., 4347 Garfield Av.
- Farnsworth, R. W., 2951 Morgan Av. N.
- Ferrian, W. S., 116 S.E. 4th St.
- Fewer, W. J., 1218 N.E. 2nd St.
- Finden, Sitona, 1416 Portland
- Fitzpatrick, Lulu G., 1316 Vine Place
- Flemming, Eleanor, 2550 N.E. Monroe St.
- Flood, J. L., 211 S. 11th St.
- France, Alexander, 4516 Drew Av. S.
- Franzen, E. T., 1010 E. 19th St.
- French, R. W., 1018 16th Av. S.E.
- Friedman, Irving, 1040 Irving Av. N.
- Fritts, B. V., 3315 Nicollet Av.
- Ganzer, J. H., 816 S.E. 8th St.
- Gelhart, H. C., 2818 1st Av. S.
- Gensler, Sarah R., 709 Bradford Av. N.
- Gibbons, Frank, 1404 Spruce Place
- Gibson, W. W., 1515 Vine Place
- Gilfillan, W. R., 4001 Wentworth
- Gillis, L. G., 2503 Pierce St.
- Gjerde, Sigverd, 2303 30th Av. S.
- Gohlke, C. G., 3821 4th Av. S.
- Goldstein, Louis, 743 Ashland Av., St. Paul
- Gooley, H. J., 26 15th St. N.
- Gotberg, Paul, 3837 Nicollet Av.
- Graham, J. L., 301 Aldrich Av. N.
- Granning, Carl, 2347 Upton Av. N.
- Gravender, Milton, 3216 17th Av. S.
- Green, H. B., 1325 W. 27th St.
- Green, Howard, 58 Chamber of Commerce
- Griffiths, Bertha, 3409 Aldrich Av. S.
- Griswold, L. W., 107 W. Island Av.
- Grossbusch, Magdalene, 124 E. 14th St.
- Gunnerson, J. M., 1725 Emerson Av. S.
- Gustafson, Victoria, 1311 Chestnut Av.
- Guthrie, Carrie T., 2010 Park Av., Flat E
- Haas, Casper, 1004 Grand Av., St. Paul
- Haas, Edmond J., 107 W. Grant St.
- Hagg, Arthur, 913 E. 26th St.
- Hagman, W. R., 121 S.E. Cecil St.
- Hagman, Ernest, 121 S.E. Cecil St.
- Hallam, Arthur, 90 N. 16th St.
- Hanson, G. E., The Leamington.
- Harrigan, Nell C., 611 N.E. Broadway
- Harris, Sally P., 105 Vine Hall
- Harrison, Carl J., 3112 10th Av. S.
- Harvey, A. J., 617 E. 14th St.
- Harwood, Stanley, 2644 Aldrich Av. S.
- Haslund, Arthur, 1701 Portland Av.
- Hasselberg, A. W., 4749 Park Av.
- Hauge, Arthur, 4056 10th Av. S.
- Hawk, T. E., 1207 Oliver Av. N.
- Hayes, Fred M., 3405 3d Av. S.
- Hayes, H. J., 1999 Ashland Av., St. Paul
- Heck, Norman H., 424 S. 7th St.
- Hedquist, R. J., 2709 Stevens Av.
- Hendrickson, H. N., 3041 Stevens Av.
- Hermstad, L., 1910 N.E. Pierce St.
- Hill, Elmer M., 3019 Morgan Av. N.
- Hill, Grant E., 416 S.E. Erie St.
- Hillman, P. L., 4017 12th Av. S.
- Himmelman, Harry, 554 6th Av. N.
- Hinman, Kathleen, 52 S. 10th St.
- Hodge, Albert C., 615 9th Av. S.E.
- Hodge, Rodney, 3145 Park Av.
- Hodgkins, Donald, 3028 Park Av.
- Hoffman, J. W., 428 8th St. S.
- Hogan, Kathryn, 505 Sykes Bldg.
- Hokanson, Esther M., 1269 Thomas St., St. Paul
- Hollingsworth, Ralph, 1107 13th Av. S.E.
- Horn, D. H., 2546 N.E. Fillmore St.
- Horstman, F. A., 1319 Yale Place
- Howser, Claude M., 911 7th Av. S.
- Hughes, C. F., 2418 Ferrant Place
- Idzal, Cecilia, 1604 Chicago Av.
- Jackson, H. M., 1914 N.E. Pierce St.
- Jackson, W. J., 322 13th Av. S.E.
- Jackson, Claire A., 1616 Edmund St., St. Paul
- Jackson, Clifford, 2214 14th Av. N.
- Jacobson, Henry, 3149 21st Av. S.
- Jaffa, Goldie, 704 Dupont Av. N.
- James, Albert C., Hotel Maryland
- Jensen, Carl J., 1913 Clinton Av.

- Johnson, B. L., 3919 2nd Av. S.
 Johnson, C. E., 4817 Upton Av. S.
 Johnson, J. H., 4039 Queen Av.
 Johnson, R. E., 4517 30th Av. S.
 Johnson, Aaron, 1317 4th Av. S.
 Johnson, Arthur, 3417 Oakland Av.
 Johnson, Arthur E., 3824 Chicago Av.
 Johnson, Axel E., 1504 Clinton Av. S.
 Johnson, Ethel, 1325 1st Av. S.
 Johnson, Evan M., 1335 Oliver Av. N.
 Johnson, Leander, 1115 Harmon Court,
 Flat A1
 Johnson, Lillian P., 2911 Lyndale Av.
 N.
 Johnson, Mary B., 3919 2d Av. S.
 Kedney, F. S., 3203 Lyndale Av. S.
 Kemp, Harry, 5115 Lyndale Av. S.
 Kennedy, Annie, 23 5th Av. S.
 Kersten, Ida C., 432 N.E. Adams St.
 Kiley, Veronica, 1316 Vine Place
 Kimmel, F. W., 1515 Lagoon Av.
 King, Samuel E., 2912 Fremont Av. N.
 Kingbay, I. I. B., 2119 Cedar Av.
 Kinports, Mabel, 1425 Vine Place
 Kjelsberg, Clara, 3824 Chicago Av.
 Klein, Frank, 897 Cromwell Av., St.
 Paul
 Knight, F. S., 960 Selby Av., St. Paul
 Knudson, H. B., 3222 15th Av. S.
 Kootz, J. T., 612 E. Franklin Av.
 Krone, F. O., 1422 Logan Av. N.
 Kulberg, David, 615 E. 17th St.
 Kulp, D. E., 4038 Wentworth Av.
 Ladd, Archer P., 2116 Chicago Av.
 Lane, J. F., 811 16th Av. N.
 Lahart, J. S., 2510 Garfield Av.
 Larsen, Abbie, 1414 Harmon Place
 Larsen, Agnes M., 827 18½ Av. N.E.
 Larsen, Roy F., 2720 31st Av. S.
 Larson, J. S., 1600 Aldrich Av. N.
 Lathan, E. M., 3814 Columbus Av.
 Lee, Reynold A., 2024 30th Av. S.
 Le Faivre, Edgar, 3613 Portland Av.
 Le Febre, Rose M., 1903 1st Av. S.
 Leitzman, Fred, 414 33d Av. N.
 Lenske, Reuben, 611 Fremont Av. N.
 Leverentz, Andrew, 311 30th Av. N.
 Leverentz, Carl, 55 Williams Av. S.E.
 Levinson, Louis, 914 Bryant Av. N.
 Lewis, M. H., 2012 Garfield Av.
 Lienan, T. Clair, 19 N. 15th St., Apt 4
 Liljengren, Arnold L., 2424 Elliott Av.
 S.
 Liljenstrom, W. J., 914 W. 36th St.
 Limburg, P. H., 3605 10th Av. S.
 Lind, P. A., 3245 Blaisdell Av.
 Lindell, Alma, 2218 7½ St. S.
 Linder, H. W., 2119 17th Av. S.
 Lindquist, H. C., 4511 Wentworth Av.
 Linne, Award, 409 S.E. Oak St.
 Linnerooth, Sidney H., 762 Duluth Av.,
 St. Paul
 Lostetter, R. J., 4409 Zenith Av. S.
 Loth, Ruth, 1711 Queen Av. N.
 Lundeen, Mabel, 1423 Wash St. N.E.
 Lyman, Martha, 2433 Portland Av.
 Lysserup, T. M., 3016 29th Av. S.
 McCabe, R. L., 1713 4th St. S.E.
 McConville, A. L., 2331 Monroe St.
 N.E.
 McDonald, Sarah, 4307 Fremont Av. N.
 McHenry, Robert D., 389 Dayton Av.,
 Apt. 42, St. Paul
 McKay, W. R., 4415 Stevens Av.
 McKewin, G. L., 1010 Cromwell Av.,
 St. Paul
 McLain, C. A., 110 E. 25th St.
 McLane, J. J., 2745 Hennepin Av.
 McLaughlin, H. J., 2230 N.E. Hayes
 St.
 McLeod, J. B., 1451 W. Lake St.
 Magnuson, Ernest, 2101 10th Av. S.
 Martin, J. M., 867 Iglehart Av., St.
 Paul
 Martinson, Annetta, 415 James Av. N.
 Matheis, O. N., 1004 Lincoln, St. Paul
 Mather, S. R., 3136 James Av. S.
 Mathews, R. L., 2551 Dupont Av. S.
 Matson, R. A., 77 Old Chamber of
 Commerce
 Mattson, W. A., 106 14th St.
 Meier, Angelina, 1712 Dayton Av., St.
 Paul
 Melamed, Louis, 867 Iglehart Av., St.
 Paul
 Melamed, M. L., 867 Iglehart Av., St.
 Paul
 Merrill, L. H., 3833 Stevens Av. S.
 Miller, C. R., 2609 Columbus Av.
 Miller, O. H., 3345 2nd Av. S.
 Monasch, Jerome, 2201 Oliver Av. S.
 Monasch, Stanley, 2201 Oliver Av. S.
 Moore, Zella, 3712 Upton Av. S.
 Mulligan, John, 4311 Blaisdell Av.
 Mulvahill, J. E., 1846 E. 26th St.
 Nachtigal, Ottillie, 654 Aurora Av., St.
 Paul
 Nauman, Richard, 89 Ash St., St. Paul
 Neass, A. E., 1690 Capitol Av., St.
 Paul
 Neils, Henry J., 1931 Park Av.
 Nestor, Charles G., 3808 Oakland Av.
 Nettleton, H. E., 721 Met. Life. Bldg.
 Neumeier, C. J., 3820 Garfield Av. S.
 Neuses, M. R., 1918 Morgan Av. N.
 Nevin, Genevieve M., 3322 Clinton Av.
 Newell, L. L., 1918 Morgan Av. N.
 Niemackel, W. E., 725 E. 17th St.

- Niles, J. B., 2232 Carter Av., St. Paul
 Nilson, M. N., 830 24th Av. S.
 Nimerfroh, G., 3936 Portland Av. S.
 Nolan, J. A., Jr., 2512 Chicago Av. S.
 Nordquist, Helen, 337 E. 18th St.
 Nyholm, Clarence, 1731 Morgan Av. N.
 Obara, Shiro, 723 Marquette Av.
 Oberg, E. N., 226 S.E. Harvard St.
 Odlin, Cecil, 3548 Colfax Av. S.
 Ogren, Sigurd, 917 31st Av. N.
 Olsen, H. G., 916 Franklin Terrace
 Olson, T. J., 4042 Colfax Av. N.
 Olson, J. W., 3146 1st Av. S.
 Olson, O. C., 1253 Lafond St., St. Paul
 Olson, Melvin, 2729 Colfax Av. S.
 Olson, Paul, 2538 N.E. Taylor St.
 Orr, R. S., 2509 Emerson Av. N.
 Orth, Fred, 612 15th Av. S.E.
 Ortley, Arthur, 913 16th Av. S.
 Owen, Clifford, 1821 Elliott Av.
 Owens, Paul, 2815 Calhoun Blvd.
 Parsons, W. D., 4217 Bryant Av. S.
 Paul, Ernest, 2121 Bryant Av. S.
 Paulson, Hazel, 1426 N.E. Jefferson St.
 Pelletier, B. J., Chamber of Commerce
 Pennell, E. D., 4100 Upton Av. S.
 Perper, Jack, 400 Emerson Av. N.
 Person, V. H., 315 Newton Av. N.
 Person, Joseph, 1216 Humboldt Av. N.
 Peterson, E. G., 1823 25th Av. N.
 Peterson, Caroline, 3924 Pillsbury Av.
 Peterson, George A., 60 E. Summit
 Av., St. Paul
 Peterson, Robert, 690 Lowry Av. N.E.
 Peterson, Walter V., 923 Chicago Av.
 Petry, R. J., 1802 Marshall Av., St.
 Paul
 Phillips, P. W., 1451 W. 33rd St.
 Pierce, E. C., 4616 Grand Av.
 Pinkerton, J. M., 1922 Penn Av. N.
 Polczak, J. A., 923 N.E. Marshall St.
 Pomeroy, F. E., 2404 Nicollet Av.
 Porter, C. A., 3851 Grand Av.
 Pratt, S. A., 2540 14th Av. S.
 Preston, E. R., 1507 Dupont Av. N.
 Rademacher, Loren, 3523 Stevens Av.
 Reagan, J. H., 2016 Selby Av., St.
 Paul
 Reed, Alice M., 4536 Vincent Av. S.
 Reinhart, Vernon D., 1920 Emerson
 Av. S.
 Reynolds, J. E., 4929 Pleasant Av.
 Reynolds, George, 3811 10th Av. S.
 Richard, G. M., 303 19th Av. S.
 Rickel, J. G., 4629 Fremont Av. S.
 Riedel, Aage, 2716 Hennepin Av.
 Rissman, A. H., 3120 Columbus Av.
 Roberg, C. F., 3020 Bryant Av. S.
 Roden, Thomas, 3228 5th Av. S.
 Roehl, Catherine, 2011 N. 3d St.
 Rose, F. H., 200 E. 27th St.
 Rose, Carroll H., 926 13th Av. S.
 Rosholt, T. G., 977 14th Av. S.E.
 Ross, F. H., 1704 Park Av.
 Rumsey, Hazel, 1915 1st Av. S.
 Rundell, E. A., 3432 Holmes Av.
 Rundquist, Eunice, 3812 Harriet Av. N.
 Rutherford, M. V., 1547 Hillside Av.
 N.
 Rutherford, Richard, 1016 27th Av.
 N.E.
 Rychman, Joseph, 2644 30th Av. S.
 Rye, Carlton, 1407 Girard Av. N.
 Sampson, Morris, 2122 5th St. S.
 Sandahl, H. E., 3844 Elliott Av.
 Sattley, Archie, 3223 Garfield Av.
 Sawyer, Russell, 2514 4th Av. S.
 Schaaf, Urban, 2121 Bryant Av. N.
 Schilling, P. A., 879 Thomas St., St.
 Paul
 Schomberg, W. J., 2015 Dupont Av. S.
 Schultz, Henry F., 821 12th Av. N.
 Schwartz, Isadore, 914 Emerson Av. N.
 Schwarz, Alfred, 828 12th Av. N.
 Seaman, H. A., 1689 Van Buren St.,
 St. Paul
 Segelbaum, Chas., 2600 Grand Av.
 Shannon, Joseph, 1118 Como Av. S.E.
 Sharrot, Florence, 3920 Oakland Av.
 Shattuck, I. E., 3322 Blaisdell Av.
 Shea, Ray L., St. Cloud, Minn.
 Sheehan, John, 1820 Dupont Av. N.
 Sheridan, C. R., 2908 12th Av. S.
 Shoemaker, Alice, 711 Douglas Av.,
 Flat No. 6
 Shortall, J. O., 2920 Garfield Av. S.
 Simpson, Edythe, 3808 5th Av. S.
 Sinclair, R. D., 947 Iglehart Av., St.
 Paul
 Skahen, Mrs. M. E., 1514 Newton Av.
 N.
 Smith, H. H., 2604 Clinton Av.
 Smith, R. O., 2811 Bryant Av. N.
 Smith, Aloysius W., 4050 Wentworth
 Av.
 Smith, Anna, 1711 Lyndale Av. N.
 Solon, Milton, 4104 Bryant Av. S.
 Sprague, Gordon, 1103 S.E. 4th St.
 Squiers, B. R., 900 Soo Line Bldg.
 Stansberry, Nellie, 726 S. 17th St.
 Stansbury, R. F., 1185 Ashland Av.,
 St. Paul
 Stark, Linden L., 1415 N.E. Madison
 St.
 Starks, C. F., 4117 3d Av. S.
 Stebbins, R. S., 3119 Clinton Av.
 Stewart, Alvin, 3706 N.E. Quincy St.
 Stiles, William, 2640 15th Av. S.

- Stolp, Arne, 2304 11th Av. S.
 Straka, Paul, 621 S.E. Ontario St.
 Strickland, Margaret, 2100 2nd Av. S.
 Striegl, S. A., 609 S.E. Oak St.
 Sullivan, Helen, 934 Cromwell Av., St. Paul
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4. Eclipses of the Sun
5. Are Other Worlds Inhabited?
6. Comets and Meteors

All are illustrated with lantern slides.

MR. BEAL

1. The Stars
2. The Planets
3. Evolution of the Solar System
4. Stars and Nebulae

All are illustrated with lantern slides.

ECONOMICS

MR. EBERSOLE

1. How Prices Control Business
2. The Conservation of Human Resources
3. Principles of Sound Investment

4. The Responsibilities of Citizenship
5. Prices and the Cost of Living
6. Our Present Monetary and Banking System
7. Rural Credits or Financing the Farmer

MR. HOTCHKISS

1. The War and Business
2. The Relation of the Government to Business

MR. JAMES

1. The Retail Merchants' Opportunity
2. Customers' Obligations to the Retail Trade
3. Benefits of Insurance to the Public
4. Life Insurance Protection
5. War Risk Insurance

MR. LINE

1. Correctly Pricing Merchandise
2. Abolishing the Slack Season
3. Management of Mercantile Credits
4. Accurate Stock Records
5. Competing with the Chain Store

EDUCATION

MR. SWIFT

1. Introductory. Standards of Education. Meaning and Importance of Standards
2. Culture as a Standard in a Democracy
3. Utility as a Standard
4. Religion and Morality
5. Child Life as a Standard
6. Social Standards
7. The Montessori System and Early Education
8. Present Conditions in European Schools; The Schools of England; The Schools of France; The Schools of Germany
9. The Story as a Factor in Moral Education, illustrated by readings from "The Most Beautiful Thing in the World"
10. Education Our Birthright
- 11-15. Makers of Modern Education (given in series or separately): Rousseau, Herbart, Pestalozzi, Froebel, Dewey
16. Education and Social Betterment
17. Teachers of the East: Buddha, Socrates, Christ
18. Dramatization as a Method in Teaching
19. The Meaning of Play and Its Place in Education

Lantern Talks

1. Rome
2. Monasteries

3. Schools in Other Lands and Other Days
4. American Universities

ENGINEERING

ELECTRICAL ENGINEERING

MR. SHEPARDSON

1. The Electrical Transmission of Intelligence
2. The Use and Abuse of Light
3. Electricity in the Home
4. The Engineer in War

MECHANICAL DRAWING

MR. KIRCHNER

1. Significant Marks (Graphic, Theoretical, and Practical), Representation and Interpretation
2. The Science of Extension and Position (Geometry, Qualitative), Concepts of Space, and Spatial Relations
3. The World on Paper (Drawing, Mathematics, and Geography), Maps and Map Making
4. Lettering and Composition (Drawing and Design), the Alphabet: Origin, Development, and Application
- 5-6-7. Design and Ornament (Fine Arts and the Industries)
 - a. Design and Composition
 - b. Ornament, Symbolic and Aesthetic
 - c. Applied Design

MECHANICAL ENGINEERING

MR. MARTENIS

1. Development of the Locomotive (Illustrated with lantern slides)
2. The Heating and Ventilation of Homes and Buildings: History and Development (Illustrated)
3. Steam Boilers and Engines: Historical Development (Illustrated)

ENGLISH

MR. BURTON

Single Lectures

1. The Literature of the Great War
2. English Idiom: Its Uses and Abuses
3. The Theater and the People
4. The Short Story: A Modern Form of Art
5. The Return to Dickens

Lecture Courses

1. Ibsen: The Revolutionary of Modern Drama
2. Robert Browning: A Typical Modern Poet
3. The Short Story: A Modern Form of Art
4. Representative Modern Drama

MR. BEACH

1. The New Tendencies in English and American Poetry
2. The Technique of Henry James's Novels
3. George Meredith
4. The Nature and Function of Humor

MRS. PHELAN

1. Social Forces in the Drama
2. William Morris

ENTOMOLOGY AND ECONOMIC ZOOLOGY

MR. RILEY

1. Some Insects Which Carry Disease, and How They May Be Controlled (Illustrated by lantern slides)
2. Pet Animals and Their Relation to Parasitic Diseases of Man (Illustrated by lantern slides)
3. The Law of Adaptation to Environment as Illustrated by Animal Parasites (Illustrated by lantern slides)
4. Animal Parasites Which We Obtain through Our Food (Illustrated by lantern slides)

MR. RUGGLES

1. Shade Tree Insects (Illustrated by lantern slides)
2. Fundamentals of Spraying (Illustrated by lantern slides)

MR. MOORE

1. Garden Insects (Illustrated by lantern slides)
2. Snakes and Their Poisons

MR. WASHBURN

1. The Rat in Towns and Cities and How to Control It
2. The Belgian Hare as a Cheap Meat Producer; methods of raising and feeding, etc. (Illustrated by lantern slides)
3. Mill and Elevator Insects and Their Control (Illustrated by lantern slides)
4. Four-Footed Pests of the Farm, and Birds in Their Relationship to the Farmer and Orchardist (Illustrated by lantern slides)

FORESTRY

MR. CHEYNEY

1. Winter Logging in North Woods (Slides)
2. Steam Logging in South and Pacific Coast (Slides)
3. History of the Forests in the United States
4. Our National Forests (Slides)
5. The Southern Appalachians and Their Forests
6. The Forests and the World War
7. The Forest Fire Menace

GEOLOGY AND GEOGRAPHY

MR. EMMONS

1. The Mineral Resources of Minnesota

GERMAN

MR. SCHLENKER

1. Germany, Past and Future
2. Social Questions in Literature
 - (1) Literature as a mirror of social conditions
 - (2) Literature as a guide and a force in the reform of social wrongs
3. The Power of an Ideal (Commencement address)

MR. BURKHARD

1. Schiller. The Poet of Liberty
2. Goethe's Faust (Illustrated)
3. The Nibelungenlied (Illustrated)

GREEK

MR. SAVAGE

1. Greek Literature and Its Influence
2. Homer and the Homeric Age
3. Sappho and the Greek Lyric
4. Greek Plays and the Greek Theater
5. Demosthenes and Greek Oratory
6. Mythology and Greek Art
7. The Women of Greece
8. Greek Temples
9. The Evolution of Greek Sculpture

HISTORY

MR. BUCK

1. Scenes and Incidents in the History of Fort Snelling (Illustrated)
2. The Functions of a State Historical Society
3. Selections from the Manuscript Journal of Lucius C. Boynton

MR. DAVIS

1. Sicily: Its Past and Present
2. The First Crusade: Its Misery and Its Triumph
A series of five talks on Martin Luther considered as a man and as the hero of Protestant Germany

MR. TYLER

1. The New Imperialism, Its Aims, Character, and Results
2. The Near East and the War
3. Bismarck

HYGIENE

DR. BEARD

DIVISION I

COMMUNITY HYGIENE

1. The Sanitary Conditions of the Dwelling
2. The Disposal of Refuse
3. The Sanitation of School Buildings
4. Health Inspection in the Schools
5. The Hygiene of the Street and of Public Conveyances
6. The Water Supply

DIVISION II

PERSONAL HYGIENE

1. The Values of Food Stuffs
2. The Uses of Water
3. The Feeding of School Children
4. The Hygiene of the Skin
5. The Uses of Clothing
6. The Ventilation of the Home
7. The Symmetrical Development of the Human Being

LATIN

MR. PIKE

1. The Latin Language
2. Roman Life in the Time of Pliny the Younger
3. Apuleius and the Ancient Short Story
4. Catullus, an Appreciation

MR. GRANRUD

1. Roman National Characteristics
2. The Forum, Its Life and Activities
3. Roman Amusements: Theaters, Amphitheaters, and Circuses
4. The Roman House and Its Furniture
5. Roman Portrait Sculpture
6. Characteristics of Roman Architecture
7. Representative Cathedrals of Italy
8. Select Masterpieces of Raphael and Michael Angelo
9. Roma Immortalis: Ancient, Medieval, and Modern

COMPARATIVE PHILOLOGY

MR. KLAEBER

1. The Life of Language
2. The Languages of Europe—a geographical and historical survey
3. The Idea of an International Language
4. Spelling and Spelling Reform
5. Jacob Grimm, the Typical German Scholar (Lecture in German)

POLITICAL SCIENCE

MR. FLETCHER

1. The History of International Law

MR. VANCE

1. The League to Enforce Peace
2. America's Chief Aim in the War

MR. YOUNG

1. The World War and Democracy
2. The Commission Plan of City Government
3. State Education for Industrial and Civic Efficiency
4. The Social Function of the Church (suitable for a Sunday church service)
5. Community Team Play

ROMANCE LANGUAGES

MR. SEARLES

1. Development of French Ideals of Liberty and Democracy and Their Relation to Ours

MR. HENRÍQUEZ

1. Pan-Americanism
2. Latin-American Culture
3. Latin-American Ideals
4. Women in Latin America
5. Mexican Culture
6. What Spain Has Contributed to the World's Civilization
7. Spanish Literature (General, or special points)
8. Cervantes
9. Spanish Art
10. Life in the Tropics
11. Life in the High Plateaus of Mexico

SCANDINAVIAN

MR. BOTHNE

(In English or in Norwegian)

1. Ja, vi elsker dette landet (Norwegian)
2. Norway since 1814
3. Henrik Wergeland
4. Kings of Norway
5. Asbjørnsen and Moe
6. Björnson
7. Ibsen
8. Grundtvig and Denmark
9. The Scandinavians
10. Scandinavian Languages

MR. STOMBERG

1. Frithiof, the Viking
2. Democracy in Sweden in the Middle Ages
3. Educational Ideals in Sweden
4. Three Swedish Woman's Rights Advocates: Fredrika Bremer, Ellen Key, Selma Lagerlöf
5. August Strindberg, the Iconoclast
6. Selma Lagerlöf's Optimism
7. Viktor Rydberg
8. Alfred Hedenstierna
9. Sweden and Finland
10. The Land of the Midnight Sun (Illustrated)

SOCIOLOGY

MR. BURT

1. Health and Morals of the New Army and Navy
2. Minnesota's Social Hygiene Program
3. Child Welfare in War Times
4. Mobilizing the Social Forces of the Community

MR. TODD

1. Social Welfare and the War
2. Art for Man's Sake
3. Human Parasites
4. The Philosophy of Social Reform
5. The Scientific Spirit and Social Work
6. The Spirit of Efficient Philanthropy
7. Natural Rights and Social Wrongs

MR. JENKS

1. America's Developing Nationalism
2. America's New Individualism
3. The meaning of Americanization

MISCELLANEOUS LECTURES

MR. ALLEN

1. Turkish Life and Customs (Illustrated)
2. Unknown Mexico (Illustrated)
3. Recent Information in Regard to Heating and Ventilation

MISS BALL

1. Vocations for Women
2. Applied Arithmetic for Girls

MR. BEAL

1. Astronomy for Scouts (Illustrated)

MR. BRUCE

1. The New Era and the Reign of Law

2. Can American Democracy Be Made Safe for Itself?
3. The American Judiciary and the Government by Law and Not by Men
4. Anarchy, Socialism, and the Law
5. Three Great Reformers—General Booth, Count Tolstoi, Jane Addams
6. The Foreign-Born
7. The Finding of Our National Soul
8. The American Public School
9. The Social Revolution
10. The League of Nations
11. The White Man's Burden
12. Robert Burns
13. Rudyard Kipling

MR. DAVIES

1. America's Debt to Great Britain

Lecture Recitals

1. Rudyard Kipling
2. In and Out of Tune
3. Lieder and Literature
4. The Folk-Song
5. Robert Burns

MR. ERIKSON

1. Liquid Air

Illustrated with apparatus and experiments

MR. GLICK

1. Slaves of Tradition
2. What Am I?

Lecture Recitals

1. "The Melting Pot"—Zangwill
2. "The Right of Way"—Parker
3. "The Fortune Hunter"—Vance
4. "The Rift in the Clouds"—Glick
5. Program of miscellaneous readings

MR. HERRICK

1. Back through Bookdom
2. Forgotten Writers
3. The First Best Sellers in America
4. The Family Trail through American History
5. Italian Influences in English Literature

MR. KIRKWOOD

1. The Newspaper as a Community Builder

MR. LINDSLEY

1. The New Freedom
2. Trifles

MR. NEWKIRK

1. The Gyroscope
A popular presentation with apparatus

DR. NORRIS

1. Things Women Ought to Know

MR. OLMSTEAD

1. The Evolution of a Dollar Bill
2. The Laughing Animal
3. What Do You Know?
(a) For school audiences; (b) for general audiences
4. Education for Democracy (Commencement address)

MR. PRICE

1. Personal Efficiency
2. The Need of Business Education
3. The Easiest Way (Commencement address)
4. Opportunity
5. The Power of Personality

MISS SANFORD

History of Art

Illustrated by very fine sets of lantern slides. Each lecture is complete in itself.

1. The Buried Cities of the East
2. Egypt and Its Mighty Ruins
3. Greek Art
4. Rome, Pagan and Christian
5. Florence and the Florentine Galleries
6. Venice and the Venetian Painters
7. Raphael and Michael Angelo
8. Paris and the Louvre

Literary Lectures

The Character and Works of Burns, Browning, Tennyson, Dickens, Kipling, Lowell, Longfellow, Whittier, Emerson, Mark Twain.

1. The Love Letters and Poems of Robert and Elizabeth Barrett Browning
2. The Beauty of the Bible
3. A Popular and Humorous Lecture: "How to Make Home Happy"
4. Literature for Everybody—with some humorous selections

Readings from Shakespeare

Macbeth, King Lear, Othello, Hamlet, Merchant of Venice

The principal scenes in a play are read, the story told, the characters and striking passages commented upon.

Addresses for Teachers' Institutes

1. The Cultivation of the Voice
2. Teaching Literature, Reading, English Composition, History
3. Growth, the Teacher's Duty
4. Moral Power in the School-Room

For Mothers' Meetings

1. The Training of Children
2. Teaching Sex Hygiene
3. The Influence of Good Art and Good Literature upon Character

MR. THOMAS

1. The Idol of Numbers
2. Intellectual Courage
3. Popular Fallacies I Have Met
4. Quality vs. Quantity in Education

MR. WASHBURN

1. Spain and the Spaniards from the Viewpoint of a Young Tourist
(Illustrated)

OTHER EXTENSION ACTIVITIES

LYCEUM COURSES

In addition to the lectures offered by members of the University Faculty, there are offered also professional lyceum courses of popular lectures, entertainments, concerts, and dramatics. The General Extension Division is in a position to obtain the services of the best lecturers as well as of the lyceum companies presenting entertainments, readings, and concerts, at a much lower rate than is possible for the average community. These courses are offered at cost, thereby eliminating the profits of the agent and of the middleman. In this way the lecturer will get just as much for his services while the community will obtain the same entertainment for much less money, or, better still, will obtain a very much higher order of entertainment for the same money. Only courses of lectures or of entertainments of marked merit will be sent out by the General Extension Division. It must be distinctly understood, however, that the University in offering these attractions is acting merely as a booking agency between the attractions and the public, and can not be held responsible for opinions, theories, or sentiments expressed by lecturers. A list of the lyceum attractions available for the season of 1919-1920 may be obtained on request.

CORRESPONDENCE COURSES

Through the Department of Correspondence Study the opportunity for instruction by mail in various branches is offered. The lessons in these correspondence courses are prepared and taught by regular members of the University Faculty and the courses offered embrace collegiate as well as professional and vocational subjects. Each lesson assignment gives an outline of work, reference to textbooks and collateral reading, topics for study, and a list of questions, the answers to which are to be sent in. This constitutes the student's recitation. The answers thus sent in are read, corrected, and graded by the instructor with the addition of marginal notations, suggestions, advice, and explanation. The lesson sheets thus annotated are then returned to the student. Persons who have the qualities of courage, energy, and persistence can do meritorious work by this plan. For the busy person it has the advantage of leaving to his own convenience, within certain limits, the time of preparation of his lessons. Many of the courses command university credit when taken by properly qualified students, and all are of university grade. It is the aim of the Department to extend its activities to meet the needs of the citizens of the state in order that inability to attend school may no longer bar anyone from securing the education and training he desires.

For further particulars as to fees and courses now offered through correspondence, address the General Extension Division, Minneapolis.

MUNICIPAL REFERENCE BUREAU

The Municipal Reference Bureau is designed to provide the municipal officials of the state with a central clearing house for the dissemination of reliable information on matters of municipal importance. To render this service the Bureau has collected charters, ordinances, and other municipal documents. This information is drawn upon in the answering of specific inquiries referred to the Bureau by municipal officials of the state, and in the preparation of reports of general interest to the villages and cities of Minnesota. Municipalities desiring information, public reports, statistics, and advice upon administrative matters are urged to communicate with the Bureau.

COMMUNITY CENTERS

There is a movement now running through the country in the interest of a wider community use of the school plant and of other public buildings. It is realized that these buildings, in which the public has a large investment, are open for the use of the people for only a fraction of the available time. There is need for a civic forum or community club house, where citizens may gather for discussion of public questions and for the expression of neighborhood civic and social life. One of the great purposes of the present movement is the realization by the people of the latent possibilities in every schoolhouse for what has been called "concentrated, coöperative, constructive citizenship." It is hoped that the people of every community in the state will organize for the purpose of using their public buildings for social and recreational purposes as well as for the wider education of the grown portion of the community through lecture courses and similar means. The General Extension Division proposes to further this movement by offering guidance and coöperation, more particularly in the way of providing plans for organization, with a list of things that may be done. It will also offer programs and lectures, musical entertainments and dramatics for such local centers as have effected a proper organization. Correspondence is invited from any citizen or organization of citizens interested in this subject.

DRAMA SERVICE

There is becoming apparent throughout the state an increasing interest in the drama. Many schools now plan to give amateur theatricals every year. The University Drama Service is planned to afford amateurs an opportunity without expense beyond postage, to select plays after reading three or four picked out with some regard for the special requirements of the applicant.

In addition advice is given as to costumes and also with respect to the purchase and the painting of scenery. It is hoped in the future it may be possible to send out University dramatic companies to give plays in the several communities of the state during vacations and at week-ends. If interest in this form of service develops it may also be possible to furnish amateurs in the state the assistance of a University dramatic coach. Correspondence is invited from interested schools.

LANTERN SLIDES

The General Extension Division has organized a Bureau of Visual Instruction. Collections of lantern slides on subjects of interest to schools, and more especially high schools, are procured and sent out as loans to the schools which are provided with lanterns. Each set is accompanied by a typewritten lecture or reading.

The plan in the past has been to have these sets of slides available on call. In the future this plan will be abandoned in favor of the circuit system. Each year circuits of twelve to sixteen towns will be organized, each town to receive one set of slides at weekly or bi-weekly intervals. The towns on the circuits may thereby count on a regular supply and will be able to plan in advance for the use of the slides. It is believed that in this way the slides will be more continuously in service and the transportation charges will be lower. The slides are sent out in collections of fifty or one hundred on each subject.

Among the slides available are :

The Aeneid of Virgil
America's Opportunity
Ancient Rome, the Forum and the Imperial Fora
Birds of Minnesota
Caesar's Helvetian Campaign
Children in Different Lands
Conquest of Tuberculosis
The Development of Writing and Printing
Farming in Different Lands
Following Great Men through Greece
Going to Church around the World
History of Greek Architecture
History of Roman Architecture
History of Medieval Architecture
History of Renaissance Architecture
Home Life in Different Lands
India
Insect Pests of Minnesota
Junior Red Cross
Norway
Passion Play of Ober-ammergau
Philippine Islands
Pompeii
Pompeii, the Roman House and Furniture
Rome, the World Center of Olden Times
Sweden
Switzerland
Thirteen Chapters of American Naval History
Transportation in Different Lands
Wild Flowers of Minnesota

From time to time additions to this collection will be made and offered as the demand arises.

SHORT COURSES

The Agricultural Extension Division has been very useful to the people of the state through its system of short courses of one week offered in agriculture, home economics, and similar subjects. The General Extension Division now reaches another class of people in a similar way by offering one-week courses in such subjects as merchandising, retail selling, etc. These courses are of very great benefit to country merchants especially. The short course in retail merchandising is now offered regularly during the second week of February each year at the University. Merchants and their clerks from all over the state attend this practical school for one week. Experts from the best talent in the country are brought in to expound the various phases of the subject and to outline fundamental principles.

AGRICULTURAL EXTENSION

Agricultural extension including lectures, demonstrations, institutes, and short courses will be carried on as usual under the direction of the Agricultural Extension Division of the College of Agriculture. Address all inquiries regarding such work to the Agricultural Extension Division, University Farm, St. Paul, Minnesota.

INFORMATION

It often happens that citizens of a state are in need of information on some specific subject not to be found in the ordinary books of reference, and in such cases the average person is at a loss where to turn. The General Extension Division has as one of its functions the business of obtaining and furnishing to inquirers information on the various subjects which from time to time may be called for. This information is obtained by research and by application to the proper University source, and thereby the department acts as a clearing house of the information which is gathered and stored up through the facilities of a great university. Inquiries for information are therefore invited and so far as the means at hand will permit, the information will be found and supplied.

The various subjects mentioned in the preceding pages lie within the province of the General Extension Division and inquiries on all of them should be addressed to The General Extension Division, University of Minnesota, Minneapolis.

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

Correspondence Courses
Announcement for the Year
1918-1919



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GENERAL INFORMATION

The developments of the last few years have clearly demonstrated the effectiveness of, and the necessity for, university teaching by correspondence. The foremost American universities have recognized this opportunity for specific service by extending their work beyond the lecture room and the campus, in order to reach students who are unable to comply with the traditional limitations of university and college study.

In thus extending its functions the University offers a plan of practical instruction whereby collegiate and vocational training is made available in every section of the state and to those who of necessity must devote a part of their time to other duties. This instruction makes it possible for persons unable to attend the University to study such subjects as may be best adapted to their respective needs and interests.

By a careful economy of time it is possible to contribute largely to the requirements for a Bachelor of Arts degree by combining work in residence at the University Summer Session with correspondence study under the General Extension Division.

CORRESPONDENCE STUDENTS

Correspondence teaching is of significance to several kinds of students: to the teacher, whom experience has taught the need of further study for individual satisfaction and professional efficiency; to the college graduate, who desires to take up some study which he did not pursue in his resident work; to the man or woman who left school early and who now feels the value of broader training to make life more interesting or work more productive; and to the young high-school graduate who desires to begin his college course but is not able to enter school at once. When correspondence teaching is fully developed, it can offer something to every one in the community, whatever his age, training, occupation, or interests. Even at the present stage it meets the needs of very considerable numbers and many different classes.

SCOPE OF THE WORK

The subjects offered cover a wide range and give sufficient material for the needs of numbers of men and women intent on further study. Mathematics and certain lines of natural science, language, and literature, history, politics, economics, and the elements of philosophical and other social sciences, afford a considerable breadth of selection.

THE INSTRUCTION

Upon the receipt of the application and fee for any course the first lessons will be sent, together with instructions for study and for methods of preparation, and directions for returning lesson sheets and reports.

Each lesson will be returned to the student with such corrections, explanations, and suggestions as may be needed. Lists of books, assignments for reading, and all necessary assistance will be furnished throughout the course, so that the student at no time will be left without adequate aid and guidance. Questions on the subject in hand are at all times encouraged.

Each lesson contains questions to test the student's methods of work as well as his understanding of the ground covered. After preparing for recitation, the student writes his answers to the questions and returns them, together with a statement of any difficulties which may have arisen during his study.

INSTRUCTORS

The correspondence teaching is done by instructors from the various Faculties in the University, who are in continuous charge of similar courses in residence and who are familiar with the needs of non-resident students. The courses are not mere duplicates of university work, but have been outlined and will be administered in such a way as to take advantage of the broader experience of the mature non-resident student and to make this experience serve as far as possible instead of the more intensive reading of the college student.

THE UNIT COURSE

The unit course is divided, where practicable, into forty lessons, representing a five-credit course in residence. Such a course represents at least an amount of work equal to that done in residence at the University in a study of five full recitation-hours per week for one semester or half year. It is assumed that this work may be done by the average student in forty weeks with a minimum leisure for study of one hour per day, six days in the week. It is, however, the student's privilege to pursue his studies as rapidly as he is able. There are a few six-credit courses in modern languages. Shorter courses are ordinarily divided into fifths of the unit course of forty lessons, corresponding to three-credit, two-credit, or one-credit courses in resident work at the University. A three-credit course in residence, then, would be covered by correspondence teaching in twenty-four lessons, and shorter courses in proportion. Two lessons in correspondence approximately cover the ground in quantity of a week's work in residence.

CLASS WORK

The work here offered is primarily for individual students. When a group of twelve or more is pursuing the same course, however, in any community, the University offers to send an instructor at a nominal charge of five dollars for each visit, in order to direct personally either in the beginning of the term or occasionally at intervals the studies of the group.

BOOKS AND OUTFIT

All necessary textbooks, drawing outfits, apparatus, chemicals, etc., are extra and *must be procured by the student*. The student also pays postage on lessons one way.

Every correspondence student, regardless of the course for which he enrolls, is expected to buy and use the pamphlet *How to Study*, by Swain, published by McGraw-Hill Book Company, 239 West 39th Street, New York, price twenty-five cents.

Some reference books may be borrowed from the University Library. This privilege does not apply to the necessary textbooks. The period of loan is one month. The student is expected to pay express or postage both ways. Requests for such reference books should be addressed to The Librarian, University of Minnesota, Minneapolis, and the student should state explicitly what books are desired, with the author's name, title of the book, and the volume number, naming the course taken by correspondence and giving full instructions for mailing.

No list of textbooks is published by the Division.

PROCEDURE

The student who wishes to undertake correspondence study should first select such course or courses as he may desire to take and send for an application blank. He should fill out the blank with all the information called for and return it with the required fee to the office of the General Extension Division.

HOW TO SEND MONEY

Payment should be made by post-office or express money order, personal check, or draft. *Make all checks and orders payable to the University of Minnesota*. Always address the General Extension Division, University of Minnesota, Minneapolis.

REGULATIONS

ADMISSION

All men and women who seem qualified to pursue successfully the courses offered will be admitted to registration without formal examination. The student is required to fill out an application blank giving such information as may be helpful in adapting the instruction to the personal needs of each student. It is desired that the student state fully the purpose he has in view in taking the work and also in detail such educational advantages, training, or experience as he may have had. The Division endeavors to meet the needs of the individual student by advice and suggestions, as well as by formal instruction, but whenever it finds that the course elected is not for the best interests of the student, it reserves the right to reject the application or to advise change or discontinuance.

TIME

Students may begin a correspondence course at any time during the year and will be required to complete the course within twelve months from the time of enrollment, but the Division *can not guarantee that all courses will be given during the summer months*. During an instructor's vacation, a substitute will be provided to carry on such course or courses, if possible, or the time for completing the courses will be extended.

NUMBER OF COURSES CARRIED

Not more than two courses may be carried through correspondence at one time.

FEE

All fees are payable at the time the student files his application for registration. No reduction of fee is made for a combination of courses carried simultaneously.

Two-credit course—16 lessons.....	\$8.00
Three-credit course—24 lessons.....	12.00
Five-credit course—40 lessons.....	20.00

No fee is refunded because of a student's inability to enter upon or pursue a course for which he has once registered. If an application for instruction is rejected, the fee is returned.

REINSTATEMENT

Any student whose registration has expired, or who has failed to complete a course within the prescribed time of one year through causes not within the control of the University, may be reinstated with the consent of the Director on payment of one dollar for each course.

CREDIT

Students who undertake correspondence-study work for university credit must state this fact in advance and comply with all requirements of the University, including the prerequisites for each course. University credits allowed in this connection will be recorded separately until the student matriculates at the University, when they will be recorded permanently as university credits. Registrations for credit will not be accepted until university entrance requirements have been met. These requirements are ordinarily comprised in a four-year high-school course.

Those seeking a university degree must conform to all the requirements exacted by the college or school in which such degree is sought. The bulletin of any college or school may be obtained from the University Registrar.

A maximum of one half of the required credits for the B.A. degree may be accumulated through correspondence. The work of the earlier part of the course is more likely to be available for correspondence study. In any case the work of the senior year must be done in residence.

No credits may be earned by correspondence study to apply on the Master's Degree, or any other graduate degree. At present courses in engineering subjects do not regularly give credit. If credit is desired, special arrangement must be made.

PROFESSIONAL STATE TEACHERS' CERTIFICATE

After the academic year 1917-18, the State Department of Public Instruction will not accept grades acquired through correspondence study in lieu of examination for credit toward the State Professional or any other state teachers' certificate. Correspondence courses listed in this bulletin, however, may be taken as a preparation for the state examinations in the required branches.

RESIDENT STUDENTS

Registrations for correspondence courses will not be accepted from resident students of the University of Minnesota or of any other institution of learning unless acceptance would be justified by exceptional circumstances.

No university student may enroll for a correspondence course for the purpose of removing a condition or a failure.

EXAMINATIONS

All students on completing any course will be given an examination either at the University or, by arrangement, in their home towns under the supervision of an accredited representative of the University. This representative may often be the local superintendent of schools.

COURSES OF INSTRUCTION

ASTRONOMY

1. **DESCRIPTIVE ASTRONOMY.** A descriptive course designed to give accurate general information regarding the solar system and the stellar universe. Students will be expected to construct some simple inexpensive apparatus for themselves to aid in the comprehension of the subject. Altho not necessary, the student will find that a small telescope, or even an opera glass, will add greatly to the interest in the subject.

Twenty-four lessons (three university credits). BEAL.

2. **URANOGRAPHY.** A study of the constellations visible from the United States. The course includes an exposition of star magnitudes; use of star maps; identification of the constellations, brighter stars, variables, doubles, clusters, and nebulae; interpretation of the Milky Way; reading of star folk-lore; watching the motions of the brighter planets relative to the sun and stars. Each lesson is adapted to a particular month of the year. The course can be begun at any time.

Twelve lessons (no university credit). Fee, \$6.00. BEAL.

BUSINESS COURSES

1. **BUSINESS ENGLISH.** Mastery of materials, letters in general, complaint answers, reminder letters, recommendation letters, application letters, credit-adjustment letters, form letters, follow-up letters, general sales letters. The ability to use correct English is prerequisite.

Twenty-four lessons (no university credits). NICHOLS.

2. **BUSINESS LAW A—CONTRACTS AND AGENCY**

The general rules of contracts being fundamental to all work in business law, this course must precede Business Law B.

Contracts: Formation of contracts, offer and acceptance, consideration, capacity of parties, minors, married women, misrepresentation, fraud, legality of object, the operation of contracts, interpretation of contracts, methods of discharging contracts.

Agency: Methods of forming the relation of agency, who may act as agent, who may act as principal, liabilities of principal to third parties, liabilities of agents, termination of agency.

Sixteen lessons (two university credits). VIESSELMAN.

3. **BUSINESS LAW B—PERSONAL PROPERTY, SALES, BAILMENTS, NEGOTIABLE INSTRUMENTS**

Negotiable instruments, nature and characteristics (a) definition; (b) the uniform negotiable instruments law, essentials, non-essentials, negotiations, indorsements and delivery, holder in due course and his rights, notice of dishonor, protest, checks.

Personal property—bailments: definitions, distinction between real and personal property, nature of bailment, rights of bailor, rights of bailee.

Sales of personal property: definition of a sale; when the title passes to the buyer; rights of the seller (a) to set the contract aside on the ground of fraud, (b) the seller's lien for the purchase money, (c) right of stoppage in transit; rights of the purchaser, (a) to demand goods of a certain quality, (b) warranty of the purchaser's title. Prerequisite, Course 2.

Sixteen lessons (two university credits). VIESSELMAN.

NOTE: See also Course 3 under "Economics."

ECONOMICS

1. ELEMENTS OF ECONOMICS, PART I. Price under competition and under monopoly; the factors of production and the principles determining the reward that the factors get in the shape of wages, rent, interest, and profit; principles of trade, including consideration of relative merits of free trade and protection; money; banks and banking; immigration; trade unions; stock exchange; concentration of industry; insurance; the economic functions of the state.

This course is designed to give a general understanding of our economic order. Special attention is given to a consideration of basic principles and to descriptive accounts of economic institutions.

Twenty-four lessons (three university credits). STEHMAN.

2. ELEMENTS OF ECONOMICS, PART II. This course undertakes a more intensive study of the principles of price determination than was possible in Course 1, especially as related to the problem of distribution. Further attention will be given certain important economic questions, such as the business cycle, the tariff problem, corporation finance, monopoly, public utility regulation, and projects of economic reform. Course 1 or its equivalent is a prerequisite.

Twenty-four lessons (three university credits). STEHMAN.

3. BANKING. The subject-matter of this course constitutes the necessary basis of a thoro understanding of the principles of currency, banking, and finance. The lessons will survey all the practical operations of modern banks with chief emphasis upon commercial banking and with some attention to the legal problems to be met with in dealings between banks and their customers. Beginning with a description of the development of commercial banking, of savings banks and trust companies, the course will be developed under the following topics: how to organize a commercial bank; shareholders, directors and officers, their duties, powers, and liabilities; deposits, depositors, and the receiving teller; the paying teller and checks; the bank reserve; national bank notes; clearing houses; collections and domestic exchange; foreign exchange; loans and discounting, credit departments and how

they judge credit; collateral loans; statements of condition; bank policy; supervision and examinations; central banks of England, France, and Germany, and the Federal Reserve System of the United States. Prerequisite for credit, Course 1.

Twenty-four lessons (three university credits). EBERSOLE.

4. INDUSTRIAL AND COMMERCIAL SOCIETY OF THE UNITED STATES. An introductory study of modern industry as a foundation for the further study of economics. Land, labor, capital, enterprise as divisions of the productive process. Exchange. Ways in which society influences production.

Twenty-four lessons (three university credits). ROBBINS.

5. PROBLEMS IN AGRICULTURAL ECONOMICS. The economic facts and principles underlying the practical problems confronting the farmer as producer, consumer, and citizen, such as what to produce, intensity of cultivation, farm labor, tenancy, land settlement, farm credit, marketing, and taxation. Prerequisite, Course 1, or its equivalent.

Twenty-four lessons (three university credits). BLACK.

6. MARKETING OF FARM PRODUCTS. The organization and methods of marketing; the functions of middlemen; the costs of marketing various products; coöperative marketing. Prerequisite, Course 1 or its equivalent.

Twenty-four lessons (three university credits). CUMBERLAND.

10. FOREIGN TRADE. Theory of international commerce; free trade, reciprocity, and protection, with special emphasis on the tariff history and policy of the United States; commercial treaties and foreign politics. Lectures, assigned readings, and reports. Prerequisite, Course 1 or its equivalent.

Twenty-four lessons (three university credits). BLAKEY.

11. MARKETING OF PRODUCTS. Domestic merchandising methods of manufacturers. Problems of wholesalers and commission men; distributing system and market organization; price policies. Prerequisite, Courses 1 and 2, or their equivalents.

Twenty-four lessons (three university credits). JAMES.

12. ADVERTISING AND SELLING. Functions and principles of advertising; advertising media; planning and executing an advertising campaign. Copy. Sales management and personal salesmanship. Prerequisite, Course 11 or its equivalent.

Twenty-four lessons (three university credits). JAMES.

13. RETAIL MARKETING. Problems and methods of the so-called regular retailer, department stores, and chain stores. Development of retail trade centers. Coöperation between the retailer and the local board

of trade. The retailer and the consumer. Prerequisite, Course 11 or its equivalent.

Twenty-four lessons (three university credits). JAMES.

16. STATISTICS. Principles of collection, tabulation, and interpretation of statistical material, illustrated by present-day statistical data. Prerequisite, six credits in economics including Course 1.

Twenty-four lessons (three university credits). BLACK.

20. LABOR PROBLEMS. Modern labor problems; woman and child labor, industrial education, unemployment, poverty, industrial hygiene, welfare work, profit-sharing, coöperation, labor unions, strikes, boycotts, conciliation, and arbitration; economic causes and effects of immigration. Prerequisite, six credits in economics, including Course 1.

Twenty-four lessons (three university credits). BLACK.

24. PUBLIC FINANCE. Public expenditures; public debt; budgetary legislation; tax systems. Prerequisite, six credits in economics, including Course 1.

Twenty-four lessons (three university credits). ROBBINS.

25. LIFE INSURANCE. The purpose of this course is to give the basic principles and specific information which will help the students either in buying or in selling life insurance policies. Among the topics considered are: types of policies and their uses; the premium, the reserve; the surrender value; dividends; rights and obligations of policy holders; policy loans; methods of payment at the time of maturity of the policy; the total disability clause; income bonds; War Risk Insurance. Prerequisite, Courses 1 and 2 or their equivalents.

Twenty-four lessons (three university credits). JAMES.

26. FIRE INSURANCE. The purpose of this course is to give the basic principles and specific information which will help the students either in buying or in selling fire insurance policies. Among the topics considered are: the function of fire insurance as a personal and business protection; the standard policies with special reference to various clauses, e.g., mortgage, vacancy and co-insurance clauses; history of fire insurance since 1666; information and management of companies and the establishment of the agency system; the mutual company and the stock company; the reinsurance reserve; rates and hazards: fire prevention; settlement of losses and the relation of insurance companies to the state. Prerequisite, Courses 1 and 2 or their equivalents.

Twenty-four lessons (three university credits). JAMES.

EDUCATION

1. INTRODUCTORY PSYCHOLOGY

See Course 1 under Philosophy and Psychology.

2. **EDUCATIONAL PSYCHOLOGY.** A study of the fundamental problems of individual behavior as related to the learning process. These problems involve discussions of instinctive and emotional reactions, habit formation and learning, memory, forgetting, fatigue, educational values, and individual differences. Throughout the course stress is placed upon economy of time and energy in education. Courses 1 and 2 in Philosophy are prerequisite.

Twenty-four lessons (three university credits). DEALEY.

3. **HISTORY OF EDUCATION TO THE REFORMATION.** An introductory study in the history of education, with special attention to the education of Greece, Rome, and the early Christian centuries, to the development of different types of schools in medieval times, and to the rise of the universities and of the humanistic schools of the Renaissance. The course is designed to arouse an interest in educational problems, to secure some perspective for use in current investigation, and to give some command of the facts of educational history and some facility in the methods of historical investigation. An attempt is made to bring out education as one phase of civilization and to show the connection of schools with other social institutions.

Twenty-four lessons (three university credits). SWIFT and ALEXANDER.

4. **HISTORY OF MODERN EDUCATION.** A somewhat intensive study of the periods in the history of modern education, with special reference to the development of the various national systems of public instruction. Different types of educational theory are considered in connection with a study of the men who first advanced them and of the schools in which they were first put into effect. This course is a direct preparation for an understanding of the educational systems, theories, and practices of the present.

Twenty-four lessons (three university credits). SWIFT and ALEXANDER.

5. **RURAL EDUCATION.** This course is intended to give the student a comprehensive understanding of rural life in its economic and social aspects so that he may, with better intelligence, organize the rural school and make it a power in the community for coöperation with all other constructive forces, and a factor in the promotion of leadership among the country people themselves. It is not a narrow academic course, but a broad, popularly arranged course that any intelligent person can pursue with satisfaction and profit.

Gillette's *Constructive Rural Sociology*, Carver's *Principles of Rural Economics*, supplemented by a number of rural surveys and pamphlets on various special topics, are the required texts in the course.

Twenty-four lessons (three university credits). JORDAN.

6. **THE MODERN HIGH SCHOOL.** A brief review of its evolution to date will be followed by a thoro consideration of its place and function, especially its increasing usefulness in a democracy; its curriculum, particularly with reference to needed reconstruction of courses; the better organization of the high school to meet the demands of adolescence; relation of the high school to other parts of the system; the larger problems of organization and management, especially as these things affect the work of the regular teacher. In a word, this course is intended to give those who work in high schools the point of view that will insure the best results.

Much of the material of the course is drawn from practical observation and actual surveys. Monroe's *Principles of Secondary Education* is used.

Twenty-four lessons (three university credits). MILLER.

7. **INDUSTRIAL EDUCATION.** The principles fundamental to vocational training in the public school system as affecting the arrangement of school years, the course of study, and the methods of teaching. Prerequisite for credit, History and Education.

Twenty-four lessons (three university credits). RANKIN.

8. **THEORY OF TEACHING.** An introductory course in educational theory, including a somewhat detailed study of the principles on which is based the present practice in teaching, with an interpretation of the fundamental facts of psychology as applied to the problems of education.

Twenty-four lessons (three university credits). ALEXANDER.

9. **SCHOOL ORGANIZATION AND LAW.** A comprehensive course in the organization and management of schools in American communities, with special reference to the duties of school boards and school superintendents, principals, and teachers, to the methods and equipment proper to schools of various grades, and to the main facts in the school law of Minnesota. Prerequisite for credit, History of Education.

Twenty-four lessons (three university credits). RANKIN.

10. **SCHOOL SANITATION.** This course is designed for those who are concerned with schools of any and all grades. It deals with conditions affecting the health of school children of all ages. School architecture, courses of study, and the discipline of the school will be considered as well as all other questions affecting the well-being of pupils. Prerequisite for credit, History of Education.

Twenty-four lessons (three university credits). RANKIN.

12. **SOCIAL ASPECTS OF EDUCATION.** This course is one of the courses required for a University Teacher's Certificate. It is concerned with the school as an environment which is designed to fit its pupils for

their social relations; also it discusses the school in respect to its interaction with other institutions of a similar character and aim. It is a common remark that the school is becoming more and more a social institution and this course attempts to determine in what respect and in what manner this is true.

Twenty-four lessons (three university credits). RANKIN.

20. ORGANIZATION AND SUPERVISION OF VOCATIONAL EDUCATION. The course will include a careful study of the Smith-Hughes Act for Vocational Education. Particular attention will be given to the Minnesota plan for establishing vocational courses in our public schools. Consideration will be given to the various types of vocational schools, to adapting vocational courses to community needs, and to the methods of organization and supervision of courses. The methods of making an analysis of certain trades will be discussed, and recent vocational surveys will be studied.

Sixteen lessons (two university credits). MCGARVEY.

NOTE: During the year it is expected that additional courses in trade and industrial education will be made available for home study. Correspondence regarding this work is invited.

ENGINEERING

1. SHOP MATHEMATICS, PART I. This course will include mathematics from the elements through proportion, and will also include certain problems in areas, volumes, weights of materials, etc., and the fundamental elements of machines, such as levers, pulleys, inclined plane, etc.

Twenty-four lessons (no university credit). EDWARDS.

2. SHOP MATHEMATICS, PART II. This work will be in advance of Part I and will take up algebra, geometry, and trigonometry from a practical shop standpoint. A thoro working knowledge of formulae will be given. Each lesson in both Parts I and II will have numerous practical problems to be worked by the student.

Twenty-four lessons (no university credit). EDWARDS.

3. MECHANICAL DRAWING, PART I. The course includes the use of instruments, lettering, simple projections with sections and developments, working drawings of details of tools, machines, and structures. Geometrical problems and exercises will be studied in connection with their application. An elementary course designed to meet the needs of beginners.

Twenty lessons (no university credit). Fee \$10.00. FRENCH.

4. MECHANICAL DRAWING, PART II. A continuation of Part I.

Twenty lessons (no university credit). Fee \$10.00. FRENCH.

NOTE: It is impossible to quote prices on drawing outfits because of war conditions. The cost will probably be from \$8.00 to \$12.00.

5. **FREEHAND LETTERING.** This course is especially adapted for the use of teachers of drawing in high schools, manual training instructors, rural teachers, draftsmen, highway and county engineers. Capitals, lower case, numerals, and other symbols will be thoroughly treated. Explanatory notes, dimensions, and title layouts will be illustrated.
Sixteen lessons (no university credit). ZELNER.
6. **PRACTICAL PHYSICS.** A short, practical course in physics giving the fundamentals that all students must know for engineering purposes. Force, pressure, stress, tension, motion, work, power, energy, elasticity, law of fluids at rest and in motion, heat, and electricity will be given a brief practical treatment. Prerequisite, Courses 1 and 2.
Twenty-four lessons (no university credit). EDWARDS.
7. **ELEMENTARY MECHANICS.** A short, practical course in elementary mechanics designed to meet the needs of students who have had a limited training in mathematics. Numerical calculation, simple graphical calculations, forces, simple machines, velocity, acceleration, impulse, momentum, work, power, and energy. Prerequisites, Courses 1 and 2 or their equivalents.
Twenty-four lessons (no university credit). BROOKE.
8. **STRENGTH OF MATERIALS.** An elementary course on the strength of materials in common use. Properties of materials, stress and strain, elastic limit, ultimate strength, deformation, deflection, principle of moments, moments of inertia, and the general elementary theory of beams, columns, and shafts will be taken up. Prerequisite, Courses 1, 2, and 7.
Twenty-four lessons (no university credit). EDWARDS.
9. **ELECTRICITY AND MAGNETISM.** An elementary study of magnetism and electricity. Simple laws of magnetism, and the relation of magnetism to direct current electricity will be developed. Series and parallel circuits, combinations of both, simple wiring and armature winding will be taken up. A knowledge of arithmetic and algebra is prerequisite.
Twenty-four lessons (no university credit). EDWARDS.
10. **HEATING AND VENTILATION.** The course is intended to meet the needs of those who wish to know about the principles and installation of heating and ventilating apparatus. The work will include an introduction and study of heat, heat losses, loss of ventilation, ventilation practice, air conditioning, heating systems—steam and hot-water, direct and indirect, use of exhaust steam, thumb rules, warm-air systems, fan systems—plenum and exhaust systems, vacuum systems, piping systems, central-station heating, and heating accessories.
Twenty-four lessons (no university credit). MARTENS.

11. **ELEMENTS OF MACHINE DESIGN.** A short, practical course in machine design. Some elementary machines will be discussed and the laws of mathematics, mechanics, and strength of materials will be applied in each case, leading to the complete design of the particular machine under consideration. Working detail and general drawings will be made as the work advances. Prerequisites, Courses 1, 2, 3, 4, 7, and 8. Twenty-four lessons (no university credit). EDWARDS.
12. **TRIGONOMETRY.** A course in plane and spherical trigonometry, designed to meet the needs of beginners and to include the subject usually considered in the ordinary college course. The solution of triangles is treated quite fully, but not to the exclusion of analytical trigonometry. Prerequisite, Courses 1 and 2. Twenty-four lessons (university credit for properly qualified students). PRIESTER.
13. **CALCULUS FOR ENGINEERS, PART I.** A brief course in Differential Calculus. Only the essential parts of the subject will be taken up and all the formulae derived and explained. Prerequisite Course 12 or its equivalent. Twenty-four lessons (no university credit). EDWARDS.
14. **CALCULUS FOR ENGINEERS, PART II.** This course will be a continuation of Part I, and will take up Integral Calculus. Application to engineering problems will be given wherever possible. Prerequisite, Course 13 or its equivalent. Twenty-four lessons (no university credit). EDWARDS.
15. **LUMBER AND ITS USES.** Structural and physical properties of wood, standard grades and sizes, structural timbers, seasoning and preservation, paints and stains, lumber prices, cost of wood construction, specific uses of woods and selection of materials. Ten lessons (no university credit). Fee, including text material, \$6.00. CHEYNEY.
16. **PUBLIC ROADS AND HIGHWAYS.** This course has been designed for public officials and members of semi-public organizations interested in good roads. The cost and economy of various types of roads, methods of administration, construction of earth, gravel, concrete and bituminous surfaces, of bridges and culverts will be successively studied. In coöperation with the State Highway Commission, Minnesota materials and standards of construction will be given particular attention. Twenty-four lessons (no university credit). BASS.

ENGLISH

1. **HISTORY OF ENGLISH LITERATURE I.** A general survey of English literature from the earliest times to 1700, with a good deal of emphasis

upon the historical setting. Extensive readings from volumes of examples of the most famous poetry and prose. When feasible, the special study of the work of one of the major authors is recommended to be done at the same time as an intensive offset to so much rather sporadic reading. Prerequisite for credit, Rhetoric 1 and 2 or their equivalents.

Twenty-four lessons (three university credits). COLBY.

2. HISTORY OF ENGLISH LITERATURE II. A general survey of English literature from 1700 to the present time. Prerequisite for credit, Course 1 or its equivalent.

Twenty-four lessons (three university credits). COLBY.

3. AMERICAN LITERATURE—GENERAL SURVEY. A study of American literary development, with particular attention to the influence of English literature and the effect of our own national history upon the progress of thought and expression in the United States. The student must read extensively from American authors and answer questions which will call for constructive criticism and independent estimates. Textbook comments will not be accepted. Prerequisite for credit, Courses 1 and 2 or their equivalents.

Twenty-four lessons (three university credits). HERRICK.

4. THE ENGLISH NOVEL. An elementary course in the principles of fiction with the careful study of seven novels, selected to represent various aspects of the history of English prose fiction; also the study of a contemporaneous novel with an attempt to ascertain its literary value and its relationship to the masterpieces of the past. The consecutive study of the novels will be accompanied by selected assignments from Bliss Perry, *Study of Prose Fiction*, and W. L. Cross, *The Development of the English Novel*. Prerequisite for credit, Courses 1 and 2 or their equivalents.

Twenty-four lessons (three university credits). JACKSON.

5. THE ROMANTIC MOVEMENT. Poets and prose writers of the late Eighteenth Century and early Nineteenth Century with particular stress upon Wordsworth, Byron, and Shelley, and a consideration of the influence upon English literature of the revolution in France. Prerequisite for credit, Courses 1 and 2 or their equivalents.

Twenty-four lessons (three university credits).

GEOLOGY

1. GENERAL GEOLOGY. A general course, including a study of natural forces and phenomena, plants and animals as geologic agents, structural geology, physiographic geology, and an outline of historical geology.

Twenty-four lessons (three university credits). CLARK.

2. **PHYSICAL GEOGRAPHY.** A college course in the essentials of physical geography and physiography, with special application of the conditions of surface and climate to human occupation and economic and national development

Twenty-four lessons (three university credits). CLARK.

3. **COMMERCIAL AND INDUSTRIAL GEOGRAPHY.** A study of the world's great commercial products, their dependence on physiographic conditions and their relation to industrial enterprise.

Twenty-four lessons (three university credits). CLARK.

GERMAN

1. **BEGINNING GERMAN.** Grammar and easy composition. The usual work of first-year German.

Forty lessons (six university credits). BURKHARD.

2. **INTERMEDIATE GERMAN.** Grammar and composition continued; selected readings in easy prose and verse. Course 1 or its equivalent is prerequisite.

Forty lessons (six university credits). BURKHARD.

3. **RAPID READING A.** Selections from modern narrative and descriptive prose. Assigned outside readings and reports. Prerequisite, Courses 1 and 2 or their equivalents.

Twenty-four lessons (three university credits). KROESCH.

4. **RAPID READING B.** Plays of Lessing, Goethe, Schiller, Hebbel. Assigned outside readings and reports. Both A and B must be completed before credit is given for A. Students who obtain credit for these courses can not receive credit also for Courses 5 and 6.

Twenty-four lessons (three university credits). KROESCH.

5. **PROSE AND POETRY A.** Spanhoffd's *Aus vergangener Zeit*; selected lyrics and ballads. Geography, history, legend. Review of the morphology of grammar. Prerequisite, Courses 1 and 2 or their equivalents.

Twenty-four lessons (three university credits). MYERS.

6. **PROSE AND POETRY B.** Lyrics and ballads continued. Goethe's *Hermann und Dorothea*. Review of syntax. These courses not open to those who have obtained credit in Courses 3 and 4. Both A and B must be completed before credit is given for A.

Twenty-four lessons (three university credits). MYERS.

7. **ELEMENTARY COMPOSITION A.** Translation of short English selections. Paraphrasing of simple poems. Free narration. Exercises based on topical grammar review. Open to those who are taking or have taken Courses 3 and 4 or 5 and 6 or their equivalents.

Sixteen lessons (two university credits). MYERS.

8. **ELEMENTARY COMPOSITION B.** Translation and grammar review continued. Simple description. Letter writing. Both A and B must be completed before credit is given for A.
Sixteen lessons (two university credits). MYERS.
9. **DRAMA A.** Study of the present-day drama in Germany. Selected plays of Hebbel, Hauptmann, or Sudermann, with assigned readings and reports. Open to those who have completed Courses 1 and 2, and 3 and 4, or 5 and 6, or who have had four years of preparatory German.
Twenty-four lessons (three university credits). DAVIES.
10. **DRAMA B.** Study of the German drama of the eighteenth century and through the classic period. Selected plays of Lessing, Goethe, or Schiller, with assigned readings. Prerequisite as in Course 9.
Twenty-four lessons (three university credits). DAVIES.
11. **SURVEY OF GERMAN LITERATURE TO THE CLASSIC PERIOD.** A study of the development of German literature from the earliest times through Lessing. Selected readings from representative works supplement the course. Prerequisite, Courses 9 and 10.
Twenty-four lessons (three university credits). BURKHARD.
12. **SURVEY OF GERMAN LITERATURE SINCE THE CLASSIC PERIOD.** A study of the development of German literature from Goethe through the Romantic movement and the most prominent writers of the nineteenth century. Selected readings from representative works supplement the course. Prerequisite, Course 11.
Twenty-four lessons (three university credits). BURKHARD.

GREEK

1. **BEGINNING GREEK A.** The declensions and conjugations and the simpler rules of syntax, together with sentences based on the vocabulary of the *Anabasis*, and translation into Greek of idiomatic English sentences based upon the same text. Open to those qualified, who have had no Greek. Both A and B must be completed before credit is given for Course A.
Forty lessons (five university credits). SAVAGE.
2. **BEGINNING GREEK B.** Course A continued; general principles, inflections, word-formations, syntax, elementary readings, composition.
Forty lessons (five university credits). SAVAGE.
3. **HISTORY—XENOPHON'S ANABASIS.** Selections from Books 2, 3, 4; Hadley's *Greek Grammar*; etymology reviewed and syntax studied sufficiently to enable the student to proceed confidently in the translation of the text; the irregular verb. Prerequisite for credit, Courses 1 and 2 or their equivalents.
Twenty-four lessons (three university credits). SAVAGE.

4. ELEMENTARY COURSE IN HOMER. Selections from the *Iliad* or the *Odyssey*. Open to those who have read in Greek prose the equivalent of at least three books of the *Anabasis*.
Twenty-four lessons (three university credits). SAVAGE.
5. ELEMENTARY COURSE IN THE DRAMA. Euripides' *Alcestis* or *Medea*; translation, study of mythology and of Greek life. Open to those who have read at least two books of Homer in addition to the prose equivalent of at least three books of the *Anabasis*.
Twenty-four lessons (three university credits). SAVAGE.
6. PHILOSOPHY. Plato's *Apology* and selections from other works of Plato; study of Greek philosophy. Open to those who have had at least two years of Greek. Prerequisite for credit, Course 3 or its equivalent.
Twenty-four lessons (three university credits). SAVAGE.

HISTORY

1. ANCIENT HISTORY, PART I—GREEK. This course includes a brief preliminary survey of Egypt and Babylonia, showing their influence on later civilizations, followed by a study of Greek history, with special stress on the development of Sparta and Athens, the Persian Wars, the Age of Pericles, the interrelation of politics with the artistic and literary development and finally the conquests of Alexander and the diffusion of Greek civilization over the East. Prerequisite for credit, 9 credits in history.
Twenty-four lessons (three university credits).
2. ANCIENT HISTORY, PART II—ROMAN. A course in Roman history, including the rise of Rome from a petty city to the position of mistress of the ancient world, the great struggle with Carthage, the causes that led to the fall of the Republic, the transition to the Empire, and its decline and fall, with special emphasis on the effect of imperial institutions on modern civilization.
Twenty-four lessons (three university credits).
3. MEDIEVAL AND MODERN HISTORY, PART I. A study of European history from the time of Charlemagne to the close of the Thirty Years War (800-1648 A. D.)
Twenty-four lessons (three university credits). KREY.
4. MEDIEVAL AND MODERN HISTORY, PART II. A study of European history from the close of the Thirty Years War to the present (1648-1914).
Twenty-four lessons (three university credits). KREY.
5. UNITED STATES HISTORY, PART I. This is the first half of a comprehensive course in American history. About two thirds of Part I is devoted to the colonial period, the remainder to the Revolution and the closing years of the eighteenth century. The work consists of a

study of the text, supplemented by a considerable amount of source study and collateral reading. The student is required to prepare written answers to questions based on the text and on the supplementary readings. Prerequisite for credit, 6 credits in history.

Twenty-four lessons (three university credits). SHIPPEE.

6. UNITED STATES HISTORY, PART II. A continuation of Part I. devoted mainly to a study of the period from the beginning of the nineteenth century down to 1861, with a brief survey in conclusion of the principal events from that time to the present.

Twenty-four lessons (three university credits). SHIPPEE.

LATIN

1. BEGINNING LATIN. Inflections; reading easy Latin prose; the study of elementary syntax.

Forty lessons (six university credits). GRANRUD.

2. SELECTIONS FROM CAESAR. Forms and syntax; idiomatic translation; historical environment. Prerequisite, Course 1 or its equivalent.

Forty lessons (six university credits). GRANRUD.

3. ORATIONS OF CICERO A. Two orations, study of the life of Cicero and Latin composition. Open to those who have completed two years of preparatory Latin.

Twenty-four lessons (three university credits). GRANRUD.

4. ORATIONS OF CICERO B. Four orations, study of the times of Cicero and Latin composition. Open to those who have completed Course 3.

Twenty-four lessons (three university credits). GRANRUD.

5. VIRGIL'S AENEID A. The course will cover the first two books of the *Aeneid* and include the study of the life and times of Virgil, the principles of Latin prosody, the literary style of the *Aeneid*, and, to a limited extent, Roman mythology. Open to those who have completed three years of preparatory Latin.

Twenty-four lessons (three university credits). PIKE.

6. VIRGIL'S AENEID B. Books 3, 4, 5, 6 of the *Aeneid*. Textbooks: *Virgil's Aeneid* by Charles Knapp, Bennett's *Latin Grammar*. The student will, besides, be expected to read and report on Sellar's *Virgil*. Open to those who have completed Virgil's Aeneid A.

Twenty-four lessons (three university credits). PIKE.

7. LIVY, BOOK I. The work will comprise the study of the text, the life, times, and literary style of Livy, and, in some measure, early Roman institutions, and, lastly, Latin composition. Textbooks: Westcott's *Livy*, Book I, Bennett's *Latin Grammar*, and White's *Latin-English Lexicon*. The student will also read and report on Ihne's *Early*

Rome. Open to those who have completed four years of preparatory Latin.

Twenty-four lessons (three university credits). PIKE.

8. **PLAUTUS AND TERENCE: SELECTIONS.** The course will consist of a study of the texts, the literary styles of Plautus and Terence, and an outline of the history and technique of the Roman drama. Textbooks: *Plautus' Menaechmi* by Fowler, *Terence's Phormio* by Elmer, and White's *Latin-English Lexicon*. The student will also be required to read and report upon Sellar's "Plautus and Terence" in *The Roman Poets of the Republic*. Open to those who have completed Course 7.
- Twenty-four lessons (three university credits). PIKE.

MATHEMATICS

1. **ELEMENTARY ALGEBRA I.** This course covers the ground given in the average high school in the first half year of algebra.
- Twenty lessons (no university credit). Fee, \$10.00. BARTON.
2. **ELEMENTARY ALGEBRA II.** This course covers the ground given in the average high school in the second half year of algebra up to and including quadratics. Prerequisite, Course 1.
- Twenty lessons (no university credit). Fee, \$10.00. BARTON.
3. **PLANE GEOMETRY I.** This course covers the ground of the average high-school course as given in the first half year of plane geometry. Prerequisite, Courses 1 and 2.
- Twenty lessons (no university credit). Fee, \$10.00. BARTON.
4. **PLANE GEOMETRY II.** This course covers the ground of the average high-school course as given in the second half year of plane geometry. Prerequisite, Course 3.
- Twenty lessons (no university credit). Fee, \$10.00. BARTON.
5. **SOLID GEOMETRY.** This course is designed not only to give a knowledge of the standard theorems and exercises of the text, but to develop the student's own imagination and initiative and to give a well-rounded view of the subject by practice in special proofs and original exercises. Prerequisites for credit, Courses 1, 2, 3, 4, or their equivalents.
- Twenty-four lessons (two university credits). BARTON.
6. **HIGHER ALGEBRA, PART I A.** Brief review of Courses 1 and 2, linear equations in one, two, and three unknowns, with solution by determinants, ratio and proportion, variation, quadratic equations in one and two unknowns, graphs. Prerequisite, Courses 1 and 2 or their equivalents.
- Twenty lessons. Fee, \$10.00. BARTON.

HIGHER ALGEBRA, PART I B. A continuation of Part I A. Completion of quadratic equations, progressions, equations in quadratic form,

binomial theorem. Prerequisite, Course 6, Part I A. If both courses are completed five university credits are granted to properly qualified students.

Twenty lessons. Fee, \$10.00. BARTON.

7. HIGHER ALGEBRA, PART II. A continuation of Part I, including a study of variations, quadratic equations, special higher equations, simultaneous equations of the second degree, maxima and minima of functions, logarithms, theory of equations, and solution of numerical higher equations.

Twenty-four lessons (three university credits). BARTON.

8. TRIGONOMETRY. A course in plane and spherical trigonometry, designed to meet the needs of beginners and to include the subject usually considered in the ordinary college course. The solution of triangles is treated quite fully, but not to the exclusion of analytical trigonometry. Prerequisite, a course in algebra including logarithms.

Twenty-four lessons (three university credits). PRIESTER.

9. PLANE ANALYTIC GEOMETRY. This course treats systems of coordinates, loci, the type forms of the equation of the straight line with application; the circle, central and general conic sections, tangents, diameters, asymptotes, some higher plane curves, parametric loci, polar curves. The fundamental problem of the equation and its locus forms the basis of the course. Prerequisite, Course 8 above.

Twenty-four lessons (three university credits). BARTON.

10. DIFFERENTIAL CALCULUS. A first course in differential calculus treating differentiation of algebraic and transcendental functions with attention to the notion of the limit of a function, continuity of a function and the derivative. Extensive practice in the technique of differentiation by means of exercises and applications to maxima and minima, tangents, normals, curvature, singular points, velocity, and acceleration. Elementary discussion of Rolle's Theorem and the law of the mean, indeterminate forms, and partial differentiation. The course is based upon a textbook with supplementary written lectures and exercises upon many of the topics. Prerequisite, Courses 7, 8, and 9.

Twenty-four lessons (three university credits). BARTON.

11. INTEGRAL CALCULUS. First course in integral calculus. The integration of various types of functions, the definite integral with applications to areas, surfaces, and volumes of geometric figures, rectification of curves and simple problems of mechanics. Much practice in the technique of integration and the use of tables of integrals, the evaluation of simple double and triple integrals. Prerequisite, Differential Calculus.

Twenty-four lessons (three university credits). BARTON.

NOTE: See also Courses 1 and 2. 13 and 14, under "Engineering."

MUSIC

1. HARMONY. Scales, major and minor; intervals; formation of triads, their inversions; the dominant seventh chord, its inversions; modulation; suspension; organ-point, etc.
Twenty-four lessons (three university credits). SCOTT.
2. HISTORY OF MUSIC. A general survey of the development of music, from the earliest times to the present: primitive scale-forms, Greek theory, changes due to Christian practices, the development of polyphony, the monodic revolution and the growth of opera, the rise of instrumental music and instrumental forms, leading to a historical view of present-day music and musical tendencies. Considerable attention will be given to parallel movements and conditions in literature and history, the aim of the course being to present music as a literature.
Twenty-four lessons (three university credits). FERGUSON.
5. COUNTERPOINT. Simple counterpoint in strict style in two, three, and four parts. The study may be supplemented by exercises in free contrapuntal forms if the student shows sufficient skill.
Sixteen lessons (two university credits). FERGUSON.

PHILOSOPHY AND PSYCHOLOGY

1. GENERAL PSYCHOLOGY I. The purpose of this course is to acquaint the student with the general characteristics and laws of mental life and with the aims and methods of modern psychology.
Twenty-four lessons (three university credits). LOWELL.
2. GENERAL PSYCHOLOGY II. The study of mental development in its relation to heredity and training, with an investigation of the facts and theories of childhood and adolescence with special reference to their bearing on education. Prerequisite, Course 1.
Twenty-four lessons (three university credits). LOWELL.
3. INTRODUCTION TO PHILOSOPHY. A survey course in philosophy, in which the main fields of investigation are mapped out, the permanent problems indicated, and the chief methods employed in their solution are discussed. The course leads up to an outline of the idealistic view of the world, with practical applications to conduct and religion.
Twenty-four lessons (three university credits). LODGE.
4. LOGIC. A study of the nature and place of thinking in human life, followed by some notice of points in logical theory. Main emphasis then to be laid upon the methods that naturally arise in human thinking, studying their technical developments with the Greeks, the Schoolmen, and the modern scientists.
Twenty-four lessons (three university credits). LODGE.

5. ETHICS. A study mainly of morality as a phase of the developing life of peoples. Some attention to individual morality, but especially to contemporary social problems.

Twenty-four lessons (three university credits). LODGE.

6. ANCIENT AND MEDIEVAL PHILOSOPHY. A general survey of the philosophical problems that arose in the Greek period, and their development through the Middle Ages. The philosophical problems will be considered as representing the fundamental attitudes of the particular periods toward experience. These fundamental attitudes will be studied in the formulations of the individual philosophers. The work of Plato and Aristotle will be particularly stressed.

This course will give credit only to those having six credits or their equivalent in the Department of Philosophy. Text: Rogers' *Students' History of Philosophy*, and readings in Plato and Aristotle.

Twenty-four lessons (three university credits). LODGE.

7. MODERN PHILOSOPHY. A continuation of the previous course. This course is intended to cover the reconstruction of the problems of human experience, and their intended solution. The traditions of Rationalism and Empiricism will be traced down to the Kantian Philosophy. As in the previous course, the special authors will be studied. Rogers' *Students' History of Philosophy*, with special readings, will be used. Same prerequisite as Course 6.

Twenty-four lessons (three university credits). LODGE.

PHYSICS

1. GENERAL PHYSICS. Mechanics of solids and fluids, sound, and heat. An elementary university course in the fundamental principles of the subject. A theoretical course without laboratory work.

Twenty-four lessons (three university credits). EDWARDS.

2. GENERAL PHYSICS. Electricity, magnetism, and light. A continuation of General Physics 1. Without laboratory work.

Twenty-four lessons (three university credits). EDWARDS.

POLITICAL SCIENCE

1. AMERICAN GOVERNMENT. An elementary course in American Government and Politics intended as a preparation for teaching in secondary schools and for good citizenship. The course deals with the national government, treating its nature and origin. Special attention will be given to the organization of the executive, legislative, and judicial branches of the government, together with the various powers and duties of each department; to the conduct of foreign affairs; and the Federal Trade Commission.

Twenty-four lessons (three university credits). VIESSELMAN.

2. **STATE AND LOCAL GOVERNMENT.** A complementary course to 1 preceding. The constitutional basis of state government; relation of the states to the national and local governments, and to the citizen; organization, functions, and actual workings of state governments, and of county, township, and city governments; public opinion and popular control in state governments; nominations and elections, initiative, referendum, and recall; taxation and finance; social and regulatory legislation. Prerequisite for credit, Course 1.
Twenty-four lessons (three university credits). BENNETT.
3. **AMERICAN MUNICIPAL ADMINISTRATION.** A study of the city problem in the United States. Organization, functions, and administration. Forms of charters. Commission and manager plans. Home rule. Inefficiency, corruption. Civil service and other reform measures. Finance, health, police, education, and other activities. Prerequisite for credit, Course 1.
Twenty-four lessons (three university credits). ANDERSON.
4. **INTERNATIONAL LAW.** Recognition, extinction, and succession of states. Inviolability of territory; freedom of the seas. Declaration of war; rules of war on land and on sea. Neutrality and neutral rights; blockade, contraband, unneutral service, visit and search. Mediation, arbitration, and judicial settlement of international disputes. A world court. Prerequisite for credit, Course 1.
Twenty-four lessons (three university credits). ANDERSON.

RHETORIC

1. **RHETORIC, PART I.** This course is designed to give practical training in composition as well as a knowledge of rhetorical principles. Besides the study of the text it includes practice in the analysis of the best specimens of English prose, and the writing of papers, mainly expository in character.
Twenty-four lessons (three university credits). VAN DUSEN.
2. **RHETORIC, PART II.** A continuation of Part 1, with more advanced work in analysis, and practice in writing narration, description, and informal argument.
Twenty-four lessons (three university credits). VAN DUSEN.
3. **EXPOSITION.** Imitative and creative work in the various types of exposition with especial recognition in the latter part of the course of the way in which exposition merges into the other forms of discourse. Prerequisite for credit, Courses 1 and 2.
Twenty-four lessons (three university credits). HERRICK.
4. **NARRATION AND DESCRIPTION.** An attempt at an untechnical but thorough understanding and application of these associated forms of discourse. Prerequisite, Course 3.
Twenty-four lessons (three university credits). HERRICK.

5. **VERSIFICATION.** A study of the nature of poetry, and a detailed analysis of English meters and the various English verse forms. The theory accompanied by criticism of current poetry and practice in writing verse. Open for credit to those who have completed the equivalent of freshman and sophomore rhetoric (Courses 1, 2, 3, and 4, above). Open to others without credit.

Twenty-four lessons (three university credits). NICHOLS.

6. **BUSINESS ENGLISH.** See Course 1 under Business Courses. NICHOLS.

ROMANCE LANGUAGES

FRENCH

1. **BEGINNING FRENCH.** French grammar and reader; modern texts; comprises the usual work of first-year French.
Forty lessons (six university credits). FRELIN.
2. **INTERMEDIATE FRENCH.** Review of grammar; composition; reading of representative authors. Prerequisite, Course 1 or its equivalent.
Forty lessons (six university credits). FRELIN.
5. **ELEMENTARY FRENCH COMPOSITION.** This course is designed to train the student in the use of French. It presupposes a knowledge of French such as is given by Courses 1 and 2.
Sixteen lessons (two university credits). GUINOTTE.
6. **ADVANCED FRENCH COMPOSITION.** A continuation of Course 5. Prerequisites, Courses 1, 2, and 5 or their equivalents.
Sixteen lessons (two university credits). ELLIOTT.
7. **SURVEY OF FRENCH LITERATURE.** This course will outline the history of French Literature from 1700 to the present. Representative texts will be read. Prerequisites, Courses 1 and 2 or their equivalents.
Forty lessons (six university credits). VAN ROOSBROECK.

SPANISH

1. **BEGINNING SPANISH.** Spanish Grammar and reader. Covers the usual first year's work.
Forty lessons (six university credits). BARTON.
2. **INTERMEDIATE SPANISH.** Review of grammar; composition; reading of modern Spanish texts. Prerequisite, Course 1 or its equivalent.
Forty lessons (six university credits). BARTON.
5. **ELEMENTARY SPANISH COMPOSITION.** The aim is the ability to write Spanish. Prerequisite, Courses 1 and 2 or their equivalents.
Sixteen lessons (two university credits). HENRÍQUEZ.
6. **ADVANCED SPANISH COMPOSITION.** A continuation of Course 5, which is prerequisite.
Sixteen lessons (two university credits). VASCONCELOS.

ITALIAN

1. BEGINNING ITALIAN. Rules of pronunciation, grammar, elementary composition, and easy readings in modern prose.
Twenty-four lessons (three university credits). PHELPS.
2. INTERMEDIATE ITALIAN. Continuation of grammar study and composition; readings in prose and verse.
Twenty-four lessons (three university credits). PHELPS.

SCANDINAVIAN LANGUAGES AND LITERATURE

NORWEGIAN

1. ELEMENTARY NORWEGIAN. Elementary study of the language, grammar, composition, select readings in easy prose and poetry.
Forty lessons (six university credits). BOTHNE.
2. INTERMEDIATE NORWEGIAN. Grammar; composition; elementary history of literature; select works of modern authors. Prerequisite, Course 1 or its equivalent.
Forty lessons (six university credits). BOTHNE.
3. ADVANCED NORWEGIAN I. The reading of representative prose and poetry. Prerequisite, Courses 1 and 2 or their equivalents.
Twenty-four lessons (three university credits). BOTHNE.
4. ADVANCED NORWEGIAN II. A continuation of Course 3. Reading in prose and verse.
Twenty-four lessons (three university credits). BOTHNE.
5. MODERN NORWEGIAN LITERATURE A. History of Norwegian literature from 1814 to the present day. Prerequisite, Courses 3 and 4, or their equivalents.
Twenty-four lessons (three university credits). BOTHNE.
6. MODERN NORWEGIAN LITERATURE B. A continuation of Course 3. Open to advanced students. Both courses must be completed before credit is given for the first course.
Twenty-four lessons (three university credits). BOTHNE.

SWEDISH

1. ELEMENTARY SWEDISH. Grammar and composition; select readings in easy prose and verse.
Forty lessons (six university credits). STOMBERG.
2. INTERMEDIATE SWEDISH. Grammar; composition; easy reading. Prerequisite, Course 1.
Forty lessons (six university credits). STOMBERG.
3. SWEDISH LITERATURE. A. History of Swedish literature from 1710 to the present time. History of the literature and study of modern

authors, including Selma Lagerlöf, Gejerstam, Strindberg. Prerequisites, Courses 1 and 2, and advanced Swedish.

Twenty-four lessons (three university credits). SROMBERG.

4. SWEDISH LITERATURE B. A continuance of Course 3. Open to advanced students. Both courses must be completed before credit is given for the first course.

Twenty-four lessons (three university credits). STOMBERG.

SOCIOLOGY

1. INTRODUCTION TO SOCIOLOGY. A study of the evolution and present organization of human society. The evolution of typical social institutions, such as the family, industry, and the state; the influence of the biological and environmental (both physical and social) factors upon man in his social relationships; an introductory analysis of some of the leading social problems of the time; a study of the methods of social organization and control, especially from the standpoints of tradition, custom, and science. This course is intended to serve (1) as an introduction to other more specialized courses in sociology, (2) as a background for a better understanding of the society in which we live and of its problems.

Twenty-four lessons (three university credits). BERNARD.

2. RURAL SOCIOLOGY. A study of the conditions and problems of country life. Analysis of environmental, human, and general social conditions; how soil, climate, etc., the quantity and quality of the rural population, the interaction of city and country, determine the type of rural communities. Problems of sanitation, coöperation, education, religion, recreation, crime, and dependency, growing out of these conditions.

Twenty-four lessons (three university credits). BERNARD.

3. CHILD WELFARE. Study of social obligations to the child; development of the child-saving movement in the United States; infant and child mortality, recreation, education; courts, institutions, societies, and other public efforts for the child. A limited amount of field work must be done. Prerequisite for credit, one year's work in sociology. Open to others without credit.

Twenty-four lessons (three university credits). TAYLOR.

OTHER EXTENSION ACTIVITIES

LANTERN SLIDES

The General Extension Division has organized a Bureau of Visual Instruction. Collections of lantern slides on subjects of interest to schools, and more especially high schools, are procured and sent out as loans to the schools which are provided with lanterns. Each set is accompanied by a typewritten lecture or reading.

The plan in the past has been to have these sets of slides available on call. In the future this plan will be abandoned in favor of the circuit system. Each year circuits of twelve to sixteen towns will be organized, each town to receive one set of slides at weekly or bi-weekly intervals. The towns on the circuits may thereby count on a regular supply and will be able to plan in advance for the use of the slides. It is believed that in this way the slides will be more continuously in service and the transportation charges will be lower. The slides are sent out in collections of fifty or one hundred on each subject.

Among the slides available are:

- The Aeneid of Virgil
- America's Opportunity
- Ancient Rome, the Forum, and the Imperial Fora
- Birds of Minnesota
- Caesar's Helvetian Campaign
- Children in Different Lands
- Conquest of Tuberculosis
- The Development of Writing and Printing
- Farming in Different Lands
- Following Great Men through Greece
- Going to Church around the World
- History of Greek Architecture
- History of Roman Architecture
- History of Medieval Architecture
- History of Renaissance Architecture
- Home Life in Different Lands
- India
- Insect Pests of Minnesota
- Junior Red Cross
- Norway
- Passion Play of Ober-Ammergau
- Philippine Islands
- Pompeii
- The Roman House and Furniture
- Rome, the World Center of Olden Times
- Sweden

Switzerland

Thirteen Chapters of American Naval History

Transportation in Different Lands

Wild Flowers of Minnesota

From time to time additions to this collection will be made and offered as the demand arises.

EXTENSION LECTURES

Lectures, either single or in series, delivered by members of the University Faculty, may be obtained by the people of the various communities of the state on very reasonable terms. These lectures attempt to present in popular form present knowledge of the various fields of research and investigation covered by the numerous departments of the University. Some of these lectures are primarily informational, others cultural, and all, it is hoped, inspirational. These lectures afford a good opportunity for any community to keep abreast of present thought and new ideas in the various fields of the world's activity. Some of the courses of lectures given will closely parallel similar courses given each year in the classrooms of the University. In order that courses of lectures may be inaugurated and successfully prosecuted in any town, it is necessary usually that an organization be effected. This may be called the Extension Committee, and through its means business details, advertising, etc., may be attended to systematically and well.

LYCEUM COURSES

In addition to the lectures offered by members of the University Faculty, there are offered also professional lyceum courses of popular lectures, entertainments, concerts, and dramatics. The General Extension Division is in a position to obtain the services of the best lecturers as well as of the lyceum companies presenting entertainments, readings, and concerts, at a much lower rate than is possible for the average community. These courses are offered at cost, thereby eliminating the profits of the agent and of the middleman. In this way the lecturer will get just as much for his services while the community will obtain the same entertainment for much less money, or, better still, will obtain a very much higher order of entertainment for the same money. Only courses of lectures or of entertainments of marked merit will be sent out by the General Extension Division. It must be distinctly understood, however, that the University in offering these attractions is acting merely as a booking agency between the attractions and the public, and can not be held responsible for opinions, theories, or sentiments expressed by lecturers. A list of the lyceum attractions available for the season of 1919-1920 may be obtained on request.

COMMUNITY CENTERS

There is a movement now running through the country in the interest of a wider community use of the school plant and of other public build-

ings. It is realized that these buildings, in which the public has a large investment, are open for the use of the people for only a fraction of the available time. There is need for a civic forum or community club house, where citizens may gather for discussion of public questions and for the expression of neighborhood civic and social life. The General Extension Division proposes to further this movement by offering guidance and cooperation, more particularly in the way of providing plans for organization, with a list of things that may be done. The Division also offers the services of an adviser on the organization and program of community and commercial clubs. Correspondence is invited from any citizen or organization of citizens interested in this subject.

DRAMA SERVICE

There is becoming apparent throughout the state an increasing interest in the drama. Many schools now plan to give amateur theatricals every year. The University Drama Service is planned to afford amateurs an opportunity without expense beyond postage, to select plays after reading three or four picked out with some regard for the special requirements of the applicant. In addition advice is given as to costumes and also with respect to the purchase and the painting of scenery.

It is hoped that in the future it may be possible to send out University dramatic companies to give plays in the several communities of the state during vacations and at week-ends. If interest in this form of service develops it may also be possible to furnish amateurs in the state the assistance of a University dramatic coach. Correspondence is invited from interested schools.

MUNICIPAL REFERENCE BUREAU

The Municipal Reference Bureau is designed to provide the municipal officials of the state with a central clearing house for the dissemination of reliable information on matters of municipal importance. To render this service the Bureau has collected charters, ordinances, and other municipal documents. This information is drawn upon in the answering of specific inquiries referred to the Bureau by municipal officials of the state, and in the preparation of reports of general interest to the villages and cities of Minnesota. Municipalities desiring information, public reports, statistics, and advice upon administrative matters are urged to communicate with the Bureau.

SHORT COURSES

The Agricultural Extension Division has been very useful to the people of the state through its system of short courses of one week offered in agriculture, home economics, and similar subjects. The General Extension Division now reaches another class of people in a similar way by offering one-week courses in such subjects as merchandising, retail selling, etc. These courses are of very great benefit to country

merchants especially. The short course in retail merchandising is now offered regularly during the second week of February each year at the University. Merchants and their clerks from all over the state attend this practical school for one week. Experts from the best talent in the country are brought in to expound the various phases of the subject and to outline fundamental principles.

AGRICULTURAL EXTENSION

Agricultural extension including lectures, demonstrations, institutes, and short courses will be carried on as usual under the direction of the Agricultural Extension Division of the College of Agriculture. Address all inquiries regarding such work to the Agricultural Extension Division, University Farm, St. Paul, Minnesota.

INFORMATION

It often happens that citizens of a state are in need of information on some specific subject not to be found in the ordinary books of reference, and in such cases the average person is at a loss where to turn. The General Extension Division has as one of its functions the business of obtaining and furnishing to inquirers information on the various subjects which from time to time may be called for. This information is obtained by research and by application to the proper university source, and thereby the department acts as a clearing house of the information which is gathered and stored up through the facilities of a great university. Inquiries for information are therefore invited, and so far as the means at hand will permit, the information will be found and supplied.

The various subjects mentioned in the preceding pages lie within the province of the General Extension Division and inquiries on all of them should be addressed to The General Extension Division, University of Minnesota, Minneapolis.

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

The Summer Session
Announcement of Courses
June 17 to August 2
1918

College of Agriculture, June 17 to July 26

Main Campus, June 24 to August 2



Vol. XXI No. 3 May 1 1918

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Minneapolis, Minnesota

THE SUMMER SESSION

FACULTY

ADMINISTRATION

MARION LEROY BURTON, Ph.D., D.D., LL.D., President
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LOTUS D. COFFMAN, Ph.D., Director of Summer Session, Professor of Education
ASHLEY V. STORM, M.A., Vice Director of Summer Session, College of Agriculture
EDWARD E. NICHOLSON, M.A., Dean of Student Affairs
CLARENCE M. JACKSON, M.S., M.D., Acting Dean of Graduate School, Professor of Anatomy
GERTRUDE H. BEGGS, Ph.D., LL.D., Dean of Women

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

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CAROL ARONOVICI, Ph.D., Special Lecturer in Social and Civic Work
RALPH M. BARTON, B.A., Instructor in Mathematics
GEORGE N. BAUER, Ph.D., Professor of Mathematics
WILLIAM O. BEAL, Ph.D., Assistant Astronomer
CAROLINE BEDFORD, B.A., Supervisor of Field Work
ROY G. BLAKEY, Ph.D., Assistant Professor of Economics
CARLETON BROWN, Ph.D., Professor of English
FRANK J. BRUNO, M.A., Special Lecturer in Sociology
OSCAR BURKHARD, Ph.D., Assistant Professor of German
C. C. CRAWFORD, Ph.D., (University of Kansas) Professor of History
MAXIMILIAN DIČK, Instructor in Music
MANUAL C. ELMER, Ph.D., (University of Kansas) Professor of Sociology
HENRY A. ERIKSON, B.E.E., Ph.D., Professor of Physics
DONALD FERGUSON, B.A., Assistant Professor of Music
DANIEL FORD, M.A., Assistant Professor of Rhetoric
ISAAC W. GEIGER, Ph.D., Instructor in Chemistry
ARTHUR GRAVES, Ph.D., Instructor in German
HELEN E. GRIMES, (Minneapolis Public Schools) Instructor in Swimming
HASTINGS H. HART, Ph.D., (Department of Child Helping, Russell Sage Foundation) Special Lecturer in Social and Civic Work
CYRIL A. HERRICK, B.A., Instructor in English and Rhetoric
GERTRUDE HULL, B.A., Instructor in Music
ALBERT C. JAMES, M.B.A., Instructor in Economics
ARTHUR M. JOHNSON, B.A., Instructor in Botany
CHARLES E. JOHNSON, Ph.D., Instructor in Animal Biology
AUGUST C. KREY, Ph.D., Associate Professor of History

- IMOGENE KRISKEY, (Minneapolis Public Schools) Instructor in Physical Education for Women
- CHARLES F. LINDSLEY, M.A., Instructor in Public Speaking
- RUPERT C. LODGE, M.A., Assistant Professor of Philosophy
- FRANK H. MACDOUGALL, Ph.D., Assistant Professor of Chemistry
- LOUALLEN F. MILLER, M.A., Instructor in Physics
- CECIL A. MOORE, Ph.D., Professorial Lecturer in English
- WALTER R. MYERS, Ph.D., Assistant Professor of German
- EVERETT W. OLMSTED, Ph.D., Professor of Romance Languages
- SIDNEY F. PATTISON, M.A., Assistant Professor of Rhetoric
- JOSEPH B. PIKE, M.A., Professor of Latin
- CHESSLEY J. POSEY, M.S., Assistant Professor of Geography
- WILLIAM D. REEVE, B.S., Instructor in Mathematics
- GERTRUDE REEVES, Instructor in Music
- CHARLES A. SAVAGE, Ph.D., Professor of Greek
- CARL SCHLENKER, B.A., Professor of German
- CARLYLE SCOTT, Professor of Music
- COLBERT SEARLES, Ph.D., Professor of Romance Languages
- AMELIA SEARS, (Chicago) Special Lecturer in Social and Civic Work
- CARL L. SCHUMANN, Ph.D., Instructor in Chemistry
- LESTER B. SHIPPEE, Ph.D., Assistant Professor of History
- HERMON L. SLOBIN, Ph.D., Assistant Professor of Mathematics
- MARION A. TEBBETS, B.A., Supervisor of Field Work
- JOSEPHINE E. TILDEN, M.S., Professor of Botany
- ARTHUR J. TODD, Ph.D., Professor of Sociology
- HERBERT WOODROW, Ph.D., Professor of Psychology
- ELIZABETH YERXA, B.A., Supervisor of Field Work
- JEREMIAH S. YOUNG, Ph.D., Professor of Political Science

COLLEGE OF EDUCATION

- EARL BAKER, (Minneapolis Public Schools) Instructor in Public School Music
- FRED W. BENTLEY, B.S. in M.E., Instructor in Trade and Industrial Education
- ABBIE LOUISE DAY, M.A., (Cleveland Heights, Ohio) Instructor in Education
- GEORGE A. MCGARVEY, B.A., Instructor in Trade and Industrial Education
- FRANCES MOREHOUSE, B.A., Instructor in Trade and Industrial Education
- SAMUEL R. POWERS, B.A., Instructor in Trade and Industrial Education
- ALBERT W. RANKIN, B.A., Professor of Education
- WILLIAM D. REEVE, B.S., Instructor in Mathematics
- FLETCHER H. SWIFT, Ph.D., Professor of Education
- GILBERT H. TRAFTON, M.A., M.S., (Mankato State Normal School) Professor of Nature Study
- MARVIN J. VAN WAGENEN, M.A., Assistant Professor of Education

FACULTY

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LIBRARY TRAINING SCHOOL

CLARA F. BALDWIN, Secretary, Minnesota Public Library Commission
MARTHA WILSON, Supervisor of School Libraries, State Department of
Education

COLLEGE OF ENGINEERING

HANS H. DALAKER, B.A., Assistant Professor of Mathematics
ROBERT W. FRENCH, B.S. in C.E., Instructor in Engineering Drawing and
Descriptive Geometry
FRANCIS C. HOBART, Instructor in Engineering Shop Work
WILLIAM H. KIRCHNER, B.S., Professor of Drawing and Geometry
GEORGE C. PRIESTER, B.E., M.S., Instructor in Mathematics
WILLIAM H. RICHARDS, Instructor in Engineering Shop Work

COLLEGE OF DENTISTRY

GEORGE M. DAMON, D.D.S., Associate Professor of Dental Anatomy
CHARLES A. GRIFFITH, D.D.S., Associate Professor of Oral Surgery
WILLIAM F. LASBY, B.A., D.D.S., Associate Professor of Prosthetic Den-
tistry and Orthodontia
ALFRED A. PAGENKOPF, D.D.S., Associate Professor of Crown and Bridge
Work
JOSEPH F. SHELLMAN, D.D.S., Assistant Professor of Operative Dentistry

THE MEDICAL SCHOOL

EDWARD D. ANDERSON, B.A., Instructor in Physiology
ELEXIOUS T. BELL, B.S., M.D., Associate Professor of Pathology
EDGAR D. BROWN, Ph.D., M.D., Associate Professor of Pharmacology
CHARLES A. ERDMANN, M.D., Associate Professor of Applied Anatomy
CHARLES C. GAULT, B.A., Assistant in Physiology
ROBERT S. GUTSELL, B.A., Assistant in Anatomy
WINFORD P. LARSON, M.D., Associate Professor of Pathology
HJALMAR L. OESTERUD, M.A., Assistant in Anatomy
CHAUNCEY J. V. PETTIBONE, Ph.D., Instructor in Physiology
ANDREW T. RASMUSSEN, Ph.D., Instructor in Anatomy
BYRON L. ROBINSON, M.A., Assistant in Anatomy
ROY E. ST. CLAIR, B.A., B.S., Assistant in Anatomy
RICHARD E. SCAMMON, Ph.D., Professor of Anatomy
FREDERICK H. SCOTT, Ph.D., M.D., Sc.D., Associate Professor of Physi-
ology
ALBERT M. SNELL, B.S., Instructor in Physiology
MARGARET WARWICK, B.S., M.D., Instructor in Pathology and Bacteriology

DEPARTMENT OF AGRICULTURE

ALBERT C. ARNY, B.S. in Agr., Associate Professor of Farm Crops
PHIL C. BING, M.A., Assistant Professor of Journalism
WILLARD L. BOYD, D.V.S., Assistant Professor of Veterinary Medicine
ANDREW BOSS, Professor of Agronomy and Farm Management

WILFRID G. BRIERLEY, M.S., Associate Professor of Horticulture
 LeROY CADY, B.S. in Agr., Associate Professor of Horticulture
 SYLVIA CAMPIGLIA, B.S., Assistant Professor of Textiles and Clothing
 R. ADAMS DUTCHER, M.S., M.A., Assistant Professor of Agricultural Bio-chemistry

ALICE L. EDWARDS, M.A., Assistant Professor of Nutrition
 ALBERT M. FIELD, M.S., Assistant Professor of Agricultural Education
 CLIFFORD P. FITCH, M.S., D.V.M., Professor of Veterinary Medicine
 EDWARD M. FREEMAN, Ph.D., Professor of Botany and Plant Pathology
 CARL W. GAY, D.V.M., B.S.A., Professor of Animal Husbandry
 BUEFORD M. GILE, B.S., Assistant Professor of Agricultural Education
 HARRIETT I. GOLDSTEIN, Assistant Professor of Drawing and Design
 HENRY H. KILDEE, M.S.A., Professor of Dairy Husbandry
 DEXTER D. MAYNE, Professor of Agricultural Pedagogics
 JOSEPH S. MONTGOMERY, B.S. in Agr., Assistant Professor of Animal Husbandry

CLARENCE A. MORROW, M.A., Assistant Professor of Agricultural Bio-chemistry

OSCAR W. OESTLUND, Ph.D., Assistant Professor of Animal Biology
 STELLA PALMER, M.S., Assistant Professor of Foods and Cookery
 MYRON H. REYNOLDS, B.S.A., D.V.M., M.D., Professor of Veterinary Medicine

WILLIAM A. RILEY, Ph.D., Professor of Entomology
 ARTHUR C. SMITH, B.S., Professor of Poultry Husbandry
 ROBERT M. WASHBURN, M.S. in Agr., Professor of Dairy Husbandry
 G. EARL WEAVER, M.S.A., Assistant Professor of Dairy Husbandry
 MILDRED WEIGLEY, B.S., Assistant Professor of Foods and Cookery
 MARION WELLES, B.A., Assistant Professor of Textiles
 RICHARD WELLINGTON, M.S., Assistant Professor of Horticulture
 PHILIP A. ANDERSON, B.S., Instructor in Animal Husbandry
 PERCY B. BARKER, M.S., Instructor in Agricultural Education
 GUY R. BISBY, B.S., M.A., Instructor in Plant Pathology
 JOHN W. BUSHNELL, B.S., Assistant in Horticulture
 NORTON E. CHAPMAN, M.A., Lecturer and Assistant Professor of Poultry Husbandry

ROBERT C. DAHLBERG, B.S. in Agr., Instructor in Agricultural Botany

JAMES M. DREW, Assistant

WILLIAM P. DYER, B.A., Instructor in Agricultural Education

THEODORE A. ERICKSON, B.A., Rural School Specialist

LLOYD V. FRANCE, M.S. in Agr., Instructor in Beekeeping

EDWIN O. HANSON, Instructor in Dairy Husbandry

ALLEN D. JOHNSTON, Instructor in Blacksmithing

ELIZABETH VERMILYE, B.A., Instructor in Foods and Cookery

HALL B. WHITE, B.S. in Agr., Instructor in Carpentry

GENERAL INFORMATION

The University of Minnesota offers each year a considerable list of courses for summer work. They are planned for college students, for experienced teachers, and for other men and women who seek the advantage of advanced study. This year courses will be offered by the Colleges of Agriculture, Dentistry, Education, Engineering, Science, Literature, and the Arts, the Medical School, and the Graduate School.

ENTRANCE REQUIREMENTS

Statements of the entrance requirements of the various colleges offering work in the Summer Session will be found in this bulletin in connection with the general announcement of each college.

LOCATION

These summer courses, with the exception of those in Agriculture and in Home Economics, are given on the main campus in Minneapolis and the full equipment of the University in buildings, libraries, laboratories, observatory, and museums is at the service of students, who may in addition, under certain restrictions, use other large public and semi-public libraries both in St. Paul and in Minneapolis.

The climate of the city is especially favorable for summer residence, and in addition the vicinity offers much that is worthy the attention of visitors and students. The neighborhood of the Twin Cities is rich in natural beauty, while the cities themselves, with their parks, lakes, public buildings, libraries, and art galleries, afford students ample opportunities for the profitable use of leisure hours. Numerous personally conducted excursions will be arranged.

ORGANIZATION

The Summer Session will retain the form of organization in use during the regular college year and all the courses offered will be of college grade. Students will be required to register in colleges in exactly the same manner as during the regular year. Special announcements describing the courses in Agriculture and in Home Economics may be secured by addressing the Secretary, College of Agriculture, University Farm, St. Paul.

COURSES OPEN TO WHOM

The summer courses are arranged not merely for college students, but also for the benefit of experienced teachers.

Courses of special interest to superintendents, principals, and supervisors, and to normal school and college teachers of education are being offered by the College of Education.

All of the courses offered carry university credit, and they amount to much more than the total number of hours required for the Bachelor's degree. By taking advantage of these opportunities teachers and others who have not finished their university work may be enabled to meet a considerable part of the requirements for graduation. Earnest and capable college students, by combining summer study with the courses of the academic year, may with no great difficulty gain in three years the necessary credits for the Bachelor's degree.

GENERAL OFFICES

The office of the Director of the Summer Session is Room 103, Education Building. During registration days the Director and members of the faculty may be found in the Library Building. The offices of the Registrar and the Cashier are on the first floor of the Library Building.

The offices at the College of Agriculture are in Room 209, Administration Building.

ADMISSION

The courses of the Summer Session are open to all men and women who after consultation with the respective instructors are found qualified to pursue the chosen work to advantage.

Students desiring advanced standing will be expected to file a petition with the Committee on Relations to other Institutions showing the credits that they have earned in other institutions.

REGISTRATION

Saturday, June 22, and Monday, June 24, are regular registration days. Students may register on any preceding day. Students should complete registration and be ready for class work before 8 a.m., Tuesday, June 25. After Monday, June 24, students may register by special permission only. No student will be permitted to register after Monday, July 1. To complete registration, fees must be paid the same day.

Those who desire to enroll in Arts, Education, Engineering, Dentistry, or Medicine will secure their registration blanks in the entrance lobby of the Library Building. They should bring with them their credentials showing from what schools they have been graduated, including particularly their diplomas from high schools, normal schools, or colleges, or their certificates of admission to, and work done in, each of those grades of schools.

Students desiring to enroll in Agriculture will secure their registration blanks of the Registrar at the University Farm.

Any modification of the prescribed program must be made by petition. Undergraduate students seeking admission after Monday, June 24, may be admitted only by petition. These petitions must be filed and approved by Dean E. E. Nicholson, Room 239, Chemistry Building.

VACATION

Only one day will be allowed for the Fourth of July vacation.

GENERAL INFORMATION

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CREDITS

Courses requiring eight recitation hours a week or their equivalent will carry three hours credit. Courses requiring four recitation hours a week or their equivalent will carry one and one-half credits. Two hours of laboratory work will be regarded as the equivalent of one recitation hour. No student may secure more than six credits in the session except by special permission.

GENERAL ASSEMBLY

On the Main Campus a General Assembly of the faculty and students will be held on Tuesdays and Thursdays, 10:00 to 10:30 a.m. The exercises will include music, readings, and short, snappy talks. On Tuesdays and Thursdays the third and fourth period classes will continue a half hour later.

On the Campus of the College of Agriculture, assemblies will be held daily from 9:30 to 10:00 a.m.

GENERAL LECTURES

A series of popular lectures open to the students, faculty, and the general public will be announced in the weekly bulletins.

EXERCISE AND RECREATION

A special feature of the Summer Session is the use of Northrop Athletic Field and the entire equipment of the Physical Education Building, for women, including the swimming pool, tennis courts, baseball field, and basket-ball and handball courts.

FEES

Each student pays a registration fee of \$5.00, and a tuition fee of \$2.00 for each credit hour for which he is enrolled, with an extra charge of \$1.50 for each laboratory course. Each student will also be required to have on deposit \$5.00 to cover breakage, loss of library books, locker keys, etc. The difference between the losses and the deposit will be refunded at the close of the session. All of the courses in Dentistry, and Medicine, and a few of the courses in other colleges require special fees.

REFUNDS

The five-dollar registration fee is not refunded under any conditions. Students cancelling their registration during the first week of the session may receive a pro rata refund of the credit hour and laboratory fees. Such refund shall not exceed five sixths of the amount paid on these items and must be approved by the Director of the Summer Session.

No refunds whatsoever shall be made to students who attend more than one week.

EXPENSES

The living expenses for students at the University are never very high, and this is true especially for the Summer Session. Good accommodations for room and board may be had from \$6.00 to \$10.00 per week.

A list of boarding places, stating location and prices, will be sent to any address on application to the Registrar. It will usually be found more satisfactory to engage accommodations after arrival than to reserve them in advance. Several good restaurants are to be found in the immediate vicinity of the University.

SANFORD HALL

Sanford Hall is situated on the corner of Eleventh Avenue and University Avenue southeast. It is divided into two distinct houses, East Sanford and West Sanford. East Sanford contains 17 single and 12 double rooms, and accommodates 41 students. West Sanford has 20 single and 13 double rooms, and accommodates 46 students. The building is lighted with electricity, and each room is provided with hot and cold water. Each double room has two closets.

The furniture consists of a cot, with mattress and bedding, one double blanket, a dresser, study table, chair, and rug for each student. Students must supply towels, bureau scarf, couch cover, and extra blanket.

Applications for rooms should be addressed to Miss Helen F. Jackson, Director of Sanford Hall, and will be considered in the order in which they are received. No application will be recorded until a deposit fee of \$2.00 (to apply on Residence Fee) is received. A rate of \$2.00 per week is charged for each single room, and \$1.25 per week for each person occupying a double room. Room rent is refunded if notice is received before June 1. Residence fee for remaining time is refunded if the vacancy is taken by some other student.

Regulations.—No articles shall be tacked or fastened in any way to the walls. Pictures and other ornaments must be suspended from the picture moulding. Alcohol lamps and chafing dishes are forbidden. Any use of gasoline, naphtha, or benzine in the building is forbidden. Trunks are not allowed in rooms. Trunk rooms are provided.

Reservations should be made early, certainly not later than May 30.

MINNESOTA UNION

The Minnesota Union will open its building for men of the Summer Session of 1918. Three meals a day will be provided following the plan which obtains during the regular University year with corresponding prices. The usual facilities offered by the Minnesota Union will be available for all men of the Summer Session.

SHEVLIN HALL

Shevlin Hall, with all its facilities including cafeteria, rest rooms, and study rooms will be open to women students of the Summer Session of 1918. Three meals a day will be served.

TEACHERS' SUMMER TRAINING SCHOOL

The work formerly conducted for graded and rural school teachers in the elementary section of the University Summer School is given now

as a special State Teachers' Training School at the University Farm. For bulletin address the Secretary, University Farm, St. Paul, Minnesota.

EXAMINATIONS

At the close of the Summer Session examinations for the State Professional Certificate will be conducted at the State Normal Schools and at the University of Minnesota by the State Examining Board.

UNIVERSITY POST-OFFICE

The University Post-Office, through which mail addressed to the University is distributed, is in the Mechanic Arts Building. Students are assigned post-office boxes at the time of registration, and should leave forwarding addresses with the Postmaster at the close of the session.

KEY TO BUILDINGS

The following abbreviations are used in this bulletin: A, Armory; AB, Animal Biology; C, Chemistry Building; Ed, Education Building; F, Folwell Hall; G, Greenhouse; IA, Institute of Anatomy; PH&P, Institute of Public Health; L, Law Building; Lib, Library Building; MA, Mechanic Arts; ME, Main Engineering Building; Mech E, Mechanical Engineering Building; MH, Millard Hall; Mu, Music Building; O, Observatory; P, Pillsbury Hall; Ph, Physics Building; W Gm, Women's Gymnasium.

For buildings at the University Farm: Ad, Administration Building; Ch, Chemistry Building; Dh, Dairy Hall; He, Home Economics Building; Hr, Horticulture; Pp, Plant Pathology Building; St, Stock Pavilion; Ve, Veterinary Building.

INFORMATION

Correspondence with reference to the Summer Session and requests for circulars and additional information may be addressed to the Registrar, University of Minnesota, Minneapolis, Minnesota.

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

ENTRANCE REQUIREMENTS

1. English, four units, or three units of English accompanied by either four units of one foreign language, or two units each of two foreign languages.

2. Mathematics: Elementary Algebra, one unit; Plane Geometry, one unit.

3. Enough additional work to make in all fifteen units, of which not more than four may be in vocational and miscellaneous studies.

Graduates of the Advanced Graduate course of a Minnesota State Normal School are admitted with advanced standing equivalent to one year's credit, and receive the degree of Bachelor of Arts upon completing in this College ninety credits provided they comply with the usual requirements for graduation.

Individual graduates of the Advanced Latin course (five years) or of the Advanced English course (five years) of a Minnesota State Normal School, who, on the basis of maturity and ability, present from the President of the Normal School certificates of special fitness, will be admitted with advanced standing under the same regulations.

Unclassed students.—(1) Persons of mature years engaged in teaching or other occupation, but registered in this college without having satisfied the entrance requirements in full; (2) all others who have been permitted to register for less than eleven hours of work. Only by permission of the Administrative Board and upon the presentation of satisfactory reasons for not taking the regular course will an applicant be admitted as an unclassified student.

For specific and detailed information concerning entrance requirements, consult the bulletin of the College of Science, Literature, and the Arts.

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.

STARRED COURSES

Courses marked with an asterisk (*), called starred courses, are courses which are open only to juniors, seniors, and graduate students, and which have at least nine prerequisite credits if the department offers work in the freshman year, and at least six prerequisite credits if the department offers no work in the freshman year. It is provided, however, that courses in foreign languages for which there is a prerequisite of five years in secondary school and college, at least one year of which is in college, shall be starred courses.

For graduation a student must secure during the junior and senior years thirty credits in starred courses.

Ar indicates that the days, hours, or room are to be arranged (for information, apply to head of the department concerned).

ANATOMY

For courses in Anatomy, see Anatomy on pages 51-52 of this bulletin.

ANIMAL BIOLOGY

Instructor CHARLES E. JOHNSON.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
1s	3	General Zoology	All	None
Lect. & Rec.	8:00-8:50			
	Lab.	9:00-10:50 MTWThF	312, 101AB	Johnson
2s	3	General Zoology	All	I
Lect. & Rec.	9:00-10:50			
	Lab.	11:00-11:50 MTWThF	312, 101AB	Johnson

- 1s. GENERAL ZOOLOGY. Elementary study of homology and classification of animals, the cell, histology, and embryology; detailed study of representatives of the major groups of animals is begun. Equivalent to the first half of the University year course. JOHNSON.
- 2s. GENERAL ZOOLOGY. Continues study of representatives of the major groups of animals, with brief consideration of the more important facts and theories of evolution and heredity. Concluded by study of early embryology of the chick. Equivalent to the second half of the University year course. JOHNSON.

ASTRONOMY

Assistant Astronomer WILLIAM O. BEAL.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
11s	3	Descriptive Astronomy	Soph., jr., sr.	None
		10:00-11:50 MTWTh	124F	Beal
62s	3	Elements of Practical Astronomy	Soph., jr., sr.	1 yr. Math.
		Ar Ar	124F	Beal

- 11s. DESCRIPTIVE ASTRONOMY. A course of lectures and recitations on the general principles of astronomy, illustrated by lantern slides and by the use of the telescope. This course carries university credit for Astronomy II. BEAL.
- 62s. ELEMENTS OF PRACTICAL ASTRONOMY. Theory and use of astronomical instruments in determining time, latitude, longitude, azimuth, and positions of heavenly bodies. BEAL.

BACTERIOLOGY

For courses in Bacteriology, see Pathology and Bacteriology, pages 53-54 of this bulletin.

BOTANY

Professor JOSEPHINE E. TILDEN; Instructor ARTHUR M. JOHNSON.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
1s	3	General Botany	All	None
		8:00-11:50 TWThF	207P	Johnson
2s	3	General Botany	All	1 or approved high school botany
		8:00-11:50 TWThF	207P	Johnson
123s	3	Taxonomy and Morphology of Algae	Jr., sr., grad.	9 credits
		1:00-5:00 TWThF	Ar	Tilden

- 1s. GENERAL BOTANY. A study of the external form, microscopic structure, and functions of the organs of flowering plants. JOHNSON.
- 2s. GENERAL BOTANY. A comparative study of selected types of plants, illustrating the evolution of plants from the simplest forms to the flowering plants. JOHNSON.
- 123s. TAXONOMY AND MORPHOLOGY OF FRESH-WATER ALGAE. A study of living forms, based on collections made by the class. TILDEN.

CHEMISTRY

Assistant Professor FRANK H. MACDOUGALL; Instructors ISAAC W. GEIGER, CARL L. SCHUMANN.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
1s	3	General Chemistry	All	None
		10:00 and 1:00-4:00 Daily	225-110C	Geiger
3s	3	Adv. Gen. and Qual. Analysis..		Prep. school chemistry
		10:00 and 1:00-4:00 Daily	111-110C	MacDougall
4s	3	Adv. Gen. and Qual. Analysis (continued)		3
		11:00 and 1:00-4:00 Daily	111-110C	MacDougall
13s	3	Organic Chemistry		3-4
		Lec. 8:00		
		Lab. 9:00-12:00		
		Rec. 12:00-1:00 TTh	111-110C	Schumann
20s	2	Teachers' Course		3-4
		9:00 Ar	225C-	Geiger

- 1s. GENERAL CHEMISTRY. The equivalent of Course 1, offered during the academic year, and designed for those without preliminary training in chemistry. The fundamental laws and theories of chemistry will

- be developed, based primarily upon the chemistry of the important non-metals. Special emphasis will be placed upon stoichiometry. Six experimental lectures or recitations and twelve hours laboratory work per week. GEIGER.
35. **ADVANCED GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS.** The equivalent of Course 3, offered during the first semester to students in the College of Science, Literature, and the Arts, and the College of Agriculture; of Course 5 in the School of Chemistry, and the School of Mines; and of Course 25 in the College of Engineering. Includes a systematic study of the non-metals, and a thoro consideration of the fundamental laws and theories of chemistry. The applications of the latter in stoichiometrical calculations will be emphasized. Six experimental lectures or recitations and twelve hours laboratory work per week. This course runs parallel with Course 45. MACDOUGALL.
45. **ADVANCED GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS.** The equivalent of Course 4 offered during the second semester to students in the College of Science, Literature, and the Arts, and in the College of Agriculture; of Course 6 in the School of Chemistry and the School of Mines; and of Course 26 in the College of Engineering. The laboratory work will consist principally of the qualitative analysis of the acid radicals and the metals. The lectures and recitations will include a discussion of the qualitative analysis procedures and also the descriptive chemistry of the metals. Six experimental lectures or recitations and twelve hours laboratory work per week. This course runs parallel with Course 35. MACDOUGALL.
135. **ORGANIC CHEMISTRY.** This course is primarily intended for students who wish to take in the Summer School work corresponding to Chemistry 13 offered during the academic year. It will take up the aliphatic series as far as the carbohydrates. The laboratory work will be varied somewhat to meet the needs of the student. SCHUMANN.
205. **TEACHERS' COURSE IN CHEMISTRY.** For those interested in the teaching of elementary chemistry and who have had Chemistry 1 and 2, or their equivalent. Carries university credit for Chemistry 20. A preliminary review of the fundamental laws and theories of chemistry will be made. The following topics will then be discussed: Training of the teacher; functions of a science teacher; brief discussion of the chief factors of study; the relation of elementary chemistry to general science; equipment of laboratory museum and library; order of presentation of subject matter; relative importance, order, and method of conducting experimental lectures, recitations, and laboratory work; relation between theoretical and applied chemistry. Standard texts will be reviewed by assignment and discussed in class. Topics will be assigned to be outlined, these also to be discussed and criticized. GEIGER.

ECONOMICS

Assistant Professor ROY G. BLAKEY; Instructor ALBERT C. JAMES.

COURSES

No.	Credit	Title	Room	Instructor
3s	3	Principles of Economics..... 10:00-11:50 TWThF	202MA	James
4s	3	Economic Problems 8:00-9:50 TWThF	202MA	Blakey
37s	1½	Marketing 9:00-9:50 TWThF	109MA	James
192s	1½	State and Local Taxation..... 11:00-11:50 TWThF	104MA	Blakey

3s. PRINCIPLES OF ECONOMICS. A study of the economic principles which underlie the present social order with special emphasis upon their application to present-day problems. Prerequisite of all advanced courses. JAMES.

4s. ECONOMIC PROBLEMS. An introductory survey of the fundamentals in the problems of labor, social insurance, socialism, government ownership, corporations, trusts, monopolies, transportation, banking, protection, free trade, and taxation. BLAKEY.

37s. MARKETING OF PRODUCTS. Domestic merchandising methods of manufacturers. Problems of wholesalers and commission men; distributing system and market organization; price policies. Problems of the credit department. JAMES.

192s. STATE AND LOCAL TAXATION. Problems of state and local taxation with special reference to conditions and reforms in Minnesota. A few lectures will be given on current problems of war finance. BLAKEY.

ENGLISH

Professor CARLETON BROWN; Professorial Lecturer CECIL A. MOORE.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
1as	1½	General Survey of Eng. Lit.. 8:00-8:50 MTThF	Soph., jr., sr. 205F	Rhet. 1-2 Brown
1bs	1½	General Survey of Eng. Lit.. 9:00-9:50 MTThF	Soph., jr., sr. 204F	Rhet. 1-2 Moore
2as	1½	General Survey Eng. Lit..... 11:00-11:50 MTThF	Soph., jr., sr. 125F	Rhet. 1-2 Moore
2bs	1½	General Survey Eng. Lit..... 10:00-10:50 MTThF	Soph., jr., sr. 305F	Rhet. 1-2 Brown
5s	1½	Chaucer	Soph., jr., sr. 125F	Eng. 1-2 Kuhl
7s	1½	Shakespeare	Soph., jr., sr. 204F	Eng. 1-2 Brown

No.	Credit	Title	Offered to	Prerequisite courses
*80s	1½	Teachers' Course	Jr., sr.	See statement
		11:00-11:50 MTThF	311F	Pattison
*105s	1½	Eighteenth Century Poetry..	Jr., sr., grad.	1-2 and 6 cr. in courses below 10
		8:00-8:50 MTThF	204F	Moore
*108s	1½	The Romantic Movement....	Jr., sr., grad.	1-2 and 6 cr. in courses below 10
		11:00-11:50 MTThF	204F	Herrick

1as. GENERAL SURVEY OF ENGLISH LITERATURE (to the end of the fifteenth century). Lectures, recitations, and assigned readings covering the whole period in historical outline, and preparing for more minute study of special periods. This course in combination with the other three parts of the General Survey listed below gives preparation for the examinations on English Literature towards the State Professional Certificate. This course carries university credit for the first half of English 1. BROWN.

1bs. GENERAL SURVEY OF ENGLISH LITERATURE (from the beginning of the sixteenth century to Bunyan). Lectures, recitations, and assigned readings covering the whole period in historical outline, and preparing for a more minute study of special periods. This course in combination with the other three parts of the General Survey herewith listed gives preparation for the examinations in English Literature towards the State Professional Certificate. This course carries university credit for the second half of English 1. MOORE.

2as. GENERAL SURVEY OF ENGLISH LITERATURE (from Dryden to Dr. Johnson). Lectures, recitations, and assigned readings covering the whole period in historical outline, and preparing for a more minute study of special periods. This course in combination with the other three parts of the General Survey herewith listed gives preparation for the examinations on English Literature towards the State Professional Certificate. This course carries university credit for the first half of English 2. MOORE.

2bs. GENERAL SURVEY OF ENGLISH LITERATURE (from Burns to the end of the Romantic period). Lectures, recitations, and assigned readings covering the whole period in historical outline, and preparing for a more minute study of special periods. This course in combination with the other three parts of the General Survey listed above gives preparation for the examinations on English Literature towards the State Professional Certificate. This course carries university credit for the second half of English 2. BROWN.

5s. CHAUCER. An introductory study of the language of Chaucer, and the reading of selected tales from the Canterbury collection together with a discussion of their sources and the literary types to which they belong. KUHLE.

- 7s. SHAKESPEARE. An introductory study of Shakespeare's development as a poet and dramatist, with reading of representative plays. This course carries university credit for the first half of English 7. Properly qualified graduate students may gain credit for this course by doing work provided in addition to the work of the course. BROWN.
- *80s. TEACHERS' COURSE. (See statement in the Departments of Rhetoric and Education.)
- *105s. EIGHTEENTH CENTURY POETRY. The rise of Naturalism and Romanticism. Eighteenth century English poetry from Pope to Burns, with special reference to the rise and growth of naturalism and romanticism. MOORE.
- *108s. THE ROMANTIC MOVEMENT. The Romantic School of poets from Wordsworth to Keats and the influence of the revolution in France. HERRICK.

GEOLOGY

Assistant Professor CHESLEY J. POSEY.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
29s	3	Physiography	All	None
		8:00-9:50 MTWTh	105P	Posey
30s	2	Principles of Geography.....	All	None
		11:00-11:50 MTWThF	105P	Posey

- 29s. PHYSIOGRAPHY. Principles of earth sculpture; physiographic changes in progress, and agencies causing them; planetary relations; climatology; field excursions. This course is adapted to teachers who wish a detailed study of the subject and to those who wish to pursue further courses in geology. It carries university credit for Course 29. POSEY.
- 30s. PRINCIPLES OF GEOGRAPHY. A study of the life reactions to the major types of geographic environment; treats of the influence of climate, topography, soil, and mineral resources upon human affairs. This course carries two thirds the regular university credit for Course 30. POSEY.

GERMAN

Professor CARL SCHLENKER; Assistant Professors OSCAR BURKHARD, WALTER R. MYERS; Instructor ARTHUR GRAVES.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
1s	3	Elementary	All	None
		8:00-9:50 TWThF	209½F	Myers
21s	3	Scientific	All	3 or 2 yrs. prep. German
		8:00-9:50 MTWTh	207F	Graves

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS 19

No.	Credit	Title	Offered to	Prerequisite courses
*53s	3	Classic Period 8:00-9:50 TWThF	All 209F	7-8 or 9-10 or 11-12 Burkhard
*60s	3	Teachers' Course 10:00-11:50 TWThF	All 209½F	53-54 or 29-30 and 30-31 Schlenker
*120	1½	Schiller Ar Ar	Sr., grad. Ar	4 starred credits Myers
*132s	1½	Novelle Ar Ar	Sr., grad. Ar	4 starred credits Burkhard

IS. ELEMENTARY COURSE. This course is designed for students who have little or no previous knowledge of German. It will be conducted in German and will include practice in speaking and reading, together with inductive instruction in the elements of German grammar. This course carries university credit for German I. MYERS.

2IS. SCIENTIFIC GERMAN. The aim of this course is to give students a reading knowledge of German for use in scientific studies. One year of German is required as a prerequisite. Fee, \$10. GRAVES.

*53s. CLASSIC PERIOD. A historical survey of German Literature to the Classic Period. BURKHARD.

*60s. TEACHERS' COURSE IN GERMAN. Introduction to German phonetics; elements of historical grammar, together with a survey of the more difficult points in grammar, from the teacher's point of view; discussion of methods of modern language teaching; practice lessons as far as possible in composition and reading. SCHLENKER.

*120s. THE DRAMA OF SCHILLER. The plays considered with reference to the development of the dramatic idea, from the expression of the Storm and Stress movement in the early plays to the classic form of his last works. MYERS.

*132s. DIE NOVELLE. A study of the technique and development. Assigned readings and reports. BURKHARD.

GREEK

Professor CHARLES A. SAVAGE.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
1s or 2s	4	First Year Greek 8:00, 9:00 MTWThF	All 114F	None Savage
<i>Courses open to all. No knowledge of Greek required</i>				
62s	2	Greek Literature and Life 10:00-10:50 MTWThF	All 114F	None Savage
63s	1	Greek Mythology 11:00-11:50 MWF	All 114F	None Savage
61s	2	The Greek Drama 2:00-2:50 MTWThF	All 114F	None Savage

- 1S or 2S. **FIRST YEAR GREEK.** General principles, inflections, word-formations, syntax, elementary readings, and composition. SAVAGE.
- 62S. **GREEK LITERATURE AND LIFE.** Deals with the literature, life, and art of the ancient Greeks, for which no knowledge of Greek is required. Lectures and illustrative readings by instructor and assigned readings in translation and textbook work by class; conferences and informal discussions. The character and influence of Greek culture, especially along the lines of literature, philosophy, and art, will be discussed; and the whole course will be richly illustrated with the stereopticon. Especially designed for those interested in language and literature. SAVAGE.
- 63S. **GREEK MYTHOLOGY.** Lectures, readings, and textbook work dealing with the legends and myths which appear in the literature and art of ancient Greece. The stories of gods and heroes found in Homer and the tragic and lyric poets will be presented and interpreted, and the course will be illustrated with stereopticon slides. The origin and evolution of the myth, its relation to Greek literature, philosophy, and religion, and its influence upon later literature, will also be touched upon. No knowledge of Greek required. SAVAGE.
- 61S. **THE GREEK DRAMA.** The reading and interpretation of representative Greek plays, together with lectures on the origin, growth, character, and influence of the Greek drama. Lectures richly illustrated with the stereopticon, portraying Greek dramatic art in its various aspects will also be given. No knowledge of Greek required. Students taking this course may not receive credit for Course 62. SAVAGE.

HISTORY

Associate Professors C. C. CRAWFORD, AUGUST C. KREY; Assistant Professor LESTER B. SHIPPEE.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
2S	3	Modern Europe	All	None
		11:00-11:50 MTWThF		
		2:00-2:50 MWF	111Lib	Krey
4S	3	Modern England	All	None
		9:00-9:50 MTWThF		
		3:00-3:50 MWF	112Lib	Crawford
6S	3	History of the United States from 1789-1876	Soph., jr., sr.	6 cr. in Hist. or Pol. Sci.
		8:00-8:50 MTWThF		
		1:00-1:50 MWF	111Lib	Shippee
56S	2	Teachers' Course in History and Government	Jr., sr.	18 cr. incl. starred courses
		12:00-12:50 MTWTh	218b Lib	Krey

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No.	Credit	Title	Offered to	Prerequisite courses
62s	1½	Recent History of the United States (after 1872) 2:00-2:50 MTWF	Jr., sr. 112Lib	See statement Shippee
137s	1½	English Constitutional History, 1603-1914 10:00-10:50 MTWF	Jr., sr., grad. 112Lib	See statement Crawford
206s	2	Selected Topics in American History Ar first meeting Tuesday June 25, 3:00	Grad. 218a Lib	Grad. standing Shippee
210s	2	Selected Problems in English History Ar first meeting Tuesday June 25, 4:00	Grad. 218a Lib	Grad. standing Crawford

25. MODERN EUROPE. Europe from the end of the Thirty Years' War to the present. This course may be taken to remove failures in either semester of History 1-2. KREY.
45. MODERN ENGLAND FROM THE SEVENTEENTH CENTURY TO THE PRESENT. The social, political, and institutional development of England since 1603. This course may be taken to remove failures in either semester of History 3-4. CRAWFORD.
65. HISTORY OF THE UNITED STATES FROM 1789-1876. A general survey of the national period to the end of the Reconstruction. Lectures, readings, and text. SHIPPEE.
- *56s. TEACHERS' COURSE IN HISTORY AND GOVERNMENT. Deals chiefly with the practical problems of teaching history and government in the secondary schools. Lectures, readings, and directed investigation of teaching problems. KREY.
- 62s. RECENT HISTORY OF THE UNITED STATES (after 1872). An advanced course open to those who have had a college course in American History; others, who present satisfactory evidence of fitness, may be admitted at the discretion of the instructor. SHIPPEE.
- 137s. ENGLISH CONSTITUTIONAL HISTORY, 1603-1914. The struggle between Parliament and the Stuarts, growth of the cabinet system, democratic reforms of the nineteenth century, and the government of the British Empire. Open to students who have had a general college course in English history and others by permission of the instructor. CRAWFORD.
- 206s. SELECTED TOPICS IN AMERICAN HISTORY. Conferences and papers. Open only to graduate students. Those registering will be required to attend lectures in 62s, unless excused by the instructor. SHIPPEE.
- 210s. SELECTED PROBLEMS IN ENGLISH HISTORY. Graduate students will be guided through conferences and criticism in research on assigned topics. Open only to graduate students who will also be held for attendance in History 137s. CRAWFORD.

SUMMER SESSION

LATIN

Professor JOSEPH B. PIKE.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
53s	1½	Begin. Latin—Direct Method.	All	For teachers, 4 years Latin; for others, none
		9:00-9:50 MTWTh	109F	Pike
55s	1½	Second and following years— Direct Method	All	For teachers, 4 years Latin; for others, 1 year
		10:00 MTWTh	109F	Pike
102s	1½	Advanced Virgil	All	3 years Latin
		8:00 MTWTh	109F	Pike

Students having proper prerequisites may secure credit for Course 101 (Teachers' Course in Latin) on completing Courses 53s and 55s.

Students having proper prerequisites may receive three credits for Course 102s, by combining it with Course 53s or Course 55s.

Courses 53s and 55s are intended primarily for teachers who desire to handle Latin by the direct method or a modification of it. As the main difficulty of using the method is caused by a lack of confidence and lack of practice, in these courses the method will be presented concretely. Course 53s will give the teacher the practice necessary for presenting the subject the first year. Course 55s will show how subsequent years may be handled.

Students who desire to begin Latin may be enrolled in Course 53s as pupils. Students who desire second or third year's work may be enrolled in Course 55s as pupils.

Course 102s will consist of a review of portions of Book One to Six of the Aeneid. Suggestions on scansion and practice in the quantitative pronouncing of Latin verse. Selections from Book Seven to Twelve.

MATHEMATICS

Professor GEORGE N. BAUER; Assistant Professor HERMON L. SLOBIN;
Instructors RALPH M. BARTON, WILLIAM D. REEVE.

COURSES

No.	Credit	Title	Room	Instructor
1s	3	Higher Algebra, Part I..... 8:00-9:50 MTWTh	204Ed	Reeve, Slobin
3s	3	Higher Algebra, Part II..... 2:00-3:50 MTWTh	105F	Barton, Bauer
4s	3	Trigonometry	101F	Bauer
		4:00-5:50 MTWTh		

No.	Credit	Title	Room	Instructor
6s	..	Solid Geometry		
		8:00-9:50 TWThF	205ME	Kirchner
7s	3	Plane Analytical Geometry....		
		4:00-5:50 MTWTh	105F	Barton
11s	3	Differential Calculus		
		8:00-9:50 MTWTh	104F	Slobin
51s	3	Integral Calculus		
		10:00-11:50 MTWTh	104F	Slobin
54s	3	Teachers' Course in Math.		
		10:00-11:50 MTWTh	204Ed	Reeve
127s	3	Infinite Series		
		2:00-3:50 MTWTh	101F	Bauer

15. HIGHER ALGEBRA, PART I. The fundamental rules, factoring, highest common divisor, lowest common multiple, fractions, involution, evolution, surds, simple equations with one, two, and several unknown quantities, inequalities, ratio and proportion, arithmetical and geometric progressions, quadratic equations, and numerous problems requiring both simple and quadratic equations. This course will be credited either for university entrance or three credits will be given under Mathematics I and the student will not be allowed to register for Mathematics I. REEVE, SLOBIN.
35. HIGHER ALGEBRA, PART II. The first three days given to review of factoring, highest common divisor, least common multiple, fractions, surds, and the theory of exponents. The course proper will include the following topics: quadratic equations, equations in quadratic form, graphical representations, graphical solution of quadratics, simultaneous quadratics with graphs, progressions, mathematical induction with the binomial theorem, permutations and combinations, simple determinants, theory of equations, and the process of finding irrational roots by graphic methods. This course is the equivalent of Mathematics 3, usually taken in the first semester of the freshman year and in combination with the preceding offers a direct preparation to candidates for the examination in Higher Algebra toward the State Professional Certificate. BARTON, BAUER.
45. TRIGONOMETRY. This course covers the ordinary work in logarithms and plane trigonometry and is the equivalent of Mathematics 4, ordinarily taken in the second semester of the freshman year. This course offers a direct preparation to candidates for the examination in Trigonometry towards the State Professional Certificate. It also gives university credit. BAUER.
65. SOLID GEOMETRY. (See statement of this course under Engineering Mathematics.) KIRCHNER.

75. PLANE ANALYTICAL GEOMETRY. Rectilinear and polar coördinates producing equations of given loci, discussion of equations and construction of their loci, transformation of axes, properties of straight line, the conic sections and certain higher plane curves by means of their equations. This course carries university credit for Mathematics 7. BARTON.
115. DIFFERENTIAL CALCULUS. Differentiation of algebraic and transcendental functions, development of functions, indeterminate forms, maxima and minima, treatment of tangents, subtangents, normals, subnormals, asymptotes, curvature, envelopes, evolutes, and singular points. This course carries university credit for Mathematics 11. SLOBIN.
515. INTEGRAL CALCULUS. Integration of standard forms, integration as a summation, rectification of curves, quadrature of plane and curved surfaces, cubature of volumes, successive integration, applications. This course carries university credit for Mathematics 51. SLOBIN.
545. TEACHERS' COURSE IN SECONDARY MATHEMATICS. This course deals with the mathematical curriculum of the secondary schools and the methods of teaching the several subjects. The current high school courses will be examined in the light of modern educational aims and principles. Constructive criticism will be offered on these courses of study. Methods will be discussed in connection with the relevant subject-matter and sufficient practice will be given by way of exercises and problems fully to illustrate the methods recommended. The student will be expected to do readings and to take part in the daily discussion of assigned topics. A textbook will be recommended to serve as the permanent outline and to help in unifying the course. The leading subjects, Algebra and Geometry, will be given special consideration under the following topics: Aims in the study of the subject; subject-matter-development and classification; methods of teaching-origin and application; relation to other mathematical subjects and to other studies; educational values belonging to the subject. This course carries university credit for Mathematics 54. REEVE.
1275. INFINITE SERIES. Infinite sequences emphasizing convergence, limits, and uniform convergence. Infinite series based on infinite sequences. Series of constant terms, of variable terms, double series, Fourier series, and complex series. The underlying principles will receive special emphasis and the course will serve as an introduction to the fundamental conceptions of analysis. BAUER.

MUSIC

Professor CARLYLE SCOTT; Assistant Professor DONALD FERGUSON; Instructor GERTRUDE REEVES; Special Instructors EARL BAKER, MAXIMILIAN DICK, GERTRUDE HULL.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
15-25	3	Harmony	All	None
		10:00-11:50 TWThF	Mu	Ferguson
155-165	1½	Piano		
		Ar Ar	Mu	Ferguson, Scott, Reeves
295-305	3	Normal Piano		
		8:00-9:50 TWThF	Mu	Reeves
215-225	1½	Voice		
		Ar Ar	Mu	Hull
275-285	3	Public School Music.....		
		3:00-4:50 MTWTh	8Ed	Baker
195	1½	Violin		
		Ar Ar	Mu	Dick

15-25. HARMONY. The study of chords, their construction, relations, and progressions. Written exercises on basses, the harmonization of given melodies. This course will not be offered unless at least six students register. Fee, \$10. FERGUSON.

155-165. PIANOFORTE. Open to juniors who have mastered technical difficulties of the degree of Czerny's *School of Velocity* and the easier Haydn and Mozart sonatas. Fee, \$24. (Two lessons a week.) SCOTT, FERGUSON, REEVES.

295-305. NORMAL PIANO. Special course offered to students desiring to teach pianoforte as a profession. This course will not be offered unless at least six students register. Fee, \$10. REEVES.

215-225. VOICE CULTURE. Thoro training in relaxation and breath control, the foundations of tone production. Great advantages are also offered to the advanced singer, in the study of the best in vocal literature, songs, oratorio, and opera. Fee, \$24. (Two lessons a week.) HULL.

275-285. PUBLIC SCHOOL MUSIC. See statement of Public School Music under Education. BAKER.

195. VIOLIN. Open to students who are qualified to play the first ten of Kreutzer's *Forty Etudes*, and the easier Handel and Mozart Sonatas. Fee, \$24. (Two lessons a week.) DICK.

PHILOSOPHY

Assistant Professor RUPERT C. LODGE.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
*205	3	Present Day Philosophy.....	Jr., sr.	6 cr.
		8:00-9:50 MTWTh	322F	Lodge

*205. PRESENT DAY PHILOSOPHY. An untechnical discussion of the main types of contemporary thought; Idealism, Neo-Realism, Pragmatism, and Bergsonism. Textbook and assigned reading. This course carries university credit for Philosophy 20. LODGE.

PHYSICAL EDUCATION FOR WOMEN

Instructors IMOGENE KRISKEY, HELEN E. GRIMES.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
1s	1½	Physical Training for Elementary Children	All	None
		8:00-8:50 MTWThF	W Gm	Kriskey
2s	1½	Physical Training for Secondary Children	All	None
		9:00-9:50 MTWThF	W Gm	Kriskey
3s	0	Beginning and Advanced Swimming	All	None
		2:30-5:30 TTh	W Gm	Grimes
4s	0	General Swimming	All	None
		3:00-5:00 MWF	W Gm	Grimes
		Ar TTh		

- 1s. GYMNASTICS, GAMES, AND FOLK DANCING FOR ELEMENTARY CHILDREN. Suitable for school rooms, halls, and play grounds. Methods of teaching. Gymnasium shoes required, gymnasium costumes recommended. KRISKEY.
- 2s. GYMNASTICS, GAMES, AND FOLK DANCING FOR SECONDARY CHILDREN. Suitable for school rooms, halls, and play grounds. Methods of teaching. Gymnasium suits and shoes required. KRISKEY.
- 3s. BEGINNING AND ADVANCED SWIMMING. Technique of various simple strokes, and dives. Fee, \$2.00, including towels and bath sheets. GRIMES.
- 4s. GENERAL SWIMMING. Fee, one ticket for fifteen cents, seven tickets for \$1.00, including towels and bath sheets. GRIMES.

PHYSICS

Professor HENRY A. ERIKSON; Instructor LOUALLEN F. MILLER; Teaching Fellow

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
7s	4	General Physics		Hi. Alg. and Pl. Trig.
		8:00, 9:00 MTWThF	17-30Ph	Miller
8s	4	General Physics		7 or equiv.
		8:00, 9:00 MTWThF	16-30Ph	Erikson
9s	1	General Laboratory Practice....		Regis. in 7s
		10:00, 11:00 MWF	23Ph	Miller
10s	1	General Laboratory Practice....		Regis. in 8s
		10:00, 11:00 MWF	23Ph	Erikson

No student will be permitted to register for more than Courses 7s and 9s or 8s and 10s, except that students who have credit in Course 7 may register for 8s, 9s, and 10s.

- 7s. GENERAL PHYSICS. Mechanics of solids and fluids, sound and heat. The requirement for this course is a working knowledge of algebra. Familiarity with the common trigonometric functions is desirable. The course is designed to give the student a general information about the fundamental laws and their applications. This course is completed during the six weeks' session. It carries university credit for Course 7. Courses 7, 8, 9, and 10s meet the requirement in Physics in the Pre-Medical and Engineering courses. MILLER.
- 8s. GENERAL PHYSICS. Light, electricity, and magnetism. This course has Course 7s as a prerequisite and continues the study of the fundamental laws and their application. This course is completed during the six weeks' session. It carries university credit for Course 8. ERIKSON.
- 9s. GENERAL LABORATORY PRACTICE. Physical measurements in the mechanics of solids and fluids, sound and heat, giving the student a knowledge of experimental methods and an acquaintance with the fundamental facts of the subject. No charge is made for this course except the usual laboratory fee, if taken in conjunction with Course 7s. MILLER.
- 10s. GENERAL LABORATORY PRACTICE. Physical measurements in electricity, magnetism and light, giving the student a knowledge of the experimental methods and an acquaintance with the fundamental facts of the subject. No charge is made for this course except the usual laboratory fee, if taken in conjunction with Course 8. ERIKSON.

PHYSIOLOGY

For courses in Physiology, see Physiology, pages 54-55 of this bulletin.

POLITICAL SCIENCE

Professor JEREMIAH S. YOUNG; Assistant Professor WILLIAM ANDERSON.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
1s	3	American Government 8:00-9:50 TWThF	Soph., jr., sr. 102MA	None Young
6s	3	American Mun. Administration 10:00-11:50 TWThF	Soph., jr., sr. 102MA	1, or 1s Anderson
*51s	1½	Business Law 10:00-10:50 TWThF	Soph., jr., sr. 104MA	1, or 1s, or consent of instructor Young
*56s	1	Teachers' Course Ar Ar	Jr., sr., grad.	6 credits Young
*112s	1½	World Politics 8:00-8:50 TWThF	Soph., jr., sr. 109MA	1, or 1s or consent of instructor Anderson

- 1s. AMERICAN GOVERNMENT. A preparation for the advanced course in Political Science, for teaching in secondary schools, and for good

- citizenship. Organization and actual workings of the National Government. Some attention will be given to the recent tariff act, the new financial and banking legislation, and the trade commission act. This course carries university credit for Political Science 1A. YOUNG.
- 6S. AMERICAN MUNICIPAL ADMINISTRATION. A study of the organization and chief functions of the American cities; their growth, relation to the state, forms of charters, inefficiency and corruption, reform measures, and the administration of finance, police, health, and other activities. ANDERSON.
- *51S. BUSINESS LAW. A study of contracts—the fundamental subject in business law. Essentials in the formation, classification, interpretation, breach, discharge, and practical application of contracts. Special attention given to the teaching of Business Law in the high schools. This course carries part credit for Political Science *51. YOUNG.
- *56S. TEACHERS' COURSE. Methods of teaching Government in the secondary schools. Course of study, textbooks, and illustrative materials. Given in cooperation with the History Department. Hours and days to be arranged. YOUNG.
- *112S. WORLD POLITICS. A study of the foreign policies and international relations of the leading European powers and the United States, with special reference to the World War, the Asiatic complications, and the problems of African colonization. In the Summer School, 1918, special attention will be given to problems of the World War. ANDERSON.

PSYCHOLOGY

Associate Professor HERBERT WOODROW.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
1S	3	General Psychology 9:00-10:50 MTWTh	Soph., jr. 321F	None Woodrow
18S	1½	Child Development 11:00-11:50 MTWTh	Soph., jr., sr. 321F	Psychology 1 Woodrow

- 1S. GENERAL PSYCHOLOGY. A study of human nature. One-half credit towards the University Teachers' Certificate. WOODROW.
- 18S. CHILD DEVELOPMENT. General intelligence and special mental abilities; their development and their relation to heredity; physiological factors and education. Special attention to brightness and dullness in school children. WOODROW.

RHETORIC AND PUBLIC SPEAKING

Assistant Professors DANIEL FORD, SIDNEY F. PATTISON; Instructors
CYRIL A. HERRICK, ERNEST P. KUHLL, CHARLES F. LINDSLEY.

COURSES

No.	Credit	Title	Room	Instructor
18	3	Composition and Rhetoric.... 8:00-9:50 MTThF	306F	Kuhl
28	3	Composition and Rhetoric..... 8:00-9:50 MTWTh	303F	Ford
118	1½	Exposition 11:00-11:50 MTWTh	303F	Ford
128	3	Narration and Description.... 8:00-9:50 MTThF	305F	Herrick
808	3	Teachers' Course in English and Rhetoric 8:00-9:50 MTWTh	302F	Pattison
1108	1½	Short Story 11:00-11:50 MTWTh	302F	Pattison
1118	1½	Essay Writing 11:00-11:50 MTWTh	302F	Pattison
428	3	Public Speaking 8:00-9:50 TWThF	308F	Lindsley
818	1½	Interpretative Reading 11:00-11:50 TWThF	308F	Lindsley

18. (DOUBLE COURSE) COMPOSITION AND RHETORIC. Practical training in the art of writing, study of the principles of structure, and analysis of specimens of good prose. This course carries university credit for Rhetoric I, first semester. KUHLL.
28. (DOUBLE COURSE) COMPOSITION AND RHETORIC. This course is a continuation of the preceding course. It carries university credit for Rhetoric I-2, second semester. FORD.
118. (SINGLE COURSE) EXPOSITION. Analysis of specimens of exposition; short daily themes and longer essays, with emphasis on planning and amplification. Open to those who have credit in Rhetoric I-2. This course carries university credit for the first half of the semester's work in Rhetoric II. FORD.
128. (DOUBLE COURSE) NARRATION AND DESCRIPTION. These forms of discourse are studied by analysis and imitation of selected specimens accompanied by original work in the form of short themes and longer essays. Open to those who have credit in Rhetoric I-2, and II. This course carries university credit for Rhetoric II-12, second semester. HERRICK.
808. TEACHERS' COURSE IN ENGLISH. An analysis of some of the problems in the teaching of English literature and composition with suggestions toward their solution. Open to all juniors and seniors who have credit for English I-2, and Rhetoric II-12, or I5-16. PATTISON.

- 110S. (SINGLE COURSE) THE TECHNIQUE OF THE SHORT STORY. Constructive work in story writing. Open to those who have taken 11-12 or 15-16, or an equivalent, and have received a grade of B, or better, in either semester. This course carries university credit for the first half of the semester's work in Rhetoric 110. PATTISON.
- 111S. (SINGLE COURSE) ESSAY WRITING. Practice in writing biographical and informal essays. Two long essays will be written. Individual aid in gathering of material, planning of papers, and criticism of essays. Analysis of modern essays. PATTISON.
- 42S. (DOUBLE COURSE) 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. Limited to twenty-five. This course carries university credit in Public Speaking 42. LINDSLEY.
- 81S. (SINGLE COURSE) INTERPRETATIVE READING. The interpretation and oral expression of the various forms of literature, such as the essay, the short story, lyric and narrative poetry, and the drama. This course, which is a continuation of 81s in the Summer Session of 1917, carries university credit for the second half of the semester's work in Public Speaking 81. LINDSLEY.

ROMANCE LANGUAGES

Professors EVERETT W. OLMSTED, COLBERT SEARLES.

In view of the greatly increased number of students in preparatory schools desiring instruction in French or in Spanish and the consequently increased demand for teachers in those subjects, we are prepared to offer this year special advantages to experienced teachers of other languages, who may desire to prepare themselves for the teaching of either French or Spanish. Both the Beginning and Intermediate Courses in either subject will be opened to such teachers, and both courses may be carried at the same time. The successful completion of these courses, or the proof of equivalent training, will admit to a series of courses in the Department of Romance Languages, which, in the regular academic year of 1918-19, will be open, without regard to the usual prerequisites, to qualified teachers of other languages who desire to prepare themselves for the teaching of French or of Spanish. A certificate of aptitude will be given by the Department upon the conclusion of this year of intensive training.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
18	3	Beginning Course in French..	Beginners	None
		10:00-10:50 MTWTh	201F	Scarles
		11:00-11:50 MTWTh	201F	Searles

35	1½	Intermediate Course in French			1 or equiv. (except as stated above)
		9:00-9:50	MTWTh	202F	Searles
		(In case of conflict this hour may be changed)			
1115	Ar	Research in Romance Languages		Grad.	Adv. preparation
		Ar	Ar	Ar	Olmsted, Searles
315	3	Beginning Course in Spanish.		Beginners	None
		10:00-10:50	MTWTh	202F	Olmsted
		11:00-11:50	MTWTh	202F	Olmsted
358	1½	Intermediate Course in Spanish			31 or equiv. (except as stated above)
		12:00-12:50	MTWTh	201F	Olmsted
		(In case of conflict this hour may be changed)			

FRENCH

- 15. BEGINNING COURSE. This course is intended for beginners in French. Particular attention will be given to the teaching of pronunciation by the aid of phonetic symbols, to a systematic presentation of grammar, to conversation, to reading, and to methods of teaching. A modified direct method will be used throughout the course. SEARLES.
- 35. INTERMEDIATE COURSE. Reading and discussion in French, of representative modern authors, and composition. This course gives one and one-half credits toward university Course 3. OLMSTED, SEARLES.
- 1115. RESEARCH IN ROMANCE LANGUAGES. Graduate students with necessary preparation may undertake research in some selected field. OLMSTED, SEARLES.

SPANISH

- 315. BEGINNING COURSE. This course is intended for beginners in Spanish. Particular attention will be given to pronunciation, thoro grammar drill, reading of selected prose, and to methods of teaching. Modified direct method will be used throughout the course. OLMSTED.
- 355. INTERMEDIATE COURSE. Nineteenth Century Spanish and Spanish-American authors. Spanish conversation and commercial correspondence. One and one-half credits toward university Course 35 or 37. OLMSTED, SEARLES.

SOCIOLOGY AND SOCIAL WORK

"The Social Service Plattsburg"

Professors ARTHUR J. TODD, MANUEL C. ELMER; Special Lecturers CAROL ARONOVICI, FRANK J. BRUNO, HASTINGS H. HART, AMELIA SEARS; Supervisors of Field Work CAROLINE BEDFORD, MARION TEBBETS, ELIZABETH YERXA.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
1s	3	Introduction to Sociology and Anthropology 8:00-9:50 MTWTh	Soph., jr., sr. 9F	None Elmer
14s	1½	Rural Sociology 1:00-2:50 MW	Jr., sr. 9F	1 Elmer
51s	3	Treatment of Dependents and Defectives 8:00-9:50 TTh Field work by appointment	Jr., sr. 12F	1 Bruno
52s	½	Special Institute on Child Welfare 8:00-9:50 MW 4:00-5:50 TTh (July 1 to July 13)	Jr., sr., grad. 12F	Hart
55s	1½	Social and Economic Aspects of Housing and City Planning 4:00-5:50 MW	Jr., sr., grad. 12F	Aronovici
100s	Ar	Individual Research on Special Problems in Sociology.. Ar Ar	Grad. Ar	Todd, Elmer, Bruno, Aronovici
106s	1	Thought Currents in Modern Social Work 8:00-9:50 FS (June 24 to July 13)	Jr., sr., grad. 9F	Todd
119s	1	Problems of the Modern Family 8:00-9:50 FS (July 15 to August 3)	Jr., sr., grad. 9F	Todd
120s	3	Social Progress 11:00-12:50 MW (Special conferences on reading by arrangement)	Jr., sr., grad. 9F	Todd
130s	1	Special Institute on Case Work with Needy Families..... 8:00-9:50 MW 4:00-5:50 TTh (July 15 to August 3)	12F	Sears
133s	½	Field Work in Hospital Social Service Ar Ar	Jr., sr., grad.	Tebbets, Yerxa

1s. INTRODUCTION TO SOCIOLOGY AND ANTHROPOLOGY. A study of the origin and development of human societies; the various agencies which have determined the type of social life; social organization, social institutions, social progress; the individual and the group; the bearing of sociology upon other social sciences and arts. ELMER.

14s. RURAL SOCIOLOGY. A survey of the field of rural sociology, its methods and problems; a consideration of such topics as: religious, educational, and social ideals of rural people; rural environment; effects of immigration; rural institutions; rural progress. ELMER.

51s. TREATMENT OF DEPENDENTS AND DEFECTIVES. The extent and nature of poverty and mental defectiveness; efforts made for their ameliora-

- tion and prevention, with special reference to war conditions, the Red Cross, and war insurance. (Twelve hours field work per week required.) BRUNO.
- 52S. SPECIAL INSTITUTE ON CHILD WELFARE IN WAR TIME. (July 1 to 13.) HASTINGS H. HART, of the Russell Sage Foundation.
- 55S. SOCIAL AND ECONOMIC ASPECTS OF HOUSING AND CITY PLANNING. Includes study of reconstructing devastated villages in Europe and replanning American towns. ARONOVICI.
- 100S. INDIVIDUAL RESEARCH ON SPECIAL PROBLEMS IN SOCIOLOGY, AND SOCIAL WORK. This course will be open only to selected seniors and graduates after consultation with and approval of instructors. It is designed to offer the opportunity for investigation of special problems under supervision. Credit will be assigned according to the amount and quality of work done. TODD, ELMER, BRUNO, ARONOVICI.
- 106S. SPECIAL INSTITUTE ON THOUGHT CURRENTS IN MODERN SOCIAL WORK. A review of half a century of social tendency and a forecast. (June 24 to July 13.) TODD.
- 119S. SPECIAL INSTITUTE ON PROBLEMS OF THE MODERN FAMILY. (July 15 to August 3.) TODD.
- 120S. SOCIAL PROGRESS. An analysis of the various attempts to formulate the conditions of human betterment. TODD.
- 130S. SPECIAL INSTITUTE ON CASE WORK WITH NEEDY FAMILIES. An advanced course for those who seek to improve their case technique. (July 15 to August 3.) SEARS.
- 133S. FIELD WORK IN HOSPITAL SOCIAL SERVICE. A course open only to students who are properly grounded in case work and who wish to specialize in this field. TEBBETS, YERXA.

COURSES IN FOOD CONSERVATION TO BE GIVEN IN
SUMMER TERM, 1918

1. FOOD AND THE WAR. Twelve lectures. Open to all students. 1 cr. The world's food problem in its geographic, economic, and nutritional aspects, including the effect of the war and the necessity of food control.
2. FUNDAMENTALS OF FOOD AND NUTRITION IN RELATION TO THE WAR. 2 cr. Thirty lectures or recitation periods. Open to students taking Course 1. Primarily for juniors and seniors. Development of Course 1, emphasizing its nutritional aspects and national and individual food conservation. Collateral reading required.
3. LABORATORY COURSE IN USE AND CONSERVATION OF FOODS. 2 cr. Open only to students taking Courses 1 and 2 except by special permission of the Division of Home Economics. Practical application of the principles of Course 2 prepares the student as assistant to official demonstrators.

COLLEGE OF EDUCATION

Professors LOTUS D. COFFMAN, JOSEPH B. PIKE, ALBERT W. RANKIN, CARL SCHLENKER, FLETCHER H. SWIFT, JEREMIAH S. YOUNG; Associate Professor AUGUST C. KREY; Instructors EARL L. BAKER, ABBIE LOUISE DAY, ISAAC W. GEIGER, FRANCIS C. HOBART, WILLIAM D. REEVE, WILLIAM H. RICHARDS, GILBERT H. TRAFTON.

The courses offered by the College of Science, Literature, and the Arts are accepted by the College of Education.

ENTRANCE REQUIREMENTS

Applicants for admission to this college must present credentials showing:

1. The completion of a regular four-year high-school course.
2. The completion of two full years of college work, (not less than sixty credits) in Science, Literature, and the Arts at this or some other college or university of equal rank.

Graduation from advanced graduate normal courses (two years beyond the high school), is considered equivalent to (1) and (2) above.

Graduates of a five-year normal course, if individually recommended by the normal school president, are allowed forty-two credits and are admitted to the college as unclassified students pending the completion of eighteen additional credits.

Teachers in service unable to carry full work, teachers preparing for examination for the First Grade Professional Certificate, but who are unable to meet the regular requirements for admission, and certain other classes of students are also admitted to the College of Education as unclassified students. Each case must, however, be dealt with individually as the result of formal application to the Dean of the College of Education.

For specific and detailed information concerning entrance requirements consult the bulletin of the College of Education.

Graduate students.—Students wishing to work upon problems immediately concerned with the writing of a graduate thesis are advised to consult with the Dean of the College of Education.

Undergraduates.—Students holding a teachers' certificate may register for the degree of B.A. in Education in the College of Education without complying with the requirements of the University for a teachers' certificate.

The Department of Education requires fifteen credits of all university students who are candidates for the University State Teachers' Certificate, and that they be distributed as follows: History of Education, three credits; Technique of Teaching, three credits; Social Aspects of Education, Its Organization and Administration, three credits; Special Methods covering at least two subjects, three credits;

Practice Teaching, three credits. Reference to the courses named below, supplemented by conference with the instructors will make clear how these requirements, with the exception of Practice Teaching may be fulfilled during the summer session. An introductory course in Psychology will be required as a prerequisite for all courses in education.

PROFESSIONAL TRAINING OF TEACHERS

At the 1913 session of the Legislature the following act was passed: "From and after August 1, 1915, all candidates for teachers' certificates by examination, renewal, or endorsement of credentials, except those who have taught successfully for at least eighteen months in the public schools prior to such dates, or those receiving a second or limited certificate, must have completed such a course of professional training for teaching not exceeding thirty-six weeks, as may be prescribed by the state superintendent. Training courses in the state university, in state normal schools, in state high schools, or in private schools fully and fairly the equivalent of those given in state schools and approved by the said superintendent shall be accepted as meeting the requirements for teachers' training under this section."

College graduates who wish to qualify as high-school teachers, and who have not had the required teaching experience or professional training may qualify by attending two sessions of the University Summer School for the full term of six weeks. The work must total not less than six credits each session and must include:

1. Special study from the high-school teachers' view-point during each summer session of some one subject which the candidate expects to teach.
2. One other general professional subject such as history of education, educational psychology, principles of teaching, general pedagogy, school administration, or any other professional subject offered in the summer school.

A provisional certificate will be issued for some designated school upon satisfactory completion of one summer session of professional work and upon the recommendation of the Dean of the College of Education or the Director of the Summer School. This certificate may be renewed as a professional certificate after one year's successful teaching and the completion of a second summer session of professional training and study.

COURSES FOR THE TRAINING OF TEACHERS OF SPECIAL CHILDREN IN MINNESOTA SCHOOLS

In coöperation with the State Department of Education, the College of Education has outlined a four years' course for the training of teachers of special children in Minnesota Schools. According to the tentative program so far outlined it will be possible for students to pursue this course and at the same time to secure the Bachelor's Degree at this University. It is further intended that a number of the courses from this four-year program will be offered in the summer. During the current

summer the following courses from this program will be offered and may be later used in fulfilling the requirements for this degree:

Rhetoric 1s-2s
 Animal Biology 1s-2s
 Chemistry 1s
 Psychology 1s
 Sociology 1s, 14s, 51s, 52s, 55s, 100s, 106s, 119, 120, 130s, 133s
 Physiology 3s
 Education 3s, 11s, 109s

Students who have had two years teaching experience in the public schools and who carry a group of these courses satisfactorily during the current year will be given a provisional certificate by the State Department, enabling them to qualify for teaching in special classes.

EDUCATION

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
102s	3	Hist. of Educ. from Renaissance	Jr., sr., grad. 205Ed	Psychol. 1 or equiv. Swift
		2:00-3:50 TWThF		
146s	1	History of Religious Educ. ..	Jr., sr., grad. 205Ed	Psychol. 1 or equiv. Swift
		4:00-5:30 TTh		
207s	1	Seminar in American School..	Grad. 205Ed	Swift
		4:00-5:30 WF		
109s	2	Educational Diagnosis	Sr., grad. 206Ed	1 or 101-102 and 3 Van Wagenen
		8:00-8:50 MTWThF		
110s	1½	Psychol. of Secondary School Subjects	Jr., sr., grad. 206Ed	Psychol. 1 or equiv. Van Wagenen
		9:00-9:50 TWThF		
31s	1	Psychol. of Trade Education.	206Ed	Van Wagenen
		3:00-3:50 TTh		
3as	1½	Social Aspects of Education..	Jr., sr. 101Ed	1 Day
		10:00-10:50 MTWTh		
11s	1½	Technique of Teaching.....	Jr., sr. 101Ed	Psychol. 1 Day
		11:00-11:50 MTWTh		
119s	1½	School Curricula	Sr., grad. 205Ed	1 or 101-102 and 3 Rankin
		9:00-9:50 TWThF		
121s	1½	School Organ. and Admin. ..	Sr., grad. 205Ed	1 or 101-102 and 3 Rankin
		11:00-11:50 TWThF		
124s	1½	Educational Administration ..	Sr., grad. 206Ed	121 Coffman
		2:00-2:50 MTWTh		
141s	1½	School Sanitation	Sr., grad. 205Ed	1 or 101-102 and 3 Rankin
		8:00-8:50 TWThF		
24s	3	Nature Study	All 215Ed	None Trafton
		8:00-9:50 TWThF		
MT11s	1½	Teaching and Supervision of Manual Training		
		9:00-9:50 MTWTh	Ar	Richards
54s	3	Teachers' Course in Math....	Jr., sr. 204Ed	11 Reeve
		10:00-11:50 MTWTh		
27s	3	Public School Music.....	Jr., sr. 8Ed	Baker
		3:00-4:50 MTWTh		
80s	3	Teachers' Course in English and Rhetoric		
		8:00-9:50 MTWTh	302F	

For courses in Trade and Vocational Education, see pages 40-41.

I. HISTORY OF EDUCATION

- 102S. HISTORY OF EDUCATION FROM THE RENAISSANCE. Modern educational institutions, current theories and problems in the light of their history. Special emphasis upon elementary education. SWIFT.
- 146S. HISTORY OF RELIGIOUS EDUCATION (Part I of 146). The influence of religion and religious education as social and spiritual forces among certain selected types. SWIFT.
- 205S. SEMINAR IN THE AMERICAN SCHOOL. A research course for graduate students. An analytical and critical study of the problem of American education and the means employed for securing the same. SWIFT.

II. EDUCATIONAL PSYCHOLOGY

- 109S. EDUCATIONAL DIAGNOSIS. A study of the typical educational problems involving the use of educational scales and standard tests. The course will deal with the nature of the tests, methods of their use, analysis of the results obtained, and programs of remedial educational procedure based on the results of the tests. VAN WAGENEN.
- 110S. PSYCHOLOGY OF SECONDARY SCHOOL SUBJECTS. A study of the experimental work in educational psychology bearing upon the teaching of the secondary school subjects. VAN WAGENEN.
- 31S. PSYCHOLOGY OF TRADE EDUCATION. Study of the formation of habits; individual differences, their nature, extent and causes; and the part they play in the acquisition of special trades. VAN WAGENEN.

III. SCHOOL ADMINISTRATION

- 3AS. SOCIAL ASPECTS OF EDUCATION. The social principles underlying public education. The interpretation and application of these principles in our system of education and its institutions. Prerequisite: History of Education. DAY.
- 11S. TECHNIQUE OF TEACHING. Types of classroom instruction; preparation of lesson plans, hygiene of instruction, classroom management. DAY.
- 119S. SCHOOL CURRICULA. The curriculum as related to social, industrial, and economic conditions; a survey of the grammar grades and of the high school; consideration of the possibilities of developing a curriculum better adapted to community needs. RANKIN.
- 121S. SCHOOL ORGANIZATION AND ADMINISTRATION. An introductory course in school administration for students of teaching experience and for those looking forward to work as principals and superintendents. RANKIN.

1245. EDUCATIONAL ADMINISTRATION. The interpretation of present tendencies in the administration of state and city school systems. COFFMAN.

IV. SCHOOL SANITATION

1415. SCHOOL SANITATION AND PUBLIC HEALTH. A course in school hygiene in its broader aspects; designed for all teachers and supervisors who are responsible for the health of school children; treats of medical supervision and other problems arising from school environment. RANKIN.

V. NATURE STUDY

24. NATURE STUDY. Attention will be given chiefly to the pedagogy of nature study, and to biological and agricultural nature study. A few suggestions will be given on some simple experiments that may be performed in hygiene and physical nature study. Special attention will be given to the working out of a course that may be used in training departments. The field work will deal largely with the following topics: birds, trees, flowers, insects, flowerless plants, weeds, and gardening. TRAFTON.

VI. TEACHERS' COURSE IN ENGLISH

805. TEACHERS' COURSE IN ENGLISH. Methods of teaching English in high schools. Course of study, textbooks, and equipment. This course carries university credit for the first half of English 80.

VII. MANUAL TRAINING

- M.T.115. THE TEACHING AND SUPERVISION OF MANUAL TRAINING. A study of the history and aim of Industrial Education and methods of presenting Manual Training and Drawing to grade and high school pupils. The outlining of courses and the selecting of equipment adaptable to different types of school systems. RICHARDS.

For Teachers' Courses in Wood Work and Metal Work see Engineering Shop Work, page 44.

VIII. TEACHERS' COURSE IN MATHEMATICS

545. TEACHERS' COURSE IN SECONDARY MATHEMATICS. This course deals with the mathematical curriculum of the secondary schools and the methods of teaching the several subjects. The current high school courses will be examined in the light of modern educational aims and principles. Constructive criticism will be offered on these courses of study. Methods will be discussed in connection with the relevant subject-matter and sufficient practice will be given by way of exercises and problems fully to illustrate the methods recommended. The student will be expected to do readings and to take part in the daily discussion of assigned topics. A textbook will be recommended to serve as the permanent outline and to help in unifying the course. The leading subjects, Algebra and Geometry, will be given special

consideration under the following topics: Aims in the study of the subject; subject-matter, development, and classification; methods of teaching—origin and application; relation to other mathematical subjects and to other studies; educational values belonging to the subject. This course carries university credit for Mathematics 54. REEVE.

IX. PUBLIC SCHOOL MUSIC

27s. PUBLIC SCHOOL MUSIC. This course is for supervisors of music, for students who wish to become supervisors, for teachers who wish to specialize in music. The work in each grade and in the high school will be taken up with reference to material used, methods of presentation and results to be required. The care, growth, and proper use of the child voice will receive careful attention. Testing of voices in the upper grades will be demonstrated. A comparative study of the different prevailing methods of school music teaching will be a part of the course. This course carries university credit for Course 27 in Music. BAKER.

X. SPECIAL METHODS

SPECIAL METHODS OF TEACHING HIGH SCHOOL SUBJECTS. A full description of each course appears elsewhere in this bulletin in connection with the work of the department concerned. Special attention is called to the recent ruling of the State Department of Education which requires courses in special methods of at least two different high school subjects and totaling at least three credits for all applicants for the State Professional Teachers' Certificate.

Department	Course No.	Credits	Instructor
Chemistry	20s	2	Geiger
English and Rhetoric	80s	1½	Pattison
German	60s	3	Schlenker
History	56s	2	Krey
Latin	{ 53s	1½	Pike
	{ 55s	1½	
Manual Training	M.T.11s	1½	Richards
Mathematics	54s	3	Reeve
Metal Work	4s	3	Hobart
Political Science	54s	1	Young
Public School Music.....	27s	3	Baker
Wood Work	2as-2bs	3	Richards

XI. TRADE AND INDUSTRIAL EDUCATION

STATE PLAN. The State Board for Vocational Education has made certain requirements relative to the training of teachers of trade and industrial subjects and teachers of related subjects. For teachers of day trade subjects, beginning with the school year 1918-19, at least 144 hours

of professional training will be required for teachers of evening classes. For the school year beginning 1919-20 at least 288 hours of professional work will be required for teachers of day classes and at least 144 hours will be required for teachers of evening and part time classes.

COURSES ESTABLISHED. During the summer session of the University professional courses will be offered for the training of teachers of trade and industrial subjects and teachers of related subjects. Day classes will be organized at the University during the academic year 1918-19. Short, intensive courses will be offered during the year 1918-19 at various industrial centers in the state. Probably evening courses will be organized during the year 1918-19 for the professional training of trade teachers.

COURSES OPEN TO. These courses are open to both men and women who are expecting to qualify as teachers of trades or teachers of related technical subjects, to supervisors and principals who expect to establish courses in vocational education, and to teachers of related academic subjects.

CONTENT OF COURSES. The 144 hours necessary to meet the requirements of the State Board for Vocational Education will be distributed at present as follows:

Organization and Supervision of Vocational Education	12 hours
Industrial History	12 hours
Trade Mathematics	24 hours
Applied Science	36 hours
Trade Drawing, or	48 hours
Drawing and Design for Printers.....	48 hours
Psychology of Trade Education.....	12 hours
Lectures on Vocational Education.	

TRADE AND INDUSTRIAL EDUCATION

Assistant Professor MARVIN J. VAN WAGENEN; Instructors FRED W. BENTLEY, GEORGE A. MCGARVEY, FRANCES MOREHOUSE, SAMUEL R. POWERS.

COURSES

No.	Credit	Title	Room	Instructor
Vs-25	1	Organization and Supervision of Vocational Education... 9:00-9:50 MW	115Ed	McGarvey and others
Vs-26	1	Industrial History		Morehouse
		9:00-9:50 TTh		
Vs-27	1	Trade Mathematics		Bentley
		8:00-8:50 MTW		
Vs-28	1½	Applied Science		Powers
		2:00-3:50 MWF		
Vs-29	1½	Trade Drawing		Bentley
		10:00-11:50 MTWTh		
Vs-30	1½	Drawing and Design for Printers		
		10:00-11:50 MTWTh		
Vs-31	1	Psychol. of Trade Education 3:00-3:50 TTh	206Ed	Van Wageningen

- Vs-25. ORGANIZATION AND SUPERVISION OF VOCATIONAL EDUCATION. The course will include a careful study of the Smith-Hughes Act for Vocational Education. Particular attention will be given to the Minnesota plan for establishing vocational courses in our public schools. Consideration will be given to the various types of vocational schools, adapting vocational courses to community needs, and the methods of organization and supervision of vocational courses. The methods of making an analysis of certain trades will be discussed as well as the study of recent occupational surveys that have been made. MCGARVEY, and others.
- Vs-26. INDUSTRIAL HISTORY. A survey of the steps by which modern industries have been developed from their first forms in primitive times, with consideration of the social and economic effects of each change made. A study of the nature, significance, and results of labor under many conditions. The course closes with a brief review of labor history in Minnesota, and a discussion of present-day problems. MOREHOUSE.
- Vs-27. TRADE MATHEMATICS. The course is planned to meet the needs of the teachers of the various trade subjects. The course includes practical arithmetic together with those principles of Algebra, Geometry, and Trigonometry that find application in the shop. Part of the work will be individual in that it will relate to the mathematics of the trade which the teacher is preparing to teach. BENTLEY.
- Vs-28. APPLIED SCIENCE. The applications of the principles of science to concrete and practical problems in the trades and industries. The course will consist of frequent trips to local industrial establishments, assigned readings, and special reports. Especial attention will be given to methods of teaching applied science. POWERS.
- Vs-29. TRADE DRAWING. In this course emphasis will be placed on a study of the standard conventions in drawing as used by the different trades. Besides the regular drafting room work, outlines of drawing courses that relate to the various trades will be made. BENTLEY.
- Vs-30. DRAWING AND DESIGN FOR PRINTERS. The object of this course is to show the close relationship between art and printing. Simple design and composition will be studied and practical application made by sketching layouts of letter heads, title pages, panels, and cover designs.
- Vs-31. PSYCHOLOGY OF TRADE EDUCATION. Study of the formation of habits; individual differences, their nature, extent, and causes, and the part they play in the acquisition of special trades. VAN WAGENEN.

SUMMER SESSION

LIBRARY TRAINING SCHOOL

MISS BALDWIN
MISS WILSON

College of Education, 111, 113, 117.

The course in library training is under the direction of the Minnesota Public Library Commission and the State Department of Education. It is intended for librarians of small public libraries, assistants in larger libraries, school librarians, and teacher-librarians, who are not able to attend a regular library school. Its object is to prepare students for better work in their present positions, and not to provide a substitute for regular library school training.

Admission to the course is limited to those holding library positions, or under definite appointment to such positions, and to teachers in charge of school libraries in Minnesota. The work will require the entire time of the student, who may not register for other courses in the Summer School.

The instruction is supplemented by practice work and includes classification, cataloging, book selection, reference work, administration of public and school libraries.

Special lectures will be offered this year by Miss Harriet A. Wood, in charge of the School Department, of the Public Library, at Portland, Oregon. These will include book selection, school library problems, instruction in the use of books and libraries, and county extension.

Registration for this course is made through the State Department of Education or the Public Library Commission. For further information and application blanks address Miss Martha Wilson, Supervisor of School Libraries, Department of Education, St. Paul, Minn., or Miss Clara F. Baldwin, Public Library Commission, Historical Building, St. Paul, Minn.

COLLEGE OF ENGINEERING

ENTRANCE REQUIREMENTS

1. English, three units.
2. Mathematics: Elementary Algebra, one unit; Plane Geometry, one unit; Higher Algebra, one-half unit; Solid Geometry, one-half unit.
3. Chemistry, one unit.
4. Enough additional work to make in all fifteen credits. One unit may be accepted in lieu of any one of the above required subjects; but if this is offered as a substitute for Mathematics, or Chemistry the resulting deficiency must be removed as specified by the college requirements.

For detailed statement of entrance requirements consult the bulletin of the College of Engineering.

For key to abbreviations see page 11.

DRAWING AND DESCRIPTIVE GEOMETRY

Professor WILLIAM H. KIRCHNER; Instructor ROBERT W. FRENCH.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
18	1½	Engineering Drawing 8:00, 9:00 TWThF	All 201ME	None French
28	1½	Engineering Drawing 8:00, 9:00 TWThF	All 201ME	1 French
38	1½	Descriptive Geometry 10:00, 11:00 TWThF	All 201-205ME	Solid Geom. Kirchner
48	1½	Descriptive Geometry 10:00, 11:00 TWThF	Fr. 201-205ME	1, 3, and Math. 71 Kirchner
58	2	Graphics 8:00-12:00 (Ar) TWThF	Soph., C.E. 201ME	1-2, 3-4 French
78	2	Graphics 8:00-12:00 (Ar) TWThF	..... 201ME	1-2, 3-4 French

18. ENGINEERING DRAWING. The elements of drafting. Drawing as a language. Lines, views, sections, dimensions, isometric and oblique projection. Sketching and lettering. Details of casting. Interpretation of working drawing. FRENCH.
28. ENGINEERING DRAWING. A continuation of Course 18. Details of machine parts and assembly drawings. General conventional signs, abbreviations, standards, and explanatory notes. Tracing and blue printing. FRENCH.
38. DESCRIPTIVE GEOMETRY. Introductory course in descriptive geometry. Systems of representation, methods, loci, and constructive geometry. Recitations and drawing room exercises. KIRCHNER.
48. DESCRIPTIVE GEOMETRY. Central projection and special cases. Representations of lines, planes, and solids, and of their relations; tangen-

- cies, intersections, and development. Recitations, lectures, and the solution of problems. KIRCHNER.
- 5s. GRAPHICS FOR CIVIL ENGINEERS. Developments and intersections, shades and shadows and stereotomy. Descriptive Geometry applied to the solution of such problems as oblique structural connections, battered and skewed surfaces in concrete, earthwork, and contours. FRENCH.
- 7s. GRAPHICS FOR MECHANICAL AND ELECTRICAL ENGINEERS. Developments and intersections, shades and shadows, and perspective. Descriptive Geometry applied to the solution of such problems as occur in sheet metal work, equipment layouts, skew belting, spiral conveyors. FRENCH.

ENGINEERING SHOP WORK AND MANUAL TRAINING

Instructors WILLIAM H. RICHARDS, FRANCIS A. HOBART.

COURSES

No.	Credit	Title	Offered to
1as	2	Engineering Shop Work..... 8:00-1:00 MTWThF	Fr., soph., teachers Richards
1bs	1	Foundry Practice 8:00-1:00 MTWThF	Fr., soph., teachers Richards
2as	2	Teachers' Course in Wood Work 8:00-1:00 MTWThF	All Richards
2bs	1	Teachers' Course in Wood Work 8:00-1:00 MTWThF	All Richards
3s	3	Machine Work 8:00-1:00 MTWThF	Soph., jr., teachers Hobart
4s	3	Teachers' Course in Metal Work 8:00-1:00 MTWThF	All Hobart

- 1as. WOOD WORK. Pattern making, joinery, wood working, (use of tools, lathe, and bench work). RICHARDS.
- 1bs. FOUNDRY PRACTICE. Applied to making simple pattern, and core boxes, for cast iron, brass, and aluminum castings. RICHARDS.
- 2as. TEACHERS' COURSE IN WOOD WORK. Manual training, joinery, wood carving, and wood turning. Care and adjustment of tools and wood working machines. RICHARDS.
- 2bs. TEACHERS' COURSE IN WOOD WORK. Wood finishing, staining, filling, varnishing, and polishing. RICHARDS.

NOTE. Courses 2as and 2bs are designed with special reference to the needs of teachers of manual training.

- 3s. MACHINE WORK. Machine and bench work with tool and machine construction. Engineering sophomores and juniors or teachers of manual training who have had previous experience in machine shop work, may select from this course such work as may be required to a maximum of three credits. HOBART.

4s. **TEACHERS' COURSE IN METAL WORK.** Elementary machine and bench work including soldering, brazing, and autogenous welding, arranged to meet the needs of teachers of manual training. The course will include: bench and vise work in metal chipping, filing, scraping, and fitting; machine tool work in metals, including turning, planing, threading, drilling, and milling. HOBART.

NOTE. Each of the above subjects will require forty-eight hours actual shop practice for one credit. Students taking machine work for credit in the College of Engineering will be given lectures throughout the course, which are included in the forty-eight hours specified.

MATHEMATICS

Professor WILLIAM H. KIRCHNER; Assistant Professor HANS H. DALAKER;
Instructor GEORGE C. PRIESTER.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
6s	..	Solid Geometry .....	.....	.....
		8:00-9:50 TWThF	205ME	Kirchner
72s	5	Analytical Geom. and Calculus..	.....	.....
		8:00-11:00 MTWThF	106ME	Priester
74s	5	Integral Calculus .....	.....	.....
		8:00-11:00 MTWThF	203ME	Dalaker

6s. **SOLID GEOMETRY.** This course includes the subject matter of Books VI, VII, VIII, and IX of the American texts in solid geometry and covers the study of points and lines in space, polyhedrons, cylinders, and cones, and the sphere. This course is intended for those who are preparing for the examination in Solid Geometry towards the State Professional Certificate. It also meets the entrance requirements of the University. KIRCHNER.

72s. **ANALYTICAL GEOMETRY AND CALCULUS.** Parametric equations of loci, intersections of curves, graphical solutions of equations, tangents and normals, construction of conics, equations and properties of conics, empirical equations; coördinates in space, locus of an equation in three variables, surfaces of revolution, plane and straight line, quadric surfaces, differentiation and integration of simple forms with applications. This course is the equivalent of the second semester of freshman mathematics in the College of Engineering. PRIESTER.

74s. **INTEGRAL CALCULUS.** Short review of differentiation and integration. Definite integrals, integration as a process of summation, areas, lengths, volumes, center of gravity, moments of inertia, liquid pressure, approximate integrations, infinite series, expansion of functions by Maclaurin's and Taylor's series, indeterminate forms, partial derivatives, some simple differential equations with applications. This course is the equivalent of the second semester of sophomore mathematics in the College of Engineering. DALAKER.

COLLEGE OF DENTISTRY

A Summer Course of two months is offered in the Departments of Anatomy, Dental Anatomy, Chemistry, Crown and Bridge Work, Operative Dentistry, Orthodontia, Physiology, Bacteriology, Pathology, and Prosthetic Dentistry. The privilege is also granted the College of Dentistry to extend its courses beyond the usual six weeks' term.

ENTRANCE REQUIREMENTS

1. English, three units.
2. Mathematics: Elementary Algebra, one unit; Plane Geometry, one unit.
3. Enough additional work to make in all fifteen units. Preparation of at least one year in Chemistry and two or more years in Manual Training is recommended.

The student's entire scholastic and industrial record will be taken into consideration in determining admission, and applicants will be notified promptly after the date set (see statement) concerning the possibility of their matriculation.

For detailed information concerning entrance requirements consult the bulletin of the College of Dentistry.

For courses in Animal Biology, Chemistry, Rhetoric, Anatomy, Histology, Physiology, Bacteriology, Pathology, see announcement in respective departments.

Schedule of hours for all courses in Dentistry: Technique Courses, MTWThF, 8:00 to 12:00 and 2:00 to 5:00; Clinical Courses, MTWThF, 9:00 to 12:00 and 2:00 to 5:00.

DENTAL ANATOMY

Associate Professor GEORGE M. DAMON.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
1S	1	Dental Anatomy	Fr.	None
2S	2	*Dental Anatomy	Fr.	1
3S	3	Dental Anatomy	Soph.	2

* Time will be extended beyond the regular summer session to complete this course.

- 1S. DENTAL ANATOMY. A course of lectures and recitations on the anatomy and nomenclature of the teeth. Fee, 1 and 2 combined, \$20.
- 2S. DENTAL ANATOMY.* The course will consist of lectures, recitations, and such laboratory work as drawing, dissection, modeling, and carving of the teeth. Fee, 1 and 2 combined, \$20.
- 3S. DENTAL ANATOMY. Continuation of Course 1 as outlined above. Fee, \$15.

DENTAL PROSTHESIS

Associate Professors GEORGE M. DAMON, WILLIAM F. LASBY.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
1s	4	Prosthetic Technique	Fr.	None
2s	2	*Prosthetic Technique	Fr.	1
3s	3	Prosthetic Technique	Soph.	2
4s	2	Prosthetic Practice	Soph.	3
5s	2	Prosthetic Practice	Jr.	4
6s	1	Prosthetic Practice	Jr.	5
7s	1	Prosthetic Practice	Sr.	6
8s	1	Prosthetic Practice	Sr.	7

* Time will be extended beyond the regular summer session to complete this course.

- 1s. PROSTHETIC TECHNIQUE. This course consists of lectures and technique work in the laboratory, comprising impression materials and their uses and the different processes of plate work. Fee, Courses 1 and 2 combined, \$30.
- 2s. PROSTHETIC TECHNIQUE.* Continuation of Course 1 as outlined above. Fee, Courses 1 and 2 combined, \$30.
- 3s. PROSTHETIC TECHNIQUE. The course consists of lectures, recitations, and laboratory work covering the principles and practice of plate work. Fee, half time, \$15; full time, \$30.
- 4s. PROSTHETIC PRACTICE. A course of lectures, recitations, and clinical work covering the simpler forms of prosthetic practice. Fee, half time, \$15; full time, \$30.
- 5s. PROSTHETIC PRACTICE. A course of lectures, recitations, and clinical work covering cleft palate and other special cases in addition to the general prosthetic practice. Fee, half time, \$15; full time, \$30.
- 6s. PROSTHETIC PRACTICE. Continuation of Course 5s as outlined above. Fee, half time, \$15; full time, \$30.
- 7s. PROSTHETIC PRACTICE. A course in general practice of prosthetics. Fee, half time, \$15; full time, \$30.
- 8s. PROSTHETIC PRACTICE. A continuation of Course 7s as outlined above. Fee, half time, \$15; full time, \$30.

ORTHODONTIA

Associate Professor WILLIAM F. LASBY.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
2s	2	Orthodontia Technique	Jr.	Pros. Tech. 4
3s	1	Orthodontia Practice	Jr.	1
4s	1	Orthodontia Practice	Sr.	2

25. **ORTHODONTIA TECHNIQUE.** A course of lectures, recitations, and laboratory work in the technique of steel and the making of regulating appliances. Fee, half time, \$15; full time, \$30.
35. **ORTHODONTIA PRACTICE.** A course of lectures, recitations, and clinical work on the theory and practice of orthodontia. Every student is required to treat at least one irregularity of the teeth. Fee, half time, \$15; full time, \$30.
45. **ORTHODONTIA PRACTICE.** A continuation of Course 35 as outlined above. Fee, half time, \$15; full time, \$30.

CROWN AND BRIDGE WORK

Associate Professor ALFRED A. PAGENKOPF.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
1S	4	Crown and Bridge Technique....	Jr.	Dent. Anat. 3
2S	3	Crown and Bridge Technique....	Jr.	1
3S	4	Crown and Bridge Practice.....	Sr.	2
4S	4	Crown and Bridge Practice.....	Sr.	3

- 1S. **CROWN AND BRIDGE TECHNIQUE.** A course of lectures, demonstrations, and laboratory work that includes all the more important forms of crowns and bridges. Fee, half time, \$15; full time, \$30.
- 2S. **CROWN AND BRIDGE TECHNIQUE.** Continuation of Course 1S as outlined above. Fee, half time, \$15; full time, \$30.
- 3S. **CROWN AND BRIDGE PRACTICE.** A course of lectures and clinical practice covering the entire field of crown and bridge work. Fee, half time, \$15; full time, \$30.
- 4S. **CROWN AND BRIDGE PRACTICE.** Continuation of Course 3S as outlined above. Fee, half time, \$15; full time, \$30.

OPERATIVE DENTISTRY

Assistant Professor JOSEPH F. SHELLMAN.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
2S	4	Operative Technique	Soph.	Dent. Anat. 3
3S	3	Operative Practice	Jr.	1
4S	4	Operative Practice	Jr.	2
5S	4	Operative Practice	Sr.	3
6S	4	Operative Practice	Sr.	4

- 2S. **OPERATIVE TECHNIQUE.** (Second quarter.) This course consists of lectures, recitations, demonstrations, and laboratory work of a technical nature. Fee, half time, \$15; full time, \$30.

- 3s. OPERATIVE PRACTICE. This course consists of lectures, recitations, and clinical practice. Fee, half time, \$15; full time, \$30.
- 4s. OPERATIVE PRACTICE. A course of lectures, recitations, conference work, demonstrations, and clinical practice covering the entire field of operative dentistry. Fee, half time, \$15; full time, \$30.
- 5s. OPERATIVE PRACTICE. Continuation of Course 3s as outlined above. Fee, half time, \$15; full time, \$30.
- 6s. OPERATIVE PRACTICE. A course in the general practice of operative dentistry. Fee, half time, \$15; full time, \$30.

ORAL SURGERY

Associate Professor CHARLES A. GRIFFITH.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
1s	1	Oral Surgery Practice.....	Jr.	Path., Ther.
2s	2	Oral Surgery	Sr.	1

- 1s. ORAL SURGERY. This course is taught by lectures, recitations, and practical demonstrations, covering the field of oral diseases, physical diagnosis, anesthesia, urinalysis, and a clinical course in pyorrhea treatment. Fee, half time, \$15; full time, \$30.
- 2s. ORAL SURGERY. Continuation of Course 1s as outlined above. Fee, half time, \$15; full time, \$30.

THE MEDICAL SCHOOL

The Medical School announces six weeks' courses in Anatomy, Pharmacology, Pathology, Bacteriology, and Physiology.

Additional courses, or courses extended beyond the term of the regular summer session may be offered in the Medical School provided the enrollment is large enough to warrant the establishment or the continuation of such courses.

ENTRANCE REQUIREMENTS

The courses in Anatomy, Physiology, and Bacteriology may be taken by any student who has the prerequisites named, but those who desire time or subject credit on the medical course must be regularly enrolled in the Medical School.

Prospective medical students must first complete two full years (not less than sixty credits, with requisite honor points) of collegiate work, including certain required courses, in Science, Literature, and the Arts in this or some other university or college of equal rank. For detailed information consult the Bulletin of the Medical School.

CLINICAL OPPORTUNITIES

All the clinical departments will maintain daily clinics during the summer at the University Dispensary. Visiting physicians will be welcome at these clinics and also may attend University Hospital rounds at stated hours. Clinics at the Minneapolis City Hospital and at the City and County Hospital are open to physicians. Any of the courses in the laboratory branches may likewise be taken by them. Upper undergraduate medical students may register for work in the Dispensary; and so far as possible any required or elective clinical courses will be arranged when five or more students apply.

For work in other departments, including graduate work, see announcements of the other colleges.

SPECIAL NOTICE

In view of the possibility that the War Department may order a continuous session in medical schools, the programs here presented are subject to change or may be cancelled.

ANATOMY

Professor RICHARD E. SCAMMON; Associate Professor CHARLES A. ERDMANN; Instructor ANDREW T. RASMUSSEN; Assistants ROBERT S. GUTSELL, HJALMAR L. OSTERUD, BYRON L. ROBINSON, ROY E. ST. CLAIR.

The laboratories are open from 8 a.m. to 5 p.m.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
3s	6	Gross Human Anatomy..... 8:00-12:00 and 2:00-4:00 8:00-12:00	MTWThF 304, 305IA S	3d yr. med. An. Biol. 1-2 Erdmann and Assistant
4s	4	Gross Human Anatomy..... 8:00-11:30	MTWThFS 304, 306IA	3d yr. med. Anat. 3 Erdmann and Assistant
6s	4	Gross Anatomy 8:00-11:30	MTWThFS 304, 302IA	2d yr. dent. Anat. 5s Erdmann and Assistant
7s	4	Histology and Embryology.... 8:00-12:00	MTWThFS 104, 105IA	2d yr. dent. An. Biol. 1-2 Scammon and Assistant
101s	5	Human Histology 8:00-12:00 1:00-2:00	MTWThFS 102, 106IA MTWThF	3d yr. med. An. Biol. 1-2 Scammon and Assistant
102s	3	Human Embryology 1:00-4:15	MTWThF 102, 107IA	3d yr. med. Anat. 101 (or equiv.) Scammon and Assistant
103s	3	Human Neurology 1:00-4:15	MTWThF 213IA	4th yr. med. Anat. 101, 102 Rasmussen
119s	1 or 2	Special Dissections	4th, 5th, 6th yr. med.	4th, 5th, 6th yr. med. Anat. 3-4 Erdmann
124s	Ar	Advanced Anatomy	Ar Ar 307IA	4th, 5th, 6th yr. med or grad. Permission required
202s	Ar	Research	Ar Ar IA Ar Ar Ar	Grad. Rasmussen and Scammon Permission required Scammon

3s. GROSS HUMAN ANATOMY. Osteology (complete) and dissection of the lower extremity, abdomen, and head. (208 hours.) Fee, \$40. ERDMANN and Assistant.

4s. GROSS ANATOMY. Dissection of the neck, thorax, and upper extremity. (128 hours.) Fee, \$25. ERDMANN and Assistant.

6s. GROSS ANATOMY. Dissection of the head or neck. (128 hours.) Fee, \$25. ERDMANN and Assistant.

7s. HISTOLOGY AND EMBRYOLOGY. The mouth region and digestive tract are especially emphasized. (128 hours.) Fee, \$25. SCAMMON and Assistant.

101s.* HUMAN HISTOLOGY. General and special histology of the various tissues and organs. (160 hours.) Fee, \$30. SCAMMON and Assistant.

102s.* HUMAN EMBRYOLOGY. Development of the human body. (96 hours.) Fee, \$20. SCAMMON and Assistant.

103s. HUMAN NEUROLOGY. A study of the central nervous system and sense organs. (96 hours.) Fee, \$20. RASMUSSEN.

* If a sufficient number apply, Courses 101s (Histology) and 102s (Embryology) may be taken in combination, the total time required being eight weeks.

Continuation courses in gross anatomy or embryology (3s, 4s, 6s, 102s, see statements above), may also be offered during the six weeks following the regular summer session, provided there is sufficient demand for them. Registration for such courses (if given) must be arranged before the close of the regular summer session.

- 119S. SPECIAL DISSECTIONS. Advanced study of regional anatomy. Elective. (48 or 96 hours.) Fee, \$10 or \$20. ERDMANN.
- 124S. ADVANCED ANATOMY. Advanced work, largely individual in character, upon special topics in gross anatomy, histology, or embryology. Admission only upon approval of instructor. (48 hours or more.) Fee, \$10. RASMUSSEN, SCAMMON.
- 202S. RESEARCH IN ANATOMY. Research work in anatomy, histology, or embryology is offered to properly qualified students. Admission only upon approval of instructor. (48 hours or more.) Fee, \$5. RASMUSSEN, SCAMMON.

PHARMACOLOGY

Associate Professor EDGAR D. BROWN.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
104S	1½	Experimental Pharmacology... 9:00-12:00 MWF	4th yr. med. 201MH	Physiol. 102 Brown
105S	1½	General Pharmacology 8:00-9:00 MTWF	5th yr. med. 201MH	Pharm. 105a Brown
109S	1 (or more)	Pharmacology Elective Ar Ar	5th and 6th yr. med and grad. 201MH	Pharm. 102-104 Brown
110S	1	Toxicology Ar Ar	5th and 6th yr. med and grad. 201MH	Pharm. 102-104 Brown
111S	½	Prescription Writing Ar Ar	5th and 6th yr. med. 203MH	Pharm. 102-104 Brown

- 104S. EXPERIMENTAL PHARMACOLOGY. Laboratory exercises. (48 hours.) Fee, \$10. BROWN.
- 105S. GENERAL PHARMACOLOGY. Lectures and recitations. A course covering the subjects given in the second semester of the junior medical year. (24 hours.) Fee, \$5. BROWN.
- 109S. ELECTIVES IN PHARMACOLOGY. A laboratory course in which special problems are offered for study. Hours to be arranged with instructor. (24 hours or more.) Fee, \$5. BROWN.
- 110S. TOXICOLOGY. A study of poisons and their antidotes. Lectures and laboratory. Elective. (24 hours.) Fee, \$5. BROWN.
- 111S. PRESCRIPTION WRITING. A course covering the elementary principles of the subject. (8 hours.) Fee, \$1.50. BROWN.

PATHOLOGY AND BACTERIOLOGY

Associate Professors ELEXIOUS T. BELL, WINFORD P. LARSON; Instructor MARGARET WARWICK.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
101S	4	General Pathology 8:00-11:00 MTWTh 8:00-12:00 F	4th yr. med. Ar PH&P	Anat. 101 Bell
103S	2	Clinical Pathology 9:00-12:00 MTThF	5th yr. med. Ar PH&P	Path. 101 and 102 Warwick
104S	4	General Bacteriology 8:00-11:00 MTWTh 8:00-12:00 F	3rd yr. med. Ar PH&P and others	See statement Larson
Sp	1	Clinical Pathology 1:00-2:30 MTWThFS	Nurses and others Dis. MH	None Warwick.
111S	Ar	Autopsies Ar Ar Ar	5th and 6th yr. med.	Path. 101 and 102 Staff
204S	Ar	Research Ar Ar Ar	5th and 6th yr. med. and grad. Ar PH&P	Permission required Staff

101S. GENERAL PATHOLOGY. The general principles governing pathologic changes, including disturbances of the circulation and metabolism; inflammation, regeneration and repair; tumor formation. The study and recognition of gross and microscopic lesions. (96 hours.) Fee, \$20. BELL.

103S. CLINICAL PATHOLOGY. The principles and methods involved in the examination of urine, blood, stomach contents, feces, sputum, exudates and transudates; the relation of pathologic findings to the diagnosis of disease. (64 hours.) Fee, \$15. WARWICK.

104S. GENERAL BACTERIOLOGY. The preparation of culture media; the morphology of bacteria; methods of staining and identification; anaerobic bacteria; principles of sterilization and disinfection; examination of air, water, milk; relation of bacteriology to the industries. Third year medical students and others. Prerequisites: general chemistry and botany or zoology. Students who do not desire medical credit for this course will be admitted without the prerequisites, and will be given a separate examination. (96 hours.) Fee, \$10. LARSON.

Sp. CLINICAL PATHOLOGY FOR NURSES. Demonstrations and practical work in the routine procedures for the examination of blood, urine, stomach contents, etc. The course is designed for those wishing a non-professional technical training in this subject. (54 hours.) Fee, \$10. WARWICK.

111S. AUTOPSIES. Attendance upon and participation in selected post-mortem examinations, with training in autopsy technique and dem-

onstrations in gross pathology. Written approval of the instructor required for admission. Credits, hours, and fee to be arranged. STAFF.

- 204S. RESEARCH. Students with the necessary preliminary training may undertake special research work in pathology or bacteriology. Written approval of the instructor required for admission. Credits and hours to be arranged. Fee, \$5. STAFF.

PHYSIOLOGY

Associate Professor FREDERICK H. SCOTT; Assistant Professor CHAUNCEY J. V. PETTIBONE; INSTRUCTORS EDWARD D. ANDERSON, ALBERT M. SNELL; Assistant CHARLES C. GAULT.

Laboratories open from 8 a.m. to 5 p.m. daily, excepting Saturdays when they close at noon.

COURSES

No.	Credit	Title	Offered to	Prerequisite courses
3S	3	Elementary Physiology	Soph., jr., sr.	1 yr. Chem., ½ yr. Biol.; for teachers, no prerequisite
		8:00-12:00 MWF	214, 301MH	Snell
		8:00-10:00 TTh		
4S	3	Elementary Physiology	Dent. students	Elem. Chem. & Anat.
		8:00-12:00 MWF	214, 301MH	Snell
		8:00-10:00 TTh		
6S	3	Elementary Physiologic Chem..	Soph., jr., sr. and dent. students	Elem. Gen. and Org. Chem.
		9:00-12:00 TTh	315, 301MH	Anderson
		11:00-12:00 MWF		
102S	5	Physiologic Chemistry	Jr., sr., grad.	Organ. Chem.
		8:00-11:00 MTWThF	214, 310MH	Pettibone
103S	4	Physiology of Cells, Muscles, etc.	Jr., sr., grad.	An. Biol. 1-2
		8:00-12:30 MTWThF	214, 301MH	Gault, Scott
104S	4	Physiology of Nervous System, etc.	Jr., sr., grad.	An. Biol. 1-2
		8:00-12:30 MTWThF	214, 301MH	Scott, Gault, Snell
113S	Ar	Adv. Physiology	Sr., grad.	Physiol. 103, 104
		Ar Ar	301MH	Scott
153S	Ar	Adv. Physiologic Chemistry	Sr., grad.	Physiol. 102
		Ar Ar	310MH	Pettibone
203S	Ar	Research in Physiology	Sr., grad.	Physiol. 103, 104
		Ar Ar	301MH	Scott
205S	Ar	Research in Physiologic Chem..	Sr., grad.	Physiol. 102
		Ar Ar	310MH	Pettibone

3S. ELEMENTARY PHYSIOLOGY. Offered to teachers, home economics students, and others who desire a general knowledge of the subject. Fee, \$7.50. SNELL.

4S. ELEMENTARY PHYSIOLOGY. Offered to dental students. (96 hours.) Fee, \$20. SNELL.

- 6S. ELEMENTARY PHYSIOLOGIC CHEMISTRY. Offered to dental students and others. (64 hours.) Fee, \$15. ANDERSON.
- 102S. PHYSIOLOGIC CHEMISTRY. A study of the components, foods, secretions, digesta, and excreta of the human body. (160 hours.) Fee, \$30. PETTIBONE, ANDERSON.
- 103S. PHYSIOLOGY OF CELLS, MUSCLE AND NERVE, BLOOD, CIRCULATION, AND DIGESTION. (128 hours.) Fee, \$25. GAULT.
- 104S. PHYSIOLOGY OF RESPIRATION, NERVOUS SYSTEM, AND SPECIAL SENSES; SECRETION AND METABOLISM. (128 hours.) Fee, \$25. SCOTT, SNELL.
- 113S. ADVANCED PHYSIOLOGY. Study of special problems. Offered to properly qualified students. Fee, \$10. SCOTT.
- 153S. ADVANCED PHYSIOLOGIC CHEMISTRY. Study of special problems. Offered to properly qualified students. Fee, \$10. PETTIBONE.
- 203S. RESEARCH IN PHYSIOLOGY. Offered to properly qualified students. Fee, \$5. SCOTT.
- 205S. RESEARCH IN PHYSIOLOGIC CHEMISTRY. Offered to properly qualified students. Fee, \$5. PETTIBONE.

THE GRADUATE SCHOOL

Work of graduate character done in the Summer Session of the University of Minnesota under a member of the Graduate Faculty may be counted for residence credit toward advanced degrees (Master's or Doctor's degree). To obtain graduate credit, however, the student must be regularly admitted and enrolled in the Graduate School. The requirements for admission and for the higher degrees are outlined in detail in the Bulletin of the Graduate School for the regular session.

The course work for the Master's degree may be completed by properly qualified students in four Summer Sessions. The remainder of the residence necessary to complete the equivalent of a full academic year of thirty-six weeks may be completed after the thesis is begun by registering early and by remaining in residence working under direction, after the regular Summer Session has closed. A candidate for the Master's degree must fulfill the language requirement and must file the thesis subject, with the approval of the Adviser, before the completion of the first half of the required work.

Graduate courses are offered in the Summer Session as follows (for details, see announcements of the various departments in the preceding pages):

ANATOMY

- 101S. HUMAN HISTOLOGY. SCAMMON.
- 102S. HUMAN EMBRYOLOGY. SCAMMON.
- 103S. HUMAN NEUROLOGY. RASMUSSEN.
- 124S. ADVANCED ANATOMY. SCAMMON, RASMUSSEN.
- 202S. RESEARCH. JACKSON, SCAMMON.

BACTERIOLOGY

See Pathology and Bacteriology

BOTANY

- 123S. TAXONOMY AND MORPHOLOGY OF ALGAE. TILDEN.

ECONOMICS

- 192S. STATE AND LOCAL TAXATION. BLAKEY.

EDUCATION

- 102S. HISTORY OF EDUCATION. SWIFT.
- 146S. HISTORY OF RELIGIOUS EDUCATION. SWIFT.
- 207S. SEMINAR IN AMERICAN SCHOOL. SWIFT.

- 109s. EDUCATIONAL DIAGNOSIS. VAN WAGENEN.
- 119s. SCHOOL CURRICULA. RANKIN.
- 121s. SCHOOL ORGANIZATION AND ADMINISTRATION. RANKIN.
- 124s. EDUCATIONAL ADMINISTRATION. COFFMAN.
- 141s. SCHOOL SANITATION. RANKIN.

GERMAN

- 120s. SCHILLER. MYERS.
- 132s. NOVELLE. BURKHARD.

HISTORY

- 137s. ENGLISH CONSTITUTIONAL HISTORY. CRAWFORD.
- 206s. SELECTED TOPICS IN AMERICAN HISTORY. SHIPPEE.
- 210s. SELECTED PROBLEMS IN ENGLISH HISTORY. CRAWFORD.

LATIN

- 102s. ADVANCED VIRGIL. PIKE.

PATHOLOGY AND BACTERIOLOGY

- 101s. GENERAL PATHOLOGY. BELL.
- 103s. CLINICAL PATHOLOGY. WARWICK.
- 104s. GENERAL BACTERIOLOGY. LARSON.
- 111s. AUTOPSIES. STAFF.
- 204s. RESEARCH. STAFF.

PHARMACOLOGY

- 104s. EXPERIMENTAL PHARMACOLOGY. BROWN.
- 105s. GENERAL PHARMACOLOGY. BROWN.
- 109s. PHARMACOLOGY ELECTIVE. BROWN.
- 110s. TOXICOLOGY. BROWN.
- 111s. PRESCRIPTION WRITING. BROWN.

PHYSIOLOGY

- 102s. PHYSIOLOGIC CHEMISTRY. PETTIBONE.
- 103s. PHYSIOLOGY OF CELLS, ETC. SCOTT.
- 104s. PHYSIOLOGY OF NERVOUS SYSTEM. SCOTT.

1135. ADVANCED PHYSIOLOGY. SCOTT.
 1535. ADVANCED PHYSIOLOGIC CHEMISTRY. PETTIBONE.
 2035. RESEARCH IN PHYSIOLOGY. SCOTT.

POLITICAL SCIENCE

1125. WORLD POLITICS. ANDERSON.

RHETORIC AND PUBLIC SPEAKING

1105. SHORT STORY. PATTISON.
 1115. ESSAY WRITING. PATTISON.

ROMANCE LANGUAGES

1115. RESEARCH IN ROMANCE LANGUAGES. OLMSTED, SEARLES.

SOCIOLOGY AND SOCIAL WORK

1005. RESEARCH IN SOCIOLOGY. TODD, ELMER, BRUNO, ARONOVICI.
 1065. THOUGHT CURRENTS IN MODERN SOCIAL WORK. TODD.
 1105. PROBLEMS OF THE MODERN FAMILY. TODD.
 1205. SOCIAL PROBLEMS. TODD.
 1305. CASE WORK WITH NEAR-BY FAMILIES. SEARS.
 1335. FIELD WORK IN HOSPITAL SOCIAL WORK. TEBBETS.

In addition properly qualified graduate students may, with the written approval of the instructor, register in the Summer Session for individual research or thesis work in the following departments:

<i>Name of Department</i>	<i>Instructors</i>
AGRICULTURE	Professor ANDREW BOSS
AGRICULTURAL BIOCHEMISTRY	Professor R. A. GORTNER Professor JOHN J. WILLAMAN
AGRICULTURAL EDUCATION	Professor A. V. STORM
ANATOMY	Professor C. M. JACKSON
ANIMAL BIOLOGY	Assistant Professor E. J. LUND
ASTRONOMY	Asst. Astronomer W. O. BEAL
BOTANY	Professor C. O. ROSENDAHL Professor JOSEPHINE E. TILDEN
CHEMISTRY	Professor EDWARD E. NICHOLSON
COMPARATIVE PHILOLOGY	Professor FREDERICK KLAEBER
DAIRY AND ANIMAL HUSBANDRY.....	Professor R. M. WASHBURN
ECONOMIC ZOOLOGY	Professor A. G. RUGGLES
ECONOMICS	Professor ROY G. BLAKEY
ELECTRICAL ENGINEERING	Professor F. W. SPRINGER

ENGLISH	Professor CARLETON BROWN
	Professor CECIL A. MOORE
FORESTRY	Professor JOHN H. ALLISON
	Professor EDWARD G. CHEYNEY
GEOLOGY	Professor C. J. POSEY
GERMAN	Professor OSCAR BURKHARD
	Professor JAMES DAVIES
	Professor SAMUEL KROESCH
	Professor WALTER R. MYERS
	Professor CARL SCHLENKER
GREEK	Professor C. A. SAVAGE
HISTORY	Professor S. J. BUCK
	Lecturer LESTER B. SHIPPEE
HORTICULTURE	Professor W. G. BRIERLEY
	Professor M. J. DORSEY
LATIN	Professor JOSEPH B. PIKE
MECHANICAL ENGINEERING	Professor JOHN J. FLATHER
PATHOLOGY AND BACTERIOLOGY	Associate Professor E. T. BELL
PHARMACOLOGY	Professor A. D. HIRSCHFELDER
PHILOSOPHY	Professor R. C. LODGE
PHYSIOLOGY	Professor E. P. LYON
	Associate Professor F. H. SCOTT
	Instructor C. J. V. PETTIBONE
POLITICAL SCIENCE	Professor J. S. YOUNG
PSYCHOLOGY	Professor HERBERT WOODROW
ROMANCE LANGUAGES	Professor E. W. OLMSTED
	Professor COLBERT SEARLES
SOCIOLOGY	Professor A. J. TODD
	Lecturer CAROL ARONOVICI

Medical graduate students may register for the clinical or other courses available during the summer.

Registration of graduate students for work other than that announced will not be permitted, except by permission of the Dean of the Graduate School and the Director of the Summer Session.

DEPARTMENT OF AGRICULTURE

GENERAL INFORMATION

The work of the Land Grant Colleges of the United States is now finding expression in three great fields of educational activity, viz., Instruction, Experimentation, and Extension.

Two of these, Experimentation and Extension, are serving the people throughout the entire year, and the conviction is growing that the great plant, equipment, organization, and faculty of these institutions should likewise be utilized for instruction during more than the nine months of the college year.

In response to this demand the Summer Session is established in order that the field plots, orchards, livestock, libraries, laboratories, museums, shops, machinery, classrooms, instruction, and other facilities used by regular college students shall be available to those who for any reason find it more convenient to attend during the summer months.

The work offered seeks to meet the needs of graduates of arts colleges and normal schools, teachers of secondary schools, principals of schools (especially of consolidated schools), superintendents of schools, and others who desire courses in Agriculture or Home Economics, and who wish to obtain therefor college credit, as well as to meet the needs of students seeking to complete the undergraduate college work.

The work also furnishes an opportunity for graduates of other colleges of agriculture to improve their knowledge of Minnesota agriculture, preparatory to teaching in this state.

The Summer Training School held at the same time and mentioned elsewhere in this bulletin, adds to the session features of great value.

COURSES AND CREDITS

The courses offered are selected from those offered during the regular college year, in which the same amount of work will be done and for which the same credit will be given.

As the Summer Session (six weeks) is one third the length of a regular college semester (eighteen weeks), the number of recitations and amount of work per week for each credit hour will be approximately *three times that required each week during the college year*. Sixteen hours per week constitute standard work and gives six semester-hour credits.

FACULTY

The Summer Session faculty will consist of members of the regular college faculty aided by specialists from other institutions who are of known efficiency in their fields of labor.

COURSES OFFERED

Preparations have been made to offer such of the following courses as are applied for by a sufficient number of students, six regular students being the minimum.

- Agronomy and Farm Management 1, Farm Crops I
Agronomy and Farm Management 102, Farm Management II
Agronomy and Farm Management 104, Grain and Corn Judging
Agricultural Biochemistry 3, Types of Carbon Compounds
Agricultural Biochemistry 4, Chemistry of Plant and Animal Life
Agricultural Education 68, Home and School Gardening. Same as Hort. 94
Agricultural Education 131, Methods
Agricultural Education 151, Organization and Management
Agricultural Education 161, Fundamentals of Agriculture
Agricultural Education 162, Fundamentals of Agriculture
Agricultural Education 171, Extension Work
Agricultural Education 173, History of Agriculture
Agricultural Education 175, Visual Presentation
Bee Culture 6, Elements of Beekeeping
Bee Culture 7, Advanced Beekeeping
Animal Husbandry 1, Types and Breeds of Livestock
Animal Husbandry 4, Livestock Judging
Dairy Husbandry 4, Dairy Stock Judging
Dairy Husbandry 7, Elements of Dairy Husbandry
Dairy Husbandry 11, Milk and Its Products
Dairy Husbandry 12, Dairy Cattle Feeding
Economic Zoology 1, Introductory Entomology
Economic Zoology 9, Animal Parasites
Home Economics 3, Textiles
Home Economics 11, Garment Making
Home Economics 13, Dressmaking
Home Economics 17, Clothing Economics
Home Economics 21, Foods and Cookery
Home Economics 22, Food Economics
Home Economics 35, Home Management, Laboratory
Home Economics 42, Home Economics Education
Home Economics 51, Drawing and Design
Home Economics 103, Dietetics
Home Economics 105, Experimental Cookery
Horticulture 71, Landscape Gardening
Horticulture 90, General Horticulture
Horticulture 94, Home and School Gardening. Same as Agr. Educ. 68
Plant Pathology and Botany 1, Plant Pathology
Plant Pathology and Botany 9, Weeds and Seed Testing
Poultry Husbandry 1, Poultry
Poultry Husbandry 4, Incubating and Brooding
Rural and Agricultural Journalism 75, Editorial Management
Rural and Agricultural Journalism 138, Reporting
Veterinary Science 5, Veterinary Bacteriology
Veterinary Science 6, Veterinary Medicine
Veterinary Science 12, Common Diseases of Domestic Animals

FEES

A fee of \$5 is charged for registration. In addition, \$2 is charged for each credit hour for which the student registers and a further \$1.50 for each laboratory course.

A deposit of \$5 is also required to cover unusual breakage and safe return of apparatus and books. This deposit will be returned at the close of the session, less charges for breakage and losses. All fees are payable at the time of completing registration.

The registration fee (\$5) is not refunded under any conditions. Students cancelling their registration during the first week of the session may receive a pro rata refund of the credit hour and laboratory fees. Such refund shall not exceed five sixths of the amount paid on these items and must be approved by the Director of the Summer Session.

No refunds whatsoever shall be made to students who attend more than one week.

ADMISSION

The courses of the Summer Session are open to all mature men and women who are considered qualified to pursue the chosen work to advantage, but college credit will be given only when college entrance requirements have been fulfilled.

If you have not registered at the College of Agriculture heretofore and wish to receive college credit for work done in the Summer Session, you should send to the Secretary, on a suitable blank, a properly certified copy of your preparatory credits.

A blank for this purpose can be procured from the principal of your high school or from the Secretary, University Farm, St. Paul.

REGISTRATION

Saturday, June 15 and Monday, June 17, are regular registration days. Students may register on any preceding day after May 1. Students should complete registration and be ready for class work before 8 a.m. Tuesday, June 18. After Monday, June 17, students will register by special permission only.

LOCATION

From St. Paul or Minneapolis, take a Como-Harriet car. One fare (5 cents) takes you to Doswell Avenue. A short walk to the northeast brings you to the Administration Building, University Farm, where you register. If you wish to ride the entire distance, change at Eustis Avenue from the Como car to the inter-campus car, which takes you, for an additional fare, into the University Farm grounds. Walk west to the Administration Building, the third on your left. There are no inter-campus cars after 6 p.m., nor on Sundays or holidays.

Altho the school is located in the country and has all the advantages of the quiet and the fresh air of the country, yet it is close enough

to the Twin Cities to get all the benefits of these large centers. No more beautiful spot between the two cities could have been selected for such a school. Situated on picturesque hills, overlooking Midway and the two cities, the buildings are grouped conveniently about the undulating campus. Nature has done much to make this a beauty spot, and the landscape artist has added to the beauty by the arrangement of paths and the replacing of trees and shrubs with many varieties suited to the climate.

ACCOMMODATIONS

Those taking regular work at the Summer Session may obtain rooms in the dormitories. Rooms will be assigned at the time of registration. The dormitories contain a very few single rooms; other rooms are intended to accommodate two or three persons. The rooms are furnished with necessary bedding. A change of linen is made twice each week, and of towels every day. Students residing in the Twin Cities will not be given dormitory rooms. Those who do not expect to remain at the school for the entire six weeks should obtain rooms outside the dormitories. Good board and room may be obtained within a short distance from the school for \$6 per week and upward. Dormitories will be opened Saturday, June 15.

EXPENSES IN DORMITORIES

Room rent, use of bedding, and laundering of same; \$1.25 per week	\$7.50
Post-office box .....	.10
Total	\$7.60

In addition to the above each student will be expected to pay, at the same time, the amount of his fees, according to the provisions on page 10. Entire amount to be paid in advance at time of registration.

In order to facilitate registration and to avoid delay and inconvenience to yourself, come prepared to pay your fees in cash or by bank draft, postal money order, or certified check drawn for the exact amount you are to pay. One issued for a larger amount will not be accepted for payment of fees. Travelers checks are recommended. They will be accepted as cash.

The cashier is not required to cash checks, drafts, or other negotiable papers and has a right to demand identification or guarantee, or to refuse payment. Bank drafts, post-office money orders, and certified checks are more easily negotiated than are personal checks.

A cafeteria with reasonable charges is maintained on the campus. Meals may be obtained during the day and until 9:00 p.m.

BAGGAGE

Baggage will be carried between either city and University Farm by the service section for a uniform charge of fifty cents for each piece.

Delivery will be made as promptly as the limited facilities of the section will permit. Those wishing special attention or quick delivery are advised to arrange with city express or transfer companies for delivery of their baggage and for the charges for the same. Students wishing to have their baggage handled by the service section should hand the checks in at the general service office, near the post-office, promptly after arrival so as to avoid, as far as possible, charges for storage.

MAIL

Mail for students may be sent to University Farm, St. Paul. Post-office boxes are assigned to all students and a charge of 10 cents made therefor. As soon as your post-office box has been assigned, notify your correspondents to put the number of your box on your mail. This will facilitate distribution and enable you to receive your mail more promptly.

LIBRARY

Good library facilities, including books, bulletins, reports, and papers on Agriculture and Home Economics, will be available to all students in the library, in the Administration Building.

EXCURSIONS

The vicinity of the Twin Cities abounds in objects of geologic and physiographic interest, such as rock formations, old river gorges, and glacial moraines; while the cities themselves, with their parks, lakes, buildings, libraries, and art galleries, afford students every opportunity for profitable use of their leisure hours.

The campus, in connection with the Experiment Station farms, gives the best of opportunity to study agricultural problems and to study nature.

THE ASSEMBLY HOUR

An assembly hour has been arranged for each day, from 9:30 to 10 a.m. At this time subjects of special interest will be considered. There will be short opening exercises, followed by lectures and talks by educators and other specialists.

Through the State Department of Education and the administrative officers of the training school, opportunity is given to hear a large number of people of state and national reputation. At least one such person will be present each day.

All students should be in attendance at Assembly during this period.

CONSULTATION

Opportunity will be given for conference with the members of the faculty on subjects of special interest to the individual students.

STATE TEACHERS' TRAINING SCHOOL

Beginning and closing at the same time as does the Summer Session of the College of Agriculture, Forestry, and Home Economics, will be held at the same place (University Farm, St. Paul) the State Teachers' Training School, wherein courses will be offered in methods of teaching and school organization and management; also review and credit work in subjects required for common school certificates and in non-college credit work in Agriculture, Manual Training, Home Economics, Drawing, and Music. For bulletin, address Secretary, University Farm, St. Paul.

For principals of consolidated schools.—Special non-college credit courses in Agriculture and other industrial subjects will be offered to those who have served, or who will serve next year, as principals of consolidated schools under the Holmberg Act. The courses will be progressive in character and will afford special opportunity for study, not only to those who will be in attendance for the first time, but also to those who have taken the course in previous summers. Meetings and conferences of consolidated school principals will be held from time to time to deal with problems peculiar to their work.

It will also be possible for principals of consolidated schools, or others taking work in the training school who are properly qualified, to carry courses for college credit.

ENTERTAINMENT

From time to time throughout the term, evening entertainments will be given in the assembly room for the special benefit of the members of the summer school.

PHYSICAL EXERCISES, PLAYS, AND GAMES

Experienced instructors will be in charge of the gymnasium, athletic field, and play grounds to teach and supervise the various activities in these directions. Classes and teams will be organized to suit the convenience of the members wishing to participate in gymnasium drill, tennis, baseball, volleyball, and many other sports and games.

PERIODICAL AND TEACHERS' HELPS ROOM

A room will be maintained at University Farm during the Summer Session where all may examine the various teachers' journals, books, appliances, and supplies and where purchases may be made if desired.

SWIMMING POOL

The swimming pool in the gymnasium will be open to the use of men and women during stated periods throughout each week for a very moderate fee to cover actual expenses. A skilled man will be in charge during the time the men are using the pool and a skilled woman will

be in attendance during those hours in which the use of the pool is devoted to the women.

SUMMER COURSES IN OTHER COLLEGES OF THE UNIVERSITY

From June 24 to August 2 the University of Minnesota also maintains on the Minneapolis Campus courses in the Colleges of Education, Medicine, Dentistry, Engineering, and Science, Literature, and the Arts. Those interested may obtain information from the Registrar, University of Minnesota, Minneapolis.

INFORMATION

For information regarding Summer Session of the College of Agriculture, Forestry, and Home Economics, address the Secretary, University Farm, St. Paul.

DESCRIPTION OF COURSES

Note.—Since there are only one third as many weeks in the Summer Session as in the regular semester, each course will require approximately three times as many hours per week as in a regular semester. One credit hour is equivalent to (1) 16 lecture or recitation periods requiring two hours of preparation each; (2) 32 periods of laboratory work requiring one-half hour of preparation each; or (3) 48 hours of laboratory work with no preparation.

KEY TO BUILDINGS, UNIVERSITY FARM

Ad—Administration Building
 Pp—Plant Pathology Building
 Ch—Chemistry Building
 Dh—Dairy Hall
 He—Home Economics Building
 Hr—Horticulture Building
 St—Stock Pavilion
 Ve—Veterinary Building

AGRICULTURAL BIOCHEMISTRY

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
3	3	Types of Carbon Compounds... 8:00-9:30 TWThF	Soph., jr. 201Ch	Chem. 1 yr. Morrow
4	3	Chemistry of Plant and Animal Life 8:00-9:30 TWThF	Soph. 251Ch	Chem. 1 yr. Dutcher

3. TYPES OF CARBON COMPOUNDS. An elementary study of the different groups of carbon compounds, with special reference to their relationships and their occurrence in plant and animal materials used as food. MORROW.

4. THE CHEMISTRY OF PLANT AND ANIMAL LIFE. The organic compounds commonly found in plant and animal tissues. The chemical changes during growth, harvesting, storage, and preparation for market. Factors affecting composition and changes therein. Utilization of farm by-products. DUTCHER.

AGRICULTURAL EDUCATION

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
68	3	Home and School Gardening... Lect. 1:20-2:05 MTWTh Lect. 2:15-3:00 TTh Lab. 2:15-4:00 MW	Jr., sr. 20Hr	None Brierley, Field, et al.

No.	Credits	Title	Offered to	Prerequisite courses
131	3	Methods in Teaching H. S. Agriculture	Sr. 317Ad	11 Field
		8:00-9:30 MTWThF		
151	3	Organization and Management.. 2:15-4:00 MTWThF	Sr. 317Ad	68 Dyer
*161	3	Fundamentals of Agriculture... Lect. 10:20-11:00 MTWThFS Lab. 2:15- 3:00 MTWThF	Jr., sr. 317Ad	None Mayne, Barker
*162	3	Fundamentals of Agriculture... Lect. 10:20-11:00 MTWThFS Lab. 2:15- 3:00 MTWThF	Jr., sr. 317Ad	None Mayne, Barker
171	3	Extension Work	Sr. 321Ad	None Barker
		3:10-4:50 MTWThF		
173	3	History of Agriculture..... 11:10-12:40 MTWThF	Soph., jr., sr. 307Ad	None Dyer
175	3	Visual Presentation	Jr., sr. 317Ad	None Field
		11:10-12:40 MTWThF		

* For the Summer Session of 1918 persons registering for 161 will take the first half of the course only, and as a substitute for the last half will take the first half of Course 162, receiving 1½ credits for each half course taken, but both the first half of 161 and the first half of 162 must be taken before credit will be given for either.

68. HOME AND SCHOOL GARDENING. See Horticulture 94.

131. METHODS IN TEACHING HIGH SCHOOL AGRICULTURE. Fundamental elements of method in teaching as related to teaching agriculture in high schools. Organizing subject matter of daily work; selection and manipulation of devices. Classroom and laboratory method. Specific plans for teaching secondary agriculture. FIELD.

151. ORGANIZATION AND MANAGEMENT. Organization and management of work in secondary schools, particularly of Minnesota, with special reference to agricultural work, courses of study, programs, equipment, laboratory and class management, extension work, plots, and coordination of work. DYER.

161. FUNDAMENTALS OF AGRICULTURE. Essential for principals and superintendents of schools in which agriculture is taught, and valuable for students of other colleges whose time for agriculture is limited. Agricultural College experts will give work in their special fields. MAYNE, BARKER.

162. FUNDAMENTALS OF AGRICULTURE. Continuation of Course 161. Credit is given for either course separately, but there is no duplication of subject matter and both should be taken to obtain a fundamental knowledge of agriculture. MAYNE, BARKER.

171. 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 in Minnesota. BARKER.

173. HISTORY OF AGRICULTURE. A history of agricultural progress with special reference to the greater movements and to sources from which modern agriculture has received its most valuable acquisitions. Comparisons of our own agriculture with that of other countries. DYER.
175. VISUAL PRESENTATION. Designed to prepare persons for presenting materials by means of slides, films; charts, etc. Students assisted in assembling materials for their own use, and in acquiring skill and technique in preparation and operation of various mediums. FIELD.

AGRICULTURAL ENGINEERING

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
48	2	Blacksmithing	All	None
		2:15-4:50 MTWThF	20En	Johnston
*5	3	Carpentry	All	None
		Part I 2:15-4:50 MTWThF	48En	White
		Part II 10:20-12:40 MTWThF	48En	White
48.		BLACKSMITHING. The management of forge and fire, and bending, shaping, and welding iron. Laboratory fee, \$1.50. JOHNSTON.		
*5.		CARPENTRY. The use of common carpentry tools and the methods of farm building construction. WHITE.		

AGRONOMY AND FARM MANAGEMENT

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
1	3	Farm Crops I.....	Fr.	None
		8:00-9:30 MTWThF	307Ad	Army
102	3	Farm Management II.....	Sr.	1, Econ. 3
		8:00-8:40 WF, and		
		8:50-9:30 MTWThFS	321Ad	Boss
104	3	Grain and Corn Judging.....	Jr., sr.	1, Bot. 1 yr.
		10:20-12:40 MTWThFS	2Ad	Army

1. FARM CROPS I. An elementary study of the important field crops of the United States, with emphasis on those of local importance; distribution, economic importance, agricultural classifications, cultural methods, and principles of improvement. ARMY.
102. FARM MANAGEMENT II. A course in which the business side of farming is emphasized. Special attention is given to farm organization, equipment, and operation. BOSS.

* This course will be given in two parts, each earning 1½ credits, Part I being prerequisite for Part II. Both parts can not be taken the same Summer Session. Part I will contain elementary principles of woodworking, and care and use of tools, with exercises suitable for elementary work in consolidated schools. Part II will continue with cabinet work and carpentry suitable for advanced courses in consolidated schools.

104. GRAIN AND CORN JUDGING. A study in detail of representative samples of the leading varieties of grains, and corn and grass seeds, with score card practice in comparative judging of grain, corn, and grass seed. ARNY.

ANIMAL HUSBANDRY

ANIMAL INDUSTRY GROUP

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
1	3	Types and Breeds of Livestock. 10:20-11:00 MTWThFS and 11:10-12:40 MTWThF	Fr., soph. St	None Gay, Anderson
*4	1½	Livestock Judging 8:00-9:30 MTWThFS	Soph., jr. St	1 Montgomery

1. BREEDS AND TYPES OF LIVESTOCK. The types as related to performance or production in horses, beef cattle, sheep, and swine, and the origin, history, characteristics, and economic importance of the breeds, classified according to type. GAY, ANDERSON.

- *4. LIVESTOCK JUDGING. Practice in judging breeding classes of horses, beef cattle, sheep, and swine. Placings and reasons are submitted, followed by a general discussion with the instructor. MONTGOMERY.

BEE CULTURE

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
6	3	Elements of Beekeeping..... 8:00-9:30 MTWThF	Jr., sr. 1Pp	None France
7	3	Advanced Beekeeping 10:20-11:50 MTWThF	Jr., sr. 1Pp	6 France

6. ELEMENTS OF BEEKEEPING. Elementary study of queens, drones, and workers, hives and appliances, handling of bees, spring, summer, winter management, swarming and increase, honey and wax production, feeding, and bee diseases. FRANCE.

7. ADVANCED BEEKEEPING. Anatomy of the bee, queen rearing, commercial production of honey, out-apiaries, accounting, and marketing. FRANCE.

DAIRY HUSBANDRY

ANIMAL INDUSTRY GROUP

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
†4	1½	Dairy Stock Judging..... 8:00-9:30 MTWThFS	Soph., jr. Db	7 Kildee, Weaver

* Given last three weeks of Summer Session.

† Given first three weeks of Summer Session.

No. Credits	Title	Offered to	Prerequisite courses
7 3	Elements of Dairy Husbandry.. 10:20-11:50 MTWThFS	Fr. 39Dh	None Washburn, Hanson, Weaver
11 3	Milk and Its Products..... 8:00-9:30 MTWThFS	Soph., jr. 39Dh	7 Washburn, Hanson
12 1	Dairy Cattle Feeding..... 2:15-3:00 MWF	Jr., sr. 39Dh	Nutr. 1, or parallel Kildee, Weaver

- *4. DAIRY STOCK JUDGING. Practice work in judging animals of the leading dairy breeds. Herds in the vicinity of the Twin Cities are visited. KILDEE, WEAVER.
7. ELEMENTS OF DAIRY HUSBANDRY. Origin, characteristics, and adaptation of the dairy breeds of cows; particular attention is given to feeding, followed by the study of the chemical and physical constituents of milk. Practice work in butter making, and milk testing required. Laboratory fee, \$1.50. WASHBURN, HANSON, WEAVER.
11. MILK AND ITS PRODUCTS. Milk secretion, composition, properties, variation, and testing. Cream separation, testing, care, methods of marketing. Butter, cheese, and ice-cream making. Market milk handling, standardizing, clarifying, pasteurizing, bottling, and marketing. Laboratory fee, \$1.50. WASHBURN, HANSON.
12. DAIRY CATTLE FEEDING. Characteristics and relative merits of concentrates, roughages and succulent feeds for efficient and economical production. Not open to those who have completed Course 2. KILDEE, WEAVER.

ENTOMOLOGY AND ECONOMIC ZOOLOGY

COURSES

No. Credits	Title	Offered to	Prerequisite courses
1 3	Introductory Entomology	Soph., jr.	An. Biol. 3-4, or equiv.
	Lec. and Lab. 2:15-5:15 MTWTh	306Ad	Oestlund
9 3	Animal Parasites	Jr., sr.	An. Biol. 3-4, or equiv.
	Lec. and Lab. 2:15-5:15 MTWTh	307Ad	Riley

1. INTRODUCTORY ENTOMOLOGY. Lectures, laboratory, and field work on the characteristics and habits of insects. Introductory to Course 2, Economic Entomology, and required of all students planning to specialize in Entomology. OESTLUND.

9. ANIMAL PARASITES: A study of the more common animal parasites of man and domestic animals, and of methods of avoidance and control. Additional advanced work for those prepared to undertake it. RILEY.

* Given first three weeks of Summer Session.

HOME ECONOMICS

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
3	3	Textiles	Fr.	None
		8:00-9:30 MTWThFS	305He	Weller
11	3	Garment Making	Fr.	None
		2:15-4:50 MTWThF	304He	Campiglia
13	3	Dressmaking	Jr.	3, 11
		10:20-12:40 MTWThFS	304He	Campiglia
		2:15-4:50 MTWThF	309He	
17	3	Clothing Economics	Sr.	13, 53
		10:20-12:40 MTWThFS	305He	Weller
21	3	Foods and Cookery.....	Soph.	H. S. Do. Sci. 1 unit; Chem. 3 or 33; Physiol. 3, parallel
		8:00-9:30 MTWThFS	209He	Vermilye
22	3	Food Economics	Soph.	21
		2:15-4:50 MTWThF	207He	Palmer
35	3	Home Management—Laboratory.	Sr.	22
				Vermilye, Edwards
42	3	Home Economics Education....	Jr.	22, Psychol. 5b
		2:15-3:00 MTWThF	213He	Weigley
51	3	Drawing and Design.....	Fr.	None
		2:15-4:50 MTWThF	313He	Goldstein
103	3	Dietetics	Sr.	102
		10:20-12:40 MTWThFS	207He	Edwards
105	3	Experimental Cooking	Jr., sr.	101
		8:00-9:30 MTWThFS	207He	Weigley

3. **TEXTILES.** A study of textile fibers, their structure, properties, and chemical reactions; of fabrics, their structure and processes of manufacture; of art and economic considerations in selection and purchase of materials for clothing and household furnishing. **WELLER.**
11. **GARMENT MAKING.** Instruction and laboratory practice in hand sewing; reading and adaptation of commercial patterns; construction and use of the sewing machine; designing, cutting, and making simple outer garments from washable materials. **CAMPIGLIA.**
13. **DRESSMAKING.** Consideration of quality, suitability, and cost of materials adapted to technique involved in construction of simple wool and silk dresses; adaptation of art principles in selection of designs; instruction and practice in methods of construction. **CAMPIGLIA.**
17. **CLOTHING ECONOMICS.** General consideration of economic function of woman; history of woman's place in home and industry with reference to clothing and textiles; study of clothing budgets, hygiene, and standardization of dress. Laboratory problems in costume modeling. **WELLER.**
21. **FOODS AND COOKERY.** (a) Production, manufacture, chemical composition of typical foods; their classification into food principles; changes in digestion; function in nutrition. (b) Fundamental science

principles from chemistry, physics, biology, and bacteriology, and their application in typical cookery processes. Laboratory fee, \$1.50. VERMILYE.

22. **FOOD ECONOMICS.** Cost and nutritive value of typical foods; the study of dietaries; preparation and serving of meals, the cost bearing a definite relation to the family budget. Laboratory fee, \$1.50. PALMER.
35. **HOME MANAGEMENT: OPERATION AND MAINTENANCE, LABORATORY PRACTICE.** (a) Nine weeks' experience as manager and helper in a household of twenty members. (b) A dietary study covering a period of one month in the above household. VERMILYE, EDWARDS.
42. **HOME ECONOMICS EDUCATION.** Curricula, equipment, methods of teaching, for Home Economics. WEIGLEY.
51. **DRAWING AND DESIGN.** Composition, perspective, color, theory, and color harmonies applied to costume design and interiors; harmony, balance, rhythm, in line and area design. GOLDSTEIN.
103. **DIETETICS.** The fundamental principles of human nutrition as applied to the feeding of individuals and groups under conditions of health, and under such pathological conditions as are chiefly dependent upon dietetic treatment. Laboratory fee, \$1.50. EDWARDS.
105. **EXPERIMENTAL COOKING.** An experimental study of special problems in foods and food preparation. WEIGLEY.

HORTICULTURE

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
71	3	Landscape Gardening	Soph., jr., sr.	None
		8:00-9:30 TWThF	20Hr	Cady
90	3	General Horticulture	All	None
		10:20-11:50 MTWTh	20Hr	Brierley
94	3	Home and School Gardening...	Jr., sr.	None
		Lect. 1:20-2:05 MTWTh	20Hr	Brierley, Cady,
		Lect. 2:15-3:00 TTh		Wellington, Bushnell, Field
		Lab. 2:15-4:00 MW		

71. **LANDSCAPE GARDENING.** A general course in the practice and principles of landscape gardening as applied to the home and community. Lectures and field trips to parks and private grounds. CADY.
90. **GENERAL HORTICULTURE.** A general survey of horticulture with a consideration of the elementary principles of fruit-growing, vegetable gardening, floriculture, landscape gardening, plant-breeding, plant-forcing, and plant propagation. BRIERLEY.
94. **HOME AND SCHOOL GARDENING.** Lectures and laboratory. A consideration of the elements of horticulture as applied to high-school in-

struction, plant propagation, fruit-growing, home gardening, school gardening, and the planning of home and school grounds. Same as Agr. Educ. 68. BRIERLEY, CADY, WELLINGTON, BUSHNELL, FIELD.

PLANT PATHOLOGY AND BOTANY

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
1	3	Plant Pathology	Jr.	Bot. 1 yr.
		Lect. 10:20-11:00 MTWThF	2Pp	Freeman
		Lab. 11:10-12:40 MTWThF	2Pp	Bisby
9	3	Weeds and Seed Testing.....	Soph., jr., sr.	Bot. 1
		10:20-12:40 MTWThFS	3-4Pp	Dahlberg

1. **PLANT PATHOLOGY.** Elementary study of plant diseases due to fungi, bacteria, and slime molds; life histories and preventive methods. Lecture, laboratory, and reference. FREEMAN, BISBY.
9. **WEEDS AND SEED TESTING.** Detailed study of seed-testing methods and seed legislation. Weed and crop seeds and weed plants studied with special reference to identification. DAHLBERG.

POULTRY HUSBANDRY

ANIMAL INDUSTRY GROUP

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
1	3	Poultry	All	None
		2:15-3:00 MTWThF and	39Dh	
		3:10-4:00 MWF	40Dh	Smith
*4	3	Incubating and Brooding.....	All	None
		12:00-12:40 MTWThFS	39Dh	Smith

1. **POULTRY.** A study of the poultry industry; best methods of care and management of fowls, turkeys, ducks, and geese, and the most important breeds of each. SMITH.
- *4. **INCUBATING AND BROODING.** Includes instruction and practice in incubation and brooding, selection of breeding stock and eggs for hatching, and feeding young chicks. Of practical value to teachers of agriculture and poultry raisers. SMITH.

RURAL AND AGRICULTURAL JOURNALISM

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
7s	3	Editorial Administration	All	Rhet. 1
		8:50-9:30 MTWThF	200Ad	Bing
13s	3	Reporting	All	Rhet. 1
		8:00-8:40 MTWThF	200Ad	Bing

* Requires practical poultry work each morning and evening.

78. EDITORIAL ADMINISTRATION. A course in rural newspaper management. Gathering and presentation of news, advertising and circulation problems, county correspondence, make-up, editorial policy, writing of editorials. Work made practical by laboratory work on a weekly University Farm publication. BING.
138. REPORTING. A course in writing for the press. Lectures, practice, and conference on work of reporter, correspondent, and contributor. Students given regular assignments to "cover" for a University publication and topics assigned for practice in writing newspaper or magazine articles. BING.

VETERINARY SCIENCE

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
5	1	Veterinary Bacteriology	Jr., sr.	None
		10:20-11:00 MWF	9Ve	Fitch
6	3	Veterinary Medicine	Jr.	None
		8:00-9:30 TWThF	9Ve	Reynolds
12	3	Common Diseases of Domestic Animals	Sr.	24
		2:15-4:00 TWThF	9Ve	Boyd

5. VETERINARY BACTERIOLOGY. Lecture and demonstration course in Veterinary Bacteriology, special emphasis being given to causes of infectious diseases of animals, also instruction in disease control measures and in preparation of vaccines, bacterins, serums, antitoxins. FITCH.
6. VETERINARY MEDICINE. Planned for students who can take only one semester of veterinary work. Includes preparatory work for the study of diseases; causes, prevention, diagnosis, and treatment of the common diseases including lameness and unsoundness; and common medicines. REYNOLDS.
12. COMMON DISEASES OF DOMESTIC ANIMALS. Planned as an introductory course. Cause, diagnosis, prevention, and treatment of common diseases capable of easy diagnosis and either prevention or simple treatment. General principles of diagnosis, preparation, and administration of common medicines. BOYD.

LIST OF SUBJECTS OFFERED IN THE SUMMER SESSION

In the following table are indicated: (a) all the courses offered in the Summer Session; (b) the colleges whose students may elect the respective courses; (c) the pages where the information appropriate to each course may be found. For example:

Anatomy 3s, Gross Human Anatomy.....Med., S., L., & A..... 51

indicates that Anatomy 3s, whose descriptive title is Gross Human Anatomy, is open to students in the Medical School and the College of Science, Literature, and the Arts. Information concerning this course may be found on page 51.

Drawing and Descriptive Geometry 3s,
Descriptive DrawingEng., S., L., & A., Dent..... 43

indicates that Drawing and Descriptive Geometry 3s, whose descriptive title is Descriptive Drawing is open to students in the colleges of Engineering, Science, Literature, and the Arts, and Dentistry. Information concerning this course may be found on page 43.

Dent.—Dentistry.

Educ.—Education.

Eng.—Engineering.

Med.—Medicine.

S., L., & A.—Science, Literature, and the Arts.

<i>Subject</i>	<i>Offered to</i>	<i>Page</i>
Anatomy, see also Dental Anatomy.		
Anatomy 3s, Gross Human Anatomy.....	Med., S., L., & A.	51
Anatomy 4s, Gross Human Anatomy.....	Med., S., L., & A.	51
Anatomy 6s, Gross Anatomy.....	Dentistry	51
Anatomy 7s, Histology and Embryology.....	Dentistry	51
Anatomy 101s, Human Histology.....	Med., S., L., & A.	51
Anatomy 102s, Human Embryology.....	Med., S., L., & A.	51
Anatomy 103s, Human Neurology.....	Med., S., L., & A.	51
Anatomy 119s, Special Dissections.....	Med.	51
Anatomy 124s, Advanced Anatomy.....	Med.	51
Anatomy 202s, Research in Anatomy.....	Med.	51
Animal Biology 1s, General Zoology.....	S., L., & A., Educ., Dent.	13
Animal Biology 2s, General Zoology (cont. of Course 3s).....	S., L., & A., Educ., Dent.	13
Astronomy 11s, Descriptive Astronomy.....	S., L., & A., Educ.	13
Astronomy 62s, Elements of Practical Astronomy.....	S., L., & A., Educ.	13
Bacteriology, see Pathology and Bacteriology, page 53.		
Biology, see Animal Biology, page 13.		
Botany 1s, General Botany.....	S., L., & A., Educ.	14
Botany 2s, General Botany.....	S., L., & A., Educ.	14
Botany 123s, Taxonomy and Morphology of Fresh-Water Algae	S., L., & A., Educ.	14
Chemistry 1s, General Chemistry.....	S., L., & A., Educ.	14

OUTLINE OF COURSES

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<i>Subject</i>	<i>Offered to</i>	<i>Page</i>
Chemistry 3s, Adv. Gen. and Qual. Anal.	S., L., & A., Educ., Dent.	14
Chemistry 4s, Adv. Gen. and Qual. Anal. (cont. of Course 3s).....	S., L., & A., Educ., Dent.	14
Chemistry 13s, Organic Chemistry.....	S., L., & A., Med.	14
Chemistry 20s, Teachers' Course in Chemistry....	S., L., & A., Educ.	14
Crown and Bridge Work 1s, Crown and Bridge Technique	Dent.	48
Crown and Bridge Work 2s, Crown and Bridge Technique (cont. of Course 1s).....	Dent.	48
Crown and Bridge Work 3s, Crown and Bridge Practice	Dent.	48
Crown and Bridge Work 4s, Crown and Bridge Practice (cont. of Course 3s).....	Dent.	48
Dental Anatomy 1s, Dental Anatomy.....	Dent.	46
Dental Anatomy 2s, Dental Anatomy.....	Dent.	46
Dental Anatomy 3s, Dental Anatomy (cont. of Course 1s)	Dent.	46
Dental Prosthesis 1s, Prosthetic Technique.....	Dent.	47
Dental Prosthesis 2s, Prosthetic Technique (cont. of Course 1s).....	Dent.	47
Dental Prosthesis 3s, Prosthetic Technique.....	Dent.	47
Dental Prosthesis 4s, Prosthetic Practice.....	Dent.	47
Dental Prosthesis 5s, Prosthetic Practice.....	Dent.	47
Dental Prosthesis 6s, Prosthetic Practice (cont. of Course 5s).....	Dent.	47
Dental Prosthesis 7s, Prosthetic Practice.....	Dent.	47
Dental Prosthesis 8s, Prosthetic Practice (cont. of Course 7s).....	Dent.	47
Drawing and Descriptive Geometry 1s, Engi- neering Drawing	Eng.	43
Drawing and Descriptive Geometry 2s, Engi- neering Drawing (cont. of Course 1s).....	Eng.	43
Drawing and Descriptive Geometry 3s, Descrip- tive Drawing	Eng., S., L., & A., Dent.	43
Drawing and Descriptive Geometry 4s, Descrip- tive Drawing	Eng., S., L., & A., Dent.	43
Drawing and Descriptive Geometry 5s, Graphics for Civil Engineers	Eng.	43
Drawing and Descriptive Geometry 7s, Graphics for Mechanical and Electrical Engineers.....	Eng.	43
Economics 3s, Principles of Economics.....	S., L., & A., Educ.	16
Economics 4s, Economic Problems.....	S., L., & A., Educ.	16
Economics 37s, Marketing of Products.....	S., L., & A., Educ.	16
Economics 192s, State and Local Taxation.....	S., L., & A., Educ.	16
Education 3as, Social Aspects of Education.....	Educ., S., L., & A.	36
Education 11s, Technique of Teaching.....	Educ., S., L., & A.	36
Education 24s, Nature Study.....	Educ., S., L., & A.	36
Education Vs-25, Organization and Supervision of Vocational Education	Educ.	40
Education Vs-26, Industrial History.....	Educ.	40
Education Vs-27, Trade Mathematics.....	Educ.	40
Education Vs-28, Applied Science.....	Educ.	40
Education Vs-29, Trade Drawing.....	Educ.	40
Education Vs-30, Drawing and Design for Printers	Educ.	40
Education Vs-31, Psychology of Trade Education.....	Educ.	36, 40
Education 102s, History of Education from the Renaissance	Educ., S., L., & A.	36

<i>Subject</i>	<i>Offered to</i>	<i>Page</i>
Education 109s, Educational Diagnosis.....	Educ., S., L., & A.	36
Education 110s, Psychology of Secondary School Subjects	Educ., S., L., & A.	36
Education 119s, School Curricula.....	Educ., S., L., & A.	36
Education 121s, School Organization and Ad- ministration	Educ., S., L., & A.	36
Education 124s, Educational Administration.....	Educ., S., L., & A.	36
Education 141s, School Sanitation and Public Health	Educ., S., L., & A.	36
Education 146s, History of Religious Education...	Educ., S., L., & A.	36
Education 207s, Seminar in the American School.	Educ.	36
For methods courses, see individual departments concerned.		
Engineering Shop Work and Manual Training 1as, Engineering Shop Work.....	Eng., Educ.	44
Engineering Shop Work and Manual Training 1bs, Foundry Practice	Eng., Educ.	44
Engineering Shop Work and Manual Training 2as, Teachers' Course in Wood Work.....	Eng., Educ.	44
Engineering Shop Work and Manual Training 2bs, Teachers' Course in Wood Work.....	Eng., Educ.	44
Engineering Shop Work and Manual Training 3s, Machine Work.....	Eng., Educ.	44
Engineering Shop Work and Manual Training 4s, Teachers' Course in Metal Work.....	Eng., Educ.	44
English 1as, General Survey of English Litera- ture (to the end of the fifteenth century)....	S., L., & A., Educ.	16
English 1bs, General Survey of English Litera- ture (from the beginning of the sixteenth century to Bunyan).....	S., L., & A., Educ.	16
English 2as, General Survey of English Litera- ture (from Dryden to Dr. Johnson).....	S., L., & A., Educ.	16
English 2bs, General Survey of English Litera- ture (from Burns to the end of the Roman- tic period)	S., L., & A., Educ.	16
English 5s, Chaucer.....	S., L., & A., Educ.	16
English 7s, Shakespeare.....	S., L., & A., Educ.	16
English 8os, Teachers' Course in English and Rhetoric	S., L., & A., Educ.	17, 36
English 105s, Eighteenth Century Poetry.....	S., L., & A., Educ.	17
English 108s, The Romantic Movement.....	S., L., & A., Educ.	17
Food Conservation 1s, Food and the War.....	S., L., & A., Educ.	33
Food Conservation 2s, Fundamentals of Food and Nutrition in Relation to the War.....	S., L., & A., Educ.	33
Food Conservation 3s, Laboratory Course in Use and Conservation of Foods.....	S., L., & A., Educ.	33
French, see Romance Languages, pages 30 and 31.		
Geology 29s, Physiography.....	S., L., & A., Educ.	18
Geology 30s, Principles of Geography.....	S., L., & A., Educ.	18
German 1s, Elementary Course.....	S., L., & A., Educ.	18
German 21s, Scientific German.....	S., L., & A., Educ.	18
German 53s, Classic Period.....	S., L., & A., Educ.	19
German 60s, Teachers' Course in German.....	S., L., & A., Educ.	19
German 120s, The Drama of Schiller.....	S., L., & A., Educ.	19
German 132s, Die Novelle.....	S., L., & A., Educ.	19
Greek 1s or 2s, First Year Greek.....	S., L., & A., Educ.	19
Greek 61s, The Greek Drama.....	S., L., & A., Educ.	19
Greek 62s, Greek Literature and Life.....	S., L., & A., Educ.	19
Greek 63s, Greek Mythology.....	S., L., & A., Educ.	19

OUTLINE OF COURSES

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<i>Subject</i>	<i>Offered to</i>	<i>Page</i>
History 2s, Modern Europe.....	S., L., & A., Educ.	20
History 4s, Modern England from the Seven- teenth Century to the Present.....	S., L., & A., Educ.	20
History 6s, History of the United States from 1789-1876	S., L., & A., Educ.	20
History 56s, Teachers' Course in History and Government	S., L., & A., Educ.	20
History 62s, Recent History of the United States (after 1872)	S., L., & A., Educ.	21
History 137s, English Constitutional History, 1603-1914	S., L., & A., Educ.	21
History 206s, Selected Topics in American His- tory	S., L., & A., Educ.	21
History 210s, Selected Problems in English His- tory	S., L., & A., Educ.	21
Latin 53s, Beginning Latin—Direct Method.....	S., L., & A., Educ.	22
Latin 55s, Second and following years—Direct Method	S., L., & A., Educ.	22
Latin 102s, Advanced Virgil.....	S., L., & A., Educ.	22
Library Training, see page 42.		
Manual Training 11s, The Teaching and Super- vision of Manual Training.....	Educ.	38
See also, page 44.		
Mathematics 1s, Higher Algebra, Part I.....	S., L., & A., Educ.	22
Mathematics 3s, Higher Algebra, Part II.....	S., L., & A., Educ.	23
Mathematics 4s, Trigonometry.....	S., L., & A., Educ.	23
Mathematics 6s, Solid Geometry.....	S., L., & A., Educ., Eng.	23, 45
Mathematics 7s, Plane Analytical Geometry.....	S., L., & A., Educ.	23
Mathematics 11s, Differential Calculus.....	S., L., & A., Educ.	23
Mathematics 51s, Integral Calculus.....	S., L., & A., Educ.	23
Mathematics 54s, Teachers' Course in Second- ary Mathematics	S., L., & A., Educ.	23, 36
See also Education Vs-27, Trade Mathematics, page 40.		
Mathematics 72s, Analytical Geometry and Cal- culus	Eng.	45
Mathematics 74s, Integral Calculus.....	Eng.	45
Mathematics 127s, Infinite Series.....	S., L., & A., Educ.	23
Music 1s-2s, Harmony.....	S., L., & A., Educ.	25
Music 15s-16s, Pianoforte.....	S., L., & A., Educ.	25
Music 19s, Violin.....	S., L., & A., Educ.	25
Music 21s-22s, Voice Culture.....	S., L., & A., Educ.	25
Music 27s-28s, Public School Music.....	S., L., & A., Educ.	25, 36
Music 29s-30s, Normal Piano.....	S., L., & A., Educ.	25
Operative Dentistry 2s, Operative Technique.....	Dent.	48
Operative Dentistry 3s, Operative Practice.....	Dent.	48
Operative Dentistry 4s, Operative Practice.....	Dent.	48
Operative Dentistry 5s, Operative Practice (cont. of Course 3s).....	Dent.	48
Operative Dentistry 6s, Operative Practice.....	Dent.	48
Oral Surgery 1s, Oral Surgery Practice.....	Dent.	49
Oral Surgery 2s, Oral Surgery (cont. of Course 1)	Dent.	49
Orthodontia 2s, Orthodontia Technique.....	Dent.	47
Orthodontia 3s, Orthodontia Practice.....	Dent.	47
Orthodontia 4s, Orthodontia Practice (cont. of Course 3s)	Dent.	47
Pathology and Bacteriology 101s, General Pathology	Med.	53

<i>Subject</i>	<i>Offered to</i>	<i>Page</i>
Pathology and Bacteriology 103s, Clinical		
Pathology	Med.	53
Pathology and Bacteriology 104s, General		
Bacteriology	Med.	53
Pathology and Bacteriology 111s, Autopsies	Med.	53
Pathology and Bacteriology 204s, Research	Med.	53
Pathology and Bacteriology, Special Clinical		
Pathology for Nurses		53
Pharmacology 104s, Experimental Pharmacology	Med.	52
Pharmacology 105s, General Pharmacology	Med.	52
Pharmacology 109s, Electives in Pharmacology	Med.	52
Pharmacology 110s, Toxicology	Med.	52
Pharmacology 111s, Prescription Writing	Med.	52
Philosophy 20s, Present Day Philosophy	S., L., & A., Educ.	25
Physical Education for Women 1s, Gymnastics, Games and Folk Dancing for Elementary Children	S., L., & A., Educ.	26
Physical Education for Women 2s, Gymnastics, Games, and Folk Dancing for Secondary Children	S., L., & A., Educ.	26
Physical Education for Women 3s, Beginning and Advanced Swimming	S., L., & A., Educ.	26
Physical Education for Women 4s, General Swimming	S., L., & A., Educ.	26
Physics 7s, General Physics	S., L., & A., Educ., Eng.	26
Physics 8s, General Physics	S., L., & A., Educ., Eng.	26
Physics 9s, General Laboratory Practice	S., L., & A., Educ., Eng.	26
Physics 10s, General Laboratory Practice	S., L., & A., Educ., Eng.	26
Physiology 3s, Elementary Physiology	S., L., & A., Educ.	54
Physiology 4s, Elementary Physiology	Dent.	54
Physiology 6s, Elementary Physiologic Chemistry	Dent., S., L., & A.	54
Physiology 102s, Physiologic Chemistry	Med., S., L., & A.	54
Physiology 103s, Physiology of Cells, Muscle, and Nerve, Blood, Circulation, and Digestion	Med., S., L., & A.	54
Physiology 104s, Physiology of Respiration, Ner- vous System, and Special Senses; Secretion and Metabolism	Med., S., L., & A.	54
Physiology 113s, Advanced Physiology	Med., S., L., & A.	54
Physiology 153s, Advanced Physiologic Chem- istry	Med., S., L., & A.	54
Physiology 203s, Research in Physiology	Med.	54
Physiology 205s, Research in Physiologic Chem- istry	Med.	54
Political Science 1s, American Government	S., L., & A., Educ.	27
Political Science 6s, American Municipal Ad- ministration	S., L., & A., Educ.	27
Political Science 51s, Business Law	S., L., & A., Educ.	27
Political Science 56s, Teachers' Course	S., L., & A., Educ.	27
Political Science 112s, World Politics	S., L., & A., Educ.	27
Psychology 1s, General Psychology	S., L., & A.	28
Psychology 18s, Child Development	S., L., & A., Educ.	28
Rhetoric and Public Speaking 1s, (Double course) Composition and Rhetoric	S., L., & A., Educ.	29
Rhetoric and Public Speaking 2s, (Double course) Composition and Rhetoric	S., L., & A., Educ.	29
Rhetoric and Public Speaking 11s, (Single course) Exposition	S., L., & A., Educ.	29

OUTLINE OF COURSES

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<i>Subject</i>	<i>Offered to</i>	<i>Page</i>
Rhetoric and Public Speaking 12s (Double course) Narration and Description.....	S., L., & A., Educ.	29
Rhetoric and Public Speaking 42s (Double course) Public Speaking.....	S., L., & A., Educ.	29
Rhetoric and Public Speaking 80s, Teachers' Course in English and Rhetoric.....	S., L., & A., Educ.	29
Rhetoric and Public Speaking 81s, (Single course) Interpretative Reading	S., L., & A., Educ.	29
Rhetoric and Public Speaking 110s, (Single course) The Technique of the Short Story.....	S., L., & A., Educ.	29
Rhetoric and Public Speaking 111s, Essay Writing	S., L., & A., Educ.	29
Romance Languages 1s, Beginning Course in French	S., L., & A., Educ.	30
Romance Languages 3s, Intermediate Course in French	S., L., & A., Educ.	31
Romance Languages 31s, Beginning Course in Spanish	S., L., & A., Educ.	31
Romance Languages 35s, Intermediate Course in Spanish	S., L., & A., Educ.	31
Romance Languages 111s, Research in Romance Languages	S., L., & A., Educ.	31
Shop Work, see Engineering Shop Work and Manual Training, page 44.		
Sociology and Social Work 1s, Introduction to Sociology and Anthropology.....	S., L., & A., Educ.	32
Sociology and Social Work 14s, Rural Sociology.....	S., L., & A., Educ.	32
Sociology and Social Work 51s, Treatment of Dependents and Defectives.....	S., L., & A., Educ.	32
Sociology and Social Work 52s, Special Institute on Child Welfare in War Time.....	S., L., & A., Educ.	32
Sociology and Social Work 55s, Social and Economic Aspects of Housing and City Planning	S., L., & A., Educ.	32
Sociology and Social Work 100s, Individual Research Problems in Sociology and Social Work	S., L., & A., Educ.	32
Sociology and Social Work 106s, Special Institute on Thought Currents in Modern Social Work	S., L., & A., Educ.	32
Sociology and Social Work 119s, Special Institute on Problems of the Modern Family.....	S., L., & A., Educ.	32
Sociology and Social Work 120s, Social Progress.....	S., L., & A., Educ.	32
Sociology and Social Work 130s, Special Institute on Case Work with Needy Families.....	S., L., & A., Educ.	32
Sociology and Social Work 133s, Field Work in Hospital Social Service.....	S., L., & A., Educ.	32
Spanish, see Romance Languages, pages 30 and 31.		
Special Methods of Teaching High-School Subjects, see page 39, and individual departments.		
Zoology, see Animal Biology, page 13.		

For separate lists of subjects for which graduate credit is given, see pages 56-58.

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

Department of Agriculture
Summer Session
June 17 to July 26
1918

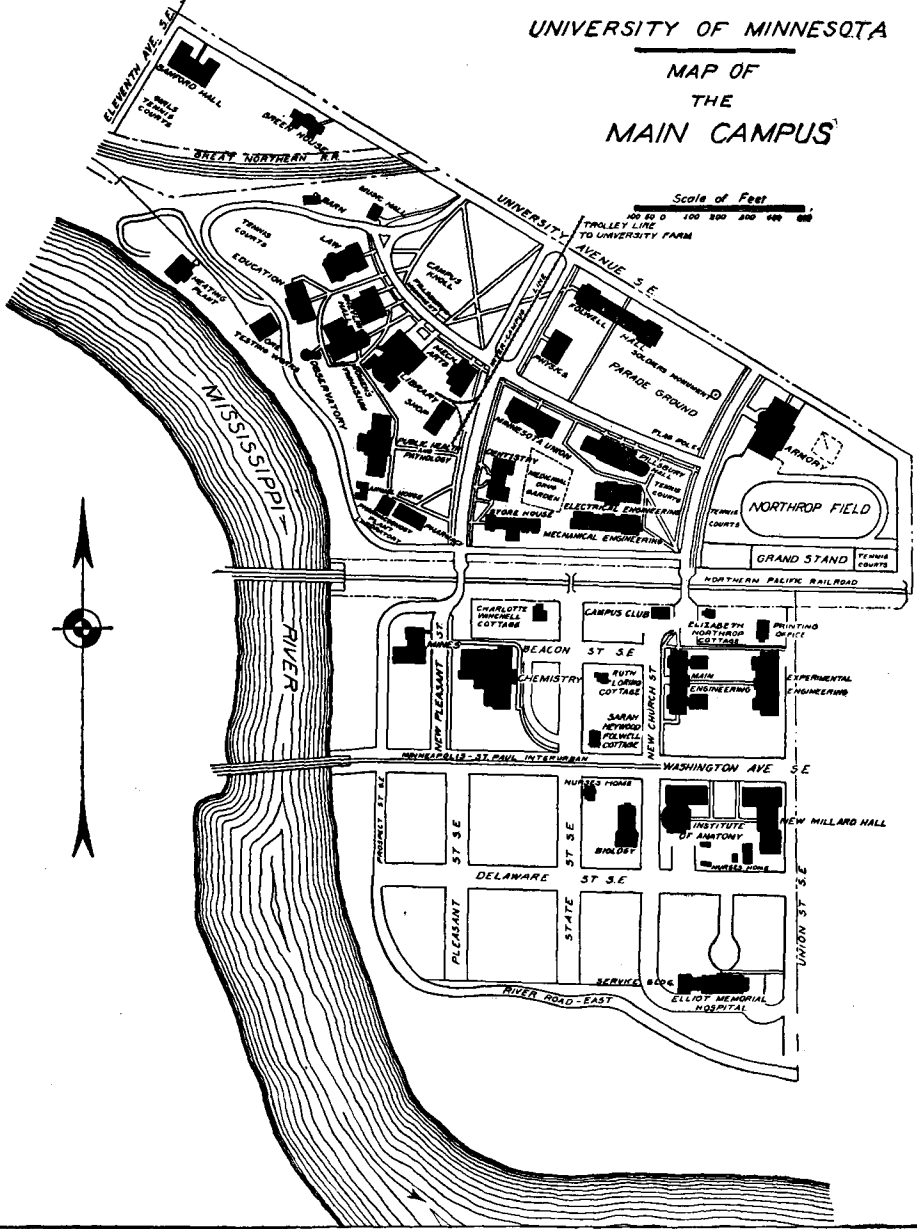


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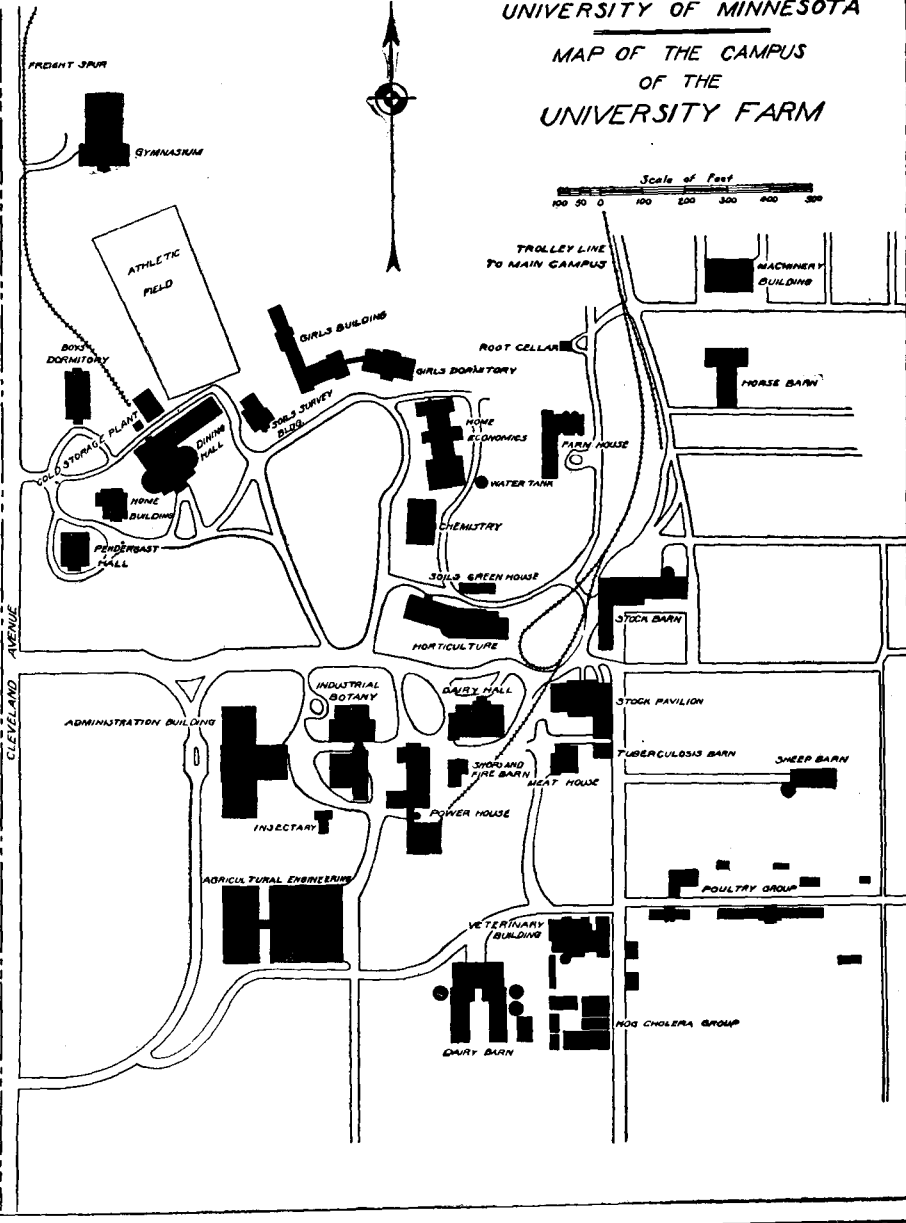
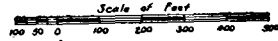
UNIVERSITY OF MINNESOTA

MAP OF
THE
MAIN CAMPUS



Area of Main Campus, 108.5 acres

UNIVERSITY OF MINNESOTA
 MAP OF THE CAMPUS
 OF THE
 UNIVERSITY FARM



Area of University Farm, 422.56 acres

UNIVERSITY OF MINNESOTA
DEPARTMENT OF AGRICULTURE

OFFICERS OF ADMINISTRATION

MARION LEROY BURTON, Ph.D., D.D., LL.D., President

ROSCOE W. THATCHER, M.A., Dean and Director, Department of Agriculture

EDWARD M. FREEMAN, Ph.D., Dean, College of Agriculture, Forestry, and Home Economics

ASHLEY V. STORM, M.A., Director of Short Courses

RODNEY M. WEST, B.A., Secretary

SUMMER SESSION

DEPARTMENT OF AGRICULTURE

FACULTY

- MARION LEROY BURTON, Ph.D., D.D., LL.D., President
1005 5th St. S. E., Minneapolis
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1511 Chelmsford St., St. Paul
- ANDREW BOSS, Professor of Agronomy and Farm Management
1443 Raymond Ave., St. Paul
- WILFRID G. BRIERLEY, M.S., Associate Professor of Horticulture
2128 Knapp St., St. Paul
- LEROY CADY, B.S. in Agr., Associate Professor of Horticulture
2121 Doswell Ave., St. Paul
- SYLVIA CAMPIGLIA, B.S., Assistant Professor of Textiles and Clothing
2328 Priscilla St., St. Paul
- R. ADAMS DUTCHER, M.S., M.A., Assistant Professor of Agricultural Bio-
chemistry
2237 Knapp St., St. Paul
- ALICE L. EDWARDS, M.A., Assistant Professor of Nutrition
2101 Knapp St., St. Paul
- ALBERT M. FIELD, M.S., Assistant Professor of Agricultural Education
2089 Carter Ave., St. Paul
- CLIFFORD P. FITCH, M.S., D.V.M., Professor of Veterinary Medicine
1346 Raymond Ave., St. Paul
- EDWARD M. FREEMAN, Ph.D., Professor of Botany and Plant Pathology
2196 Carter Ave., St. Paul
- CARL W. GAY, D.V.M., B.S.A., Professor of Animal Husbandry
1386 Chelmsford St., St. Paul
- BUEFORD M. GILE, B.S., Assistant Professor of Agricultural Education
2309 Priscilla St., St. Paul
- HARRIETT I. GOLDSTEIN, Assistant Professor of Drawing and Design
2208 Priscilla St., St. Paul

- HENRY H. KILDEE, M.S.A., Professor of Dairy Husbandry
2291 Doswell Ave., St. Paul
- DEXTER D. MAYNE, Professor of Agricultural Pedagogics
1403 Cleveland Ave., St. Paul
- JOSEPH S. MONTGOMERY, B.S. in Agr., Assistant Professor of Animal
Husbandry 1403 Chelmsford St., St. Paul
- CLARENCE A. MORROW, M.A., Assistant Professor of Agricultural Bio-
chemistry 2215 Doswell Ave., St. Paul
- OSCAR W. OESTLUND, Ph.D., Assistant Professor of Animal Biology
516 Beacon St. S. E., Minneapolis
- STELLA PALMER, M.S., Assistant Professor of Foods and Cookery
2251 Langford Ave., St. Paul
- MYRON H. REYNOLDS, B.S.A., D.V.M., M.D., Professor of Veterinary
Medicine 2145 Knapp St., St. Paul
- WILLIAM A. RILEY, Ph.D., Professor of Entomology
- ARTHUR C. SMITH, B.S., Professor of Poultry Husbandry
2271 Commonwealth Ave., St. Paul
- ROBERT M. WASHBURN, M.S. in Agr., Professor of Dairy Husbandry
2122 Knapp St., St. Paul
- G. EARL WEAVER, M.S.A., Assistant Professor of Dairy Husbandry
1437 Cleveland Ave., St. Paul
- MILDRED WEIGLEY, B.S., Assistant Professor of Foods and Cookery
2176 Scudder Ave., St. Paul
- MARION WELLER, B.A., Assistant Professor of Textiles
2176 Scudder Ave., St. Paul
- RICHARD WELLINGTON, M.S., Assistant Professor of Horticulture
2214 Scudder Ave., St. Paul
- PHILIP A. ANDERSON, B.S., Instructor in Animal Husbandry
1206 5th St. S. E., Minneapolis
- PERCY B. BARKER, M.S., Instructor in Agricultural Education
512 Delaware St. S. E., Minneapolis
- GUY R. BISBY, B.S., M.A., Instructor in Plant Pathology
2309 Priscilla St., St. Paul
- JOHN W. BUSHNELL, B.S., Assistant in Horticulture
University Farm, St. Paul
- NORTON E. CHAPMAN, M.A., Lecturer and Assistant Professor of Poultry
Husbandry 2316 Pierce Ave., St. Paul
- ROBERT C. DAHLBERG, B.S. in Agr., Instructor in Agricultural Botany
1521 Branston St., St. Paul
- JAMES M. DREW, Assistant 1307 Chelmsford St., St. Paul
- WILLIAM P. DYER, B.A., Instructor in Agricultural Education
2170 Doswell Ave., St. Paul
- THEODORE A. ERICKSON, B.A., Rural School Specialist
1366 Raymond Ave., St. Paul

FACULTY

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- LLOYD V. FRANCE, M.S. in Agr., Instructor in Beekeeping
1459 Hythe St., St. Paul
- EDWIN O. HANSON, Instructor in Dairy Husbandry
1427 Hythe St., St. Paul
- ALLEN D. JOHNSTON, Instructor in Blacksmithing
2111 Knapp St., St. Paul
- ELIZABETH VERMILYE, B.A., Instructor in Foods and Cookery
2116 Knapp St., St. Paul
- HALL B. WHITE, B.S. in Agr., Instructor in Carpentry
1426 Raymond Ave., St. Paul

GENERAL INFORMATION

The work of the Land Grant Colleges of the United States is now finding expression in three great fields of educational activity, viz., Instruction, Experimentation, and Extension.

Two of these, Experimentation and Extension, are serving the people throughout the entire year, and the conviction is growing that the great plant, equipment, organization, and faculty of these institutions should likewise be utilized for instruction during more than the nine months of the college year.

In response to this demand the Summer Session is established in order that the field plots, orchards, livestock, libraries, laboratories, museums, shops, machinery, classrooms, instruction, and other facilities used by regular college students shall be available to those who for any reason find it more convenient to attend during the summer months.

The work offered seeks to meet the needs of graduates of arts colleges and normal schools, teachers of secondary schools, principals of schools (especially of consolidated schools), superintendents of schools, and others who desire courses in Agriculture or Home Economics, and who wish to obtain therefor college credit, as well as to meet the needs of students seeking to complete the undergraduate college work.

The work also furnishes an opportunity for graduates of other colleges of agriculture to improve their knowledge of Minnesota agriculture, preparatory to teaching in this state.

The Summer Training School held at the same time and mentioned elsewhere in this bulletin, adds to the session features of great value.

COURSES AND CREDITS

The courses offered are selected from those offered during the regular college year, in which the same amount of work will be done and for which the same credit will be given.

As the Summer Session (six weeks) is one third the length of a regular college semester (eighteen weeks), the number of recitations and amount of work per week for each credit hour will be approximately *three times that required each week during the college year*. Sixteen hours per week constitute standard work and gives six semester-hour credits.

FACULTY

The Summer Session faculty will consist of members of the regular college faculty aided by specialists from other institutions who are of known efficiency in their fields of labor.

COURSES OFFERED

Preparations have been made to offer such of the following courses as are applied for by a sufficient number of students, six regular students being the minimum.

- Agronomy and Farm Management 1, Farm Crops I
Agronomy and Farm Management 102, Farm Management II
Agronomy and Farm Management 104, Grain and Corn Judging
Agricultural Biochemistry 3, Types of Carbon Compounds
Agricultural Biochemistry 4, Chemistry of Plant and Animal Life
Agricultural Education 68, Home and School Gardening. Same as Hort. 94
Agricultural Education 131, Methods
Agricultural Education 151, Organization and Management
Agricultural Education 161, Fundamentals of Agriculture
Agricultural Education 162, Fundamentals of Agriculture
Agricultural Education 171, Extension Work
Agricultural Education 173, History of Agriculture
Agricultural Education 175, Visual Presentation
Bee Culture 6, Elements of Beekeeping
Bee Culture 7, Advanced Beekeeping
Animal Husbandry 1, Types and Breeds of Livestock
Animal Husbandry 4, Livestock Judging
Dairy Husbandry 4, Dairy Stock Judging
Dairy Husbandry 7, Elements of Dairy Husbandry
Dairy Husbandry 11, Milk and Its Products
Dairy Husbandry 12, Dairy Cattle Feeding
Economic Zoology 1, Introductory Entomology
Economic Zoology 9, Animal Parasites
Home Economics 3, Textiles
Home Economics 11, Garment Making
Home Economics 13, Dressmaking
Home Economics 17, Clothing Economics
Home Economics 21, Foods and Cookery
Home Economics 22, Food Economics
Home Economics 35, Home Management, Laboratory
Home Economics 42, Home Economics Education
Home Economics 51, Drawing and Design
Home Economics 103, Dietetics
Home Economics 105, Experimental Cookery
Horticulture 71, Landscape Gardening
Horticulture 90, General Horticulture
Horticulture 94, Home and School Gardening. Same as Agr. Educ. 68
Plant Pathology and Botany 1, Plant Pathology
Plant Pathology and Botany 9, Weeds and Seed Testing
Poultry Husbandry 1, Poultry
Poultry Husbandry 4, Incubating and Brooding
Rural and Agricultural Journalism 7s, Editorial Management
Rural and Agricultural Journalism 13s, Reporting
Veterinary Science 5, Veterinary Bacteriology
Veterinary Science 6, Veterinary Medicine
Veterinary Science 12, Common Diseases of Domestic Animals

FEES

A fee of \$5 is charged for registration. In addition, \$2 is charged for each credit hour for which the student registers and a further \$1.50 for each laboratory course.

A deposit of \$5 is also required to cover unusual breakage and safe return of apparatus and books. This deposit will be returned at the close of the session, less charges for breakage and losses. All fees are payable at the time of completing registration.

The registration fee (\$5) is not refunded under any conditions. Students cancelling their registration during the first week of the session may receive a pro rata refund of the credit hour and laboratory fees. Such refund shall not exceed five sixths of the amount paid on these items and must be approved by the Director of the Summer Session.

No refunds whatsoever shall be made to students who attend more than one week.

ADMISSION

The courses of the Summer Session are open to all mature men and women who are considered qualified to pursue the chosen work to advantage, but college credit will be given only when college entrance requirements have been fulfilled.

If you have not registered at the College of Agriculture heretofore and wish to receive college credit for work done in the Summer Session, you should send to the Secretary, on a suitable blank, a properly certified copy of your preparatory credits.

A blank for this purpose can be procured from the principal of your high school or from the Secretary, University Farm, St. Paul.

REGISTRATION

Saturday, June 15 and Monday, June 17, are regular registration days. Students may register on any preceding day after May 1. Students should complete registration and be ready for class work before 8 a.m. Tuesday, June 18. After Monday, June 17, students will register by special permission only.

LOCATION

From St. Paul or Minneapolis, take a Como-Harriet car. One fare (5 cents) takes you to Doswell Avenue. A short walk to the northeast brings you to the Administration Building, University Farm, where you register. If you wish to ride the entire distance, change at Eustis Avenue from the Como car to the inter-campus car, which takes you, for an additional fare, into the University Farm grounds. Walk west to the Administration Building, the third on your left. There are no inter-campus cars after 6 p.m., nor on Sundays or holidays.

Altho the school is located in the country and has all the advantages of the quiet and the fresh air of the country, yet it is close enough

to the Twin Cities to get all the benefits of these large centers. No more beautiful spot between the two cities could have been selected for such a school. Situated on picturesque hills, overlooking Midway and the two cities, the buildings are grouped conveniently about the undulating campus. Nature has done much to make this a beauty spot, and the landscape artist has added to the beauty by the arrangement of paths and the replacing of trees and shrubs with many varieties suited to the climate.

ACCOMMODATIONS

Those taking regular work at the Summer Session may obtain rooms in the dormitories. Rooms will be assigned at the time of registration. The dormitories contain a very few single rooms; other rooms are intended to accommodate two or three persons. The rooms are furnished with necessary bedding. A change of linen is made twice each week, and of towels every day. Students residing in the Twin Cities will not be given dormitory rooms. Those who do not expect to remain at the school for the entire six weeks should obtain rooms outside the dormitories. Good board and room may be obtained within a short distance from the school for \$6 per week and upward. Dormitories will be opened Saturday, June 15.

EXPENSES IN DORMITORIES

Room rent, use of bedding, and laundering of same; \$1.25 per week	\$7.50
Post-office box .....	.10
	<hr/>
Total	\$7.60

In addition to the above each student will be expected to pay, at the same time, the amount of his fees, according to the provisions on page 10. Entire amount to be paid in advance at time of registration.

In order to facilitate registration and to avoid delay and inconvenience to yourself, come prepared to pay your fees in cash or by bank draft, postal money order, or certified check drawn for the exact amount you are to pay. One issued for a larger amount will not be accepted for payment of fees. Travelers checks are recommended. They will be accepted as cash.

The cashier is not required to cash checks, drafts, or other negotiable papers and has a right to demand identification or guarantee, or to refuse payment. Bank drafts, post-office money orders, and certified checks are more easily negotiated than are personal checks.

A cafeteria with reasonable charges is maintained on the campus. Meals may be obtained during the day and until 9:00 p.m.

BAGGAGE

Baggage will be carried between either city and University Farm by the service section for a uniform charge of fifty cents for each piece.

Delivery will be made as promptly as the limited facilities of the section will permit. Those wishing special attention or quick delivery are advised to arrange with city express or transfer companies for delivery of their baggage and for the charges for the same. Students wishing to have their baggage handled by the service section should hand the checks in at the general service office, near the post-office, promptly after arrival so as to avoid, as far as possible, charges for storage.

MAIL

Mail for students may be sent to University Farm, St. Paul. Post-office boxes are assigned to all students and a charge of 10 cents made therefor. As soon as your post-office box has been assigned, notify your correspondents to put the number of your box on your mail. This will facilitate distribution and enable you to receive your mail more promptly.

LIBRARY

Good library facilities, including books, bulletins, reports, and papers on Agriculture and Home Economics, will be available to all students in the library, in the Administration Building.

EXCURSIONS

The vicinity of the Twin Cities abounds in objects of geologic and physiographic interest, such as rock formations, old river gorges, and glacial moraines; while the cities themselves, with their parks, lakes, buildings, libraries, and art galleries, afford students every opportunity for profitable use of their leisure hours.

The campus, in connection with the Experiment Station farms, gives the best of opportunity to study agricultural problems and to study nature.

THE ASSEMBLY HOUR

An assembly hour has been arranged for each day, from 9:30 to 10 a.m. At this time subjects of special interest will be considered. There will be short opening exercises, followed by lectures and talks by educators and other specialists.

Through the State Department of Education and the administrative officers of the training school, opportunity is given to hear a large number of people of state and national reputation. At least one such person will be present each day.

All students should be in attendance at Assembly during this period.

CONSULTATION

Opportunity will be given for conference with the members of the faculty on subjects of special interest to the individual students.

STATE TEACHERS' TRAINING SCHOOL

Beginning and closing at the same time as does the Summer Session of the College of Agriculture, Forestry, and Home Economics, will be held at the same place (University Farm, St. Paul) the State Teachers' Training School, wherein courses will be offered in methods of teaching and school organization and management; also review and credit work in subjects required for common school certificates and in non-college credit work in Agriculture, Manual Training, Home Economics, Drawing, and Music. For bulletin, address Secretary, University Farm, St. Paul.

For principals of consolidated schools.—Special non-college credit courses in Agriculture and other industrial subjects will be offered to those who have served, or who will serve next year, as principals of consolidated schools under the Holmberg Act. The courses will be progressive in character and will afford special opportunity for study, not only to those who will be in attendance for the first time, but also to those who have taken the course in previous summers. Meetings and conferences of consolidated school principals will be held from time to time to deal with problems peculiar to their work.

It will also be possible for principals of consolidated schools, or others taking work in the training school who are properly qualified, to carry courses for college credit.

ENTERTAINMENT

From time to time throughout the term, evening entertainments will be given in the assembly room for the special benefit of the members of the summer school.

PHYSICAL EXERCISES, PLAYS, AND GAMES

Experienced instructors will be in charge of the gymnasium, athletic field, and play grounds to teach and supervise the various activities in these directions. Classes and teams will be organized to suit the convenience of the members wishing to participate in gymnasium drill, tennis, baseball, volleyball, and many other sports and games.

PERIODICAL AND TEACHERS' HELPS ROOM

A room will be maintained at University Farm during the Summer Session where all may examine the various teachers' journals, books, appliances, and supplies and where purchases may be made if desired.

SWIMMING POOL

The swimming pool in the gymnasium will be open to the use of men and women during stated periods throughout each week for a very moderate fee to cover actual expenses. A skilled man will be in charge during the time the men are using the pool and a skilled woman will

be in attendance during those hours in which the use of the pool is devoted to the women.

SUMMER COURSES IN OTHER COLLEGES OF THE UNIVERSITY

From June 24 to August 2 the University of Minnesota also maintains on the Minneapolis Campus courses in the Colleges of Education, Medicine, Dentistry, Engineering, and Science, Literature, and the Arts. Those interested may obtain information from the Registrar, University of Minnesota, Minneapolis.

INFORMATION

For information regarding Summer Session of the College of Agriculture, Forestry, and Home Economics, address the Secretary, University Farm, St. Paul.

DESCRIPTION OF COURSES

Note.—Since there are only one third as many weeks in the Summer Session as in the regular semester, each course will require approximately three times as many hours per week as in a regular semester. One credit hour is equivalent to (1) 16 lecture or recitation periods requiring two hours of preparation each; (2) 32 periods of laboratory work requiring one-half hour of preparation each; or (3) 48 hours of laboratory work with no preparation.

KEY TO BUILDINGS, UNIVERSITY FARM

Ad—Administration Building
 Pp—Plant Pathology Building
 Ch—Chemistry Building
 Dh—Dairy Hall
 He—Home Economics Building
 Hr—Horticulture Building
 St—Stock Pavilion
 Ve—Veterinary Building

AGRICULTURAL BIOCHEMISTRY

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
3	3	Types of Carbon Compounds... 8:00-9:30 TWThF	Soph., jr. 201Ch	Chem. 1 yr. Morrow
4	3	Chemistry of Plant and Animal Life 8:00-9:30 TWThF	Soph. 251Ch	Chem. 1 yr. Dutcher

3. TYPES OF CARBON COMPOUNDS. An elementary study of the different groups of carbon compounds, with special reference to their relationships and their occurrence in plant and animal materials used as food. MORROW.
4. THE CHEMISTRY OF PLANT AND ANIMAL LIFE. The organic compounds commonly found in plant and animal tissues. The chemical changes during growth, harvesting, storage, and preparation for market. Factors affecting composition and changes therein. Utilization of farm by-products. DUTCHER.

AGRICULTURAL EDUCATION

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
68	3	Home and School Gardening... Lect. 1:20-2:05 MTWTh Lect. 2:15-3:00 TTh Lab. 2:15-4:00 MW	Jr., sr. 20Hr	None Brierley, Field, et al.

No.	Credits	Title	Offered to	Prerequisite courses
131	3	Methods in Teaching H. S. Agriculture	Sr. 317Ad	11 Field
		8:00-9:30 MTWThF		
151	3	Organization and Management.. 2:15-4:00	Sr. 317Ad	68 Dyer
		MTWThF		
*161	3	Fundamentals of Agriculture... Lect. 10:20-11:00	Jr., sr. 317Ad	None Mayne, Barker
		2:15-3:00		
		MTWThF		
*162	3	Fundamentals of Agriculture... Lect. 10:20-11:00	Jr., sr. 317Ad	None Mayne, Barker
		2:15-3:00		
		MTWThF		
171	3	Extension Work	Sr. 321Ad	None Barker
		3:10-4:50		
		MTWThF		
173	3	History of Agriculture..... 11:10-12:40	Soph., jr., sr. 307Ad	None Dyer
		MTWThF		
175	3	Visual Presentation	Jr., sr. 317Ad	None Field
		11:10-12:40		
		MTWThF		

* For the Summer Session of 1918 persons registering for 161 will take the first half of the course only, and as a substitute for the last half will take the first half of Course 162, receiving $1\frac{1}{2}$ credits for each half course taken, but both the first half of 161 and the first half of 162 must be taken before credit will be given for either.

68. HOME AND SCHOOL GARDENING. See Horticulture 94.

131. METHODS IN TEACHING HIGH SCHOOL AGRICULTURE. Fundamental elements of method in teaching as related to teaching agriculture in high schools. Organizing subject matter of daily work; selection and manipulation of devices. Classroom and laboratory method. Specific plans for teaching secondary agriculture. FIELD.

151. ORGANIZATION AND MANAGEMENT. Organization and management of work in secondary schools, particularly of Minnesota, with special reference to agricultural work, courses of study, programs, equipment, laboratory and class management, extension work, plots, and coördination of work. DYER.

161. FUNDAMENTALS OF AGRICULTURE. Essential for principals and superintendents of schools in which agriculture is taught, and valuable for students of other colleges whose time for agriculture is limited. Agricultural College experts will give work in their special fields. MAYNE, BARKER.

162. FUNDAMENTALS OF AGRICULTURE. Continuation of Course 161. Credit is given for either course separately, but there is no duplication of subject matter and both should be taken to obtain a fundamental knowledge of agriculture. MAYNE, BARKER.

171. 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 in Minnesota. BARKER.

173. HISTORY OF AGRICULTURE. A history of agricultural progress with special reference to the greater movements and to sources from which modern agriculture has received its most valuable acquisitions. Comparisons of our own agriculture with that of other countries. DYER.
175. VISUAL PRESENTATION. Designed to prepare persons for presenting materials by means of slides, films, charts, etc. Students assisted in assembling materials for their own use, and in acquiring skill and technique in preparation and operation of various mediums. FIELD.

AGRICULTURAL ENGINEERING

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
45	2	Blacksmithing	All	None
		2:15-4:50 MTWThF	20En	Johnston
*5	3	Carpentry	All	None
		Part I 2:15-4:50 MTWThF	48En	White
		Part II 10:20-12:40 MTWThF	48En	White

45. BLACKSMITHING. The management of forge and fire, and bending, shaping, and welding iron. Laboratory fee, \$1.50. JOHNSTON.

*5. CARPENTRY. The use of common carpentry tools and the methods of farm building construction. WHITE.

AGRONOMY AND FARM MANAGEMENT

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
1	3	Farm Crops I.....	Fr.	None
		8:00-9:30 MTWThF	307Ad	Army
102	3	Farm Management II.....	Sr.	1, Econ. 3
		8:00-8:40 WF, and		
		8:50-9:30 MTWThFS	321Ad	Boss
104	3	Grain and Corn Judging.....	Jr., sr.	1, Bot. 1 yr.
		10:20-12:40 MTWThFS	2Ad	Army

1. FARM CROPS I. An elementary study of the important field crops of the United States, with emphasis on those of local importance; distribution, economic importance, agricultural classifications, cultural methods, and principles of improvement. ARMY.

102. FARM MANAGEMENT II. A course in which the business side of farming is emphasized. Special attention is given to farm organization, equipment, and operation. BOSS.

* This course will be given in two parts, each earning 1½ credits, Part I being prerequisite for Part II. Both parts can not be taken the same Summer Session. Part I will contain elementary principles of woodworking, and care and use of tools, with exercises suitable for elementary work in consolidated schools. Part II will continue with cabinet work and carpentry suitable for advanced courses in consolidated schools.

104. **GRAIN AND CORN JUDGING.** A study in detail of representative samples of the leading varieties of grains, and corn and grass seeds, with score card practice in comparative judging of grain, corn, and grass seed. ARMY.

ANIMAL HUSBANDRY
ANIMAL INDUSTRY GROUP
COURSES

No.	Credits	Title	Offered to	Prerequisite courses
1	3	Types and Breeds of Livestock. 10:20-11:00 MTWThFS and 11:10-12:40 MTWThF	Fr., soph. St	None Gay, Anderson
*4	1½	Livestock Judging 8:00-9:30 MTWThFS	Soph., jr. St	1 Montgomery

1. **BREEDS AND TYPES OF LIVESTOCK.** The types as related to performance or production in horses, beef cattle, sheep, and swine, and the origin, history, characteristics, and economic importance of the breeds, classified according to type. GAY, ANDERSON.

- *4. **LIVESTOCK JUDGING.** Practice in judging breeding classes of horses, beef cattle, sheep, and swine. Placings and reasons are submitted, followed by a general discussion with the instructor. MONTGOMERY.

BEE CULTURE
COURSES

No.	Credits	Title	Offered to	Prerequisite courses
6	3	Elements of Beekeeping..... 8:00-9:30 MTWThF	Jr., sr. 1Pp	None France
7	3	Advanced Beekeeping 10:20-11:50 MTWThF	Jr., sr. 1Pp	6 France

6. **ELEMENTS OF BEEKEEPING.** Elementary study of queens, drones, and workers, hives and appliances, handling of bees, spring, summer, winter management, swarming and increase, honey and wax production, feeding, and bee diseases. FRANCE.

7. **ADVANCED BEEKEEPING.** Anatomy of the bee, queen rearing, commercial production of honey, out-apiaries, accounting, and marketing. FRANCE.

DAIRY HUSBANDRY
ANIMAL INDUSTRY GROUP
COURSES

No.	Credits	Title	Offered to	Prerequisite courses
†4	1½	Dairy Stock Judging..... 8:00-9:30 MTWThFS	Soph., jr. Db	7 Kildee, Weaver

* Given last three weeks of Summer Session.

† Given first three weeks of Summer Session.

DESCRIPTION OF COURSES

No.	Credits	Title	Offered to	Prerequisite courses
7	3	Elements of Dairy Husbandry.. 10:20-11:50 MTWThFS	Fr. 39Dh	None Washburn, Hanson, Weaver
11	3	Milk and Its Products..... 8:00-9:30 MTWThFS	Soph., jr. 39Dh	7 Washburn, Hanson
12	1	Dairy Cattle Feeding..... 2:15-3:00 MWF	Jr., sr. 39Dh	Nutr. 1, or parallel Kildee, Weaver

- *4. DAIRY STOCK JUDGING. Practice work in judging animals of the leading dairy breeds. Herds in the vicinity of the Twin Cities are visited. KILDEE, WEAVER.
- 7. ELEMENTS OF DAIRY HUSBANDRY. Origin, characteristics, and adaptation of the dairy breeds of cows; particular attention is given to feeding, followed by the study of the chemical and physical constituents of milk. Practice work in butter making, and milk testing required. Laboratory fee, \$1.50. WASHBURN, HANSON, WEAVER.
- 11. MILK AND ITS PRODUCTS. Milk secretion, composition, properties, variation, and testing. Cream separation, testing, care, methods of marketing. Butter, cheese, and ice-cream making. Market milk handling, standardizing, clarifying, pasteurizing, bottling, and marketing. Laboratory fee, \$1.50. WASHBURN, HANSON.
- 12. DAIRY CATTLE FEEDING. Characteristics and relative merits of concentrates, roughages and succulent feeds for efficient and economical production. Not open to those who have completed Course 2. KILDEE, WEAVER.

ENTOMOLOGY AND ECONOMIC ZOOLOGY

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
1	3	Introductory Entomology Lec. and Lab. 2:15-5:15 MTWTh	Soph., jr. 306Ad	An. Biol. 3-4, or equiv. Oestlund
9	3	Animal Parasites Lec. and Lab. 2:15-5:15 MTWTh	Jr., sr. 307Ad	An. Biol. 3-4, or equiv. Riley

- 1. INTRODUCTORY ENTOMOLOGY. Lectures, laboratory, and field work on the characteristics and habits of insects. Introductory to Course 2, Economic Entomology, and required of all students planning to specialize in Entomology. OESTLUND.
- 9. ANIMAL PARASITES. A study of the more common animal parasites of man and domestic animals, and of methods of avoidance and control. Additional advanced work for those prepared to undertake it. RILEY.

* Given first three weeks of Summer Session.

HOME ECONOMICS

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
3	3	Textiles	Fr.	None
		8:00-9:30 MTWThFS	305He	Weller
11	3	Garment Making	Fr.	None
		2:15-4:50 MTWThF	304He	Campiglia
13	3	Dressmaking	Jr.	3, 11
		10:20-12:40 MTWThFS	304He	Campiglia
		2:15-4:50 MTWThF	309He	
17	3	Clothing Economics	Sr.	13, 53
		10:20-12:40 MTWThFS	305He	Weller
21	3	Foods and Cookery.....	Soph.	H. S. Do. Sci. 1 unit; Chem. 3 or 33; Physiol. 3, parallel
		8:00-9:30 MTWThFS	209He	Vermilye
22	3	Food Economics	Soph.	21
		2:15-4:50 MTWThF	207He	Palmer
35	3	Home Management—Laboratory.	Sr.	22
				Vermilye, Edwards
42	3	Home Economics Education....	Jr.	22, Psychol. 5b
		2:15-3:00 MTWThF	213He	Weigley
51	3	Drawing and Design.....	Fr.	None
		2:15-4:50 MTWThF	313He	Goldstein
103	3	Dietetics	Sr.	102
		10:20-12:40 MTWThFS	207He	Edwards
105	3	Experimental Cooking	Jr., sr.	101
		8:00-9:30 MTWThFS	207He	Weigley

3. **TEXTILES.** A study of textile fibers, their structure, properties, and chemical reactions; of fabrics, their structure and processes of manufacture; of art and economic considerations in selection and purchase of materials for clothing and household furnishing. **WELLER.**
11. **GARMENT MAKING.** Instruction and laboratory practice in hand sewing; reading and adaptation of commercial patterns; construction and use of the sewing machine; designing, cutting; and making simple outer garments from washable materials. **CAMPIGLIA.**
13. **DRESSMAKING.** Consideration of quality, suitability, and cost of materials adapted to technique involved in construction of simple wool and silk dresses; adaptation of art principles in selection of designs; instruction and practice in methods of construction. **CAMPIGLIA.**
17. **CLOTHING ECONOMICS.** General consideration of economic function of woman; history of woman's place in home and industry with reference to clothing and textiles; study of clothing budgets, hygiene, and standardization of dress. Laboratory problems in costume modeling. **WELLER.**
21. **FOODS AND COOKERY.** (a) Production, manufacture, chemical composition of typical foods; their classification into food principles; changes in digestion; function in nutrition. (b) Fundamental science

principles from chemistry, physics, biology, and bacteriology, and their application in typical cookery processes. Laboratory fee, \$1.50. VERMILYE.

- 22. FOOD ECONOMICS. Cost and nutritive value of typical foods; the study of dietaries; preparation and serving of meals, the cost bearing a definite relation to the family budget. Laboratory fee, \$1.50. PALMER.
- 35. HOME MANAGEMENT: OPERATION AND MAINTENANCE, LABORATORY PRACTICE. (a) Nine weeks' experience as manager and helper in a household of twenty members. (b) A dietary study covering a period of one month in the above household. VERMILYE, EDWARDS.
- 42. HOME ECONOMICS EDUCATION. Curricula, equipment, methods of teaching, for Home Economics. WEIGLEY.
- 51. DRAWING AND DESIGN. Composition, perspective, color, theory, and color harmonies applied to costume design and interiors; harmony, balance, rhythm, in line and area design. GOLDSTEIN.
- 103. DIETETICS. The fundamental principles of human nutrition as applied to the feeding of individuals and groups under conditions of health, and under such pathological conditions as are chiefly dependent upon dietetic treatment. Laboratory fee, \$1.50. EDWARDS.
- 105. EXPERIMENTAL COOKING. An experimental study of special problems in foods and food preparation. WEIGLEY.

HORTICULTURE

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
71	3	Landscape Gardening 8:00-9:30 TWThF	Soph., jr., sr. 20Hr	None Cady
90	3	General Horticulture 10:20-11:50 MTWTh	All 20Hr	None Brierley
94	3	Home and School Gardening... Lect. 1:20-2:05 MTWTh Lect. 2:15-3:00 TTh Lab. 2:15-4:00 MW	Jr., sr. 20Hr	None Brierley, Cady, Wellington, Bushnell, Field
71.	LANDSCAPE GARDENING. A general course in the practice and principles of landscape gardening as applied to the home and community. Lectures and field trips to parks and private grounds. CADY.			
90.	GENERAL HORTICULTURE. A general survey of horticulture with a consideration of the elementary principles of fruit-growing, vegetable gardening, floriculture, landscape gardening, plant-breeding, plant-forcing, and plant propagation. BRIERLEY.			
94.	HOME AND SCHOOL GARDENING. Lectures and laboratory. A consideration of the elements of horticulture as applied to high-school in-			

struction, plant propagation, fruit-growing, home gardening, school gardening, and the planning of home and school grounds. Same as Agr. Educ. 68. BRIERLEY, CADY, WELLINGTON, BUSHNELL, FIELD.

PLANT PATHOLOGY AND BOTANY

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
1	3	Plant Pathology	Jr.	Bot. 1 yr.
		Lect. 10:20-11:00 MTWThF	2Pp	Freeman
		Lab. 11:10-12:40 MTWThF	2Pp	Bisby
9	3	Weeds and Seed Testing.....	Soph., jr., sr.	Bot. 1
		10:20-12:40 MTWThFS	3-4Pp	Dahlberg

1. **PLANT PATHOLOGY.** Elementary study of plant diseases due to fungi, bacteria, and slime molds; life histories and preventive methods. Lecture, laboratory, and reference. FREEMAN, BISBY.
9. **WEEDS AND SEED TESTING.** Detailed study of seed-testing methods and seed legislation. Weed and crop seeds and weed plants studied with special reference to identification. DAHLBERG.

POULTRY HUSBANDRY

ANIMAL INDUSTRY GROUP

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
1	3	Poultry	All	None
		2:15-3:00 MTWThF and	39Dh	
		3:10-4:00 MWF	40Dh	Smith
*4	3	Incubating and Brooding.....	All	None
		12:00-12:40 MTWThFS	39Dh	Smith

1. **POULTRY.** A study of the poultry industry; best methods of care and management of fowls, turkeys, ducks, and geese, and the most important breeds of each. SMITH.
- *4. **INCUBATING AND BROODING.** Includes instruction and practice in incubation and brooding, selection of breeding stock and eggs for hatching, and feeding young chicks. Of practical value to teachers of agriculture and poultry raisers. SMITH.

RURAL AND AGRICULTURAL JOURNALISM

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
75	3	Editorial Administration	All	Rhet. 1
		8:50-9:30 MTWThF	200Ad	Bing
135	3	Reporting	All	Rhet. 1
		8:00-8:40 MTWThF	200Ad	Bing

* Requires practical poultry work each morning and evening.

75. **EDITORIAL ADMINISTRATION.** A course in rural newspaper management. Gathering and presentation of news, advertising and circulation problems, county correspondence, make-up, editorial policy, writing of editorials. Work made practical by laboratory work on a weekly University Farm publication. BING.
135. **REPORTING.** A course in writing for the press. Lectures, practice, and conference on work of reporter, correspondent, and contributor. Students given regular assignments to "cover" for a University publication and topics assigned for practice in writing newspaper or magazine articles. BING.

VETERINARY SCIENCE

COURSES

No.	Credits	Title	Offered to	Prerequisite courses
5	1	Veterinary Bacteriology	Jr., sr.	None
		10:20-11:00 MWF	9Ve	Fitch
6	3	Veterinary Medicine	Jr.	None
		8:00-9:30 TWThF	9Ve	Reynolds
12	3	Common Diseases of Domestic Animals	Sr.	24
		2:15-4:00 TWThF	9Ve	Boyd

5. **VETERINARY BACTERIOLOGY.** Lecture and demonstration course in Veterinary Bacteriology, special emphasis being given to causes of infectious diseases of animals, also instruction in disease control measures and in preparation of vaccines, bacterins, serums, antitoxins. FITCH.
6. **VETERINARY MEDICINE.** Planned for students who can take only one semester of veterinary work. Includes preparatory work for the study of diseases; causes, prevention, diagnosis, and treatment of the common diseases including lameness and unsoundness; and common medicines. REYNOLDS.
12. **COMMON DISEASES OF DOMESTIC ANIMALS.** Planned as an introductory course. Cause, diagnosis, prevention, and treatment of common diseases capable of easy diagnosis and either prevention or simple treatment. General principles of diagnosis, preparation, and administration of common medicines. BOYD.

*The Bulletin
of the University of
Minnesota*

*Teachers' Training School
Department of Agriculture and
State Department of Education
University Farm, St. Paul
June 17 to July 26, 1918*

*C. G. Schulz, Superintendent of Education, St. Paul,
R. W. Thatcher, Dean and Director of the Department of Agriculture,
University Farm.
A. V. Storm, Director of Short Courses, University Farm, Conductor.*

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TEACHERS' TRAINING SCHOOLS, SUMMER OF 1918

Sessions of six weeks each will be held at the State Normal Schools in:

Winona
Mankato
St. Cloud
Moorhead
Duluth

and in the Agricultural Schools of the University of Minnesota at:

University Farm, St. Paul
Crookston
Morris.

These two groups will be distinguished by designating the five normal schools as "The Normal Group," and the schools at University Farm, Crookston, and Morris, as "The University Group."

Time of beginning: Monday, June 17.

Time of closing: Friday, July 26.

Sessions will be held six days each week, excepting that July Fourth will be a holiday, and that the sessions of the last week will close on Friday. There will be no afternoon sessions on Saturdays.

The summer terms at University Farm, Crookston, and Morris are organized and maintained by the Department of Education and are under the immediate direction of the conductor of each school. The Summer terms at the Normal Schools are organized and maintained by these institutions and are under the direction of the President of each school. Bulletins of information concerning summer courses at the Normal Schools may be obtained from the Presidents.

The courses at each of the schools are open to teachers in rural and elementary schools of Minnesota, free of charge. Other persons, who are not Minnesota teachers, may enroll upon payment of the tuition fee indicated under the head "Tuition and Fees" elsewhere in this bulletin.

THE PURPOSE.

First, to afford academic instruction in the subjects required for common school certificates, first and second class.

Second, to offer professional training in the common school subjects and to provide the means by which teachers who seek to earn a first-class certificate may meet the professional standards in those subjects which are now required by law.

Third, to offer instruction and professional training in such special subjects as will entitle teachers to receive a first-class certificate or one of higher rank.

Fourth, to give instruction in Agriculture, Manual Training and Home Training, as now required of teachers of these subjects in consolidated schools.

NOTE: After 1918, all professional training required for the completion, renewal or extension of first class certificates will be provided only in the State Normal Schools, and in classes and courses designed to train teachers for rural school service.

For the summer term 1918, professional courses will be offered (a) in the Normal Schools; (b) in the three Institution Schools of the University, but in the latter three to such teachers only as have earned not less than four (4) professional credits and who seek to complete the remaining four (4) credits for the renewal, extension or issuance of first class certificates or those of higher rank.

No teacher will be enrolled in professional courses in the three University Schools for the summer of 1918 who has not completed at least four (4) professional credits.

PROFESSIONAL TRAINING.

The act which became effective in August, 1915, requires that all public school teachers who at that time had taught less than eighteen months and who apply for a first-class certificate must show a given amount of professional training for teaching to entitle them to receive a first-class certificate, or one of higher rank. Such professional courses are provided in the summer schools this year as stated. (See note above.)

ACADEMIC AND PROFESSIONAL CREDIT.

Credits in connection with the issuance of first-class certificates may be earned under two general divisions: academic credit through definite and systematic academic work, as provided for in Group I, page 4; professional credit through method courses in subjects listed under Groups II and III, page 4. (See note Page 2.)

Credits in connection with the issuance of second-class certificates may also be earned under two general divisions: academic credits as stated in the paragraph above; professional credits as stated in the paragraph above for those entitled to register and receive such credits. See note page 4.)

Subjects starred under Groups II and III, page 4, Reading and Literature, Primary Methods, Rural School Methods and Administration, are required for the completion of a full professional course.

WHO MAY REGISTER AND RECEIVE CREDIT.

a. Academic.

Those who (1) enter on the first day of the session and are in regular attendance throughout the entire term; (2) pursue a subject by double recitation periods each day throughout the term, as indicated in the schedule under Group I; and (3) complete the subject to the satisfaction of the instructor and the conductor.

NOTE 1: Students will not be registered for credit in any course after Tuesday, June 18. No person will be permitted to register for any purpose after Friday, June 21.

NOTE 2: Students in elementary and secondary schools desirous of removing conditions in subjects in such schools or of obtaining advanced credits in subjects in such schools are not entitled to admission. Conductors will see that this rule is rigidly enforced.

b. Professional.

After 1918, all professional training required for the completion, renewal or extension of first-class certificates will be provided only in the State Normal Schools, and in classes and courses designed to train teachers for rural school service.

For the summer term 1918, professional courses will be offered (a) in the Normal Schools; (b) in the three Institution Schools of the University, but in the latter three to such teachers only as have earned not less than four (4) professional credits and who seek to complete the remaining four (4) credits for the renewal, or extension of first-class certificates or those of higher rank.

No teacher will be enrolled in professional courses in the three University Schools for the summer of 1918 who has not completed at least four (4) professional credits.

NOTE: Persons seeking to earn a second-class certificate must limit the choice of subjects to those under Group I, page 4. An exception is made in the case of Playground Methods.

SUBJECTS AND COURSES.

Certificate Requirements.

Group I.

Academic.

Required for Second-class certificate:

American History
Arithmetic
Geography
English Grammar
Reading
Penmanship
Physiology-Hygiene
Spelling
Civics
English Composition

Required for First-class certificate:

American History
Arithmetic
Geography
English Grammar
Reading
Penmanship
Physiology-Hygiene
Spelling
Civics
English Composition
Elementary Algebra
Plane Geometry
Physics
Physical Geography or
Agriculture

Group II

Professional.

No professional training required.

History Methods
Arithmetic Methods
Geography Methods
Grammar Methods
Composition and Language
Methods
*Reading Methods
*Primary Methods

Group III

Professional.

No professional training required.

Music Methods
Drawing Methods and
Primary Handwork
Playground Methods
Foods and Cookery
Garment Making
Rural School Methods
and Administration
Hygiene and Sanitation Methods

NOTE: The following industrial and special subjects in Group III, requiring no outside preparation, will be given in double daily class periods:

Foods and Cookery
Garment Making

Playground Methods
Drawing and Primary Handwork

*Required

PROFESSIONAL COURSES.

Professional credits in any one of the three University Schools may be earned in 1918 by teachers who already have four or more professional credits. Selection of subjects will be from Groups II and III. Time: One single period a day for the entire six weeks. (See note under Group III. Page 4.)

A full course in professional training earned in 1918 in any one of the three University Schools will require the completion of eight (8) credits, five (5), including Reading and Primary Methods, chosen from Group II; and three (3), including School Management, to be chosen from Group III. (See page 4.)

The renewal of any first-class certificate will require the completion of three (3) additional professional credits in a Normal School.

Beginning with the summer sessions of 1919, all professional courses for common school certificates will be offered only in the State Normal Schools, as stated elsewhere in this bulletin. In 1918 only those teachers may register at any of the three University Schools for professional work who now have not less than four (4) professional credits. All having less than four professional credits are not only advised but directed to enroll in the Normal School summer sessions this year for further professional study. Even those teachers, who desire to complete their professional record this summer, are advised to attend the Normal Schools and register for professional work, since professional credits earned at the Normal Schools, this, and following summers, will count toward completion of the Normal course. The earning of three professional credits in the Normal Schools is the equivalent of four professional credits earned in the University Schools.

A full professional course in the Normal Schools will consist of six (6) credits, four of which will be applied by the Normal School toward the completion of the advanced course. Three of these credits may be earned in a Normal School during one summer session.

In 1918 a teacher who completes three professional credits in a Normal School may receive a first class certificate valid for one year. The renewal or extension of such first class certificate will require the completion of an additional three professional credits.

This is an extension of the rule announced in 1917 of issuing a one-year certificate, to meet the anticipated shortage of first class certificate holders.

The renewal of any first class certificate to be issued during this year, 1918, will require the applicant to have completed the full professional course, either of eight credits, as required by the standards in the University Schools, or by earning the second half of the professional credits, three in number, on the Normal School basis.

ACADEMIC COURSES.

An academic credit may be earned by pursuing any subject under Group I, one double recitation period daily for six or twelve weeks as follows:

1. **A High School Graduate** who presents a final credit in a subject under Group I may earn an academic credit in that subject by pursuing it for six weeks. (See page 6 Credentials.)

2. **A High School Graduate** not presenting a final credit in a subject under Group I may earn an academic credit in such subject by pursuing it for twelve weeks.

3. **An Undergraduate** may earn an academic credit in any subject under Group I by pursuing it for twelve weeks.

Exception: An academic credit in the subject of Physiology-Hygiene may be earned by either high school graduates or undergraduates by pursuing the subject in one double daily recitation period for six weeks.

An academic credit in the subject of Penmanship may be earned by either a high school graduate or an undergraduate by pursuing the subject the equivalent of one double daily recitation period for six weeks.

GROUP I—Academic.

Subjects:	Course I, Open to High School Graduates.	Course II, Open to Under- graduates.
American History	6 weeks.	12 weeks
Arithmetic	6 weeks.	12 weeks
Geography	6 weeks.	12 weeks
Grammar	6 weeks.	12 weeks
Reading	6 weeks.	12 weeks
Penmanship	6 weeks.	6 weeks
Physiology-Hygiene	6 weeks.	6 weeks
Spelling	6 weeks.	12 weeks
Civics	6 weeks.	12 weeks
Composition	6 weeks.	12 weeks
Algebra	6 weeks.	12 weeks
Plane Geometry	6 weeks.	12 weeks
Physics	6 weeks.	12 weeks
Agriculture or Physical Geography	6 weeks.	12 weeks

Course I in any academic subject under Group I is open to undergraduates or to high school graduates who do not present a final credit in such subject.

Course II in any academic subject under Group I is open to high school graduates who present a final credit in the subject and to undergraduates who present a credit in Course I of the subject, or to other persons who present acceptable credits as given under **Credentials**, page 6.

LIMIT OF SUBJECTS.

A person seeking to earn **academic** credit is limited to two (2) double period subjects and either Spelling or Penmanship, selected under Group I.

A person seeking to earn **professional** credits is limited to the equivalent of four (4) single period subjects.

ATTENDANCE.

All students enrolled will be expected to report for class work and assembly periods promptly each day or present satisfactory excuses for absence.

No attendance statements or certificates will be issued. Credits in the subjects pursued will indicate satisfactory attendance.

CREDENTIALS.

Persons who expect to enroll in the teachers' training school for 1918 must bring and submit standings entitling them to such enrollment. This applies to persons expecting to earn academic or professional credits to apply on first class certificates and to high school graduates who expect to enroll in the six weeks academic courses. The following credits will be accepted:

- a. State teachers' certificate of second class.
- b. Credits from uncompleted examinations in all but two subjects for a state teachers' certificate.
- c. State high school diploma and final subject standings.
- d. State high school board certificates with standings of pass plus.
- e. High School training department certificates.
- f. Final marks of 75 from Minnesota state normal schools.
- g. Credits of 75 earned at the summer sessions of the normal schools, the state agricultural schools, and the 1916 and 1917 sessions of the summer school at Bemidji.
- h. Marks of 75 from Kansas, Nebraska, South Dakota, Colorado, Utah, and Missouri on first-class teachers' certificates.
- i. Marks of 80 from Iowa, Oregon, and Washington on first-class teachers' certificates.

COURSES FOR PRINCIPALS OF CONSOLIDATED SCHOOLS.

These courses are designed for those who must secure special certificates in order to qualify as principals of consolidated schools. The kind and amount of work required will depend upon the student's previous academic and industrial training. Arrangements are being made whereby students with the required training may take all credit courses and earn a consolidated school principal's endorsement at the same time. Those working for an endorsement must have their courses approved before attending classes. Emphasis will be placed upon Manual Training, Agriculture and Supervision.

A more detailed statement will be sent to those interested.

A SHORT COURSE FOR TEACHERS OF HOME TRAINING IN CLASS "B" CONSOLIDATED SCHOOLS.

This course is designed for those who must secure the special certification in order to qualify as teachers in home training in Class "B" consolidated schools.

The work required makes a full program for the student during two summer sessions.

INDUSTRIAL SUBJECTS.

The special industrial work offered includes elementary courses in Carpentry, Blacksmithing, Sewing, Cooking and Drawing and Primary Handwork. The matter and the presentation will be especially helpful to rural school teachers and to those who wish to teach the subjects in elementary schools. Superintendents and principals will find this work an aid in outlining courses of instruction and in supervising such courses intelligently.

EXAMINATIONS.

On Monday, Tuesday, and Wednesday, July 29, 30 and 31, examinations for state teachers' common school certificates will be held at the school under the direction of the Superintendent of Education.

TEXT-BOOKS.

Efforts will be made to keep the expense of purchasing text-books at the minimum. Necessary books may be purchased at the Students' Book Store in the Main Building.

REGISTRATION.

Those who wish to earn credits must register Saturday, June 15, or Monday, June 17, and be in attendance throughout the six weeks.

Students will not be registered for credit in any course after Tuesday, June 18. No person will be permitted to register for any purpose after Friday, June 21.

LOCATION.

The school is located at the University Farm, midway between Minneapolis and St. Paul.

From St. Paul or Minneapolis, take a Como-Harriet car to Doswell Avenue. A short walk to the northeast brings you to the Administration Building, where you register. If you wish to ride the entire distance, change at Eustis Avenue from the Como cars to the Inter-campus cars, which take you, for an additional fare, into the University Farm grounds. Inter-campus cars are not run after 6 p. m. or on Sundays or holidays. Walk west to the Administration Building, the third on your left.

TUITION AND FEES.

To all Minnesota teachers, the instruction is free. The following are classed as Minnesota teachers:

- a. Actual residents of Minnesota teaching either within or outside of the state.
- b. Non-residents engaged in teaching in the state.
- c. Students who have completed their school course and who are taking the training school work for the distinct purpose of preparing to teach in Minnesota.

A registration fee of five dollars (\$5) will be charged applicants who are not teachers as defined above. At the time of registration each student will deposit five dollars (\$5) with the cashier as a guarantee for the safe return of apparatus and books, which deposit will be returned to depositor at the close of the school, unless reduction must be made to cover damage or loss.

ACCOMMODATIONS.

Those taking regular work at the Summer School may obtain rooms in the dormitories. Rooms will be assigned at the time of registration. The dormitories contain a very few single rooms; other rooms are intended to accommodate two or three persons. The rooms are furnished with the necessary bedding. A change of linen is made twice a week, and of towels every day. Persons residing in the Twin Cities will not be given dormitory rooms. Those who do not expect to remain at the school for the entire six weeks should obtain rooms outside the dormitories. Good board and room may be had within a short distance from the school for \$6 a week and upward.

Dormitories will be opened Saturday, June 15.

EXPENSES IN DORMITORIES.

Room rent, use of bedding, and laundry of same.....	\$6.00	7 50
Post-office box .....	.10	
Total expense	\$6.10	7 60
Deposit	5.00	
Entire amount to be paid in advance.....	\$11.10	12 60

NOTE: If you are required to pay a registration fee of \$5.00 (see page 8), the total to pay cashier at the time of registration will be ~~\$16.10~~ 17 60

In order to facilitate registration and to avoid any delay and inconvenience to yourself, come prepared to pay your fees in cash or by bank draft, postal money order or certified check drawn for the exact amount you are to pay. One issued for a larger amount will not be accepted for payment of fees. Travelers checks are recommended. They will be accepted as cash.

A cafeteria with reasonable charges is maintained on the campus. Meals may be obtained during the day and until 9:00 p. m.

BAGGAGE.

Baggage will be carried between either city and University Farm by the service section for a uniform charge of 50 cents for each piece. Delivery will be made as promptly as the limited facilities of the section will permit. Those wishing special attention or quick delivery are advised to arrange with a city express or transfer company for delivery of baggage and for the charges for the same. Students wishing to have their baggage handled by the service section should hand the checks in at the general service office near the post-office, promptly after arrival, in order to avoid charges for storage.

MAIL.

Mail for students may be sent to University Farm, St. Paul. Post-office boxes are assigned to all students and a charge of ten cents is made therefor.

As soon as your post-office box has been assigned, notify your correspondents to put the number on your mail. This will facilitate distribution and enable you to obtain your mail more promptly.

LIBRARY.

Good library facilities, including books, bulletins, reports and papers on Agriculture and Home Economics, will be available to all students in the library, Administration Building.

THE ASSEMBLY HOUR.

An assembly "hour" has been arranged for each day, from 9:35 to 10:15 a. m. At this time subjects of special interest will be discussed.

Short opening exercises will be followed by lectures and talks by educators and other specialists.

Through the State Department of Education and the administrative officers of the training school, opportunity is given to hear a large number of people of state and national reputation.

All students must be in attendance at assembly during this period.

PROGRAM.

Morning.

Breakfast, 7:00
First-hour classes, 8:00 to 8:40
Second-hour classes, 8:50 to 9:30
Assembly hour, 9:35 to 10:15

Third-hour classes, 10:20 to 11:00
Fourth-hour classes 11:10 to 11:50
Fifth-hour classes 12:00 to 12:40
Dinner, 12:45

Afternoon.

Study and library work, 2:15 to 4:00
Recreation, 4:00 to 6:00
Supper, 6:00

Study, 8:00 to 10:00
Conferences and consultation with instructors as arranged.

PERIODICAL AND TEACHERS' HELPS ROOM.

A room will be maintained at University Farm during the session of the training school where all may examine the various teachers' journals, books, appliances, and supplies, and where purchases of the same may be made if desired.

PHYSICAL EXERCISES, PLAYS, AND GAMES.

Experienced instructors will be in charge of the gymnasium, athletic field, and playgrounds, to teach and supervise the various activities in these directions. Classes and teams will be organized to suit the convenience of the members wishing to participate in gymnasium drill, tennis, baseball, volleyball, and many other sports and games.

ENTERTAINMENT.

From time to time throughout the term, evening entertainments for the special benefit of the members of the summer school will be given in the auditorium.

CONFERENCES.

A great many conferences are held during the summer school by those interested in special phases of teaching and rural life. Many counties organize those present from the counties into county clubs. Conferences of consolidated school principals and others interested in rural leadership will be held from time to time. Opportunity is thus given for those interested in a special subject to exchange experiences and views and also to make plans for the future.

ADVANCED COURSES AT THE STATE UNIVERSITY.

The University of Minnesota offers advanced courses in the College of Science, Literature, and Arts, the College of Education, and also courses in the College of Medicine and the College of Dentistry during the summer season. Those interested may obtain information from the Registrar, University of Minnesota, Minneapolis.

ADVANCED COURSES IN THE COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS.

The University of Minnesota also offers advanced courses in Agriculture, Forestry, and Home Economics for college credit at University Farm, St. Paul, during the entire time of the Training School. Those desiring a bulletin concerning these courses should apply to the Secretary, University Farm, St. Paul.

The Bulletin of the University of Minnesota

*General Extension Division
Evening Collegiate Courses
1918-1919*



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CALENDAR

1918-1919

1918

September	23-28	Week	Registration week
September	27	Friday	Annual opening of Extension Courses, 8:15 p.m. St. Paul
September	28	Saturday	Annual opening of Extension Courses, 8:15 p.m. Minneapolis
September	30	Monday	Regular class work begins
November	28	Thursday	Thanksgiving holiday
December	21	Saturday	Christmas recess begins
December	30	Monday	Class work resumed

1919

January	20-24	Week	Examination week, first semester
January	24	Friday	First semester ends
February	3	Monday	Second semester begins
February	3	Monday	Merchants' Short Course begins
May	19-23	Week	Examination week, second semester
May	23	Friday	Second semester ends

EVENING COLLEGIATE COURSES

FACULTY

MARION LEROY BURTON, Ph.D., D.D., LL.D., President
CYRUS NORTHROP, LL.D., President Emeritus
RICHARD R. PRICE, M.A., Director of University Extension

LOTUS D. COFFMAN, Ph.D., Dean of the College of Education, Professor of Education

JOHN B. JOHNSTON, Ph.D., Dean of the College of Science, Literature, and the Arts, Professor of Comparative Neurology

WILLIAM R. VANCE, Ph.D., LL.D., Dean of the Law School, Professor of Law

FRANCIS B. BARTON, Ph.D., Assistant Professor of Romance Languages

EMMET L. BENNETT, M.A., Secretary of Municipal Reference Bureau

GISLE BOTHNE, M.A., Professor of Scandinavian Languages and Literatures

CARLETON BROWN, Ph.D., Professor of English

OSCAR C. BURKHARD, Ph.D., Assistant Professor of German

RICHARD BURTON, Ph.D., Professor of English

JAMES DAVIES, Ph.D., Assistant Professor of German

JOHN D. DOBSON, Ph.D., Instructor in Psychology

DANIEL FORD, M.A., Assistant Professor of Rhetoric

JULES T. FRELIN, B.A., Assistant Professor of Romance Languages

JOHN S. GARNs, B.A., Instructor in Story Telling, General Extension Division

CYRIL A. HERRICK, B.A., Instructor in Rhetoric

ALBERT E. JENKS, Ph.D., Professor of Anthropology

ALFRED E. KOENIG, M.A., Dr. Theol., Assistant Professor of German

AUGUST C. KREY, Ph.D., Associate Professor of History

EDWARD M. LEHNERTS, M.A., Assistant Professor of Geography, General Extension Division

RUPERT C. LODGE, M.A., Assistant Professor of Philosophy

WALTER R. MYERS, Ph.D., Assistant Professor of German

CHARLES W. NICHOLS, Ph.D., Assistant Professor of Rhetoric

EVERETT W. OLMSTED, Ph.D., Professor of Romance Languages

JOSEPH PETERSON, Ph.D., Assistant Professor of Psychology

ALBERT W. RANKIN, B.A., Professor of Education

FRANK M. RARIG, M.A., Associate Professor of Rhetoric and Public Speaking

MARTIN B. RUUD, Ph.D., Instructor in Rhetoric

CHARLES A. SAVAGE, Ph.D., Professor of Greek

COLBERT SEARLES, Ph.D., Professor of Romance Languages

ANDREW A. STOMBERG, M.S., Professor of Scandinavian Languages and Literatures

FLETCHER H. SWIFT, Ph.D., Professor of Education

JOSEPH M. THOMAS, Ph.D., Professor of Rhetoric

NORMAN WILDE, Ph.D., Professor of Philosophy and Psychology

HERBERT WOODROW, Ph.D., Associate Professor of Psychology

JEREMIAH S. YOUNG, Ph.D., Professor of Political Science

GENERAL INFORMATION

ADMISSION TO COURSES

It is not intended that any regulation should debar from the privileges of these courses any person who can pursue them profitably. Those persons desiring credit toward a University degree must of course comply with the regulations laid down by the college in which credit is desired. Those not desiring such credit may be admitted, provided they are sufficiently mature (more than eighteen years of age) and can satisfy the departments in which they wish to study that they are able to carry the work profitably to themselves and without hindrance to the classes.

CREDIT FOR EXTENSION COURSES

Credit toward a degree will be given students who satisfy the entrance requirements of the college in which credit is desired and who successfully complete any of the extension courses of university grade. This applies to all the courses listed under academic or collegiate courses, unless otherwise specified. It also applies to nearly all of the business courses. The courses listed under engineering do not carry credits. Such credits will be recorded upon matriculation in the University. Courses requiring one evening (two hours) a week for recitation normally carry two credits. Those requiring more time usually carry correspondingly more credit.

The statement concerning credit for the Certificates in Accountancy, in Finance, and General Business will be found on pages 19 and 20.

Students *must indicate at the time of registration whether or not they desire university credit in the courses pursued.*

Regulations Concerning Credit in the College of Science, Literature, and the Arts

1. All courses for which credit is given in the College of Science, Literature, and the Arts must be authorized with the credits by the Advisory Committee. But credit shall be given only to those extension courses which are conducted in essentially the same manner as the corresponding courses in the University and which are carried on under similar conditions as to attendance, term's work, quizzes, and examinations.

2. Each credit course shall be directly in charge of a member of the Faculty.

3. Any regularly enrolled University student successfully completing an approved course shall receive the appropriate credit.

4. Any person shall receive a certificate upon satisfactorily completing an approved course. The certificates entitle the holder to the corresponding University credits whenever he has earned thirty credits in residence. The Registrar or the Administrative Board shall in all cases pass upon the qualifications of the student.

5. The maximum credit towards a degree for work done in extension courses shall not exceed one half the unit hours required for graduation. At least twelve credits in the major subject shall be completed in regular college classes and of these, six must be from starred courses.

6. Credit for an amount not exceeding one quarter of the unit hours required for graduation may be given at the University of Minnesota to students of such other extension schools or departments as may be approved by the Advisory Committee, provided that such credit shall be subject to the same provisions as govern credits in the General Extension Division of the University of Minnesota.

RESIDENT STUDENTS

1. No University student may enroll for extension courses for the purpose of removing a condition or failure.

2. No University student may enroll for an extension course if this would increase his credit hours beyond what the rules allow.

3. Any University student who wishes to enroll for an extension course must first obtain the approval of the dean of his college.

FEEES

Collegiate courses meeting one evening a week require a fee of \$5 a semester of sixteen weeks. For collegiate courses meeting two evenings a week, the fee is \$10 a semester.

The fee for business and engineering courses is \$45 per year, payable \$22.50 each semester, when registering for three subjects; or \$30 per year, payable \$15 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials.

The fee does not include the cost of texts or material. The cost of these items varies from \$1 to \$3.

All fees are payable at the time of registration, and registration should not be deferred longer than the second meeting of class. Checks should be made payable to the University of Minnesota. *No fee will be refunded on account of withdrawal from any course, unless application for refund be made within ten days after registration.*

Special arrangements are made with organizations, clubs, and business concerns, whereby instruction may be given to groups of students within the organization at a sum which will somewhat reduce the individual rate per member.

PLACES FOR CONDUCTING CLASSES

Most of the classes in engineering will be held in the Main Engineering Building, Electrical Engineering Building, or the Mechanical Engineering Building.

Other classes in Minneapolis are conducted at the University, at the Public Library, at the City Hall, and in some of the public school houses. Definite locations for each class will be announced in a circular to be published about September 15.

In St. Paul the work will be carried on at the Mechanic Arts High School, the City Hall, and the Public Library. Additional accommodations will be provided for in some cases.

NUMBER FOR WHOM CLASSES WILL BE ORGANIZED

Classes will not be organized for a smaller enrollment than fifteen, and in some courses a larger registration will be required.

TIME OF MEETING

Classes ordinarily meet at 7:30 and dismiss at 9:30. Classes in business subjects frequently meet at 6:30.

ENROLLMENT

Registration for the first semester takes place during the week preceding the organization of classes (September 23-28). Students may also register with the instructor at the class.

PROGRAM OF CLASSES

Folders will be issued about September 15, giving the program of classes and schedules of meeting places. It should be understood that not all the courses listed in this bulletin are given in any one year. Final announcements may be found in the special folders. Folders will be issued for the collegiate courses, the business courses, and the engineering courses. Separate bulletins are also issued for each of these courses.

LOCATION OF EXTENSION OFFICES

The offices of the General Extension Division may be found on the third floor of Millard Hall on Washington Avenue and Union Street S. E. To telephone the office call N. W. East 2760 or T. S. 41811 and ask the University central for the General Extension Division.

COURSES OF INSTRUCTION

The courses of instruction naturally group themselves into four divisions, viz., (1) those corresponding to the regular college courses given in the College of Science, Literature, and the Arts, and conveying credit toward a degree from that college; (2) those furnishing a preparation for business (most of which also carry credit toward a degree from the above college); (3) engineering courses. A separate bulletin of each of these groups may be obtained on request. The description of courses will therefore be grouped in this order. The first group will be designated collegiate courses.

DEPARTMENT OF COLLEGIATE INSTRUCTION

The following courses are given extension students with two purposes in view: First, an opportunity is afforded those who are candidates for degrees, but who are unable to pursue their entire college course in regular residence, to complete a part of their work while otherwise occupied during the day.

Second, the advantage of university training in cultural subjects is offered those who can devote one or more evenings a week to such work, regardless of any desire for university credit.

The General Extension Division is now prepared to offer the following evening courses. Others will be given provided a sufficient registration is assured, usually fifteen. Those interested in forming such classes are advised to correspond with the Director.

A special folder announcing specific dates and places for holding classes will be issued early in September. This folder, containing the class program, will be sent to all requesting it.

FEEES

Each course listed as a collegiate course requires a fee of \$5 for the semester of sixteen weeks, the class meeting one evening a week for two hours. For collegiate courses meeting two evenings a week the fee is \$10 a semester.

CHEMISTRY

1 (1-2*). ELEMENTARY CHEMISTRY. First semester, metals. Second semester, metals and qualitative analysis. Lectures, recitations, and laboratory work. A study of the common elements and their principal compounds together with discussions of the principles, laws, and

*The number in parentheses is that of the corresponding course in the regular University bulletins.

theories of chemistry. Special attention to be given to the practical applications of chemistry. Those wishing to work on special problems will be accommodated as far as possible. Two credits a semester (two evenings a week). By doing extra laboratory work a well-qualified student may earn three credits a semester.

EDUCATION

- 1 (1a). **BRIEF HISTORY OF EDUCATION.** The origin and development of schools, more particularly in the modern period, as a preparation for the understanding of the educational systems, theories, and practices of the present. Ranks as a junior and senior course in the University. Open to teachers and prospective teachers who have met the college entrance requirements. Two credits (one evening a week); first semester. SWIFT.
- 2 (3a). **SOCIAL ASPECTS OF EDUCATION.** This course deals with conditions within the school itself,—such as the socialized recitation and the social activities of students. It also discusses educational activities outside the school, including the various institutions which influence society. It treats of the necessity of coördinating the social activities within and without the school so that each may become more effective. Two credits (one evening a week); first semester. RANKIN.
- 3 (119). **THE SCHOOL CURRICULA.** An attempt is made to discover fundamental principles governing the material and methods of education in a democracy. To this end it discusses the nature of what we mean by a democratic society. The aims and methods of the enterprise of education are considered from this point of view. Two credits (one evening a week); second semester. RANKIN.

ENGLISH

- 1 (58). **NINETEENTH CENTURY PROSE.** Studies in the more important prose writers of the nineteenth century from Carlyle to Matthew Arnold, with consideration of their styles, personalities, opinions, and relations to their period. Two credits (one evening a week); first semester. RUUD.
2. **THE EIGHTEENTH CENTURY NOVEL.** A study of the great novels produced in the eighteenth century, particularly the works of Richardson, Fielding, and Smollet. Two credits (one evening a week); first semester. NICHOLS.
- 3 (55). **AMERICAN LITERATURE.** Lectures on American Literature, with extensive readings from the principal poets and prose writers of the United States. Two credits (one evening a week); second semester. HERRICK.

- 4 (108). THE ROMANTIC POETS. A study of the Romantic School of Poets from Wordsworth to Keats, and of the influence of the French Revolution upon them. Two credits (one evening a week); second semester. BROWN.
5. STORY TELLING TO CHILDREN. (1) Story telling; its place and value; (2) choice of the story: qualities, desirable and undesirable; (3) preparation of the story; application of the short-story ideals of "singleness of impression" and "dramatic struggle"; reconstruction of the story from the child's view-point; (4) the problem of delivery: the group, consciousness, holding attention, self-effacement, vocal and verbal adaptation. No University credit (one evening a week); first semester. GARNES.
6. ADVANCED COURSE IN STORY TELLING. Twofold emphasis throughout the course upon (1) the problem of delivery, and (2) the search for material. Fundamentals in training of voice and body for story telling. Principles of vocal expression as they apply in the story-teller's art. The use of dialects and impersonation in story telling. Material: myths, great epic cycles, fairy stories, biographical and historical stories, Bible stories. Planning the story program. No University credit (one evening a week); first semester. GARNES.

GEOLOGY AND GEOGRAPHY

- 1 (1). GENERAL GEOLOGY. The materials of the earth, the forces and processes operating upon them, and the effects produced. Physiographic, dynamic, and structural geology, with a brief introduction to historical geology. Two credits (one evening a week); first semester. LEHNERTS.
- 2 (29). GENERAL PHYSIOGRAPHY. Principles of earth sculpture; physiographic changes in progress, and agencies causing them; hydrography and oceanography; planetary relations; climatology; field excursions. Two credits (one evening a week); first semester. LEHNERTS.
- 3 (34). METEOROLOGY. The earth's atmosphere, its properties, movements, and phenomena. Storms and weather forecasting. Climate and its relation to plant, animal, and human life. Two credits (one evening a week); second semester. LEHNERTS.
- 4 (37). COMMERCIAL GEOGRAPHY. The materials of industry and commerce, and the principles which underlie their occurrence, production, conservation, and utilization. Two credits (one evening a week); first semester. LEHNERTS.
- 5 (4). GEOGRAPHY AND GEOLOGY OF MINNESOTA. Rocks and soils; minerals and mines; building stones, clay beds, and glacial deposits;

rivers and lakes; scenic features; waterways and water powers; artesian well basins; prairie, forests, and agricultural lands; problems of state-wide interest, such as immigration, agriculture, drainage, reforestation, construction of state highways; utilization of natural resources, and development of old and new industries. Prerequisite, Course 1. Two credits (one evening a week); second semester. LEHNERTS.

6. PHYSIOGRAPHY OF THE EASTERN UNITED STATES. A study of the regional physiography of the eastern half of the United States. Prerequisite, Course 1 or 2. Two credits (one evening a week); first semester. LEHNERTS.
7. PHYSIOGRAPHY OF THE WESTERN UNITED STATES. A study of the regional physiography of the western half of the United States. Courses 5 and 6 give training in physiographic study and interpretation and serve as a preparation in the fundamentals of the geography of our country. Prerequisite, Course 1 or 2. Two credits (one evening a week); second semester. LEHNERTS.
- 8 (55). THE TEACHING OF GEOGRAPHY. The organization and treatment of the subject matter of school geography. Prerequisite, six credits in geography and geology. Two credits (one evening a week); first semester. LEHNERTS.
9. MAP INTERPRETATION. Reading and interpretation of maps; construction and use of maps and of geographic diagrams, including block diagrams of land forms. Two credits (one evening a week); second semester. Prerequisite, Course 1 or 2. LEHNERTS.

GERMAN

- 1 (1-2). BEGINNING GERMAN. Pronunciation, grammar, conversation, and composition; selected reading in easy prose and verse. Eight credits (two evenings a week); both semesters. Open to all who have had no German. Both semesters must be completed before credit is given for the first semester. DAVIES.
- 2 (5-6) PROSE AND POETRY. Geography, history, and legend. Review of German grammar throughout the year. Open to all with two years of German. Not open to those who have obtained credit in Course 2. Both semesters must be completed before credit is given for the first semester. Eight credits (two evenings a week); both semesters. MYERS.
- 3 (27-28). ELEMENTARY CONVERSATION. Conversation on topics of everyday life, aiming at fluency in the use of idiom. Not a course in composition. Organized on the laboratory basis—one hour credit with two hours recitation and at least one hour of outside preparation.

Intended for those who have had at least one year of German. Two credits (one evening a week); both semesters. BURKHARD.

- 4 (11-12). **RAPID READING.** Short stories and dramas by Storm, Heyse, Baumbach, Lessing, Goethe, Schiller, Hebbel, and Sudermann. Class-work and discussions are conducted in German. Open to all who have had at least one year of German. Four credits (one evening a week); both semesters. KOENIG.

GREEK IN ENGLISH

1. **GREEK MYTHOLOGY.** No knowledge of Greek is required for this course. A course of lectures and readings dealing with the legends and myths which appear in the literature and art of ancient Greece. The quaint and beautiful stories of Greek gods and heroes found in Homer and in the tragic and lyric poets will be presented and interpreted, and the whole course will be richly illustrated with the stereopticon. The origin and evolution of the myth, its relations to Greek literature, philosophy, and religion, and its influence upon later literature, will also be touched upon. Two credits (one evening a week); second semester. SAVAGE.
2. **GREEK LITERATURE AND LIFE.** This is a course dealing with the literature, life, and art of the ancient Greeks, for which no knowledge of Greek is required. The course consists of lectures and illustrative readings by the instructor and assigned readings in translation and textbook work by the class; conferences and informal discussions will also be held. The character and influence of Greek culture, especially along the lines of literature, philosophy, and art, will be discussed; and the whole course will be richly illustrated with the stereopticon. Especially designed for those interested in language and literature. Two credits (one evening a week); first semester. SAVAGE.
- 3 (59-60). **GREEK ART.** This is a course of illustrated lectures designed to set forth the spirit of the ancient Greeks as manifested in their sculpture and architecture. The development of Greek sculpture will be traced; the famous statues will be shown and described; and the personalities of the great artists will be considered; stereopticon views of temples, theatres, houses, and other buildings will be shown, and the characteristics of the three great orders of Greek architecture will be set forth. Two credits (one evening a week); first semester. SAVAGE.

HISTORY

- 1 (1). **EUROPEAN HISTORY I.** The development of Europe from 800 to about 1500 A. D. with special emphasis upon the political, social, and

economic institutions of the period. Open to all. Two credits (one evening a week); first semester. KREY.

- 2 (2). EUROPEAN HISTORY II. The development of Europe from c. 1500 to 1789. In this period are treated the Reformation, Religious Wars, and the causes of the French Revolution. The political growth of the nations of Europe is especially emphasized. Two credits (one evening a week); second semester. KREY.
3. EUROPEAN HISTORY III. The development of Europe from 1789 to the present time. Political history especially emphasized. Social and economic problems are treated in their international aspects. Two credits (one evening a week); second semester. KREY.

PHILOSOPHY

- 1 (20). PRESENT DAY PHILOSOPHY. A popular discussion of the most important types of contemporary philosophy. Among the men and movements included are: Haeckel, Eucken, Bergson, Nietzsche, Pragmatism, Idealism, and Neo-Realism. Two credits (one evening a week); first semester. WILDE.
2. HUMAN NATURE. A course in modern philosophy and psychology, as applied to the chief problems of practical life. The course will be untechnical, and will include a number of simple experiments to illustrate the subjects treated, and to serve as basis for the discussion. Among the subjects dealt with, the following will be included: the analysis of character into its elements; the significance of laziness, fatigue and sleep; efficiency, and the chief factors in attaining it; the meaning of education: its various stages, and final goal; memory, and the laws of forgetfulness; thought transference, automatic writings, and kindred subjects. No University credit (one evening a week); first semester. LODGE.
3. THE MEANING AND VALUE OF LIFE. A course in the modern philosophy of life, dealing in a simple and untechnical way with the deeper values which underlie life as it is lived to-day. Among the subjects dealt with will be included: the philosophy of social life; the philosophy of pleasure; the philosophy of pain; the meaning and value of work; practical idealism, etc. No University credit (one evening a week); second semester. LODGE.
- 4 (9). PHILOSOPHY AND THE WAR. A discussion of the influence of German philosophy on the militarism of Germany to-day; a study of the contrasting ideals of autocracy and democracy; an examination of the relation of the individual to the state and of states to one another. The course is a study of the philosophical issues involved in the present international situation. Two credits (one evening a week); first semester. WILDE, SWENSON, LODGE.

POLITICAL SCIENCE

1. AMERICAN FEDERAL GOVERNMENT. An elementary course in American government and politics designed for those studying the problems of citizenship, and for teachers. The course treats of the origin and nature of the federal system of government; of the political party system; the federal constitution; structure and organization of the national government; powers and functions of Congress; the executive, and the judiciary; the civil service; the regulatory commissions; national finance; the conduct of foreign affairs; war powers of the government. Texts, *American Government and Politics* by C. A. Beard, and *The New American Government and Its Work* by J. T. Young. Two credits (one evening a week); first semester. BENNETT.
2. STATE AND LOCAL GOVERNMENT. A complementary course to I preceding. The constitutional basis of state government; relation of the states to the national and local governments, and to the citizen; organization, functions, and actual workings of state governments, and of county, township, and city governments; public opinion and popular control in state governments; nominations and elections, initiative, referendum, and recall; taxation and finance; social and regulatory legislation. Texts, Beard's *American Government and Politics* and *The New American Government and Its Work* by J. T. Young. Two credits (one evening a week); second semester. BENNETT.

PSYCHOLOGY

- 1 (1-2). GENERAL PSYCHOLOGY. A brief survey of the fundamental facts of human nature, with particular reference to mental processes. Two credits (one evening a week); first semester. DODSON.
- 2 (107). SOCIAL PSYCHOLOGY. The instinctive and acquired factors in the behavior of the individual toward society and its various forms and groupings, and in the growth of ideas of self and of social attitudes. Two credits (one evening a week); first semester. PETERSON.

RHETORIC AND PUBLIC SPEAKING

- 1 (1). ENGLISH RHETORIC I. Practical training in writing, exposition, narration, and description. Analysis of prose selections and of compositions written by the class. Two credits (one evening a week); first semester. FORD.
- 2 (2). ENGLISH RHETORIC II. A continuation of the preceding course, open to those who have had a one half-year course in freshman Rhetoric, or its equivalent. Two credits (one evening a week); second semester. FORD.

- 3 (11). EXPOSITION AND DESCRIPTION. Analysis of specimens; short themes and fortnightly essays, with emphasis on planning and amplification. Informal exposition during the first half of the first semester, followed by description. Open to those who have completed the equivalent of Course 1-2 in college Composition and Rhetoric. Two credits (one evening a week); first semester.
- 4 (12). NARRATION. A continuation of Course 3. Open to those who have completed the equivalent of three half years of college Rhetoric. Two credits (one evening a week); second semester.
- 5 (41-42). A GENERAL COURSE IN PUBLIC SPEAKING. The principles of analysis and organization. Extemporaneous speaking based on outlines. Study of model speeches. Attention is given to correctness and effectiveness in delivery. Open to ministers, lawyers, teachers, and others who are able to carry the work. Four credits (one evening a week); both semesters. RARIG.
- 6 (83). ADVANCED PUBLIC SPEAKING. The distinctive characteristics of oratorical style; analysis of the styles of representative orators. Written and extemporaneous speeches. Individual criticism and direction. Two credits (one evening a week); first semester. RARIG.
- 7 (110). SHORT-STORY WRITING. An advanced course in writing for those who have had experience in writing for publication or have had preliminary training in the technique of writing. Open for credit only to those who have had at least two years of college courses in writing or the equivalent. Four credits (one evening a week); both semesters. THOMAS.

ROMANCE LANGUAGES

- 1 (1). BEGINNING FRENCH. Grammar, pronunciation, reading and practice in speaking. Open to all. Both semesters must be completed before credit is given for the first semester. Four credits (one evening a week); both semesters. SEARLES.
- 2 (3). INTERMEDIATE FRENCH READING, GRAMMAR, AND COMPOSITION. French grammar review; readings from modern authors. Open to all who enter the University with two years of French. Both semesters must be completed before credit is given for the first semester. Four credits (one evening a week); both semesters. BARTON.
- 3 (7-8). ELEMENTARY FRENCH CONVERSATION AND COMPOSITION. Four credits (one evening a week); both semesters. Prerequisite French 1. FRELIN.
- 4 (31). BEGINNING SPANISH. Grammar, pronunciation, reading, and practice in speaking. Open to all. Both semesters must be completed

before credit is given for the first semester. Four credits (one evening a week); both semesters. OLMSTED.

- 5 (35-1). INTERMEDIATE SPANISH (FIRST COURSE). Not given in 1918-19. This course is to alternate with Course 6 (35-2).
- 6 (35-2). INTERMEDIATE SPANISH (SECOND COURSE). Reading from modern authors. Grammar review. Composition work devoted chiefly to correspondence and commercial practice. Spanish will be as largely as possible the language of the classroom. Open to those who have had Spanish 5 (35-1) and to those who have had Spanish 4 (31) and are approved by the teacher. Four credits (one evening a week); both semesters. OLMSTED.

SCANDINAVIAN

- 1 (1-2). BEGINNING NORWEGIAN. Grammar, select reading in easy prose and poetry. Both semesters must be completed before credit is given for the first semester. Eight credits (two evenings a week); both semesters. BOTHE.
- 2 (5). BEGINNING SWEDISH. Grammar, conversation, composition, modern texts. Open to all who have had no Swedish. Both semesters must be completed before credit is given for the first semester. Four credits (two evenings a week); first semester. STOMBERG.

SOCIOLOGY AND ANTHROPOLOGY

- 1 (113). THE AMERICAN PEOPLE I. Dominant characteristics of the diverse foreign peoples now in the United States; their modification in America; the importance of these peoples to the American nation. Lectures, reading, and essay. Two credits (one evening a week); first semester. JENKS.
- 2 (114). THE AMERICAN PEOPLE II. A continuation of Course 1. Essential and unique historical Americanisms, and their value and virility for the future; facts and forces of amalgamation and assimilation in America; America's ethnic problems. Lectures, readings, and essay. Two credits (one evening a week); second semester. JENKS.

ADDITIONAL COURSES

Many advanced courses not listed in this bulletin will be given upon the request of any responsible individual or group willing to organize a sufficiently large class to insure the success of the undertaking.

REGISTRATION 1917-1918
DEPARTMENT OF COLLEGIATE INSTRUCTION
MINNEAPOLIS

Abramovitz, Bertha, 912 14th Av. S.
 Adsein, Thorlef, 3412 16th Av. S.
 Allee, Anne M., 2437 14th Av. S.
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 Alseen, Myrtle, 1207 Oliver Av. N.
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 Altnow, Olga, 907 S.E. 8th St.
 Amidon, W. W., 718 40th Av. N.E.
 Amonson, Maud, 1800 13th Av. S.
 Amonson, Nettie, 1800 13th Av. S.
 Andersen, Mabel, 4120 Aldrich Av. S.
 Anderson, Bert G., 5038 Nokomis Av.
 Anderson, Edith L., 3527 St. Paul Av.
 Anderson, Esther K., Eitel Hospital
 Anderson, Harold, 3147 Aldrich Av. S.
 Anderson, Harry, 1081 11th Av. S.E.
 Anderson, Herald, 1710 S.E. 4th St.
 Anderson, Lillian, 3746 1st Av. S.
 Anderson, Margaret, 290 Sherburne Av., St. Paul
 Anderson, May, 735 Como Blvd., St. Paul
 Anderson, Nora C., 2310 S. Emerson
 Andrews, Bernice, 1710 Stevens
 Andrews, Walter, 2111 E. Franklin Av.
 Ankeny, Sara L., 2401 Clifton Av.
 Annable, Mary J., Eitel Hospital
 Apfeld, Josephine, 3032 Irving Av. S.
 Archibald, R. W., 1112 S.E. 8th St.
 Armstrong, J. C., 1907 W. 49th St.
 Armstrong, Oris V., 3548 17th Av. S.
 Armstrong, Orra F., 228 8th Av. N.E.
 Ashton, W. H., 2176 Dayton Av., St. Paul
 Aurand, Calvin, 425 S.E. Oak St.
 Babcock, M. Vincent, 3824 1st Av. S.
 Bacon, Eleanor J., 1310 S. 7th St.
 Bailey, Alice W., 2891 James Av. S.
 Baillie, Jean E., 3133 Hennepin Av.
 Bain, Winifred, 1303 Yale Place
 Baker, Janet, 1016 W. 28th St.
 Baldwin, Grace, 515 E. 17th St.
 Baldwin, Louise V., 2219 Dupont Av. S.
 Ballou, Stella, 712 S.E. 7th St.
 Banter, Winifred, 2916 Emerson Av. S.
 Barber, Stella B., 213 Curtis Court
 Barnes, Bernice, 2008 Bryant Av. S.
 Barney, Edith M., 2118 Cedar Av.
 Barry, Florence M., 3133 Chicago Av.
 Bartlett, Emily, 617 Beacon St. S.E.
 Bastis, Gertrude, 2336 Hennepin Av.
 Bauman, Herman E., 1725 Girard Av. N.
 Bear, Walter S., 1912 Western Av.
 Beaumont, Herbert, 2126 Carter Av., St. Paul
 Beck, Eva L., 1322 S.E. 6th St.
 Beck, Frieda, 200 S. 13th St.
 Beicher, Edith, 3405 3d Av. S.
 Beisner, Goldie M., 506 S.E. 7th St.
 Bell, Jane E., 3435 2nd Av. S.
 Bemis, J. B., 2039 Dayton Av., St. Paul
 Bentley, Ruth, The Larchmount
 Benton, Anne G., 2024 Queen Av. S.
 Berg, R. D., 1557 Midway Parkway
 Berg, Mrs. R. D., 1557 Midway Parkway
 Berryman, Edna, 1115 N. Bryant
 Berry, Bernice, 137 E. Grant St.
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 Bezanson, Ann L., 3432 Chicago Av.
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 Birdsall, R. P., 17 Florence Court
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 Bjerg, Hilge, 3144 20th Av. S.
 Blakeley, Addie, 1522 Fremont Av. N.
 Blodgett, Della H., 82 S. 12th St.
 Bodens, Mrs. E. W., 75 Oak Grove St.
 Boeke, G. F., 3800 5th Av. S.
 Bouvier, A. P., 2913 17th Av. S.
 Bowman, A. W., 88 Spruce Place
 Boyens, Max C., 1025 6th Av. S.
 Brandl, Robert B., 1070 Ashland Av., St. Paul
 Brederson, Orphie, 2410 Oliver Av. S.
 Brennan, J. H., 2002 S. 2nd St.
 Brisley, Mary S., 4437 York Av. S.
 Broback, Alfred, 2914 N. 4th St.
 Brooks, Grace G., 802 W. Franklin Av.
 Brown, Eliza K., 2412 Garfield Av.
 Brown, Grace, 2010 Park Av.
 Brown, Percy A., 1086 12th Av. S.E.
 Buckle, Mrs. Laurel, 2024 Dupont Av. S.
 Bucklin, Mrs. C. A., 201 Macalester Av., St. Paul

Budd, Clara, 16 Oak Grove St.
 Buehler, J. E., 309 17th Av. S.E.
 Bullard, Irma L., 3213 2nd Av. S.
 Bullock, E. F., 525 11th Av. S.E.
 Bullock, Adelle L., 2437 Aldrich Av. S.
 Bunge, Amanda, 2109 Fremont Av.
 Burbank, Elizabeth, 1800 3d Av. S.
 Burke, J. W., 213 S.E. Beacon St.
 Burkleo, Jane, 519 9th Av. S.E.
 Bushnell, J. W., University Farm
 Byrnes, Mary S., 325 Franklin Av.
 Callahan, M. Ida, 2105 Bryant Av. S.
 Campbell, Mildred, 700 E. 14th St.
 Canadion, E. D., 914 17th Av. S.E.
 Carey, Agnes F., 2604 Fremont Av. S.
 Carlsten, Esther, 1612 Stevens Av.
 Carney, Clara, 1305 Cleveland Av. N.,
 St. Paul
 Carpenter, Martha, 1915 2nd Av. S.,
 Flat No. 4
 Carroll, Catherine, 4055 Pleasant Av.
 Carroll, Teresa, 4055 Pleasant Av.
 Chaline, Edith, 2735 Garfield S.
 Challman, Esther, 1600 1st Av. S.
 Champlin, J. E., Y. M. C. A.
 Chant, Sara E., 615 James Av. N.
 Chapel, Winnie M., 1834 Irving Av. N.
 Chapman, Margaret, 732 E. 16th St.,
 Flat No. 3
 Chapple, Dora E., 1430 Spruce Place
 Cheeseman, R. R., 3626 2nd Av. S.
 Chestnut, Mary L., 3208 Dupont Av. S.
 Chisholm, Tryphena, 2109 Bryant Av.
 S.
 Christensen, May J., 901 Minnehaha
 Av.
 Christie, Blanche, 2906 Humboldt Av.
 N.
 Clark, Gordon M., 230 S.E. Walnut St.
 Clark, Lois, 721 S.E. 12th St.
 Cleveland, Esther M., 3144 4th Av. S.
 Clough, Lulu B., 425 12th Av. S.E.
 Cloyes, Ella M., 1815 1st Av. S.
 Cohen, J. G., 1203 Aldrich Av. N.
 Cohen, Harry K., 1040 Irving Av. N.
 Coleman, Gertrude, 1310 S.E. 6th St.
 Collinson, J. D., Hampshire Arms
 Connell, Florence H., 2826 Girard Av.
 N.
 Connolly, J. A., 380 Roy St., St. Paul
 Conroy, Mary H., 620 E. Franklin Av.
 Cook, Elizabeth, 1311 Yale Place
 Copeland, Genevieve, 425 12th Av. S.E.
 Corbett, C. E., 2416 Bloomington Av.
 S.
 Coulter, M. Etta, 1310 Lowry Av. N.
 Coveny, Marie T., 2441 Harriet Av.
 Cox, Ethel J., 1117 S.E. 8th St.
 Craig, Hugh, 323 S.E. 5th St.
 Cramer, Isabel M., 1019 University Av.
 S.E.
 Crane, Jennie C., 3040 Humboldt Av. S.
 Crane, Wilma, 125 W. Grant St.
 Crawford, Katherine, 2517 Blaisdell
 Av.
 Crawford, Myrtle, 1612 Stevens Av.
 Crickmer, Nolie, 2826 Girard Av. N.
 Croasdale, Inez S., 1805 2nd Av. S.
 Crocker, Katherine, 2517 Blaisdell Av.
 Crockett, Clara S., 2512 Hennepin Av.
 N.
 Cross, Martha A., 2103 2nd Av. S.
 Cross, Norton M., 2103 2nd Av. S.
 Cushing, Frances N., 3121 Dupont Av.
 S.
 Dahlquist, H. A., 3637 Columbus Av. S.
 Daniels, Elizabeth, 3304 Elliot Av.
 Daum, Augusta, 1819 Elliot Av.
 Davies, L. Lucile, 1515 Vine Place
 Davis, Anna J., 3932 Elliot Av.
 Day, Charlotte E., 2121 Hennepin Av.
 Dealey, W. L., 1489 W. Minnehaha Av.,
 St. Paul
 Denery, Delia E., St. Mary's Hospital
 Densmore, Lydia M., 2105 Bryant Av.
 S.
 Devany, Anne, 3707 Park Av.
 Devereux, Margaret, 1004 19th Av. S.E.
 Devine, Katherine, 51 N. 15th St.
 De Wanz, Helene, 1818 Bryant Av. N.
 Dickson, J. S., 4913 Girard Av.
 Dixon, Mayme, 814 26th Av. N.E.
 Donaldson, Eleanor, 2707 Humboldt S.
 Donaldson, Evelyn, 400 S.E. 6th St.
 Dooling, W. J., 25 N.E. Main St.
 Drohan, Gertrude, 2716 Portland Av.
 Dungan, Minnie W., 4644 Vincent Av.
 S.
 Dunkley, B., 917 26th Av. N.
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 Duryea, Marbry, 2923 Vincent Av. N.
 Dusschee, Hilda, 2308 Bryant Av. S.
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 Dwyer, Vivian, 600 S.E. Washington St.
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 Edwall, Esther J., 625 E. 14th St.
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 St. Paul
 Eitel, Mrs. Jeanette, Eitel Hospital
 Ellertson, Oscar, 417 S.E. Oak St.
 Ellertson, Selma F., 417 S.E. Oak St.
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 Paul

Emmel, Dorcas P., 2521 Dupont Av. S.
 Emmett, Edna E., 56 Arthur Av. S.E.
 Enquist, F. E., 3215 Pillsbury Av. S.
 Erb, Nellie M., 1415 Dupont Av. N.
 Erickson, Beda, 3010 Grand Av. N.
 Ericson, Axel, 498 University Av.
 Estes, Ada L., 1316 S.E. 7th St.
 Estes, Florence A., 212 E. 36th St.
 Evans, Mrs. A. G., 3308 48th Av. S.
 Fahy, Grace M., 2117 Dupont Av. N.
 Farbstein, D. H., 622 Fremont Av. N.
 Featherstone, Harriet, 3136 1st Av. S.
 Feeney, G. T., 1091 18th Av. S.E.
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 Fetterby, Anna M., 2740 Cedar Av.
 Fields, Nellie M., 2873 Irving Av. S.
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 Folsom, Louise M., 3240 Oakland Av.
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 Foster, W. K., 652 S.E. Erie St.
 Foster, Mrs. W. K., 652 S.E. Erie St.
 Foster, Ada L., 2433 Colfax Av. S.
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 Freeman, Eva I., 3247 Stevens Av.
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 Ganzer, Gertrude, 1612 Stevens Av.
 Gardner, Ethel, 1481 Ashland Av., St. Paul
 Gardner, Marie, 1150 15th Av. S.E.
 Gaus, Ottelie J., 2915 W. 44th St.
 Gavin, Ethel, 424 S.E. 5th St.
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 Geussenhainer, Eleanor, Minn. School of Business
 Ghostley, Mabel G., 4001 Pleasant Av.
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 Graham, C. H., 3041 Emerson Av. S.
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 Grandy, Eleanor, 1606 Emerson Av. N.
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 Graves, Mrs. R. A., 1816 19th Av. N.
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 Grimm, Marguerite A., 322 13th Av. S.E.
 Grohndorff, Leonore, 2806 Humboldt Av. N.
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 Guha, Dr. U. N., Norwegian Lutheran Hospital
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 Haffa, Mrs. Jennie, 1822 Portland Av.
 Hage, Lillian C., 2201 Bryant Av. S.
 Hage, Maud, 2201 Bryant Av. S.
 Hainer, Gertrude, 2623 1st Av. S.
 Halbert, Lucy E., 4939 Girard Av. S.
 Hall, Gertie, 716 5th Av. S.E.
 Halser, Miss S. E., 2100 Bryant Av. S.
 Hama, Ione, Eitel Hospital
 Hamblin, Gladys, 2001 Aldrich Av. S.
 Hammer, Sophia, 2310 Lyndale S.
 Hamp, Charles H., 1103 16th Av. S.E.
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 Hahey, Elizabeth, 4437 Washburn Av.
 Hankey, Clara B., 1431 Adams St.
 Hanley, Mary, 334 N. Fairview Av., St. Paul
 Hansen, Charles R., 2124 Ann Arbor St., St. Paul
 Hansen, Meta, 1522 Fremont Av.
 Hanson, Gertrude, Berkeley Hotel
 Hanson, Pearl V., Eitel Hospital
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 Harvey, Paul A., 1009 University Av.
 Hassett, Roger, 1531 S.E. 74th St.
 Hatz, R., 1710 Stevens Av.
 Haven, Kittie, 3145 Stevens Av.
 Hawkes, Gertrude A., Excelsior, Minn.
 Hawkins, Catherine, 1523 Fremont Av. N.
 Hawkinson, Alida, 1051 15th Av. S.E.
 Hawn, Kathryn, 628 8th Av. S.
 Hays, Ada S., 3356 Park Av.
 Hazleton, Lydia, 4013 Sheridan Av. S.
 Hecker, Alma, 3753 2nd Av. S.
 Hefferman, Susan, 2633 Humboldt Av. S.
 Hegel, Edith, 1310 S. 7th St.
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 Helm, Alice S., 3144 Bryant Av. S.
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 Hemenway, John, St. Thomas College, St. Paul.

Hemphil, A. D., 1842 N.E. Jackson St.
 Henegren, Marie, 4946 Garfield Av. S.
 Henry, Alice A., 1618 Girard Av. N.
 Herbert, Mary O., 1618 Girard Av. N.
 Herdeg, R. W., 1605 W. Minnehaha
 Av., St. Paul
 Higgins, T. J., 1800 University Av.
 S.E.
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 Hildebrandt, Ruth A., 323 S.E. Church
 St.
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 Hines, Velma, 1819 Lyndale Av. S.
 Hird, Lillian, 44th and Grimes Av. W.
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 Hobart, Mrs. G. H., 358 Curtis Court
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 Paul
 Hoeborn, Elizabeth, 679 Lincoln Av.,
 St. Paul
 Hoff, Magda M., 12 S.E. State St.
 Holden, Margaret, St. Barnabas Hospi-
 tal
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 Holtzman, Louis, 608 7th Av. S.
 Hood, Leone B., 1612 Stevens Av.
 Horner, Lillian A., 4205 Park Av.
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 St.
 Howard, Ethel, Eitel Hospital
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 Blvd.
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 School
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 Irgens, Ingolf, 3908 26th Av. S.
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 Jacobson, Elizabeth, 2638 Fremont Av.
 N.
 Jacobson, Ruth A., 2535 Elliott Av.
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 Jaffa, Goldie, 704 Dupont Av. N.
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 Jeter, Jane, 3104 Lyndale Av. S.
 Johnson, Alfrida, 3132 30th Av. S.
 Johnson, Dora, Curtis Court
 Johnson, Edward, 3817 11th Av. S.
 Johnson, Emma L., 1800 1st Av. S.
 Johnson, Helen F., 2635 Colfax Av. N.
 Johnson, Lael, 510 12th Av. S.E.
 Johnson, Nancy L., 3016 Bryant Av. S.
 Johnson, Rae, 631 E. 18th St.
 Johnson, Stewart W., 3116 10th Av. S.
 Johnson, Will R., 4525 York Av. S.
 Johnstone, Harriet, 815 S.E. 6th St.
 Johnstone, Jane, 815 S.E. 4th St.
 Jones, Addie, 3936 Grand Av.
 Jones, Gwen M., 1013 Park Av.
 Jones, Hallie E., 1918 Roblyn Av., St.
 Paul
 Jones, Ruth J., 1600 1st Av. S.
 Jordan, Helen, 1400 W. 25th St.
 Joyner, Mary, 131 E. 14th St., Apt. No.
 13
 Juell, Nils, 2924 Fremont Av. N.
 Jurgenson, Anna, 1522 Fremont Av. N.
 Kearney, Norman, 1910 2nd Av.
 Keating, Anna B., 3128 Irving Av. S.
 Kehne, Elizabeth, 780 Curfew Av., St.
 Paul
 Kelley, Evie F., 3129 Portland Av.
 Kellett, Josie, 1425 Vine Place
 Kelly, Mary C., 131 Oak Grove St.
 Kennedy, Cecelia, 1421 Lyndale Av. N.
 Kennedy, Kathryn, 610 S.E. 6th St.
 Kent, M. A., 3116 Stevens Av.
 Kercher, Alice, 707 New York Life
 Bldg.
 Kerr, Maude M., 1821 9th Av. S.
 Keyes, Leonard, 621 S.E. 7th St.
 King, J. D., 1716 S.E. 4th St.
 King, Grace E., 3136 Humboldt Av. S.
 King, Mary, The Rosslyn
 Kirk, Renee J., 1512 Harmon Place
 Knapp, Maude, 1611 Emerson Av. N.
 Kneubuhl, Emily R., 1712 Dupont Av.
 Knight, Bessie P., Curtis Court
 Kocourek, F., 736 S.E. Superior St.
 Koehler, Elsa I., 508 University Av.
 S.E.
 Koenig, A. E., 602 S.E. 7th St.
 Koenig, Myra, 602 S.E. 7th St.
 Krishef, J. L., 1012 Bryant Av. N.
 Kriskey, Imogen, 1680 Hennepin Av.
 Krogstadt, Marie, 4336 Aldrich Av. S.
 Kuehn, Henry E., 1831 Irving Av. N.
 Kuhlmann, Elsa, 4421 Upton Av. S.
 Kvam, Julien A., 1029 S.E. 4th St.
 Kynaston, Ethyl, 813 Elwood Av.
 Lackersteen, Wynne, 610 S.E. 5th St.
 Ladner, Emily, 2112 Garfield Av.
 La Du, Mrs. Blanche, 1067 17th Av.
 S.E.

Lambert, Mrs. E. M., 1086 12th Av. S.E.
Lane, Bessie, 417 11th Av. S.E.
Langvick, Clara, 1501 Linden Av. N.
Langvick, Emma, 1302 E. 18th St.
Larson, Alvin H., 1206 S.E. 5th St.
Larson, Beatrice, 303 Wash. Av. S.E.
Larson, Vera E., 3105 E. 25th St.
Larsen, Vilhelm, 3010 20th Av. S.
Lawrence, Clara E., 4234 Garfield Av.
Leahy, Alice M., 713 E. 14th St.
Leavitt, Madeline, 2109 Bryant Av. S.
Lee, E. J., 333 Wilder Av., St. Paul
Lee, Bessie M., 312 19th Av. S.E.
Leitzman, Lorraine, 406 20th Av. S.
Lembeck, Anna, 2915 W. 44th St.
Lennon, Mary M., 221 N.E. 2nd St.
Leonard, H. J., 2130 Lyndale Av. N.
Leonard, Josephine M., 1176 Curtis Court
Lewis, Luisa K., 3304 48th Av. S.
Liedl, Rose M., 716 S.E. 6th St.
Lien, Clara, 3025 James Av. S.
Lilienfeld, Anne, 1315 S. 7th St.
Lillegren, Demaris E., 4118 Nicollet Av.
Linehan, P. J., 2201 N.E. Grand St.
Linne, Award, 409 S.E. Oak St.
Livermore, H. J., 352 Bates Av. N., St. Paul
McAndrews, Byda, Hastings Hotel
McAuliffe, Gertrude, 303 Curtis Court
McAuliffe, Kate, 1512 Harmon Place
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McCall, Florence, 3114 18th Av. S.
McCann, Alice L., 321 N. Newton
McClellan, Fred, 2016 Kenwood Pky.
McConnell, Daisie C., 3035 Oakland Av.
McCormack, Katherine, 2001 Aldrich Av. S.
McCue, Elizabeth, 1207 S.E. 5th St.
McDonald, H., 1112 16th Av.
McDonald, William H., 4123 N.E. 5th St.
McGregor, Lulie, 502 W. Franklin Av.
McGuane, Anna, 2817 Colfax Av. S.
McHugh, Mayoma, 1234 Oliver Av. N.
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McIntyre, M. R., 1710 Stevens Av.
McIntyre, Alice M., 4410 Lake Harriet Blvd.
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McLaughlin, Josephine A., 4300 Lyndale Av. S.
McLean, Alice, 1551 Hillside Av.

McPherson, Gertrude K., 4325 Grimes Av.
McShane, Catherine, 835 Holly Av., St. Paul
MacMullan, Kathryn V., 2817 Colfax Av. S.
Madden, Adeline, 2612 Chicago Av.
Madison, Mamie L., 2420 Harriet Av.
Madsen, Leo H., 1320 S.E. 7th St.
Maguire, Helen, The Angus Hotel, St. Paul
Malmsten, Agnes, 2117 Western Av.
Malmsten, Edith, 2117 Western Av.
Malmsten, Julia C., 2117 Western Av.
Maleitzka, W. C., 1142 Lyndale Av. N.
Manley, Marjorie, 3236 Holmes Av.
Manlove, Marjorie, 1614 Girard Av. N.
Marsh, Olive V., 4939 Girard Av. N.
Martell, Ned A., 316 12th Av. S.E.
Martin, John H., 311 7th Av. S.E.
Martin, Leo H., 3309 University Av. S.E.
Martin, Mary L., 320 Jackson St.
Mathes, Mr. A. C., 1601 S.E. 7th St.
Mathes, Mrs. A. C., 1601 S.E. 7th St.
Mattand, J. N., 3524 Stevens Av.
Mead, C. H., The Rosslyn Apts.
Meason, Georgina, 1208 W. Franklin Av.
Meek, Mabel, 1777 Colfax Av. S.
Meeker, Mary K., 2548 Clinton Av.
Melamed, Louis, Corning - Firestone Agcy., St. Paul
Mendow, H. Z., 921 14th Av. S.
Miao, Yun tai, 1127 S.E. 4th St.
Miley, Grace L., 2306 17th Av. S.
Millar, Pearl, 3124 Bryant Av. S.
Miller, O. H., 3345 2nd Av. S.
Miller, Bessie P., 707 Summit Av.
Miller, Charles J., 2909 Irving Av. S.
Miller, Helen, 3212 Irving Av. S.
Miller, Jane S., 1873 Marshall Av., St. Paul
Milne, C. P., 1921 Colfax Av. S.
Mo, Einar, 701 15th Av. S.E.
Molan, Kathleen, 3523 Garfield Av.
Montgomery, Minnie, 1416 Portland.
Mooney, Edward, 105 S.E. Warwick St.
Moorman, Lucile, 108 E. 15th St., Apt. No. 25.
Morrison, V. E., 1015 Mary Place
Morse, Anna J., 1420 Portland Av., Apt. No. 32
Mozzara, Adeline, 3539 Harriet Av.
Mullins, Ella, 1916 2nd Av. S.
Murphy, J. F., 514 7th Av. S.E.
Murphy, Mrs. J. F., 514 7th Av. S.E.
Murphy, Sylvester, 114 Thomas Av. N.
Murray, Agnes R., 2445 Aldrich Av. S.

Mugh, Mrs. Edna, 137 E. Grant
 Myhre, Aimer W., 2310 Penn Av. N.
 Nelson, F. C., 1300 Central Av.
 Nelson, Albert F., 2753 Colfax S.
 Nelson, Dorothea, 2605 E. 22nd St.
 Nemire, Emma M., 524 12th Av. S.E.
 Nessel, M. E., 1704 Park Av.
 Neubauer, August, 1206 5th St. S.E.
 Neumeier, C. J., 3820 Garfield Av.
 Newell, Bernice, 3505 Portland Av.
 Newell, Bertha, 3104 James Av. S.
 Newell, Margaret, 1116 S.E. 5th St.
 Newell, Margaret M., 1219 S.E. 4th St.
 Newton, Elizabeth, 1229 Selby Av., St.
 Paul
 Noosinow, Lillian, 524 Emerson Av. N.
 Nordenson, D. H., 4240 12th Av. S.
 Norrgard, E. F., St. Louis Park
 Norris, Edgar H., 5031 Colfax Av. S.
 North, J. M., 2724 Chicago Av.
 Nye, Ellen S., 1801 4th Av. S.
 Nyland, Ed, 779 Dayton Av., St. Paul
 Nyquist, Ann S., St. Barnabas Hospital
 O'Brien, Michael, 3633 4th Av. S.
 Ochs, Minnie K., 51 Melbourne Av.
 S.E.
 O'Connor, J. L., 1711 University Av.
 S.E.
 O'Dell, Thomas E., 4728 27th Av. S.
 Ohman, Arthur, 1429 S. 8th St.
 Olsen, Christian M., 1712 19th Av. N.
 Olson, P. L., 217 S.E. Walnut St.
 Olson, Carrie, 2232 N. E. Lincoln St.
 Olson, Edward A., 2710 S. 9th St.
 Olson, Edward J., 162 Emerald S.E.
 Olson, Margaret, Eitel Hospital
 Olson, Mina, 1253 Lafond
 Orr, Loretta M., 2500 Emerson Av. N.
 Pahl, William A., Y. M. C. A.
 Palffy, Louis, 1817 Washington Av. S.
 Patch, Alice S., 972 Curtis Court
 Patchen, George A., 1811 1st Av. S.
 Pattison, Edith S., 2646 Fremont Av.
 N.
 Paulsen, Lillian, 2317 Humboldt Av. S.
 Paulson, Arthur C., 525 11th Av. S.E.
 Peabody, E. S., 325 Wilder Av., St.
 Paul
 Pearson, Belle S., 408 W. Lake St.
 Pease, Vinnie, 303 Washington Av. S.E.
 Peck, Dr. A. E., 1912 Emerson Av. S.
 Peck, Anna M., 1912 Emerson Av. S.
 Peck, Helene D., 576 N. Lexington, St.
 Paul
 Peck, Jean F., 576 N. Lexington Av.,
 St. Paul
 Perine, Mrs. E. G., 517 9th Av. S.E.
 Perkins, Alfred, 1780 Wakefield, St.
 Paul
 Perkins, Marrion, 1612 Stevens Av.
 Peterson, A. R., 2705 Colfax Av. S.
 Peterson, Caroline, 3924 Pillsbury Av.
 Pfeiderer, H. T., 2917 Harriet Av.
 Phelps, Aura, 719 5th Av. S.E.
 Phillips, Anna, 1808 Stevens Av.
 Phillips, Bertha, 51 N. 15th St.
 Phillips, Bertha I., 3120 James Av. S.
 Plummer, Bel, 1111 Hawthorne Av.
 Poehler, Harriet, 2433 Garfield S.
 Polacek, Florence L., 907 S.E. 8th St.
 Polley, Jessie M., 4748 Chicago Av.
 Pool, Zada, 2810 15th Av. S.
 Porter, Mrs. H. W., 121 11th St.
 Porterfield, Doris, 620 13th Av. S.E.
 Postlethwaite, B. K., 4910 Emerson Av.
 S.
 Powell, Mrs. Mary A., Hotel Berkeley
 Pratt, Agnes A., Washburn Home
 Prindeville, Helen, 1801 1st Av. S.
 Prushek, Emil, Y. M. C. A.
 Purcell, Abby, 1013 Park Av.
 Putnam, Mary P., 1615 Girard Av.
 Pybus, Emma M., 608 E. 15th St.
 Raab, Frank, 12 Barton Av. S.E.
 Radaatz, Agnes, 1800 1st Av. S.
 Radusch, Dorothea, 721 S.E. Erie St.
 Radusch, Minna, 721 S.E. Erie St.
 Raymond, F. A., 419 S. 9th St.
 Randall, Ada M., Hopkins, Minn.
 Randall, Grace A., 3110 S.E. 4th St.
 Ranny, Laura M., 614 E. 22nd St.
 Rasmussen, Rasmus C., 2010 Minne-
 haha Av.
 Records, Mrs. Elizabeth, 101 W. 48th
 St.
 Reed, Katherine, St. Barnabas Hospital
 Reed, Margaret, 2204 Grand Av.
 Regan, Grace H., The Leamington
 Reid, Mary D., 604 11th Av. S.E.
 Reque, A. D., 307 W. 15th St.
 Reque, Marie, 307 W. 15th St.
 Reynolds, G. W., 3811 10th Av. S.
 Reynolds, Gertrude M., 3811 10th Av.
 S.
 Rhame, R. D., 209 S.E. State St.
 Rhame, W. S., 209 S.E. State St.
 Rhame, Mrs. W. S., 209 S.E. State St.
 Rheberg, Rachel, 2220 Oakland Av. S.
 Richards, Nellie, 4244 Linden Hills
 Blvd.
 Richey, Edmund, 1419 5th Av. S.
 Rise, Mathilde, 825 4th Av. S.
 Ritze, Bertha, 1805 2nd Av. S.
 Rizer, Mrs. R. I., 610 S.E. 5th St.
 Robinson, Harriet M., 2720 Elliot Av.
 S.
 Rodde, Elsa, 1312 17th Av. N.
 Rogers, Edna M., The Antlers

Rogers, Fay, 1204 18th Av. N.
 Rogers, Herman C., 2009 Portland Av.
 Rollins, Carl, 3130 Emerson Av. S.
 Rood, Mary B., 116 Oak Grove St.
 Roundy, Ann L., 4657 Colfax Av. S.
 Rowe, Ina B., 2116 Como Av. W.
 Rowell, Ora M., 2217 Fremont Av. N.
 Rudoy, Edith, 915 14th Av. S.
 Rush, Clara, 1723 Elliot Av.
 Rush, Mrs. Samuel, 5800 Portland Av.
 Russell, Clara H., 1306 Portland Av.
 Russell, Clementine R., 1306 Portland Av.
 Rutledge, Elizabeth, 3435 2nd Av. S.
 Ryan, W. T., 1827 Melbourne Av.
 Ryan, Mrs. W. T., 1827 Melbourne Av.
 Ryberg, Anna B., Bethel Academy, St. Paul
 Rydell, Edmund, 2114 Dupont Av. N.
 Rynder, Ethel, 364 King St.
 Saam, Selma L., 3100 Elliott Av.
 St. Amant, Rudolph C., 2736 4th Av. S.
 Sanborn, G. B., 4342 Pleasant Av.
 Sanford, Esther, 1901 Park Av.
 Sauer, Laura M., Eitel Hospital
 Scales, Kate M., 2300 Nicollet Av.
 Scherer, Lydia, 34 21st Av. S.
 Schoening, Ida, 2109 Fremont Av. S.
 Schoonover, G. C., 202 E. Franklin Av.
 Schoonover, Mrs. G. C., 202 E. Franklin Av.
 Schussler, Emma W., 2722 Bloomington Av.
 Schussler, Rose A., 2722 Bloomington Av.
 Schwartzbach, Merriam S., 612 Girard Av. N.
 Scott, Alice, 3032 Dupont Av. S.
 Scroggins, M. E., 3130 Emerson Av. S.
 Sederholm, Oscar J., 2308 28th Av. S.
 Seeleman, Rosamond, 306 N.E. Quincy St.
 Seeley, Edna, 1306 S.E. 7th St.
 Seeley, Jennie L., 1916 2nd Av. S.
 Seipel, Raymond, 1120 S.E. 8th St.
 Sellhorn, Minnie D., 1612 Stevens Av.
 Sengir, Barbara, 912 6th Av. S.
 Sessions, Orie A., 707 Summit Av.
 Seward, Minnie M., 1317 2nd Av. S.
 Seward, Sarah, 206 W. 27th St.
 Seyller, Blanche L., Berkeley Hotel.
 Sharbach, Ward J., 3544 Oakland Av.
 Shea, Ray L., St. Cloud, Minn.
 Shelley, Clarence, 409 4th Av. S.E.
 Shephard, Adlene V., 2411 Oliver Av. S.
 Sherin, Mabel, The Antlers.
 Sherman, Mrs. V. C., 2209 Humboldt Av. S.
 Sims, Lura A., 2107 James Av. N.
 Simon, Clara J., 1065 Van Slyke Av., St. Paul.
 Simon, Ellen M., 1065 Van Slyke Av., St. Paul.
 Simpson, Jean, 2124 Girard Av. S.
 Slattengren, Hattie, Murray School, St. Paul.
 Smilowitch, D. J., 1203 S. 7th St.
 Smith, Cleora F., 1816 Stevens Av., Flat No. 2.
 Smith, Eva, 1915 Aldrich Av.
 Smith, Fred G., 1704 Humboldt Av. S.
 Smith, Herschel H., 2604 Clinton Av.
 Smith, Irene A., 3125 16th Av. S.
 Smith, Lois A., 816 S.E. Beacon St.
 Smith, Loretta L., 2186 Dayton Av., St. Paul.
 Smith, Louise P., 3827 W. Lake St.
 Smith, Lyle L., 1853 Iglehart Av., St. Paul.
 Smith, Marguerite M., 2600 5th Av. S.
 Smith, Ora K., 3312 3rd Av. S.
 Snyder, Marlon L., 600 11th Av. S.E.
 Snyder, Mary, Webster School.
 Solien, Tilla, 226 S.E. Harvard St.
 Sowle, F. B., 228 W. 27th St.
 Speake, Weltha, Hotel Waverly.
 Sprague, D. W., 517 8th Av. S.E.
 Stanchfield, F. E., 1110 13th Av. S.E.
 Stanchfield, Lois, Curtis Court.
 Stanchfield, Steele S., 1110 13th Av. S.E.
 Stanton, Alta Loren, 827 S.E. 6th St.
 Stark, Inez A., 4716 Oakland Av.
 Stark, Marcus P., 4716 Oakland Av.
 Steen, J. H. A., 225 Nelson Av., Flat No. 7.
 Steffens, Leon A., 621 Oak Av., St. Paul.
 Stephens, Maude M., 2217 Scudder Av., St. Paul.
 Stevens, Benj. A., 1280 Raymond Av., St. Paul.
 Stewart Alex W., 4416 Thomas Av. S.
 Stoker, Ruth M., 2619 Dupont Av. N.
 Stothard, C. F., 6 E. 26th St.
 Stover, Zelma E., 4003 Blaisdell Av.
 Straka, George, 621 Ontario St. S.E.
 Strate, Nettie M., 3032 Colfax Av. S.
 Stromme, Minnie, 1013 13th Av.
 Strong, Harvey W., 502 2nd Av. S.E.
 Stultz, Laura R., 926 Hudson Av.
 Sugarman, N. J., 50 Highland Av.
 Sullivan, Margaret.
 Sumner, Bernice, 2806 Humboldt Av. N.
 Swanson, E. E., 3932 18th Av. S.
 Swannes, Agnes E., 813 E. 22nd St.

Swenson, Egbert, 714 S.E. Delaware St.
 Tanke, Ruth L., 1501 Linden Av.
 Taylor, Sarah E., Ogden Apartments.
 Taylor, Susan E., Ogden Apartments.
 Telfair, Nellie M., 2444 Chicago Av.
 Thomas, Gertrude, 417 S.E. Delaware St.
 Thomas, Le Roy, 1206 S.E. 6th St.
 Thomas, Lucy Agatha, 2105 Bryant Av. S.
 Thomas, Miriam E., 2640 16th Av. S.
 Thompson, Ella May, St. Barnabas Hospital.
 Thompson, Mildred, 2724 1st Av. S.
 Thorpe, Ilene, 1612 Stevens Av.
 Tift, Lowell, Glencoe, Minn.
 Tilden, Josephine E., 2235 Como Av. N.
 Tilden, Rose E., 52 S. 10th St.
 Tinkham, Bertha L., 1915 2nd Av. S., Flat 4.
 Tolson, Edgar, 856 Albemarle St., St. Paul.
 Tomlinson, Bessie A., 3115 13th Av. S.
 Toncheff, Stanil, 1529 S.E. 4th St.
 Trainor, Teresa, 1712 Portland Av.
 Underwood, Elizabeth, 2620 Hennepin Av.
 Van Camp, Kate, 405 S.E. Oak St.
 Vance, Katherine, Fairmont Apartments.
 Van Kleek, Maude, Curtis Court.
 Van Solen, E. E., 2518 Emerson Av S.
 Vievering, William, 2360 Hampden Av., St. Paul.
 Vincent, Jean, 1303 Yale Place.
 Voight, Alfreda, 26 Oak Grove St.
 Vreeman, Anton, 322 13th Ave. S.E.
 Waalen, Carl A., 326 Flour Exchange.
 Wade, Henry H.
 Waiste, L. B., 4717 Washburn S.
 Waite, Beatrice M., 1786 Hennepin Av., Apartment No. 3.
 Wallace, J. G., 3916 Lyndale Av. S.
 Walquist, Ann, 2528 Elliott Av.
 Walsh, Leo J., 2155 Selby Av., St. Paul.
 Walsh, W. C., 503 15th Av. S.E.

Wambold, Clara T., 904 W. Franklin Av.
 Wanrich, Gertrude, 1801 University Av.
 Ward, Susan, 4410 Lake Harriet Blvd.
 Warner, Mrs. G., Angus Hotel, St. Paul.
 Warner, Elizabeth S., 910 21st Av. S.E.
 Warwick, Margaret, 1516 S.E. 7th St.
 Watkins, Leona, 2818 Fremont Av. N. Fremont S.
 Watts, Effie E., 2410 Pierce St.
 Weatherhead, Louesa, Williamson Hall.
 Weaver, G. A., 3037 Columbus Av. S.
 Webster, J. F., 3036 Oakland Av.
 Wedin, A. E., 4147 Dupont Av. N.
 Welch, Esther, 76 S. 12th St.
 Welles, Nancy, 2873 Irving Av. S.
 Welliver, L. R., 163 S.E. Bedford St.
 Werket, Inga, 2204 Grand Av.
 Wesner, F. E., 217 S.E. Walnut St.
 Wetherbee, F. C., 311 S.E. Walnut St.
 Wheeler, Eva G., 70 S. 12th St.
 White, Helen, 1316 S.E. 7th St.
 Wichman, A. H., 731 E. 28th St.
 Wicklund, Evelyn, 920 Oliver Av. N.
 Wicklund, Hazel E., 920 Oliver Av. N.
 Wilkinson, Sarah, 1908 Hennepin Av.
 Williams, Maude, 2010 Park Av.
 Willinger, A. J., 2216 Clinton Av.
 Willis, Bessie E., 1213 12th Av. N.
 Wind, Kate, Linden Hills Station.
 Wittlin, Julia C., Tuttle School.
 Wohlgemuth, Anne, Hamilton School.
 Wolean, Alma, 200 S.E. Harvard St.
 Wolfe, Beatrice G., 714 S. 10th St.
 Wolfe, Vera, 2317 Buchanan St.
 Wood, Adelia, 3341 2nd Av. S.
 Woodruff, Pearl E., 1208 W. Franklin.
 Woodward, Agnes Y., 2222 Dupont Av. N.
 Woodward, M. Myrtle, Pillsbury School.
 Wright, Ralph C., 512 Newton Av. N.
 Yankoski, Frances E., 2344 S. Aldrich Av.
 Yerxa, Clifford M., 608 S.E. 7th St.
 Young, Marie L., 2420 Elliott Av.
 Young, Walter, 143 S.E. Bedford St.
 Zierold, Arthur A., 4219 Colfax Av. S.
 Zimmerman, Sarah, 1614 Stevens Av.

ST. PAUL

Angell, Fred J., 605 Ottawa Av.
 Barnard, Helen E., 117 N. Victoria St.
 Bassford, M. Hannah, 441 Iglehart Av.
 Betow, Herman F., St. Paul Milling Co.
 Binet, Lucia M., 1870 Laurel Place.
 Binet, Mae H., 1870 Laurel Place.
 Birnberg, Margaret, 654 Hall Av.
 Birnberg, Rose, 654 Hall Av.

Biskup, Frances, 667 Woodbury St.
 Blake, Frances E., 2413 Bayless Av.
 Blandin, A. A., 655 Portland Av.
 Borden, Gertrude, 2026 Laurel Av.
 Borup, Sophie C., 723 Portland Av.
 Bradish, Anna, 353 Carroll Av.
 Bragg, Goldye, 320 3rd Av.
 Brash, Jean, 42 E. Piedmont Apartments

Bray, Josephine E., 2299 Long Av.
 Brennan, Margaret S., 760 Carroll Av.
 Brennan, Mary F., 760 Carroll Av.
 Brennan, Rebecca, 243 Grove St.
 Broderick, May, 1076 Lincoln Av.
 Brokaw, Frederick, 1805 Carroll Av.
 Buckley, Margaret, 873 Fairmount Av.
 Burns, Catharine, 999 Portland Av.
 Burns, Elizabeth, 999 Portland Av.
 Burns, Maria, 999 Portland Av.
 Byrne, Katherine M., 1336 Dayton Av.
 Callahan, Elizabeth, 72 E. George St.
 Cameron, Mrs. W. A., 829 Tuscarora Av.
 Carroll, Kathleen G., 44 W Delos St.
 Carson, Wm. James, City and County Hospital.
 Caulfield, Mary G., 774 Laurel Av.
 Chamberton, Sherman R., 702 E. 7th St.
 Clark, Keith, 1470 Wesley Av.
 Colberg, Ruth M., 1220 Burr St.
 Collins, Elizabeth, The Seville, Flat 7.
 Collins, Frances M., 815 Ashland Av.
 Converse, Lula, 231 Arundel.
 Cooper, Margaret, 1144 Ashland Av.
 Corcoran, John J., 667 Como Blvd.
 Corteau, Stella, 742 St. Peter St.
 Cox, L. C., 1701 Capitol Av.
 Daily, Gertrude B., 1901 Goodrich Av.
 Daily, Frances, 1901 Goodrich Av.
 Daley, Mary E., 77 Sherburne Av.
 Davis, Esther Jean, 1671 Ashland Av.
 Dempsey, Helen, 875 Aurora Av.
 Dilley, Antoinette, 954 Selby Av.
 Dimond, Winifred, 624 Ashland Av.
 Dolan, Agnes J., 2169 Goodrich Av.
 Dolan, Charles, 985 Matilda Av.
 Dougherty, Theresa C., 1071 Portland Av.
 Doyle, Mary C., 327 Carroll Av.
 Duncan, Marion, 147 River St.
 Dunlap, Morris O., 530 Capitol Blvd.
 Dunn, Teresa M., 331 Geranium St.
 Early, Alice B., 724 Hudson Av.
 Edwards, Annie, 423 Laurel Av.
 Edwards, Fannie C., 1890 Marshall Av.
 Egan, Anastasia, 872 Hague Av.
 Egan, Margaret, 969 Manvel St.
 Elfstrom, Roy J., 895 Keany St.
 Emery, Marion Grace, 93 Kent St., Apartment No. 8.
 Enright, Verne, 231 Arundel St.
 Faricy, James R., 202 Aurora Av.
 Farley, Mary B., 269 Selby Av.
 Feehey, Agnes E., 583 Lincoln Av.
 Felsted, Jessie M., 1996 Carroll Av.
 Fichtenan, Florence, 731 Butternut Av.
 Fitzgerald, Margaret, 1687 Berkeley Av.
 Foote, Elizabeth, 1632 Blair St.
 Fosnes, Edith, 749 Lowry Bldg.
 Foster, J. Maude, 574 Selby Av.
 Francis, Chas. C., 1769 St. Anthony.
 Franke, Wilhelmine, 220 Fairview.
 Franzen, Helvine A., 53, The Piedmont.
 Frederick, B. Gladys, 389 Dayton Av.
 Froberg, Marie, 1907 Lincoln Av.
 Froelich, Paul A., 720 Cedar St.
 Fulton, Louise A., 97 Kent St.
 Gallup, Nellie M., 591 Ashland Av.
 Gaughan, Katherine, 301 Dayton Av.
 Gaughan, Sarah, 301 Dayton Av.
 Gearing, Maude P., 9 W. Delos.
 Geraghty, Bridget, 308 Como Av.
 Gill, Mary, 818 Ashland Av.
 Ginsberg, Daisy, 1744 Laurel Av.
 Gorman, Mary G., 217 N. St. Albans.
 Gottlieb, Mathew M., 515 Ashland Av.
 Grace, Lillian M., 335 Iglehart Av.
 Grant, Mary, 648 Brown Av.
 Greene, M. Susan, 806 Holly Av.
 Gries, Stella M., 237 Arundel St.
 Griffin, John F., 232½ Western Av. S.
 Gundlach, Caroline, 846 Fairmount Av.
 Gundlach, Lucy, 846 Fairmount Av.
 Haan, Ora B., 225 Arundel St. Flat No. 3.
 Haggard, Laura A., 679 Lincoln Av.
 Hand, Richard, 591 Ashland Av.
 Hanson, C. A., 2675 University Av.
 Hartman, Ben H., 282 W. Central Av.
 Heal, Pearl A., 1462 Capitol Av.
 Heyd, Nellie C., 742 Laurel Av.
 Hickman, J. H. Jr., 526½ W. Central Av.
 Hinnners, Gertrude, 1850 Summit Av.
 Holland, Mary D., 724 Holly Av.
 Holmes, Margaret, 1156 Summit Av.
 Horeish, John H., 17 Wilkin St.
 Hough, Bertha F., 238 Nelson Av.
 Hull, Harriet Belva, 703 Grand Av.
 Hurley, Anne, 723 Dayton Av.
 Hyde, Alice, 308 Winifred St.
 Jefferson, Jennie V., 705 Manomen Av.
 Jensen, J. R., 476 Laurel Av.
 Johnson, Alice May, 233 4th Av. N.
 Johnson, Ida A., 177 Nelson Av.
 Johnson, Lydia, 433 Carroll Av.
 Johnson, Mathilde J., 540 Capitol Blvd.
 Kamman, Ira S., 128½ Eaton Av.
 Katzmarek, John E., Y. M. C. A.
 Kearney, Hazel G., 131 E. Colorado St.
 Kelley, Agnes P., 274 Dayton Av.
 Kelley, Elizabeth, No. 3 Hillcrest Apts.
 Kelley, Everett, Y. M. C. A.
 Kernkamp, Ella, Central School, South St. Paul.
 Kilroy, Anna I., 1144 Hague Av.

Kinsey, Helen M., 207 E. Page St.
 Koch, Wm. C., 759 Holly Av.
 Koehnman, Clara, 594 Marshall Av.
 Kroeger, Louise, 399 Ashland Av.
 Krokauer, Rose, 682 Holly Av.
 Kuehne, Bertha F., 402 Dayton Av.
 Lamb, Jane Ellen, 1169 Ashland Av.
 Larpenteur, Ethel, 737 Hudson Av.
 Larson, Helen I., 541 Rondo St.
 Leavitt, F. A., 633 Dayton Av.
 Linehan, Lenore, 147 Summit Av.
 Logue, Mrs. W. J., 885 Dayton Av.
 Luckert, Margaretta, 472 Iglehart Av.
 McCann, Elizabeth, 1461 Wynne St.
 McCauley, Anna M., 681 Holly Av.
 McCauley, Clara J., 1083 Hague Av.
 McCleary, Nellie M., 801 Goodrich Av.
 McClellan, Mary F., 88 Kent St.
 McCormack, Elizabeth, 632 St. Peter St.
 McGriffin, Catherine, 1845 Iglehart Av.
 McGuire, Alice, 538 Dayton Av.
 McGuire, Helen B., 769 Marshall Av.
 McGuire, Margaret, 769 Marshall Av.
 McGuire, Mary, 769 Marshall Av.
 McKee, E. F., 1872 Dayton Av.
 McKellar, Walter A., 224 W. Linden St.
 McNally, Genevieve, 293 Nelson Av.
 McTigue, Howard F., 630 Ashland Av.
 McVay, Mary, 1988 Princeton.
 McVay, Secundella, 1988 Princeton.
 MacKnight, Mary V., 355 St. Anthony Av.
 MacLeod, Mrs. A., 634 Iglehart Av.
 Mahoney, Margaret, 2170 Marshall Av.
 Mann, Helen S., 766 Iglehart Av.
 Mathews, Josephine, St. Francis Hotel.
 Maxwell, Olive L., 569 Oakland Av.
 Melamed, Louis, 867 Iglehart Av.
 Metcalf, Mrs. Ruth, 1621 Ashland Av.
 Meyer, Hattie, 528 Marshall Av.
 Miller, Jane S., 1873 Marshall Av.
 Miller, Myrtle, Central School, South St. Paul.
 Minter, Esther, 892 Hague Av.
 Mitchell, Maude, 696 Grand Av.
 Mohan, Sarah, 118 Western Av.
 Monnia, I. A., 306 Rondo St.
 Morice, Agnes M., 950 Arkwright St.
 Morrissey, Winifred, 133 5th Av. N., South St. Paul.
 Mulcare, F. D., 106 E. Acker St.
 Murphy, Etta, 873 Laurel Av.
 Murray, Albert S., 1242 W. Minnehaha St.
 Nahinsky, David, 275 E. 13th St.
 Neal, W. E., 2131 Dayton Av.
 Neill, Adelaide, 118 Western Av.
 Nelson, Florence, 1877 Beech St.
 Newton, Elizabeth, 1229 Selby Av.
 Newton, Millicent, 1043 Goodrich Av.
 Newton, Muriel, 1807 Wordsworth Av.
 Niedorf, Katherine, Crowley School.
 Niedorf, Lillian K., 237 St. Albans.
 Oace, Sophie, 662 Rondo St.
 O'Brien, Frances, 583 St. Peter St.
 O'Brien, Minnie M., The Seville.
 O'Hair, Grace, 806 Holly Av.
 Ohr, Winifred, 556 Ashland Av.
 Olsen, Carolyn, 271 Selby Av.
 Owens, Belle M., Public Library.
 Parks, Mabel A., 617 Elfelt St.
 Patterson, Georgie L., 61 St. Albans.
 Paulson, Lillian, 925 Albemarle St.
 Pearce, Mary E., 733 Grand Av.
 Pearson, Katie, 185 Concord St.
 Pewter, Winifred C., 973 Manvel St.
 Pliefke, Oda, 601 Burgess St.
 Poirier, J. A., 2882 Humboldt Av S., Minneapolis.
 Powers, Florence, 2029 Grand Av.
 Prendergast, Katherine, 408 Ashland Av.
 Price, Mary A., 1937 Ashland Av.
 Prout, Sadie, 1555 Goodrich Av.
 Reidenger, Leone, 1037 4th Av.
 Richter, Florence L., 755 Ohio St.
 Rittle, Katherine, 2101 Princeton Av.
 Rohrer, Mertie, 766 Iglehart Av.
 Rosenholtz, Jennie, 819 Portland Av.
 Rouse, Evangeline, 2413 Territorial Road.
 Routh, Margaret, 537 Holly Av.
 Roverud, Ella M., 643 Laurel Av.
 Rowles, May, 1958 Selby Av.
 Rush, Alice G., 1087 Gorman Av.
 Russell, Irene, 1615 Hague Av.
 Ryan, Helen C., 1144 Ashland Av.
 Rydner, Ethel, 639 King St.
 Sanders, Grace, 710 Ashland Av.
 Sather, George L., 701 York St.
 Scanlan, Susan, 1072 Minnehaha.
 Schroeder, Marie, 717 York St.
 Scott, Edith, No. 7, The Seville.
 Sexton, K., 695 Carroll Av.
 Sexton, Mary J., 790 Dayton Av.
 Seymour, Mary B., 1794 Carroll Av.
 Shepard, A. S., 23 E. 6th St.
 Sherlock, Minnie S., 1795 Hague Av.
 Simmonds, Edith F., 1079 Goodrich Av.
 Sinclair, Gertrude, 20 N. St. Albans.
 Sinclair, Susan, 1072 E. Minnehaha.
 Sladek, Jerome C., 649 Delaware Av.
 Sliney, Ellen, 736 Holly Av.
 Small, Hazel, 137 4th Av. N.
 Smalley, Flora M., 897 Marshall Av.
 Smith, Mrs. C. R., 494 Ashland Av.
 Smith, C. Grace, 20 W. Congress.

Springer, Frances, 316 Canada St.
Stapleton, Julia M., 102 Western Av. N.
Stern, Dr. G. M., 1265 Como Blvd.
Stern, Marie, 1265 Como Blvd.
Stewart, Beth M., 387 Stryker Av.
Stoven, Adolph C., 676 Stryker Av.
Sullivan, Hanna, 1074 Lombard Av.
Swain, Mary C., 787 Osceola Av.
Swanstrom, M. M., 805 Hague Av.
Talbot, Georgina, 770 Selby Av.
Tallman, Corrine, 1168 Ashland Av.
Tallman, Kate E., 476 Laurel Av.

Taylor, Mary E., 139 E. Dale St.
Timmie, Cora H., 1148 Orange St.
Tonley, Sarah E., 659 S. Robert St.
Tschida, Katherine, 307 N. Dale St.
Tucker, Florence, 766 Iglehart Av.
Vestrom, Mabel, 334 4th Av. S., Min-
neapolis
Upell, Agnes, 690 St. Peter St., Apt. 7.
Wharton, Beulah, Gen'l Del., St. Paul.
Wind, Kate, 315 N. Snelling Av.
Wiprud, Agnes, 849 Cromwell Av.
Yost, L., 60 W. Summit Av.

DULUTH

Allensworth, C. L., 319 Y. M. C. A.
Anderson, Hilma M., 922 11th Av. E.
Bartling, Emma, 510-B-W. 2nd.
Bell, Pearl, 316 9th Av. E.
Bell, Phoebe, 111 Park Terrace.
Bickley, Ethel M., 313 2nd Av. W.
Brand, Anna R., 203 Commonwealth
Av.
Brooks, La Vange, 1417 E. 3rd St.
Casey, Kathleen, 931 E. 3rd St.
Crowley, Jane M., 115 E. 3rd St.
Duclett, Betsy N., 1020 E. 6th St.
Flaherty, Belle, 227 W. 3rd St.
Fuller, Frances O., 403 E. 2nd St.
Gage, Leslie, 1524 E. 4th St.
Giles, Edna, 5333 E. Wyoming St.
Grant, Anna, 1007 E. 7th St.
Helweg, C. A., 1930 E. 4th st.
Hicken, Estelle, 4627 Cooke St.
Hilder, Bertha, 2 Chester Terrace
Hoover, Harriet M., 119 E. Victoria
St.
House, Harold G., 201 W. Faribault
St.
House, Susan M., 201 W. Faribault
St.

Joyce, Isabel Rice, 104 S. 16th Av. E.
Kristensen, Edith, 106 W. Orange St.
Kunerth, Mrs. Ethel M., 111 Park
Terrace
Long, Ruth C., 403 E. 2nd St.
MacIntyre, Evelyn, 429 E. 2nd St.
MacQuat, Frances M., 1227 E. 3d St.
Meehan, Katherine, 329 5th av. W.
Meinhardt, Anna W., 1531 E. 4th St.
Meinhardt, Lillian, 1531 E. 4th St.
Niswander, Charlotte, 831 11th Av. E.
Nortrup, Anna C., 203 E. 3rd.
Onsgard, Allie B., 517 S. 71st Av. W.
Peterson, Anna C., 1330 W. 5th St.
Phillips, Margaret, 4 Waldorf Apts.
Rowley, Edith M., 421 W. 3d St.,
Flat F.
Schmidt, Irene E., 1415 E. 3d St.
Sellhorn, Bertha M., 203 E. 3d St.
Sidenberg, Emma, 1228 E. 1st St.
Sinion, Clara, 422 E. 3d St.
Smith, Frances E., 224 5th av. E.
Wilkinson, Dr. Stella, 405 New Jersey
Bldg.
Woodward, Laura J., 4617 Cooke St.
Yager, Minnie, 220 2nd Av. E.

RED WING

Anderson, J. V.
Arthur, Jessie G., Dakota St.
Aubrey, Effie C., 431 4th St.
Boog, Jno. J., 712 East Av.
Bryan, Mrs. E. C., 716 Central Av.
Busch, Regina, 426 7th St.
Crawford, Ruth, West Av.
Cremer, Dorothy E., 906 W. 4th St.
Featherstone, Edithe, 720 Central Av.
Featherstone, Ora M., 1527 N. 4th.
Graham, Helen O., 625 W. 5th St.
Hawkins, Florence N., 427 4th St.
Hoyt, Hazel F., 300 Hill St.
Johnson, Effie S., 117 8th St.
Jorgenson, Louise, 428 6th St.
McGuiggan, Catherine

Meyer, L. V., Kingman Hill.
Middlemass, W. S., 529 6th St.
Middlemass, Mrs. W. S., 529 6th St.
Neely, Ora, 448 8th St.
Nelson, Edna C., 121 4th St.
Nelson, Elizabeth O., 4th St.
Remshardt, Mollie, 452 5th St.
Rose, Laurence C., 710 College Av.
Rucker, C. W., Central Av.
Sargent, Ralph, 718 East Av.
Smith, Dr. M. W., 724 East Av.
Smith, Grace G., 724 East Av.
Theri, John N.
Thomas, Marie E., 710 W. 4th St.
Wiggen, Charlotte A., 822 Main St.

The Bulletin of the University of Minnesota

*General Extension Division
Evening Courses in Engineering
1918-1919*



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CALENDAR

1918-1919

1918

September	23-28	Week	Registration week
September	27	Friday	Annual opening of Extension Courses, 8:15 p.m. St. Paul
September	28	Saturday	Annual opening of Extension Courses, 8:15 p.m. Minneapolis
September	30	Monday	Regular class work begins
November	28	Thursday	Thanksgiving holiday
December	21	Saturday	Christmas recess begins
December	30	Monday	Class work resumed

1919

January	20-24	Week	Examination week, first semester
January	24	Friday	First semester ends
February	3	Monday	Second semester begins
February	3	Monday	Merchants' Short Course begins
May	19-23	Week	Examination week, second semester
May	23	Friday	Second semester ends

EVENING COURSES IN ENGINEERING

FACULTY

MARION LEROY BURTON, Ph.D., D.D., LL.D., President
CYRUS NORTHROP, LL.D., President Emeritus
RICHARD R. PRICE, M.A., Director of University Extension

JOHN R. ALLEN, M.E., Dean of the College of Engineering and Architecture, Professor of Mechanical Engineering

WILLIAM E. BROOKE, B.C.E., M.A., Professor of Mathematics and Mechanics

ALVIN S. CUTLER, C.E., Assistant Professor of Railway Engineering

OLIVER C. EDWARDS, M.E., Assistant Professor of Mechanical Engineering, General Extension Division

JAMES H. FORSYTHE, M.A. in Arch., Assistant Professor of Architecture

ROBERT W. FRENCH, B.S., Assistant Professor of Drawing

FRANKLIN R. McMILLAN, C.E., Assistant Professor of Structural Engineering

GEORGE A. MANEY, C.E., M.S., Instructor in Civil Engineering

FREDERICK M. MANN, M.S. in Arch., C.E., Professor of Architecture

JOHN V. MARTENIS, M.E., Assistant Professor of Mechanical Engineering

WILLIAM H. RICHARDS, Instructor in Carpentry and Pattern Work

FRANK B. ROWLEY, M.E., Assistant Professor of Experimental Engineering

WILLIAM T. RYAN, E.E., Assistant Professor of Electrical Engineering

GEORGE D. SHEPARDSON, D.S., Professor Electrical Engineering

CHARLES F. SHOOP, B.S., Assistant Professor of Experimental Engineering

HUBERT M. TURNER, B.S., Instructor in Electrical Engineering

OTTO S. ZELNER, B.S., Assistant Professor of Surveying

GENERAL INFORMATION

ADMISSION TO COURSES

It is not intended that any regulation should debar from the privileges of these courses any person who can pursue them profitably. Those persons desiring credit toward a University degree must of course comply with the regulations laid down by the college in which credit is desired. Those not desiring such credit may be admitted, provided they are sufficiently mature (more than eighteen years of age) and can satisfy the departments in which they wish to study that they are able to carry the work profitably to themselves and without hindrance to the classes.

CREDIT FOR EXTENSION COURSES

Credit toward a degree will be given students who satisfy the entrance requirements of the college in which credit is desired and who successfully complete any of the extension courses of university grade. This applies to all the courses listed under academic or collegiate courses, unless otherwise specified. It also applies to nearly all of the business courses. The courses listed under engineering do not carry credits. Such credits will be recorded upon matriculation in the University. Courses requiring one evening (two hours) a week for recitation normally carry two credits. Those requiring more time usually carry correspondingly more credit.

The statement concerning credit for the Certificates in Accountancy, in Finance, and General Business will be found on pages 19 and 20.

Students *must indicate at the time of registration whether or not they desire university credit in the courses pursued.*

Regulations Concerning Credit in the College of Science, Literature, and the Arts

1. All courses for which credit is given in the College of Science, Literature, and the Arts must be authorized with the credits by the Advisory Committee. But credit shall be given only to those extension courses which are conducted in essentially the same manner as the corresponding courses in the University and which are carried on under similar conditions as to attendance, term's work, quizzes, and examinations.

2. Each credit course shall be directly in charge of a member of the Faculty.

3. Any regularly enrolled University student successfully completing an approved course shall receive the appropriate credit.

4. Any person shall receive a certificate upon satisfactorily completing an approved course. The certificates entitle the holder to the corresponding University credits whenever he has earned thirty credits in residence. The Registrar or the Administrative Board shall in all cases pass upon the qualifications of the student.

5. The maximum credit towards a degree for work done in extension courses shall not exceed one half the unit hours required for graduation. At least twelve credits in the major subject shall be completed in regular college classes and of these, six must be from starred courses.

6. Credit for an amount not exceeding one quarter of the unit hours required for graduation may be given at the University of Minnesota to students of such other extension schools or departments as may be approved by the Advisory Committee, provided that such credit shall be subject to the same provisions as govern credits in the General Extension Division of the University of Minnesota.

RESIDENT STUDENTS

1. No University student may enroll for extension courses for the purpose of removing a condition or failure.

2. No University student may enroll for an extension course if this would increase his credit hours beyond what the rules allow.

3. Any University student who wishes to enroll for an extension course must first obtain the approval of the dean of his college.

FEEES

Collegiate courses meeting one evening a week require a fee of \$5 a semester of sixteen weeks. For collegiate courses meeting two evenings a week, the fee is \$10 a semester.

The fee for business and engineering courses is \$45 per year, payable \$22.50 each semester, when registering for three subjects; or \$30 per year, payable \$15 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials.

The fee does not include the cost of texts or material. The cost of these items varies from \$1 to \$3.

All fees are payable at the time of registration, and registration should not be deferred longer than the second meeting of class. Checks should be made payable to the University of Minnesota. *No fee will be refunded on account of withdrawal from any course, unless application for refund be made within ten days after registration.*

Special arrangements are made with organizations, clubs, and business concerns, whereby instruction may be given to groups of students within the organization at a sum which will somewhat reduce the individual rate per member.

PLACES FOR CONDUCTING CLASSES

Most of the classes in engineering will be held in the Main Engineering Building, Electrical Engineering Building, or the Mechanical Engineering Building.

Other classes in Minneapolis are conducted at the University, at the Public Library, at the City Hall, and in some of the public school houses. Definite locations for each class will be announced in a circular to be published about September 15.

In St. Paul the work will be carried on at the Mechanic Arts High School, the City Hall, and the Public Library. Additional accommodations will be provided for in some cases.

NUMBER FOR WHOM CLASSES WILL BE ORGANIZED

Classes will not be organized for a smaller enrollment than fifteen, and in some courses a larger registration will be required.

TIME OF MEETING

Classes ordinarily meet at 7:30 and dismiss at 9:30. Classes in business subjects frequently meet at 6:30.

ENROLLMENT

Registration for the first semester takes place during the week preceding the organization of classes (September 23-28). Students may also register with the instructor at the class.

PROGRAM OF CLASSES

Folders will be issued about September 15, giving the program of classes and schedules of meeting places. It should be understood that not all the courses listed in this bulletin are given in any one year. Final announcements may be found in the special folders. Folders will be issued for the collegiate courses, the business courses, and the engineering courses. Separate bulletins are also issued for each of these courses.

LOCATION OF EXTENSION OFFICES

The offices of the General Extension Division may be found on the third floor of Millard Hall on Washington Avenue and Union Street S. E. To telephone the office call N. W. East 2760 or T. S. 41811 and ask the University central for the General Extension Division.

DEPARTMENT OF ENGINEERING INSTRUCTION

The demand for men specially trained in engineering has been steadily increasing each year. Every branch of the profession has been calling for the services of trained men. By trained men is meant those who can plan work and use good engineering judgment in any given project.

President Woodrow Wilson emphasizes this when he says:

"My attention has lately been called in particular to the falling off in the number of engineering students and this has given me a good deal of concern, because it is not only immediately necessary that as many students as possible should prepare themselves for engineering duties in the Army and Navy, but it is also of the first consequence to the country that there should be an adequate supply of engineers for the period of reconstruction which must follow the war. Not only has technical training become of enormous importance in military operations, but the rôle of the engineer has become more and more important in every process of our industrial life."

To meet this demand the General Extension Division now offers groups of courses in Architecture, Civil Engineering, Electrical Engineering, and Mechanical Engineering. These course groups are arranged to be completed in either two- or three-year periods and are planned primarily for workers in industrial establishments.

The subject of engineering is one that requires very thoro study, and no step should be neglected. These courses have been laid out with great care, and are especially adapted to the needs of men working in shops and other industrial and manufacturing establishments, to the end that such men may have added to their practical training a technical and theoretical knowledge which will enable them to advance more rapidly in their chosen line of work.

It has been found that many persons register who can not take the work with any great profit to themselves because of inadequate preparation. For this reason it is desirable that students should consult with the Director of the General Extension Division before taking up any course, so that they may have proper guidance and direction.

Students who have had sufficient preparation need not start at the beginning, but may take up the work at the point where they can pursue it with advantage.

These courses also offer an opportunity to college graduates, who may wish to specialize in some subject not covered in their regular college work.

When the student completes any one of these consecutive courses, a certificate to that effect from the University of Minnesota will be given.

Each student will be required to take a course in "English for Engineers" before a certificate will be granted.

FEEES

The fee for these courses is \$45 per year, payable \$22.50 each semester, when registering for three subjects; or \$30 per year, payable \$15 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials.

Special arrangements are made with organizations, clubs, and individual business concerns, whereby instruction may be given to groups of students within the organization at a sum which will somewhat reduce the individual rate per member.

THREE-YEAR COURSE

The following courses, arranged to be completed in three years of two evenings a week, may also be finished in two years of three evenings a week. The work is divided into two semesters per year, and each semester of the engineering extension classes will be sixteen weeks long.

ARCHITECTURE

FIRST YEAR

First Semester
Elementary Architectural Design

Second Semester
Elementary Architectural Design

SECOND YEAR

First Semester
Intermediate Architectural Design
Shop Mathematics

Second Semester
Intermediate Architectural Design
Mechanics, Strength of Materials

THIRD YEAR

First Semester
Advanced Architectural Design
Structural Design

Second Semester
Advanced Architectural Design
Reinforced Concrete

If a class of twelve or more request it, the two following subjects may be taken during the first year:

Freehand Drawing

Architectural History

CIVIL ENGINEERING (For Office Men)

FIRST YEAR

First Semester
Shop Mathematics
Mechanical Drawing

Second Semester
Shop Mathematics—Advanced
Structural Drafting

SECOND YEAR

First Semester
Applied Mechanics
Elements of Structural Design

Second Semester
Strength of Materials
Structural Design—Advanced

THIRD YEAR

First Semester
Reinforced Concrete •
Roof Trussed Bridges—Design

Second Semester
Reinforced Concrete Design
Bridge and Building Design

CIVIL ENGINEERING (For Field Men)

FIRST YEAR

First Semester
Shop Mathematics
Lettering and Sketching

Second Semester
Shop Mathematics—Advanced
Mapping

SECOND YEAR

First Semester
Plotting and Calculation
Plane Surveying

Second Semester
Stadia and Topographical Surveys
Curves and Earthwork

THIRD YEAR

First Semester
Highways
Municipal Engineering

Second Semester
Railways
Municipal Engineering

ELECTRICAL ENGINEERING

FIRST YEAR

Shop Mathematics

First and Second Semesters
Elementary Electricity

SECOND YEAR

First Semester
Alternating Currents
Mechanical Drawing
or
Applied Mechanics

Second Semester
Alternating Currents
Mechanical Drawing
or
Strength of Materials

THIRD YEAR

First Semester
Direct and Alternating
Current Machinery
or
Telephony
Steam Boilers and Engines
or
Electrical Measurements

Second Semester
Central Power Stations
or
Telephony
Engine Testing
or
Electrical Measurements

Alternates in the third year will be given only every other year.

MECHANICAL ENGINEERING

FIRST YEAR

First Semester
Shop Mathematics
Mechanical Drawing

Second Semester
Shop Mathematics—Advanced
Mechanical Drawing

SECOND YEAR

First Semester
Applied Mechanics
Advanced Shop Work
or
Elementary Electricity

Second Semester
Strength of Materials
Heat Engines
or
Plumbing

THIRD YEAR

First Semester
Shop Management and Pattern
Construction
or
Heat Engines
Heating and Ventilation
or
Mechanical Equipment of Buildings

Second Semester
Steam and Gas Laboratory
or
Central Stations
Alternating Currents
or
Elementary Machine Design

DESCRIPTION OF COURSES

1. ARCHITECTURAL HISTORY. Twelve lectures illustrated with lantern slides, covering the ancient and Renaissance periods. One evening a week; second semester. FORSYTHE.
2. ELEMENTARY ARCHITECTURAL DESIGN. Shades and shadows and wash rendering. Architectural elements such as doors, windows, moldings, and the architectural orders; general drawing, exercises, and lectures in the application of these elements to simple problems in design and a survey course of lectures in architectural history illustrated by lantern slides. Open to high-school students who have had mechanical drawing, to those who have had one year or more in an architect's office, and to those who, in the opinion of the instructors, have had equivalent experience. Two evenings a week; both semesters. Monday and Thursday evenings, 7:30-9:30. FORSYTHE.
3. INTERMEDIATE ARCHITECTURAL DESIGN. Regular Class B "Analytique" or Order Problems of the Society of Beaux Arts Architects, or equivalent designs in architectural problems from the regular course of the University of Minnesota. Open only to those who have completed Course 2, or who have had two years or more in an architect's office, or have had equivalent preparation in an architectural school. Two evenings a week; both semesters. Monday and Thursday evenings, 7:30-10:00. Fee, \$5 a problem, or \$10 a semester.

4. **ADVANCED ARCHITECTURAL DESIGN.** Class B, Plan Problems, and Class A, Problems of the Society of Beaux Arts Architects, or equivalent design problems from the regular course in architecture at the University of Minnesota. Open only to those who have completed the required "Analytique" or Order Problems, or to those who have had one or more years of design in any architectural school. Two evenings a week; both semesters. Monday and Thursday evenings, 7:30-10:00. Fee, \$5 a problem, or \$10 a semester. MANN.

Note.—Regular instruction will be given on Monday and Thursday evenings, but students in these classes may work in the drafting rooms of the architectural department on other evenings, except Sunday.

5. **FREEHAND DRAWING.** Drawing from casts and from memory. Details of the figure and architectural ornament in charcoal, pencil, pen and ink. Two evenings a week; both semesters. Tuesday and Friday evenings, 7:30-9:30. Fee, \$7.50 a semester. FORSYTHE.

6. **MAP DRAWING.** (a) Farm and city plats. (b) Real estate display maps. (c) Landscape architect's maps. (d) Topographic and hydrographic symbols. One evening a week; second semester. ZELNER.

7. **LETTERING AND TITLES FOR ENGINEERS.** Principally freehand Reinhardt lettering. Title lay-outs and lettering. One evening a week; first semester. ZELNER.

8. **PLANE SURVEYING.** Elements of plane surveying relating to method of chain, compass, transit and stadia surveys; leveling; methods of keeping field notes; determination of area of irregular plots; computation and plotting of field notes; care, use, and adjustment of instruments; methods of subdivision of the United States public lands. One evening a week; first semester. CUTLER.

9. **CURVES AND EARTHWORK.** Mathematics of simple, compound, and spiral curves; preliminary and location surveys; plotting of profiles; vertical curves; cross-sectioning and computation of earthwork volume; methods of computation of overhaul; mass diagram, right-of-way and station ground maps. One evening a week; second semester. CUTLER.

10. **CONCRETE MATERIALS: SELECTION AND TESTS.** This course will cover the selection of materials entering into concrete, their properties and the tests to be applied. A study will be made of the proper combinations to obtain the best mixtures for given constituent materials at the lowest cost. Local materials will be used and those pursuing the course will make their own specimens and perform all the tests. One evening a week; first semester. McMILLAN.

11. **REINFORCED CONCRETE.** Covers the elements of the theory and practical design of reinforced concrete structures, including floors, roofs,

- walls, columns, foundations, and retaining walls. One evening a week; both semesters. McMILLAN.
12. **STRUCTURAL DESIGN.** This course will include a treatment of structural mechanics and stress computation, and the elements of the principles and practice governing the design of tension and compression members, beams, girders, and columns. Prerequisite: An elementary working knowledge of mathematics through trigonometry, and some knowledge of elementary physics. One evening a week; both semesters. MANEY.
 13. **ELEMENTARY ELECTRICITY.** This course will start with the simple laws of magnetism, and advance through the theory of direct current machinery. Special attention will be given to direct current motors and generators, armature windings, commutators, and wiring diagrams. The course will be of value to those who wish to take up the study of alternating current machinery and power plants. Experiments will be made throughout the course. One evening a week; both semesters. EDWARDS.
 14. **ELEMENTS OF ALTERNATING CURRENTS.** An experimental study of alternating currents, including the modifications of Ohm's law to include effects of inductance and capacity, the fundamental principles of the impedance coil, transformer, generator, motor, telephone transmitter and receiver, and the like. One evening a week; both semesters. TURNER.
 15. **DIRECT AND ALTERNATING CURRENT MACHINERY.** The operation and maintenance of direct and alternating current generators, motors, and electrical measuring instruments. A textbook by J. H. Morecroft will be used. One chapter will be taken each week, and a number of experiments will be made throughout the course. One evening a week; first semester. RYAN.
 16. **POWER STATION ELECTRICAL APPARATUS.** A study of the problems involved in the operation and maintenance of direct and alternating current generators and motors, switchboards, electrical measuring instruments, and storage batteries. This course is designed for men connected with central stations and isolated plants. One evening a week; second semester. RYAN.
 17. **ELEMENTS OF TELEPHONY.** Nature of voice sounds, construction and operation of receivers and transmitters, reading blue-prints and circuits, magneto and central-energy circuits, the electro-magnet as used in telephony, batteries and other generating apparatus, signalling apparatus. Some previous knowledge of alternating currents is desirable, but not absolutely necessary. The treatment will be elementary, using only simple mathematics. Experimental illustrations will be given so far as practical. One evening a week; second semester. SHEPARDSON.

18. **SHOP MATHEMATICS.** This course is designed to meet the needs of shopmen, and affords an opportunity to take up engineering work of a higher grade. Practical shop problems will be thoroly discussed. This course together with one in drafting is essential for all other engineering branches. It will cover the subject of fractions, decimals, percentage, weights of materials, areas and volumes, thread cutting, gearing, belts and pulleys, the milling machine, and a general drill in equations and the use of formulae. One evening a week; both semesters. EDWARDS.
19. **ALGEBRA.** A thoro course in elementary algebra, including the fundamentals, factoring, law of exponents, simple, simultaneous and quadratic equations, square and cube root, and the general application of the subject to practical problems. One evening a week; both semesters. EDWARDS.
20. **GEOMETRY.** A short course covering the first five books of plane geometry with numerous original exercises and theorems. One evening a week; both semesters.
21. **TRIGONOMETRY.** This course is designed for those who have had the subjects of algebra and geometry and wish to pursue civil engineering studies. The solution of right and oblique triangles will be thoroly discussed and practical plane surveying problems will be given special attention. One evening a week; both semesters. EDWARDS.
22. **ELEMENTARY APPLIED MECHANICS.** A short, practical course in elementary mechanics designed to meet the needs of students who have had a limited training in mathematics. Numerical calculation, simple graphical calculations, forces, simple machines, work, power, and energy. One evening a week; first semester. BROOKE.
23. **STRENGTH OF MATERIALS.** An elementary course on the strength of materials, designed to follow the course in applied mechanics. The subjects to be treated are: the properties of materials, stress and strain, elastic and ultimate strength, deformations, principle of moments, moment of inertia, simple stresses, shear, riveted joints, the general elementary theory of beams, columns, and shafts. One evening a week; second semester. BROOKE.
24. **TESTING OF MATERIALS.** Investigation of the physical properties of various metals and other engineering materials, including the more common grades of commercial steels, wood, cement, concrete, ropes, cables, belting, chains, etc. Supplemented by lessons on the various materials of construction and standard methods of testing. One evening a week; first semester. SHOOP.
25. **ENGINE AND POWER PLANT TESTING.** This course is intended for stationary engineers who wish to become more efficient in their line

of work. The course will consist of lessons supplemented by experimental demonstrations illustrative of certain portions of the work. Actual problems arising in power plant testing will be worked out in class with complete explanations and instruction for their solution. The laws of mechanics, heat, power, work, and energy will be applied to engine and power plant testing. One evening a week; first semester. SHOOP.

26. **HEAT ENGINES.** This is an elementary course required for all engineering students. It relates especially to the steam engine and boiler, the steam turbine, and the gas engine. Attention is given to the different types of engines, boilers, and gas engines. The general problem of a modern power plant is considered for the benefit of those who do not devote further time to the subject. One evening a week; both semesters. ALLEN.
27. **PATTERN MAKING.** A series of lessons on the theory and practice of pattern making. Open to mechanics and apprentices who are able to take the work with profit to themselves. A further course is offered to teachers who are now teaching manual training and desire to take up a more advanced branch of the work. This course can also be taken advantageously by those of mature years who wish to become teachers of manual training. One evening a week; first semester. RICHARDS.
28. **PLUMBING.** This course is designed to meet the needs of the practical shop man and will cover the principles of plumbing and the best practice in use at the present time. It is hoped that a standard text will be available. One evening a week; second semester. MARTENIS.
29. **HEATING AND VENTILATING.** The course will cover present heating and ventilating practice and is designed for heating contractors and others desirous of obtaining a fundamental knowledge of the subject. The plan of instruction includes a study of heat; methods employed for heating and ventilating buildings of various kinds; piping systems and temperature regulation. One evening a week; first semester. MARTENIS.
30. **ELEMENTARY MECHANICAL DRAWING.** This is a beginning course and includes the use of the drawing materials and instruments, lettering, drawing views, dimensioning, reading from blue-prints, making of machine and structural drawings, etc. The various steps are taken up in order and the amount of progress possible is largely dependent on the amount of outside time at the student's disposal. One evening a week; both semesters. FRENCH.
31. **TEACHERS' COURSE IN MECHANICAL DRAWING.** This is a special course offered to those who teach drawing in the grade and high schools and who wish to acquaint themselves better with standard drafting room practice. One evening a week; both semesters. FRENCH.

32. **MECHANICAL DRAWING FOR WOMEN.** This is a special course offered to women students preparing them to meet the recently increased demand for their services in drafting rooms on tracing work, drawing work, etc. This course will be in part similar to Course 30. One evening a week; both semesters. FRENCH.
33. **ADVANCED MECHANICAL DRAWING.** A practical course in drafting and drafting room methods taking up the detail of machine parts as fastenings, screws, bolts, rivets, and rivet joints; keys, cotters and pins; pipe and pipe fastenings; bearings and journals, pulleys and belting; spur gears, bevel gears, and spiral gears; cams, link motions, etc.; the application of empirical design and the principles of mechanics; assembly, diagrammatic and layout drawings. It is assumed that the student has a previous knowledge of drawing equivalent to Course 30. One evening a week; both semesters. ROWLEY.
34. **ENGLISH FOR ENGINEERS.** A course in practical English, designed to meet the professional needs of engineering students. The material of this course will include business letters—about twelve types; reports; estimates; instructions, etc. Some attention will be given to oral English. The underlying purpose of this course is to acquaint the student with the various kinds of business letters, reports, etc., and to teach him how to prepare and use them effectively. A secondary purpose is to show the prospective engineer that training in expression—written or oral—is training in clear, straight thinking and hence is a real stimulus to general efficiency. Students will be expected to do a certain amount of writing and to take part in the weekly discussions of problems bearing upon the work of the course. Ability to write simple, grammatically correct English is a prerequisite to this course. One evening a week; both semesters. NICHOLS, VIETS.
35. **CALCULUS.** A short course in calculus will be offered to those who have completed trigonometry. Stress will be laid upon the various derivatives and their application to tangents, normals, evolutes, involutes, envelopes, and maxima and minima. A few of the more important integrals relating to engineering will be given. This course is intended to give the student a working knowledge of calculus and the value it has in the engineering field. One evening a week; both semesters. EDWARDS.
36. **THEORY OF ENGINEERING.** A general course given to those students who have had two years training in engineering work. This course includes the practical application of the fundamentals to engineering problems. Only students who have taken Courses 11, 12, 13, 14, 18, 21, 22, 23, 24, 31, are eligible. Kent's *Mechanical Engineers' Pocket Book* will be used as a text. One evening a week; both semesters. EDWARDS.

DEPARTMENT OF ENGINEERING INSTRUCTION

MINNEAPOLIS

- Anderson, Arthur A., 1252 Lincoln Av.
 Anderson, C. B., 2118 E. 25th St. S.
 Anderson, L. O., 4448 46th Av. S.
 Baptiste, N. R., 1710 19th St. E.
 Bartholomew, Roy O., Fort Snelling.
 Batzli, Oscar, 222 S.E. 6th St.
 Bishop, L., 4617 Vincent S.
 Blum, John K., 4049 5th Av. S.
 Boake, J. G., 4124 Sheridan Av. S.
 Bowers, C. A., 2577 16th Av. S.
 Brent, J. F., 1687 Minnehaha W.
 Brewick, I. M., 3036 Longfellow Av.
 Brown, C. A., 2527 16th Av. S.
 Butler, H. C., 3120 Humboldt Av. S.
 Chrisler, E. T., 320 17th Av. S.E.
 Christenson, H. T., 914 24th Av. N.
 Christianson, W., 3245 22nd Av. S.
 Clow, Margaret B., 1900 Park Av.
 Clow, Nell L., 1900 Park Av.
 Cook, Willard C., 90 S.E. Emerald St.
 Corbett, Merrill P., 1108 25th Av. S.E.
 Dale, Dallas, 429 2nd Av. S.E.
 Dalton, Chas. A., 3228 4th Av. S.
 Devine, Al, 575 Aurora Av., St. Paul.
 Devitt, Thos. P., 716 Van Buren Place,
 St. Paul.
 Dewey, John C., 3111 E. 31st St.
 Dickerson, C. R., 3452 Nicollet Av.
 Dorrance, B. M., 6 S. 11th St.
 Draves, Clarence W., 2518 S. 7th St.
 Drews, E. H., Henrietta Apts. Annex.
 Eckert, Wm. F., 1747 Marshall Av., St.
 Paul.
 Engberg, Elmer V., 2809 5th Av. S.
 Engberg, Oscar S., 2809 5th Av. S.
 Faulian, George, 3025 29th Av. S.
 Felstad, Albert E., 1996 Carroll Av.,
 St. Paul.
 Findlayson, J. J., 24 Summit Av., St.
 Paul.
 Fossum, Gordon M., 3825 11th Av. S.
 Frank, Carl W., 2921 18th Av. S.
 Frank, Emil H., 2312 30th Av. S.
 Furnhofmen, E., 3412 W. 29th St.
 Gilman, H. B., 3417 Park Av.
 Gilstad, Arthur, 896 Sims St.
 Goode, Myra A., 65 Clarence Av. S.E.
 Gorman, Chas., 718 S.E. 6th St.
 Grant, E. E., 3209 17th Av. S.
 Grant, Norman W., 617 23rd Av. S.
 Groves, Susan M., 3241 Irving Av. S.
 Hafner, J. M., 1621 Washington St.
 N.E.
 Hansen, J. W., 3410 19th Av. S.
 Hanson, H. F., 374 Herschel Av., St.
 Paul.
 Harrington, Helen, 1823 Park Av.
 Harrison, Clayton, 1943 N.E. Pierce St.
 Hellier, Martin A., 3635 Fremont Av. N.
 Herwick, Arne, 1829 University Av.
 S.E.
 Holan, J. P., 819 S. 8th St.
 Inman, J. M., 1107 2nd Av. S.
 Jelinek, F. M., 1805 2nd Av. S.
 John, E. O., 373 Maple St., St. Paul.
 Johnson, E. A., 736 Geranium St., St.
 Paul.
 Johnson, E. J., 2349 Territorial Road,
 St. Paul.
 Johnson, F. J., 3017 41st Av. S.
 Johnson, F. O., 2117 Commonwealth
 Av., St. Paul.
 Johnson, K. V., 385 Clinton Av., St.
 Paul.
 Johnson, N. O., Eitel Hospital.
 Johnson, Robert, 1431 N.E. Washington
 St.
 Kauser, Paul, 926 Washington Av.
 Kline, John, 2705 17th Av. S.
 Klingenberg, C. F., 3104 Minnehaha
 Av.
 Koester, G. H., 4039 37th Av. S.
 Kohn, A. R., 425 Emerson Av. N.
 Kroening, Emil, 1875 Chilton St.
 Krogh, Victor E., 2636 14th Av. S.
 Kuck, E. H., 3420 32nd Av. S.
 LaHines, Addah L., 2413 1st Av. S.
 La Point, A. J., 1625 Emerson Av. N.
 Lee, C. C., 3845 Lyndale Av. S.
 Levin, C., 3308 Longfellow Av.
 Lindquist, Einer, 3606 Bloomington Av.
 Lovejoy, Julian, Hotel Landour.
 McManamna, G. P., 10th Av. N. and
 Washington
 Macking, C. A., 3312 1st Av. S.
 Magnuson, Andrew, 804 Hawthorne St.,
 St. Paul.
 Mansen, Andrew, 3053 15th Av. S.
 Mastrangelo, Lingi T., c/o J. S. Brad-
 street & Co.
 Mathews, J. B., 2727 17th Av. S.
 Miller, F. E., 715 Thomas St.
 Miller, Roy W., 1135 Washington St.
 N.E.
 Mosher, R. W., 643 18th St. E.
 Murray, W. N., 1136 Humboldt Av. N.
 Nelson, A. H., 1134 14th Av. S.E.
 Nodell, Leonard, Curtis Court.
 Oakley, Fayette F., 2815 N. 47th St.
 Odenbreit, F. L., 3818 Chicago Av. S.
 Olson, J. M., 1527 N.E. Adams St.
 Olson, Milford, 752 Reaney St.

Overholt, L. E., 2709 Emerson Av. S.
 Palmer, L. J., 1973 Princeton Av., St. Paul.
 Parry, J. E., 18 Oakly Av., St. Paul.
 Pavlecka, Raymond P., 404 Daly St., St. Paul.
 Pew, H. S., 3112 3rd Av. S.
 Pieh, Lillie M., 818 E. 18th St.
 Pierson, W. G., 2908 29th Av. S.
 Pitney, E. H., 1414 W. 26th St.
 Pugh, Guy L., 2659 N. Queen Av.
 Reeves, Harry L., 856 Eustis St., St. Paul.
 Rose, J. L., 3009 Calhoun Blvd.
 Ryan, James L., 720 Cedar St., St. Paul.
 Rydell, M. G., 832 Pusey Av., St. Paul.
 Schirling, H., 3117 38th Av. S.
 Shoberg, G. L., 4104 E. 44th St.
 Silkenson, Lyman, Northwestern Tele. Co.
 Sinclair, Albert, 610 9th St. S., Apt. No. 203.
 Siverson, S. M., 3412 32nd Av. S.
 Skarnes, Harris, 924 Franklin Terrace.
 Skullerud, Arthur C., 2324 S. 7th St.
 Snook, Florence, 2601 Humboldt Av. S.
 Soderstrom, A., 3204 29th Av. S.
 Sommer, Axel, 4400 44th Av. S.
 Sorenson, Axel, 3141 30th Av. S.
 Staehle, Gilbert C., 1908 Hennepin Av.
 Stock, E. G., 65 11th St. S.
 Stratton, Thomas A., 3101 Girard Av. S.
 Stroebel, John, 5229 34th Av. S.
 Strom, F. H., 1099 E. Orange St.
 Swanberg, A. J., 801 Curfew Av., St. Paul.
 Swanberg, G. H., 756 Curfew Av., St. Paul.
 Swenson, Adolph M., 714 S.E. Delaware St.
 Trierweiler, Dominie, 406 Maple St., St. Paul.
 Vytlacil, Voclav, 2119 3rd Av. S.
 Wahlquist, Ebba, 713 S.E. Delaware St.
 Wallis, R. P., Hotel Maryland.
 Weber, V. C., 604 N.E. Marshall St.
 Wise, George W., 3017 29th Av. S.
 Woolan, William, 4439 Fremont Av. S.
 Zmri, W A., 2917 31st Av. S.

The Bulletin of the University of Minnesota

*General Extension Division
Evening Business Courses
1918-1919*



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CALENDAR

1918-1919

1918

September	23-28	Week	Registration week
September	27	Friday	Annual opening of Extension Courses, 8:15 p.m. St. Paul
September	28	Saturday	Annual opening of Extension Courses, 8:15 p.m. Minneapolis
September	30	Monday	Regular class work begins
November	28	Thursday	Thanksgiving holiday
December	21	Saturday	Christmas recess begins
December	30	Monday	Class work resumed

1919

January	20-24	Week	Examination week, first semester
January	24	Friday	First semester ends
February	3	Monday	Second semester begins
February	3	Monday	Merchants' Short Course begins
May	19-23	Week	Examination week, second semester
May	23	Friday	Second semester ends

EVENING BUSINESS COURSES

FACULTY

MARION LEROY BURTON, Ph.D., D.D., LL.D., President

CYRUS NORTHROP, LL.D., President Emeritus

RICHARD R. PRICE, M.A., Director of University Extension

JOHN F. EBERSOLE, M.A., Professorial Lecturer in Economics

STANLEY B. HOUCK, LL.M., Instructor in Business Law, General Extension Division

LEE KUEMPL, Instructor in Railroad Traffic and Rates, General Extension Division

ALBERT J. LOBB, LL.B., Ph.B., Lecturer in Political Science

MAC MARTIN, Professorial Lecturer in Advertising, General Extension Division

MORTON M. NEWCOMB, B.A., Instructor in Business Management, General Extension Division

CHARLES H. PRESTON, B.A., Associate Professor of Business Administration, General Extension Division.

FRANK M. RARIG, M.A., Associate Professor of Rhetoric and Public Speaking

CLARE L. ROTZEL, B.C.S., C.P.A., Associate Professor of Accounting, General Extension Division

PERCIVAL W. VIESSELMAN, M.A., LL.B., Instructor in Political Science

GENERAL INFORMATION

ADMISSION TO COURSES

It is not intended that any regulation should debar from the privileges of these courses any person who can pursue them profitably. Those persons desiring credit toward a University degree must of course comply with the regulations laid down by the college in which credit is desired. Those not desiring such credit may be admitted, provided they are sufficiently mature (more than eighteen years of age) and can satisfy the departments in which they wish to study that they are able to carry the work profitably to themselves and without hindrance to the classes.

CREDIT FOR EXTENSION COURSES

Credit toward a degree will be given students who satisfy the entrance requirements of the college in which credit is desired and who successfully complete any of the extension courses of university grade. This applies to all the courses listed under academic or collegiate courses, unless otherwise specified. It also applies to nearly all of the business courses. The courses listed under engineering do not carry credits. Such credits will be recorded upon matriculation in the University. Courses requiring one evening (two hours) a week for recitation normally carry two credits. Those requiring more time usually carry correspondingly more credit.

The statement concerning credit for the Certificates in Accountancy, in Finance, and General Business will be found on pages 19 and 20.

Students *must indicate at the time of registration whether or not they desire university credit in the courses pursued.*

Regulations Concerning Credit in the College of Science, Literature, and the Arts

1. All courses for which credit is given in the College of Science, Literature, and the Arts must be authorized with the credits by the Advisory Committee. But credit shall be given only to those extension courses which are conducted in essentially the same manner as the corresponding courses in the University and which are carried on under similar conditions as to attendance, term's work, quizzes, and examinations.

2. Each credit course shall be directly in charge of a member of the Faculty.

3. Any regularly enrolled University student successfully completing an approved course shall receive the appropriate credit.

4. Any person shall receive a certificate upon satisfactorily completing an approved course. The certificates entitle the holder to the corresponding University credits whenever he has earned thirty credits in residence. The Registrar or the Administrative Board shall in all cases pass upon the qualifications of the student.

5. The maximum credit towards a degree for work done in extension courses shall not exceed one half the unit hours required for graduation. At least twelve credits in the major subject shall be completed in regular college classes and of these, six must be from starred courses.

6. Credit for an amount not exceeding one quarter of the unit hours required for graduation may be given at the University of Minnesota to students of such other extension schools or departments as may be approved by the Advisory Committee, provided that such credit shall be subject to the same provisions as govern credits in the General Extension Division of the University of Minnesota.

RESIDENT STUDENTS

1. No University student may enroll for extension courses for the purpose of removing a condition or failure.

2. No University student may enroll for an extension course if this would increase his credit hours beyond what the rules allow.

3. Any University student who wishes to enroll for an extension course must first obtain the approval of the dean of his college.

FEEES

Collegiate courses meeting one evening a week require a fee of \$5 a semester of sixteen weeks. For collegiate courses meeting two evenings a week, the fee is \$10 a semester.

The fee for business and engineering courses is \$45 per year, payable \$22.50 each semester, when registering for three subjects; or \$30 per year, payable \$15 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials.

The fee does not include the cost of texts or material. The cost of these items varies from \$1 to \$3.

All fees are payable at the time of registration, and registration should not be deferred longer than the second meeting of class. Checks should be made payable to the University of Minnesota. *No fee will be refunded on account of withdrawal from any course*, unless application for refund be made within *ten days* after registration.

Special arrangements are made with organizations, clubs, and business concerns, whereby instruction may be given to groups of students within the organization at a sum which will somewhat reduce the individual rate per member.

PLACES FOR CONDUCTING CLASSES

Most of the classes in engineering will be held in the Main Engineering Building, Electrical Engineering Building, or the Mechanical Engineering Building.

Other classes in Minneapolis are conducted at the University, at the Public Library, at the City Hall, and in some of the public school houses. Definite locations for each class will be announced in a circular to be published about September 15.

In St. Paul the work will be carried on at the Mechanic Arts High School, the City Hall, and the Public Library. Additional accommodations will be provided for in some cases.

NUMBER FOR WHOM CLASSES WILL BE ORGANIZED

Classes will not be organized for a smaller enrollment than fifteen, and in some courses a larger registration will be required.

TIME OF MEETING

Classes ordinarily meet at 7:30 and dismiss at 9:30. Classes in business subjects frequently meet at 6:30.

ENROLLMENT

Registration for the first semester takes place during the week preceding the organization of classes (September 23-28). Students may also register with the instructor at the class.

PROGRAM OF CLASSES

Folders will be issued about September 15, giving the program of classes and schedules of meeting places. It should be understood that not all the courses listed in this bulletin are given in any one year. Final announcements may be found in the special folders. Folders will be issued for the collegiate courses, the business courses, and the engineering courses. Separate bulletins are also issued for each of these courses.

LOCATION OF EXTENSION OFFICES

The offices of the General Extension Division may be found on the third floor of Millard Hall on Washington Avenue and Union Street S. E. To telephone the office call N. W. East 2760 or T. S. 41811 and ask the University central for the General Extension Division.

DEPARTMENT OF BUSINESS INSTRUCTION

The following courses are arranged with a view to meet the needs of those who desire special training for the higher business positions. Business is rapidly becoming a profession, or rather the business field is opening up several professions, among which are accountancy, banking and finance, advertising, and salesmanship. The University through its General Extension Division is attempting to afford a preparation for these professions, as it has long done for the profession of law, medicine, engineering, and the like.

The time appears to be approaching when it will be just as necessary for one to secure special training for business positions as it is now to secure training for the learned professions. It is recognized, too, that the rewards for those trained for the business professions are fully as great both financially and in a social way as they are for those trained for the so-called learned professions. Moreover, experience is proving that the very people whom the General Extension Division is reaching can, while being actively employed during the day, best comprehend and appreciate the kind of instruction the evening classes afford.

The subjects of instruction are divided into three groups of courses of study, viz: those aiding in the preparation for accountancy, those aiding in the preparation for banking, and those having for their object a general business training. In each of these courses certain fundamental subjects, such as business law, economics, and business English, are required. Upon the completion of one of these courses a University Certificate to that effect will be granted.

THE HERBERT C. PALIN ADVERTISING PRIZE

Mr. Herbert C. Palin of Los Angeles, California, has presented a silver loving cup to the advertising class. On this cup is to be inscribed each year the name of the student who, after taking a full year's course in advertising, submits the most constructive plan for an advertising campaign. The cup is to remain in the possession of the winner for one year.

FEEES

The fee for these courses is \$45 per year, payable \$22.50 each semester, when registering for three subjects; or \$30 per year, payable \$15 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials.

Special arrangements are made with organizations, clubs, and individual business concerns, whereby instruction may be given to groups of students within the organization at a sum which will somewhat reduce the individual rate per member.

COURSE IN ACCOUNTANCY

This course is designed to meet the needs of two classes of students, namely, those who wish to prepare to take the state C.P.A. examination with a view to becoming public accountants, and those who aim to fit themselves for responsible positions with private business firms.

For the student who wishes to pursue either object we recommend that he plan to take the regular course herein outlined and thus secure a broad foundation for his work.

Upon the satisfactory completion of this course, the University Certificate in Accountancy will be granted.

Beginning with the year 1917-18 the course requires a total of thirty credits, each one-semester subject counting for two credits. Each subject requires one two-hour class recitation per week for one semester of sixteen weeks.

In order to secure the University Certificate in Accountancy, fourteen credits in Accounting are necessary, including Principles of Accounting A, Principles of Accounting B, Accounting Laboratory A, Accounting Laboratory B, Accounting Practice and Procedure A, and Accounting Practice and Procedure B; six credits in Business Law including Business Law A and Business Law B; two credits in Economics, and two credits in Business English. The student may elect subjects to cover the remaining four credits.

Students of experience and some maturity may join the classes by registering as auditors, in case they do not care to secure credit for the course toward a certificate in Accountancy. These students will not be called upon to take part in the discussions nor to turn in work which is required of students registering for credit. In this way the University hopes to make available the benefits of the courses to those who feel they lack the opportunity or time to do the work regularly required in the course.

The following subjects are required for the course:

- | | | |
|--|--------------------------------|------------|
| 1. Principles of Accounting A (2) | 7. Auditing A (2) | } elective |
| 2. Principles of Accounting B (2) | 8. Auditing B (2) | |
| 3. Accounting Laboratory A (2) | 9. Cost Accounting (2) | |
| 4. Accounting Laboratory B (2) | 10. Business Law A (2) | |
| 5. Accounting Practice and Procedure A (2) | 11. Business Law B (2) | |
| 6. Accounting Practice and Procedure B (2) | 12. Business Law C, D or E (2) | |
| | 13. Economics (2) | |
| | 14. Business English (2) | |
| | 15. Elective Subjects | |

COURSE IN BANKING AND FINANCE

This course is designed to meet the needs of two kinds of students: (1) those who are preparing for, or who are now engaged in, such financial callings as banking, corporation management, stock and bond brokerage, credit work, or financial journalism; and (2) business men who wish

to utilize in the upbuilding of their particular business all of the modern scientific knowledge of a practical financial nature.

University Certificate in Finance

Those students who wish to secure a thoro knowledge of finance, and an adequate knowledge of general business for a financial occupation, are urged to arrange their registration so as to obtain the Certificate in Finance as offered by the University.

Beginning with the year 1917-18 this certificate will be granted to those who complete a total of thirty credits distributed as follows:

Principles of Economics (2)	Principles of Accounting B (2)
Banking Practice (2)	Business Law A (2)
Investments and Speculation (2)	Business Law B (2)
Corporation Finance (2)	Business Law C or D (2)
Business English (2)	Elective subjects (10)
Principles of Accounting A (2)	

The American Institute of Banking

The American Institute of Banking recognizes the evening courses of the General Extension Division at the University of Minnesota as fulfilling all the requirements of its educational department. Students who complete these courses in Finance are accredited by the Institute without further examination or formality.

By this arrangement, the members of the Minneapolis, St. Paul, and Duluth chapters of the American Institute of Banking may obtain the A. I. B. Certificate upon completion of Economics (2 credits), Banking (2 credits), and Business Law (4 credits).

The advanced courses in Finance coincide with the requirements of those who wish to receive the title of Associate from the Institute for postgraduate study.

GENERAL BUSINESS COURSE

For the benefit of those students who do not care to specialize in either accounting or in finance, yet wish to secure recognition as having completed a definite group of subjects, the following course is arranged. It is likely that certain of the subjects herein outlined will be more fully developed, and later, together with the fundamental subjects, form courses in themselves.

It is planned that each of these courses will furnish a preparation for a definite calling, such as advertising, salesmanship, and sales management, railroad traffic, and office management.

The University Certificate in General Business

Beginning with the year 1917-18 this certificate will be granted to those who successfully complete a total of thirty credits distributed as follows:

Business English (2)
Business Law A (2)
Business Law B (2)
Economics A (2)
Principles of Accounting A (2)
Principles of Accounting B (2)

Elective subjects (18)
(These electives should be selected with a view to specializing in some particular field, as in Advertising and Selling, in Railroad Traffic, and the like.)

DESCRIPTION OF SUBJECTS

ACCOUNTING

The various courses in Accounting are designed to subdivide the work in order that there may be proper sequence as well as to make possible sufficient emphasis on each phase of the subject. In the first year the subdivision is as follows: first, a series of lectures and discussions in the principles of accounting; and second, the putting of those principles to practical application by the working out of specific problems. Students not desiring to specialize in Accounting may elect to omit this latter course, i.e., Accounting Laboratory A and B, but all taking the laboratory courses are required to take the corresponding courses in Accounting Principles.

1. PRINCIPLES OF ACCOUNTING A. Fundamental classification of the balance sheet and operating accounts. The books and records primarily essential to disclose the data necessary for such balance sheets and operating accounts. Special discussions on the trading margin, operating expenses, etc. Various bookkeeping and accounting operations, such as accruals, deferred charges; special systems of handling accounting data, such as departmentization of accounts, imprest cash systems, the treatment of controlling accounts and auxiliary ledgers; preparation of simple working sheets and statements. Two credits (one evening a week); first semester.
2. PRINCIPLES OF ACCOUNTING B. Continuation of Principles of Accounting A with more special reference to manufacturing and corporation accounts; treatment of good-will and depreciation, accountant's working sheet; adjusting of surplus, sinking funds and reserve accounts; drafting condensed balance sheets and income statements. Two credits (one evening a week); second semester.
3. ACCOUNTING LABORATORY A. The working out of practical problems covering the subject matter discussed in Principles of Accounting A, under the guidance of an instructor. One credit (one evening a week); first semester. PRESTON.

4. ACCOUNTING LABORATORY B. Work of a similar kind covering the subject matter discussed in Principles of Accounting B. One credit (one evening a week); second semester. PRESTON.
5. ACCOUNTING PRACTICE AND PROCEDURE A. An advanced course for the accounting student following the study of Accounting Principles. The object of the subject is twofold; first, to familiarize the student with the peculiar accounting problems of business; and, second, to afford the student the means to secure that necessary insight and skill which practicing accountants must possess in order to meet the demands made upon them. The subject matter is presented chiefly by means of a more or less exhaustive study of a representative business. The work consists of the following: (a) a study of the distinctive group of accounting problems which are likely to arise in a business organization through a series of years and the scientific solution of those problems; (b) a study of the accounting problems peculiar to representative business other than manufacturing and selling. The manner of presenting the subject is essentially practical, the students being required to work out for themselves problems similar to the ones studied. Two credits (one evening a week); first semester. ROTZEL.
6. ACCOUNTING PRACTICE AND PROCEDURE B. A continuation of Course 5. Two credits (one evening a week); second semester. ROTZEL.
7. COST ACCOUNTING. The elements of cost, i.e., prime cost and indirect expense or burden, kinds of cost accounting, continuous process and production order costs. The materials ledger. Methods of accounting for labor. Methods of distributing indirect or "overhead" expense. The machine rate method, and when applicable. Methods of compensating labor. Predetermined standard costs, and their relation to "scientific management." The cost ledger and its relation to the general ledger.

Modern industry demands that each plant be equipped with adequate accounting facilities for ascertaining the cost of operation. These costs are necessary to show, first, the profitableness of each branch of the industry so as to enable the management to push the profitable, and to drop the unprofitable, lines, or to place them upon a paying basis; second, the cost of each article as a basis of price making; third, so far as possible, the cost of each operation, so as to enable the management to plan economies in the operation of the plant. Two credits (one evening a week); first semester. PRESTON.
8. AUDITING A. This course is essentially practical and is intended only for those whose previous training in the principles of accounting has been sufficient to enable them to be benefited by this advanced work. The chief aim will be to give students the training necessary to enable them to conduct audits and investigations either as private auditors

or public accountants; to set up accounts for various purposes as a result of such audits or investigations and to prepare suitable reports thereon. Two credits (one evening a week); first semester. ROTZEL.

9. AUDITING B. A continuation of Course 8. Two credits (one evening a week); second semester. ROTZEL.

BANKING AND FINANCE

21. BANKING. The documents created by transactions in goods; the function of a bank in aiding industry; the steps in organization of national or state banks; corporate powers, rights, and liabilities of stockholders and directors; bank administration and the various offices and departments; deposits, depositors, and receiving tellers; bank reserves and circulating notes; the clearing-house, handling country checks, and transit departments; collections; domestic exchanges; foreign exchange; discounts and collateral loans; credit department; how profits are made on government deposits, by note issue, in buying and selling exchange, by analysis of depositor's accounts; accounting methods and general balances; examination; supervision and reports; and bank policy from the analysis of local bank reports.

This course aims to explain the various functions of an up-to-date bank and to teach the methods by which its work is accomplished. A careful survey will be made of the economic basis, legal status, accounting methods, and financial problems of banking as carried on by large commercial institutions having a full complement of banking operations including city, country, and foreign business. The method of presentation comprises reading references, lectures, review questions, and use of the blackboard for all computations. Two credits (one evening a week); first semester. EBERSOLE.

22. MONEY AND CREDIT. The origin, evolution, and functions of money; the gold standard, forms of money current in the United States; government paper, bank notes, and deposit currency described and analyzed; credit and its effects; the causes of general price changes; various types of standards and currency systems including bimetallism and the gold exchange standard; discount rates, the problem of securing an elastic currency, and the distribution of the world's gold between the nations; the problem of securing an ideal money. Text-book and money-market articles in current newspapers will furnish material for discussion.

A thoro understanding of the character and functions of money and of the principles of credit is the cornerstone of modern business intelligence. This course in money and credit constitutes an interesting and scientific treatment of the forces that determine value and prices, of the processes of exchange, and of the many forms of media of payment represented by monetary and credit instruments. Two credits (one evening a week); second semester. EBERSOLE.

- 23 (145). CORPORATION FINANCE. The evolution of the private corporation and its relation to other business units; the organization of a corporation; charters and articles of association; directors and officers, manner of their selection, their functions and responsibilities; forms of corporation stocks and bonds and their respective legal and financial characteristics; the marketing of securities; capital and revenues; intangible values; books and accounts; dissolutions, consolidation, and reorganization; trust and holding companies; the taxing of corporations; corporation statistics; the preparation and analysis of corporation reports; the corporation before the law.

Modern business in all of its major forms is directed through corporate organization. The course in corporation finance is designed to give the student such a knowledge of corporations and their administration as to make clear the general organization of industry and commerce. Texts will be extensively supplemented by informal lectures, class discussions, and topical essays. Two credits (one evening a week); second semester. EBERSOLE.

- 24 (142). INVESTMENTS AND SPECULATION. Stocks, bonds, endowments, annuities, and other forms of investment considered with regard to their security, income, and opportunity for rise or fall in value. The social process of saving and investment; the investment fund; various classes of investments; the criteria of a good investment applied to government, corporation, and real estate loans; railroad, industrial, timber, and mining securities compared; the laws of investment values. Stock exchange operations; money market and other influences affecting prices; analysis of present fundamental conditions. The actual operations upon the stock and produce exchanges are used to illustrate the study of speculation, and the course of the markets and the bank rates is closely followed as a basis of deduction in the analysis of cause and effect. Textbook and interpretation of financial quotations and reports. Two credits (one evening a week); second semester. EBERSOLE.

BUSINESS LAW

NOTE: The subjoined courses in Business Law give credit toward a University degree only to those students who have earned six credits in Political Science or six in Economics or three in each. Students who have not met these prerequisites may, however, take these courses for credit toward one of the University Certificates in business. Specially qualified and mature extension students may petition for University credit.

31. BUSINESS LAW A—CONTRACTS AND AGENCY. Contracts: Definition of a contract; offer and acceptance; special formality; consideration; capacity of parties; contractual powers of minors, of persons mentally deficient, and of married women; reality of consent, mistakes, misrepresentation, fraud, undue influence, legality of object; the operation of contracts; assignment of contracts; interpretation of contracts; methods of discharging contracts.

Agency: Methods of forming agencies; methods of terminating agency; the rights and obligations of principles, agents, and third parties. Text, lectures, and cases. Two credits (one evening a week); first semester. LOBB.

This course is fundamental and must be completed before registration will be accepted for other courses in business law.

32. BUSINESS LAW B—SALES AND NEGOTIABLE INSTRUMENTS. Sales: Sales of personal property; definition of a sale and its distinction from a bailment; when the title passes to the buyer; what title passes; rights of the seller (a) to set the contract aside on the ground of fraud, (b) to enforce lien for the purchase money, (c) to obtain stoppage in transit; rights of the purchaser (a) to demand goods of a certain quality, (b) to demand warranty of the purchaser's title.

Negotiable Instruments: Nature and characteristics: (a) definitions and characteristics, (b) uniform negotiable instrument law; form; (a) what a negotiable instrument must and must not contain, (b) non-essential, (c) effect of blanks and delivery; negotiation: (a) negotiation, indorsement, and delivery, (b) holder in due course and his rights; maker's and acceptor's contract: (a) maker's contract on a promissory note, (b) acceptor's contract on a bill of exchange, (c) presentment of a bill of exchange for acceptance; drawer's and indorser's contract: (a) drawer's contract on a bill of exchange, (b) indorser's contract on a bill or note, (c) presentment for payment, (d) notice of dishonor, (e) protest, (f) checks, (g) position of indorser after liability is fixed. Text, lectures, and cases.

Two credits (one evening a week); second semester. For those who have completed Course 31. LOBB.

33. BUSINESS LAW C—PARTNERSHIP AND CORPORATIONS. Partnerships: Formation of partnership; articles of co-partnership; methods of terminating partnerships; rights and obligations of partner (a) toward his co-partners, (b) as an agent of the firm, (c) toward the firm's creditors, (d) for an accounting; special partners; limited partnerships.

Joint Stock Companies: How distinguished from ordinary partnerships; how like ordinary partnerships; statutory requirements.

Corporations: Formation of corporations of various classes; terminations of corporations; membership in corporations, methods of transferring interest, fraudulent issuance of stock by corporate officers; rights of stockholders (a) to dividends, (b) to inspect and control corporate affairs; liabilities of stockholders (a) on stock subscriptions, (b) to pay assessments, (c) for the corporate debts; the doctrine of ultra vires; rights and obligations of corporate directors; corporate mergers and consolidations; domestic and foreign corporations. Text, lectures, case assignments, and class discussions.

For those who have completed Course 31. Two credits (one evening a week); first semester. VIESSELMAN.

34. BUSINESS LAW D—REAL PROPERTY, MORTGAGES, BANKRUPTCY. Real Property: Estates in land, estates held jointly or in common, equitable estates, relative rights of adjoining owners, trespass, easements, sales of real property, the contract to sell, conveyances, wills, mortgages, and liens; landlord and tenant, the lease, assignment and subletting, rent, and remedies for non-payment. Insolvency and bankruptcy. Two credits (one evening a week); second semester. HOUCK.

ECONOMICS AND COMMERCE

- 41 (1a). ELEMENTS OF ECONOMICS. Utility and valuation; price and the laws of price as applied to competitive and monopolistic conditions; price and the cost of production; the factors of production; the law of diminishing returns; division of labor and its relation to the development of industry; the forces and factors involved in the concentration of industry, including the difference between the agricultural and the mechanical industries; wages, rent, interest, capitalization, enterprise, and business profits, finally, some attention is given to money, credit, banking, and international trade. Two credits (one evening a week); first semester.

This course aims to ground the student in principles that are basic in all economic discussions. The study naturally centers in value and the laws of valuation under the various applications.

- 42 (3a). PRACTICAL ECONOMIC PROBLEMS (ADVANCED ECONOMICS). Taxation—the tariff, general property tax, corporation taxes, income taxes; labor problems—unionism, trade agreements, strikes and lock-outs, law in reference to labor unions, injunctions, employers' liability, workmen's compensation; railway problems—theory of rate-making, state and federal control; monopoly problems—economics of big business, intensive study of U. S. Steel Corporation, Sherman Anti-Trust Act, and important legal decisions relating to restraint of trade. Two credits (one evening a week); second semester.*

The aim of this course is to study economic principles in their relation to some of the leading questions of to-day.

43. PRINCIPLES OF BUSINESS MANAGEMENT. Principles of organization showing comparative values and uses of line, staff, and combination types. Methods of saving time, money, and energy in the moving of work and materials. Making a scientific analysis of a particular operation, the operation of a department, and the operation of a plant. How to make use of the analysis in reducing waste time, energy, money, and material. Principles underlying the establishment and maintenance of the improved methods and conditions obtained by the above study. These principles include a method of determining upon proper and clearly defined policies and a study of their use and value; the necessity for and proper means of profiting by the experience of others. How to develop business judgment in yourself

and your subordinates. The principles governing executive control and the maintenance of discipline; discussion of methods of determining upon a wage scale and legitimate profits; the relation of physical condition to success, and its bearing upon production. Some principles underlying proper management of finances. The relation of home management to industrial and commercial efficiency; the organization and management of the sales department; training the salesman. The general problem of selection of help with a brief outline of a modern system of scientific selection and placement by a study of individual characteristics. No credit toward a degree (one evening a week); first semester. NEWCOMB.

51. **ELEMENTARY ADVERTISING.** This course is intended for those who desire sufficient knowledge of the elements of advertising to prepare reasonably satisfactory copy for newspapers, magazines, street car cards, circulars, and booklets. The fundamental elements of display, layout, headings, and copy are carefully outlined and the student is given practice in the preparation of advertisements.

This course is intended to acquaint the student with what may be called "the tools of advertising" before he undertakes either of the two advanced courses in the planning and preparation of advertising campaigns. No credit toward a degree (one evening a week); first semester. MARTIN, assisted by Miss CLEVELAND.

52. **NATIONAL ADVERTISING.** A study of advertising from a new angle. The student puts himself in the place of one having a product for sale, and from the first lesson to the last each lecture is so planned as to give the methods pursued in conducting the many different steps in an advertising campaign.

The student first analyzes the product from the standpoint of its advertisability. He considers the planning of a trademark, the organization of the sales force, the selling points, the prices, and the profits. He then thoroly analyzes the market, chooses the advertising mediums most adaptable to his particular campaign, and decides on the appropriation.

Students will be furnished with pamphlets for these lectures which will give reference to practically everything which has so far been published on subjects taken in the course. In this way the experience of probably three hundred of the leading advertising men of this country will be available to the student. No credit toward a degree (one evening a week); second semester. MARTIN, assisted by Miss CLEVELAND.

61. **SALESMANSHIP.** A course for insurance men, specialty men, traveling salesmen. Lectures and demonstrations on the principles underlying successful salesmanship, as follows: the proper approach; securing attention; arousing interest; creating desire; closing the sale; the

psychology of salesmanship; the use of suggestion in selling; the use of argument.

The chief feature of the work will be the demonstration sales. So far as possible each student will be given an opportunity to take part in a sufficient number of demonstrations that he may apply the principles laid out in the course. One evening a week; each semester.

71. **RAILWAY TRAFFIC AND RATES.** The course covers the changed conditions under which the traffic of the country is now being handled. The railroads do not compete but are operated by the United States Railroad Administration. The orders, rules, and regulations of the Administration are studied and the lessons further embrace the practical application of the Act to Regulate Commerce and other laws and regulations; the correct compilation of tariffs; methods under which rates are published by other than the line over which they are applicable; the classifying of freight; classifications and their peculiar exceptions; the principal rate bases, such as all-rail, rail-and-lake, etc.; tariffs, rules and regulations governing domestic, export, and import traffic and the principal commodities; the routing and mis-routing of freight; various methods of loading and offering freight for shipment; tracing of freight; presentation and adjustment of claims; the cancellation, suspension, and restoration of rates and tariffs; "privileges" such as transit handling of grain, storage, diversion, etc.; rulings of the Interstate Commerce Commission are referred to in the lectures and rates are quoted from current tariffs and classifications. Four credits (one evening a week); both semesters. KUEMPEL.

ENGLISH AND SPANISH

BUSINESS ENGLISH. Not a lecture course nor a dry, prosy study of technical English grammar and composition, but a new practical course designed for business men and women who recognize the value of a command of English for business and every-day writing and conversation. The main object of the course is to acquaint the student with the various types of business letters, reports, etc., and to teach him how to write and use them effectively. A secondary object of the course is to show students how training in expression—written or oral—is primarily training in thinking and analysis and hence is a very real stimulus to general business efficiency. The types of letter to be studied include complaint and answer, reminder, acknowledgment, recommendation, application, collection, form, follow-up, sales, inter-departmental, and composite. Students will be expected to write letters and take part in the weekly discussions of actual problems in business correspondence. No textbook is required. Typewritten synopses of lessons, furnished each week, provide the student with a cumulative text. Ability to write simple, grammatically correct English is a prerequisite to this course. No

credit toward a degree. One evening a week; first semester. Repeated second semester.

83. PUBLIC SPEAKING. For description see Department of Collegiate Instruction. One evening a week; both semesters. RARIG.

90. SPANISH. For description see Department of Collegiate Instruction. One evening a week; both semesters.

BUSINESS CERTIFICATE HOLDERS OF 1917

On May 25, 1917, the following persons were granted University business certificates in the courses indicated:

Certificates in Accounting

Bayley, Charles S., Minneapolis	McHenry, Robert D., Minneapolis
Cottor, Emil F., St. Paul	Schwartz, Solomon, Minneapolis
Davis, Charles A., Minneapolis	Smith, Arthur V., Minneapolis
Haselbeck, Henry, St. Paul	Wing, Llewellyn F., Minneapolis
Løberg, James M., Minneapolis	Wood, George, Minneapolis

Certificates in General Business

Gruber, J. Jeffrey, St. Paul	Kennedy, Thomas F., Minneapolis
Rose, Carrol H., Minneapolis	

Certificates in Finance

Berry, Harry E., Minneapolis	Johnson, Evan M., Minneapolis
Danielson, Andrew W., St. Paul	Jones, Earl R., Minneapolis

CERTIFICATE HOLDERS OF 1918

On May 28, 1918, the following persons were granted University business certificates in the courses indicated:

Certificates in Accounting

Erbalang, Alphonse A., St. Paul	Welliver, Le Roy, Minneapolis
Gustafson, Victoria, Minneapolis	Linnerooth, Sidney, St. Paul
Nimmerfroh, Gertrude, Minneapolis	

Certificates in General Business

Corcoran, John J., St. Paul	Melamed, Louis, St. Paul
Schaffelke, Henry A., St. Paul	

Certificates in Finance

Oberg, Ezra

In Absentia

Hauge, Arthur, Certificate in General Business
Shannon, Thomas, Certificate in Accounting

REGISTRATION 1917-1918
DEPARTMENT OF BUSINESS INSTRUCTION
MINNEAPOLIS

Abrahamson, Agnes, 3100 47th Av. S.
Abrahamson, Ellen, Nurses' Home,
City Hospital
Addy, W. C., 4924 Pleasant Av.
Agnew, Mary, 3301 Aldrich Av. S.
Alberg, Albert, 824 27th Av. N.E.
Albinson, Paul, 1718 11th Av. S.
Alm, Robert, 1248 Edgerton Av., St.
Paul
Alvord, S. W., 4013 Sheridan Av. S.
Anderson, H. M., 719 S.E. Fulton St.
Anderson, O. W., 720 E. 16th St.
Anderson, W. L., 720 E. 16th St.
Anderson, Gordon, 2904 Girard Av. S.
Anderson, Harry, 1098 11th Av. S.E.
Anderson, Walter, 415 E. 14th St.,
Apt. No. 2
Antisdel, Ernest, 2415 W. 42nd St.
Aschenbeck, Laura, 731 4th Av. N.
Asplin, Harold, 3136 Oakland Av.
Asselin, R. A., 4334 Nicollet Av.
Aynsley, Catherine A., 358 Pleasant
Av., St. Paul
Bacon, Mabel, 1501 11th Av. S.
Baker, R. K., 3225 Elliott Av.
Ballard, Earle R., 1154 Portland Av.,
St. Paul
Bardill, O. H., 1717 Thomas Av. N.
Barton, A. D., 3631 Dupont Av. N.
Bauman, Herman, 1725 Girard Av. N.
Beal, Ralph, 925 17th Av. S.E.
Beck, Frieda, 4400 Washburn Av. S.
Bedard, Raleigh, 1531 22nd Av. N.
Beisang, Anthony, 122 Yale Place
Berg, S. E., 3549 Stevens Av.
Berglund, Wallace, 1902 Penn Av. N.
Bertelson, Arthur, 3917 10th Av. S.
Beveridge, G. G., 3832 Stevens Av.
Birrr, C. H., 115 S. 4th St.
Bitcek, Eugene, 1922 7th St. S.
Blackberg, S. E., 4206 Dupont Av. N.
Blackney, V. W., 22 E. 15th St.
Boody, F. J., 3755 Lyndale Av. S.
Booker, A. W., 327 E. 16th St. no. F.
Borovansky, F. J., 399 Superior St.,
St. Paul
Bortinek, Louis, 1132 Humboldt Av. N.
Boulay, J. A., 428 S. 8th St.
Brandl, R. B., 1070 Ashland Av., St.
Paul
Brink, W. F., 5149 30th Av. S.
Brockman, R. M., 191 Macalester Av.,
St. Paul
Brokaw, F. A., 1805 Carroll Av., St.
Paul
Brown, E. H., 2700 Elliot Av.
Brown, I. G., 175 Iglehart Av., St.
Paul
Brown, T. C. W., 3753 Dupont Av. S.
Brown, Paul, 504 Ridgewood Av.
Buck, J. W., 1120 Dupont Av. N.
Bullis, H. E., 2323 Garfield N.E.
Burns, Anne L., 310 12th Av. S.E.
Camp, C. S., 921 Chicago Av.
Carlson, C. O., 510 Queen Av. N.
Carlson, R. V., 1920 Crystal Lake Av.
N.
Carlson, W. C. E., 276 21st Av. S:
Carlstrom, A. H., 2123 Emerson Av.
N.
Carr, C. A., 3506 14th Av. S.
Carrington, H. J., 112 E. 37th St.
Cederberg, William, 4516 15th Av. S.
Chailquist, F. R., 3639 Sheridan Av. N.
Champlin, J. E., Y. M. C. A.
Chapsky, Louis M., 1415 Douglas Av.
Chase, R. L. 3137 40th Av. S.
Cheney, R. C., 2309 32d Av. S.
Christensen, W. A., 969 Edmund St.,
St. Paul
Clute, R. V., 2111 Marshall av., St.
Paul
Cohen, J. G., 1203 N. Aldrich
Condit, L. A., 1810 Clinton Av.
Crawford, Mabelle, 1819 Lyndale Av.
S.
Cumming, H. F., 2502 Sheridan Av. N.
Cunningham, E. E., 2195 Carter Av.,
St. Paul
Curtis, E. B., 1608 Clinton Av.
Dahl, N. H., 130 E. 38th St.
Dahl, Ed, 2827 N. 3d St.
Danforth, M. L., 3110 Fremont Av. S.
Darst, Ethel, 519 S. 9th St.
Davey, C. H., 3737 Portland
Davies, Margaret, 149 Summit Av., St.
Paul
Davis, J. L., 4339 Pleasant Av.
Dearth, L. W., 2867 James Av. S.
Derby, L. M., 108 W. Rustic Lodge
Av.
Dietrich, W. F., 2419 Chicago Av.
Dietrich, Arthur, 1423 Morgan Av. N.
Dillahunt, W. G., 5531 Colfax Av. S.
Dirba, Charles, 2309 5th Av. S.
Dixon, N. D., 2519 Emerson Av. S.
Dobs, R. F., 1706 Hawthorne Av.
Doerr, H. H., 3700 16th Av. S.
Doimer, Arne L., 2011½ S. 6th St.
Dolney, Ann C., 612 S.E. Ontario St.

Donavon, Claire, 440 Roy St., St. Paul
 Dowlan, Rosalie, 1779 Carroll Av., St. Paul
 Drinkwater, C. H., 3429 Portland av.
 Duffy, G. L., 2010 3d Av. S.
 Dunn, Eva L., 1705 25th Av. N.
 Dunn, Ross E., 4346 1st Av. S.
 Dupwick, A. E., 4915 Garfield Av.
 Earenfight, Linnette, 3634 N. Dupont
 Eastman, H. V., 4321 Elliott Av.
 Edsten, Doris, 4549 Abbott Av. S.
 Eielby, Walter, 3135 46th Av. S.
 Ekblad, E. G., 3112 43d Av. S.
 Ellsworth, C. O., 1810 Clinton Av. S.
 Elser, L. B., 3641 Park Av.
 Emmons, R. D., 1535 N.E. Adams St.
 Engman, Fridolph, 2446 Chicago Av.
 Erblang, A. A., 299 W. 6th St., St. Paul
 Evans, J. W., 3521 W. 28th St.
 Exworthy, Frances, 1910 N.E. McKinley St.
 Fares, G. M., 2309 Elliott Av.
 Farmer, E. H., 4347 Garfield Av.
 Farnsworth, R. W., 2951 Morgan Av. N.
 Ferrian, W. S., 116 S.E. 4th St.
 Fewer, W. J., 1218 N.E. 2nd St.
 Finden, Sitona, 1416 Portland
 Fitzpatrick, Lulu G., 1316 Vine Place
 Flemming, Eleanor, 2550 N.E. Monroe St.
 Flood, J. L., 211 S. 11th St.
 France, Alexander, 4516 Drew Av. S.
 Franzen, E. T., 1010 E. 19th St.
 French, R. W., 1018 16th Av. S.E.
 Friedman, Irving, 1040 Irving Av. N.
 Fritts, B. V., 3315 Nicollet Av.
 Ganzer, J. H., 816 S.E. 8th St.
 Gelhart, H. C., 2818 1st Av. S.
 Gensler, Sarah R., 709 Bradford Av. N.
 Gibbons, Frank, 1404 Spruce Place
 Gibson, W. W., 1515 Vine Place
 Gilfillan, W. R., 4001 Wentworth
 Gillis, L. G., 2503 Pierce St.
 Gjerde, Sigverd, 2303 30th Av. S.
 Gohlke, C. G., 3821 4th Av. S.
 Goldstein, Louis, 743 Ashland Av., St. Paul
 Gooley, H. J., 26 15th St. N.
 Gotberg, Paul, 3837 Nicollet Av.
 Graham, J. L., 301 Aldrich Av. N.
 Granning, Carl, 2347 Upton Av. N.
 Gravender, Milton, 3216 17th Av. S.
 Green, H. B., 1325 W. 27th St.
 Green, Howard, 58 Chamber of Commerce
 Griffiths, Bertha, 3409 Aldrich Av. S.
 Griswold, L. W., 107 W. Island Av.
 Grossbusch, Magdalene, 124 E. 14th St.
 Gunnerson, J. M., 1725 Emerson Av. S.
 Gustafson, Victoria, 1311 Chestnut Av.
 Guthrie, Carrie T., 2010 Park Av., Flat E
 Haas, Casper, 1004 Grand Av., St. Paul
 Haas, Edmond J., 107 W. Grant St.
 Hagg, Arthur, 913 E. 26th St.
 Hagman, W. R., 121 S.E. Cecil St.
 Hagman, Ernest, 121 S.E. Cecil St.
 Hallam, Arthur, 90 N. 16th St.
 Hanson, G. E., The Leamington.
 Harrigan, Nell C., 611 N.E. Broadway
 Harris, Sally P., 105 Vine Hall
 Harrison, Carl J., 3112 10th Av. S.
 Harvey, A. J., 617 E. 14th St.
 Harwood, Stanley, 2644 Aldrich Av. S.
 Haslund, Arthur, 1701 Portland Av.
 Hasselberg, A. W., 4749 Park Av.
 Hauge, Arthur, 4056 10th Av. S.
 Hawk, T. E., 1207 Oliver Av. N.
 Hayes, Fred M., 3405 3d Av. S.
 Hayes, H. J., 1999 Ashland Av., St. Paul
 Heck, Norman H., 424 S. 7th St.
 Hedquist, R. J., 2709 Stevens Av.
 Hendrickson, H. N., 3041 Stevens Av.
 Hermstad, L., 1910 N.E. Pierce St.
 Hill, Elmer M., 3019 Morgan Av. N.
 Hill, Grant E., 416 S.E. Erie St.
 Hillman, P. L., 4017 12th Av. S.
 Himmelman, Harry, 554 6th Av. N.
 Hinman, Kathleen, 52 S. 10th St.
 Hodge, Albert C., 615 9th Av. S.E.
 Hodge, Rodney, 3145 Park Av.
 Hodgkins, Donald, 3028 Park Av.
 Hoffman, J. W., 428 8th St. S.
 Hogan, Kathryn, 505 Sykes Bldg.
 Hokanson, Esther M., 1269 Thomas St., St. Paul
 Hollingsworth, Ralph, 1107 13th Av. S.E.
 Horn, D. H., 2546 N.E. Fillmore St.
 Horstman, F. A., 1319 Yale Place
 Howser, Claude M., 911 7th Av. S.
 Hughes, C. F., 2418 Ferrant Place
 Idzal, Cecilia, 1604 Chicago Av.
 Jackson, H. M., 1914 N.E. Pierce St.
 Jackson, W. J., 322 13th Av. S.E.
 Jackson, Claire A., 1616 Edmund St., St. Paul
 Jackson, Clifford, 2214 14th Av. N.
 Jacobson, Henry, 3149 21st Av. S.
 Jaffa, Goldie, 704 Dupont Av. N.
 James, Albert C., Hotel Maryland
 Jensen, Carl J., 1913 Clinton Av.

Johnson, B. L., 3919 2nd Av. S.
 Johnson, C. E., 4817 Upton Av. S.
 Johnson, J. H., 4039 Queen Av.
 Johnson, R. E., 4517 30th Av. S.
 Johnson, Aaron, 1317 4th Av. S.
 Johnson, Arthur, 3417 Oakland Av.
 Johnson, Arthur E., 3824 Chicago Av.
 Johnson, Axel E., 1504 Clinton Av. S.
 Johnson, Ethel, 1325 1st Av. S.
 Johnson, Evan M., 1335 Oliver Av. N.
 Johnson, Leander, 1115 Harmon Court,
 Flat A1
 Johnson, Lillian P., 2911 Lyndale Av.
 N.
 Johnson, Mary B., 3919 2d Av. S.
 Kedney, F. S., 3203 Lyndale Av. S.
 Kemp, Harry, 5115 Lyndale Av. S.
 Kennedy, Annie, 23 5th Av. S.
 Kersten, Ida C., 432 N.E. Adams St.
 Kiley, Veronica, 1316 Vine Place
 Kimmel, F. W., 1515 Lagoon Av.
 King, Samuel E., 2912 Fremont Av. N.
 Kingbay, I. I. B., 2119 Cedar Av.
 Kinports, Mabel, 1425 Vine Place
 Kjelsberg, Clara, 3824 Chicago Av.
 Klein, Frank, 897 Cromwell Av., St.
 Paul
 Knight, F. S., 960 Selby Av., St. Paul
 Knudson, H. B., 3222 15th Av. S.
 Kootz, J. T., 612 E. Franklin Av.
 Krone, F. O., 1422 Logan Av. N.
 Kulberg, David, 615 E. 17th St.
 Kulp, D. E., 4038 Wentworth Av.
 Ladd, Archer P., 2116 Chicago Av.
 Lane, J. F., 811 16th Av. N.
 Lahart, J. S., 2510 Garfield Av.
 Larsen, Abbie, 1414 Harmon Place
 Larsen, Agnes M., 827 18½ Av. N.E.
 Larsen, Roy F., 2720 31st Av. S.
 Larson, J. S., 1600 Aldrich Av. N.
 Lathan, E. M., 3814 Columbus Av.
 Lee, Reynold A., 2024 30th Av. S.
 Le Faivre, Edgar, 3613 Portland Av.
 Le Febre, Rose M., 1903 1st Av. S.
 Leitzman, Fred, 414 33d Av. N.
 Lenske, Reuben, 611 Fremont Av. N.
 Leverentz, Andrew, 311 30th Av. N.
 Leverentz, Carl, 55 Williams Av. S.E.
 Levinson, Louis, 914 Bryant Av. N.
 Lewis, M. H., 2012 Garfield Av.
 Lienan, T. Clair, 19 N. 15th St., Apt 4
 Liljengren, Arnold L., 2424 Elliott Av.
 S.
 Liljenstrom, W. J., 914 W. 36th St.
 Limburg, P. H., 3605 10th Av. S.
 Lind, P. A., 3245 Blaisdell Av.
 Lindell, Alma, 2218 7½ St. S.
 Linder, H. W., 2119 17th Av. S.
 Lindquist, H. C., 4511 Wentworth Av.
 Linne, Award, 409 S.E. Oak St.
 Linnerooth, Sidney H., 762 Duluth Av.,
 St. Paul
 Lostetter, R. J., 4409 Zenith Av. S.
 Loth, Ruth, 1711 Queen Av. N.
 Lundeen, Mabel, 1423 Wash St. N.E.
 Lyman, Martha, 2433 Portland Av.
 Lysserup, T. M., 3016 29th Av. S.
 McCabe, R. L., 1713 4th St. S.E.
 McConville, A. L., 2331 Monroe St.
 N.E.
 McDonald, Sarah, 4307 Fremont Av. N.
 McHenry, Robert D., 389 Dayton Av.,
 Apt. 42, St. Paul
 McKay, W. R., 4415 Stevens Av.
 McKewin, G. L., 1010 Cromwell Av.,
 St. Paul
 McLain, C. A., 110 E. 25th St.
 McLane, J. J., 2745 Hennepin Av.
 McLaughlin, H. J., 2230 N.E. Hayes
 St.
 McLeod, J. B., 1451 W. Lake St.
 Magnuson, Ernest, 2101 10th Av. S.
 Martin, J. M., 867 Iglehart Av., St.
 Paul
 Martinson, Annetta, 415 James Av. N.
 Matheis, O. N., 1004 Lincoln, St. Paul
 Mather, S. R., 3136 James Av. S.
 Mathews, R. L., 2551 Dupont Av. S.
 Matson, R. A., 77 Old Chamber of
 Commerce
 Mattson, W. A., 106 14th St.
 Meier, Angelina, 1712 Dayton Av., St.
 Paul
 Melamed, Louis, 867 Iglehart Av., St.
 Paul
 Melamed, M. L., 867 Iglehart Av., St.
 Paul
 Merrill, L. H., 3833 Stevens Av. S.
 Miller, C. R., 2609 Columbus Av.
 Miller, O. H., 3345 2nd Av. S.
 Monasch, Jerome, 2201 Oliver Av. S.
 Monasch, Stanley, 2201 Oliver Av. S.
 Moore, Zellia, 3712 Upton Av. S.
 Mulligan, John, 4311 Blaisdell Av.
 Mulvahill, J. E., 1846 E. 26th St.
 Nachtigal, Othillie, 654 Aurora Av., St.
 Paul
 Nauman, Richard, 89 Ash St., St. Paul
 Neass, A. E., 1690 Capitol Av., St.
 Paul
 Neils, Henry J., 1931 Park Av.
 Nestor, Charles G., 3808 Oakland Av.
 Nettleton, H. E., 721 Met. Life. Bldg.
 Neumeier, C. J., 3820 Garfield Av. S.
 Neuses, M. R., 1918 Morgan Av. N.
 Nevin, Genevieve M., 3322 Clinton Av.
 Newell, L. L., 1918 Morgan Av. N.
 Niemackel, W. E., 725 E. 17th St.

Niles, J. B., 2232 Carter Av., St. Paul
 Nilson, M. N., 830 24th Av. S.
 Nimerfroh, G., 3936 Portland Av. S.
 Nolan, J. A., Jr., 2512 Chicago Av. S.
 Nordquist, Helen, 337 E. 18th St.
 Nyholm, Clarence, 1731 Morgan Av. N.
 Obara, Shiro, 723 Marquette Av.
 Oberg, E. N., 226 S.E. Harvard St.
 Odlin, Cecil, 3548 Colfax Av. S.
 Ogren, Sigurd, 917 31st Av. N.
 Olsen, H. G., 916 Franklin Terrace
 Olson, T. J., 4042 Colfax Av. N.
 Olson, J. W., 3146 1st Av. S.
 Olson, O. C., 1253 Lafond St., St. Paul
 Olson, Melvin, 2729 Colfax Av. S.
 Olson, Paul, 2538 N.E. Taylor St.
 Orr, R. S., 2509 Emerson Av. N.
 Orth, Fred, 612 15th Av. S.E.
 Ortle, Arthur, 913 16th Av. S.
 Owen, Clifford, 1821 Elliott Av.
 Owens, Paul, 2815 Calhoun Blvd.
 Parsons, W. D., 4217 Bryant Av. S.
 Paul, Ernest, 2121 Bryant Av. S.
 Paulson, Hazel, 1426 N.E. Jefferson St.
 Pelletier, B. J., Chamber of Commerce
 Pennell, E. D., 4100 Upton Av. S.
 Perper, Jack, 400 Emerson Av. N.
 Person, V. H., 315 Newton Av. N.
 Person, Joseph, 1216 Humboldt Av. N.
 Peterson, E. G., 1823 25th Av. N.
 Peterson, Caroline, 3924 Pillsbury Av.
 Peterson, George A., 60 E. Summit
 Av., St. Paul
 Peterson, Robert, 690 Lowry Av. N.E.
 Peterson, Walter V., 923 Chicago Av.
 Petry, R. J., 1802 Marshall Av., St.
 Paul
 Phillips, P. W., 1451 W. 33rd St.
 Pierce, E. C., 4616 Grand Av.
 Pinkerton, J. M., 1922 Penn Av. N.
 Polczak, J. A., 923 N.E. Marshall St.
 Pomeroy, F. E., 2404 Nicollet Av.
 Porter, C. A., 3851 Grand Av.
 Pratt, S. A., 2540 14th Av. S.
 Preston, E. R., 1507 Dupont Av. N.
 Rademacher, Loren, 3523 Stevens Av.
 Reagan, J. H., 2016 Selby Av., St.
 Paul
 Reed, Alice M., 4536 Vincent Av. S.
 Reinhart, Vernon D., 1920 Emerson
 Av. S.
 Reynolds, J. E., 4929 Pleasant Av.
 Reynolds, George, 3811 10th Av. S.
 Richard, G. M., 303 19th Av. S.
 Rickel, J. G., 4629 Fremont Av. S.
 Riedel, Aage, 2716 Hennepin Av.
 Rissman, A. H., 3120 Columbus Av.
 Roberg, C. F., 3020 Bryant Av. S.
 Roden, Thomas, 3228 5th Av. S.
 Roehl, Catherine, 2011 N. 3d St.
 Rose, F. H., 200 E. 27th St.
 Rose, Carroll H., 926 13th Av. S.
 Rosholt, T. G., 977 14th Av. S.E.
 Ross, F. H., 1704 Park Av.
 Rumsey, Hazel, 1915 1st Av. S.
 Rundell, E. A., 3432 Holmes Av.
 Rundquist, Eunice, 3812 Harriet Av. N.
 Rutherford, M. V., 1547 Hillside Av.
 N.
 Rutherford, Richard, 1016 27th Av.
 N.E.
 Rychman, Joseph, 2644 30th Av. S.
 Rye, Carlton, 1407 Girard Av. N.
 Sampson, Morris, 2122 5th St. S.
 Sandahl, H. E., 3844 Elliott Av.
 Sattley, Archie, 3223 Garfield Av.
 Sawyer, Russell, 2514 4th Av. S.
 Schaaf, Urban, 2121 Bryant Av. N.
 Schilling, P. A., 879 Thomas St., St.
 Paul
 Schomberg, W. J., 2015 Dupont Av. S.
 Schultz, Henry F., 821 12th Av. N.
 Schwartz, Isadore, 914 Emerson Av. N.
 Schwarz, Alfred, 828 12th Av. N.
 Seaman, H. A., 1689 Van Buren St.,
 St. Paul
 Segelbaum, Chas., 2600 Grand Av.
 Shannon, Joseph, 1118 Como Av. S.E.
 Sharrot, Florence, 3920 Oakland Av.
 Shattuck, I. E., 3322 Blaisdell Av.
 Shea, Ray L., St. Cloud, Minn.
 Sheehan, John, 1820 Dupont Av. N.
 Sheridan, C. R., 2908 12th Av. S.
 Shoemaker, Alice, 711 Douglas Av.,
 Flat No. 6
 Shortall, J. O., 2920 Garfield Av. S.
 Simpson, Edythe, 3808 5th Av. S.
 Sinclair, R. D., 947 Iglehart Av., St.
 Paul
 Skahen, Mrs. M. E., 1514 Newton Av.
 N.
 Smith, H. H., 2604 Clinton Av.
 Smith, R. O., 2811 Bryant Av. N.
 Smith, Aloysius W., 4050 Wentworth
 Av.
 Smith, Anna, 1711 Lyndale Av. N.
 Solon, Milton, 4104 Bryant Av. S.
 Sprague, Gordon, 1103 S.E. 4th St.
 Squiers, B. R., 900 Soo Line Bldg.
 Stansberry, Nellie, 726 S. 17th St.
 Stansbury, R. F., 1185 Ashland Av.,
 St. Paul
 Stark, Linden L., 1415 N.E. Madison
 St.
 Starks, C. F., 4117 3d Av. S.
 Stebbins, R. S., 3119 Clinton Av.
 Stewart, Alvin, 3706 N.E. Quincy St.
 Stiles, William, 2640 15th Av. S.

Stolp, Arne, 2304 11th Av. S.
 Straka, Paul, 621 S.E. Ontario St.
 Strickland, Margaret, 2100 2nd Av. S.
 Striegl, S. A., 609 S.E. Oak St.
 Sullivan, Helen, 934 Cromwell Av., St. Paul
 Sunne, Edwin, 4021 12th Av. S.
 Sussel, Bernard, 313 E. 14th St., St. Paul
 Sutherlin, E. B., Curtis Court
 Swan, Florence M., 3900 Pleasant Av.
 Swanson, A. W., 4331 Blaisdell Av.
 Swanson, E. L., 813 Lowry Av. N.E.
 Tadsen, F. C., 105 E. 25th St.
 Ten Voorde, Mabel, 2916 3d Av. S.
 Thorshaug, Olaf, 208 S.E. Cecil St.
 Thuras, Harold, 1520 1st Av. S.
 Trytten, J. M., 503 Washington Av. S.E.
 Tisdale, Noble, 3144 Irving Av. S.
 Tucker, Mrs. Meta C., 2218 Dupont Av. N.
 Turner, W. H., 3224 Oakland Av.
 Utley, Roxie Belle, 325 E. 27th St.
 Vander Bie, B. F., 4929 Vincent Av. S.
 Villevik, J. K., 3023 Dupont Av. N.
 Vreeman, Anton, 322 13th Av. S.E.
 Wagner, J. F., 329 12th Av. N.E.
 Wallace, Edith M., The Leamington
 Wangaard, A. C., 904 16th Av. S.
 Weingart, A., 3346 Emerson Av. N.
 Weisman, Esther, 802 Irving Av. N.
 Weisman, Jennie, 802 Irving Av. N.
 Weitzel, Frederick, 5152 Washburn Av. S.
 Welliver, L. R., 163 Bedford St. S.E.
 Wentz, Harry, 1513 Bryant Av. N.
 Wentzel, W. E., 335 Busch Terrace
 West, Nellie M., 2806 17th Av. S.
 Westerman, H. V., 2936 Dupont Av. S.
 Wheeler, Carrie, 3336 Irving Av. S.
 Wichman, A. H., 731 E. 28th St.
 Wicht, Fred, 1169 14th Av. S.E.
 Wick, Emily, 1219 N.E. Adams St.
 Will, F. L., 4037 Harriet Av.
 Wilson, William C., 812 Washington Av. S. E.
 Wisner, Ina C., 2024 Dupont Av. S.
 Wolff, E. A., 1727 Irving Av. N.
 Wolkoff, William, 586 Canada St., St. Paul
 Wood, G. B., 3144 Clinton Av.
 Woolpy, Evelyn, 1817 Chicago Av.
 Wren, J. R., 353 Broadway N. E.
 Wright, Ethel J., 3220 Grand Av.
 Yerxa, Clifford M., 608 S.E. 7th St.
 Young, Marie L., 2420 Elliott Av.
 Zagschevert, M. J., 415 S. Osceola, St. Paul
 Zulauf, W. E., 4412 Yerxes Av. S.
 Zwick, W. E., 1602 Emerson Av. N.

ST. PAUL

Abel, George J., 783 Aurora Av.
 Acker, O. L., 746 Cook St.
 Adkins, W. O., 638 Central Park Place
 Amon, F. R., 689 Case St.
 Anderson, C. A. L., 954 Westminster
 Anderson, G. W., 661 North St.
 Angell, J. F., 605 Ottawa Av.
 Beebe, K. E., 1408 W. Minnehaha St.
 Beirstettel, L. J., 1506 Lincoln Av.
 Benson, J. R., 751 Fauquier St.
 Blandin, A. A., 655 Portland Av.
 Bockstruck, Herbert, 661 Laurel Av.
 Borovansky, F. J., 399 Superior St.
 Borovansky, J. A., 479 Michigan St.
 Brokaw, F. A., 1805 Carroll Av.
 Broten, Anton, 342 Fuller Av.
 Brown, Allyn, 781 Curfew Ave.
 Buetow, Herbert, 733 Charles St.
 Buetow, Paul C., Nat'l. Capital Bank
 Canniff, Elva D., 185 W. Brompton, W. St. Paul.
 Carlsen, A. E., 687 Dayton Av.
 Carlson, C. R., 1138 Jessie St.
 Castner, P. H., Peoples Bank of St. Paul
 Coller, Walter, 1149 Ashland Av.
 Connolly, F. J., 466 Dayton Av.
 Conway, M. J., 857 Cherokee Av.
 Corcoran, J. J., 667 Como Blvd.
 Cottor, Emil, 193 Iglehart Av.
 Delander, N. P., 733 Cook St.
 Doe, Richard H., 381 Ferdinand St.
 Doughty, Ruth, 181 College Av.
 Doyle, Kathryn, 479 Laurel Av.
 Edwards, J. Willard, 306 N. Cleveland Av.
 Ekblad, Emanuel, 3112 43d Av., S. Minneapolis.
 Emery, Marion G., 93 Kent St., Flat No. 8
 Engstrom, Theo. A., 694 Sims St.
 Enoch, Frank, 1382 Breda St.
 Erblang, A. A., 299 W. 6th St.
 Ertz, A. L., 796 Osceola Av.
 Fitzpatrick, E. R., 713 Tuscarora Av.
 Fleckenstein, R., 45 Lexington Av. S.
 Fogg, F. M., 285 Summit Av.

Foley, T. W., 51 Cleveland Av. S.
 Fox, L. A., 848 Cottage
 Gardner, I. O., 1481 Ash Av.
 George, C. W., 147 W. Summit Av.
 Gerber, A. H., 1594 Portland Av.
 Goff, F. W., 358 Bates Av.
 Goldstein, Louis, 743 Ashland Av.
 Gotke, Oscar, 655 Case St.
 Grohs, L. A., 426 Cherokee Av.
 Groser, F. J., 88 W. Morton St.
 Gruber, Jeffrey, 2349 Commonwealth
 Av.
 Gustafson, C. I., 1166 Burr St.
 Harding, A. R., 410 Iglehart Av.
 Haselbeck, H., 733 Jessamine Av.
 Hoffman, Florence, 1178 Ashland Av.
 Hoklas, H. W., 554 Y. M. C. A.
 Honebrink, W., 916 Beech St.
 Jensen, A. O., 668 Central Park Place
 Johnson, R. A., 971 Fuller Av.
 Johnson, George A., 902 Woodbridge
 Kadela, A. L., 389 View St.
 Kasmirski, A. W., 242 Forbes Av.
 Kerker, Thomas, 1250 Capitol Av.
 Kilby, Erminie, 118 Western Av. N.
 Koenen, W. B., 318 Franklin Av. S.
 Lang, F. W., 1982 E. Minnehaha St.
 Larson, C. W., 912 Park Av.
 Lavigne, J. A., 82 Tilton St.
 Leinenkugel, E. J., 854 Linwood Place
 Ley, Norbert H., 233 Nelson Av., Flat
 No. 17
 Ley, Raymond H., 233 Nelson Av.
 Linnerooth, Sidney, 1130 Fauquier St.
 McDiarmid, Josephine, 547 Rondo St.
 McKenzie, Edith, 34 E. Summit Av.,
 Flat No. 5
 Melamed, Louis, 867 Iglehart Av.
 Melamed, M. L., 867 Iglehart Av.
 Merry, C. R., 265 Dayton Av., Apt. M.
 Michel, C. B., 610 Fuller Av.
 Michel, G. A., 610 Fuller Av.
 Miller, Herbert M., 982 Hastings Av.
 Minea, B. V., 115 W. Robie St.
 Moore, Margaret, 351 Bates Av.
 Muggenbrug, Albert E., 707 Thomas St.
 Mulliken, C. E., 521 S. Cleveland
 Mulliken, W. F., 521 S. Cleveland
 Munson, Clifford, 549 Selby Av.
 Nelson, Elmer, 1357 Wynne St.
 Norquist, E. O., 1100 Jessie St.
 Oas, E. A., Jr., St. Paul Park
 Oberg, S. L., 710 Rose St.
 O'Brien, Genevieve, 511 Harrison Av.
 Olsen, H. E., 182 Webster St.
 Olson, W. S., 306 Williams St.
 Pabst, G. W., Jr., 390 Hope St.
 Patterson, D. K., 269 Brimhall Av.
 Payne, Sam F., 838 Selby Av.
 Peck, Rachael S., 1129 Minnehaha St.
 Peters, Emma M., 332 Selby Av.
 Peterson, G. A., 710 Cedar St., Flat
 No. 18
 Peterson, M. A., 290 Iglehart Av.
 Peterson, P. A., 428 Goodrich Av.
 Phillip, Jack, 991 Hague Av.
 Quinn, S. J., 344 University Av.
 Raymer, W. H., 1835 Iglehart Av.
 Ringe, A. H., 697 Goodrich Av.
 Robbins, G. M., 610 St. Peter St.
 Robertsen, A. H., 629 Ottawa Av.
 Rosholt, T. G., 977 14th Av. S.E.,
 Minneapolis
 Rosine, H. P., 682 Orange St.
 Rost, W. R., 604 Jessamine St.
 Rowles, Florence, 1958 Selby Av.
 Rylander, Eugene, 706 Sims St.
 Schaffelke, H. A., 500 Bellows Av.
 Schiffer, M. J., 615 Ashland Av.
 Schilling, P. A., 879 Thomas St.
 Schlinkert, Loretta, 2002 Grand Av.
 Schlueter, Theodore, 665 Central Park
 Place
 Schulte, Bernard F., 810 Margaret St.
 Schultz, W. E., Y. M. C. A.
 Schulze, H. C., 160 Maria Av.
 Schwartz, Mary, 1064 Iglehart Av.
 Sinclair, R. D., 947 Iglehart Av.
 Skok, Eugene L., 295 Carroll Av.
 Smith, Stanley J., 961 Ashland Av.
 Spence, Fenton B., 301 S.E. Walnut
 St.
 Spence, T. J., 929 Laurel Av.
 Steinmueller, H. E., 760 Tuscarora Av.
 Stewart, C. J., 1697 Capitol Av.
 Stoffel, J. C., 985 E. 5th St.
 Stolpestad, A. T., 44 Wheeler Av. S.
 Sussel, B. J., 313 E. 14th St.
 Swanson, M. S., 63 W. College Av.
 Toner, John J., 552 Rice St.
 Trierney, C. J., 476 Dayton Av.
 Tweedale, A. E., 1860 Grand Av.
 Vars, W. K., 1601 Edmund St.
 Vaughan, Morgan, 420 Hamline Av. S.
 Volkmann, G. W., 451 Edmund St.
 Wahlquist, C. W., 1415 Lafond St.
 Way, G. W., 77 Iglehart Av.
 Wichman, W. A., 849 E. 5th St.
 Winkel, A. H., 577 Thomas St.
 Zehnder, F. C., 1165 Burns Av.

DULUTH

Anderson, L. O., 337 N. 59th Av. E.	Laskowski, Frank S., 2918 W. Huron.
Arneson, A. E., 101 E. 5th St.	Linne, Thore J., 2217 W. 10th St.
Barton, D. D., Alexandria Hotel	Lundgren, G. F., 712 Lake Av. S.
Bigle, Frank, 224 W. 6th St.	Lundgren, Linnea A., 712 Lake Av. S.
Beschenbossel, C. C., 415 E. 4th St.	McKibbin, T. E., 32 E. 5th St.
Boisjoli, Archie, 2417 W. 5th St.	Mannheim, J. E., 1601 E. 5th St.
Brown, C. F., 316 N. 16th Av. E.	Marjamaa, Jafet, 506½ E. 4th St.
Carey, Frank B., 1712 E. 5th St.	Martin, Edw. H., 531 Y. M. C. A.
Cox, James, 1705 Tower Av.	Mostue, Erling, 120 E. 3rd St.
Culmer, W. C., 2230 Vermillion Rd.	Murphy, James E., 312 E. 4th St.
Cyr, A. T., 423 13th Av. E.	Nelson, Arthur W., 114 E. 3rd St.
Denny, Harry J., 227 E. 5th St.	Olander, R. L., 911 N. 56th Av. W.
Eggers, A. C., 1105 E. 4th St.	Olson, C. O., c/o Northern Shoe Co.
Elliott, F., 808 Wolvin Bldg.	Peterson, Alvin, 2001 E. 4th St.
Fisher, Sherwood S., 407 E. 6th St.	Potter, R. K., 506½ E. 4th St.
Goss, Leander Mauritz, 221½ Devonshire St.	Pyfer, G. A., 120 8th Av. E.
Hanson, Jarl W., 506½ E. 1st St.	Robertson, Myrtie B., 417 W. Superior St.
Harvey, W. W., 844 W. 8th St.	Schroeder, Peter, 317 N. 13th Av. E.
Ingalls, Gilbert, 216 E. 4th St.	Swartendrover, Lisle, Y. M. C. A.
Jensen, Harvey A., 1014 12th Av. E.	Townsend, R. E., 605 Woodland Av.
Johnson, F. S., 11 4th Av. E.	Walstad, Justin A., 6415 Green St.
Johnson, Walter R., 905 E. 5th St.	Williams, Maude, 227 W. 3d St.
Larrabee, J. W., 215 W. 7th St.	Witz, Gertrude, 120 E. 4th St.
Larson, A. L., 614 E. 9th St.	Zygmanski, John P., 1215 E. 8th St.
Larson, Roy, 808 Wolvin Bldg.	

The Bulletin of the University of Minnesota

Department of Agriculture

Dairy Short Courses 1918-19 University Farm, St. Paul

Creamery Butter-Makers Short Course, Dec. 2-14, 1918

Cheese-Makers Short Course, Dec. 2-21, 1918

Ice Cream Makers Short Course, Dec. 16-21, 1918

Dairy Short Course, Jan. 6-March 1, 1919

Creamery Managers Conference, Jan. 2-3, 1919

Short Course Series

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FACULTY DAIRY SCHOOL COURSES

1918-9

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A. C. ARMY, B.S. in Agr.	Forage Crops, Pastures
A. M. BULL	Farm Structures
K. L. MATTISON	Creamery Bookkeeping
P. L. JOHNSRUD	Dairy Arithmetic

SPECIAL LECTURES

H. M. BRACKEN, M.D.	State Sanitary Laws
A. J. CHESLEY, M.D.	Preventing Diseases
S. H. WARD, V.M.D.	Livestock Quarantine
DON D. LESCOHIER, Ph.D.	Workman's Compensation Law
H. A. WHITTAKER, B.S.	Rural Sanitation, Water Supply
A. D. WILSON, B.S. in Agr.	Food Administration
M. P. MORTENSON	Insulated Ice Houses
W. A. MCKERROW	Dairy Test Associations
N. E. CHAPMAN, M.A.	Marketing Eggs Through the Creamery
FRANK ROBOTKA, B.S.	Creamery Accounting

THE DAIRY COURSES, 1918-19

Purpose.—The purpose of the courses is to offer an opportunity to young men and women to become more thoroly trained in the science and the art of breeding, feeding, and managing dairy herds, conducting cow-testing associations and making the largest quantity of butter and cheese of the highest possible quality and to encourage them to greater community usefulness.

Demand.—The demand for men well trained in dairy herd management and in creamery operation is greater than the supply. Several farms and factories in the state have had difficulty during the last year in securing good men, even at liberal salaries. Dairy herd handling, creamery butter-making, and factory cheese-making offer good openings to young men who apply themselves faithfully.

Location.—The Dairy Courses are taught at University Farm, between St. Paul and Minneapolis. The School is reached by taking the Como-Harriet street car in either city, and getting off at Carter Avenue. The School is about a ten-minute walk east from the car line. It is in the country, yet within half an hour's car ride of either city.

A list of places furnishing room and board is supplied the students when they arrive.

Lockers for clothing and books are free, but students are expected to provide their own padlocks.

The Instructors

All lecturers and instructors are practical men, chosen because of their special fitness to give accurate and sound advice in the particular work which they teach. Most of the instructors in the butter-makers courses have had years of practical experience and come fresh from their labor in the factory to

the work of teaching. For a quarter of a century the Minnesota Dairy School has led in practical teaching, and the success which the school has attained is largely due to the fact that the instructors have been workers in dairying, and not merely students of it. No pains will be spared to continue to secure men of successful experience.

The Courses

The Dairy School of the past served well its purposes and was helpful to more than 2,300 young men, many of whom have since achieved national distinction in various fields of dairy work; but the demands made upon the creamery men of to-day are more exacting than ever before, and these demands can be met only by men of fuller knowledge and more exact training. To continue to be of the greatest service, the school has been enlarged and divided into two courses, the Dairy Short Course for beginners, and the Creamery Butter-Makers Short Course for experienced men.

CREAMERY BUTTER-MAKERS SHORT COURSE

Beginning December 2, 1918, and continuing two weeks, intensive, specialized instruction will be offered in handling ice machines and gas engines, testing dairy products, pasteurization, starters, controlling composition, creamery bookkeeping, and creamery management. The instruction will be given through lectures and practice work.

This course is planned to meet the needs of the experienced butter-makers who desire to brush up in particular lines, and is open only to those men who have had at least two years' all-round creamery experience.

This course will be much the same as the **Advanced Creamery Course** of the past and will include lectures and practice work in creamery bookkeeping and management, as well as work in starters—pasteurizing, churning control, advanced testing of dairy products, and engineering.

Expense

Necessary expenses outside of railroad fare for the two weeks will be about as follows:

Registration fee.....	\$10
Room and board.....	20
White suits.....	5
Books	5
Laundry, etc.....	5
	<hr/>
Total	\$45



TESTING BUTTER FOR MOISTURE

CHEESE-MAKERS SHORT COURSE

Beginning December 2 and continuing three weeks, the cheese-makers of the state will be offered a chance to learn starters and milk testing, and better and easier methods of

making cheese. Lectures will be given on milk chemistry and bacteriology, answering clearly the question, "Why does milk spoil." While at work over the vat the best methods of handling poor milk and bad curd will be explained.

Cheese-making, tho less important in this state than butter-making, is worthy of study and should be encouraged in many localities. The work in the cheese-room is carried on as in any well-conducted factory.

The milk is received, carefully tested for acid and fat, and made into American cheese. Every step in the process is explained by the skilled cheese-maker in charge. Quality of product and efficient production of ample yield are carefully studied.

This course is open to any young man or woman over sixteen years of age who has had at least six months' experience at cheese-making.

Expenses

The necessary expenses outside of railroad fare for the three weeks will be about as follows:

Registration fee.....	\$10
Room and board.....	25
White suits.....	5
Laundry, etc.....	5
	<hr/>
Total	\$45

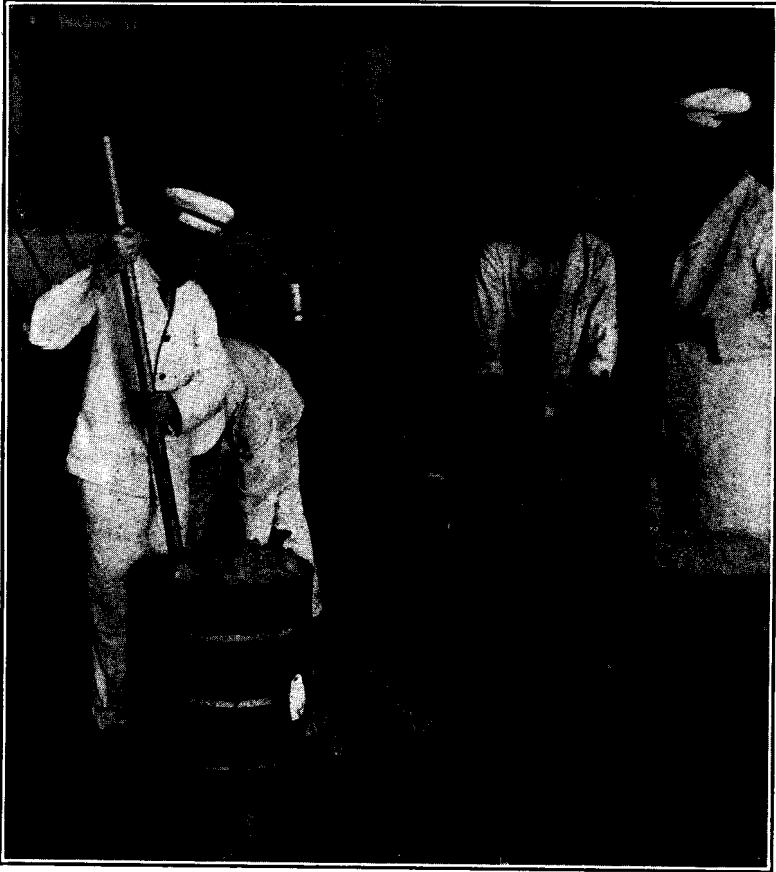
ICE CREAM MAKERS SHORT COURSE

For five days, beginning December 16, the principles and practice of ice cream making will be taught by lectures and by practice with various freezers and in the cutting room.

To prepare young men to meet all reasonable future requirements, an ice cream department was established six years ago and equipped with machinery, freezers, ice-crushers, holding-tanks, mixing-vats, and all other essentials.

The course has proved a success. Freezers of four different types have been installed. These will furnish a chance for more practice work on the part of the students, and for familiarizing them with a larger variety of freezing machines.

Making ice cream is a new enterprise for many Minnesota butter-makers, but one offering, in many places, a bright future to the careful and diligent. At present about seventy-five creameries in the state are making ice cream and others are considering doing so.



STUDENTS MAKING COMMERCIAL ICE CREAM

The ice cream course will continue for a week, following the creamery butter-makers short course. It will be taught by butter-makers and ice cream makers, and from the standpoint of the local creamery rather than from that of the city enterprise.

Both bulk and brick ice creams are made, hardened, wrapped, packed, and in every respect prepared for shipping as in regular commercial plants. Our ice cream is sold to a discriminating trade, and has competed successfully with that put out by nearby commercial firms.

Any man who already knows milk and machinery as creamery men must know them, can in a week acquire sufficient skill in ice cream making to enable him to handle a small ice cream sideline in a creamery.

Requirements for Admission

The course is open to any man or woman who has had a little experience in handling milk and making butter. The regular creamery short course students are especially desirable as ice cream students, and should seriously consider staying for the third week of the work.

A tuition fee of \$5 is charged.

DAIRY SHORT COURSE

Beginning January 6, 1919, and continuing **eight weeks**, creamery helpers and farm boys and girls who wish more exact and fuller knowledge of dairying in general, will be offered a course in butter-, cheese-, and ice cream making, engineering, milk- and cream-testing, and record keeping. In addition, instruction will be given in dairy breeds, dairy stock judging, feeding, and management. This course will be of value to cow testing association workers and to dairy herds-men, as well as to creamery helpers.

Girls and women are now doing considerable dairy test work in this and other states, in the cow-testing associations and in creameries—as well as in milk-selling associations. They have generally done well at their new work and there is no doubt that many places will be open to others for similar employment in the near future. This course is open to them.

In the **Dairy Breeds** work, the student will be given an opportunity to study the Ayrshire, Guernsey, Holstein, Jersey, and other breeds of cattle used for dairy purposes. Special

attention will be devoted to the history, chief characteristics, adaptability, and production of these breeds. Those in which fairly distinct blood lines exist will be considered in greater detail with reference to the relative merits and popularity.

Dairy Stock Feeding will involve a brief study of the digestive organs of the cow and her feed requirements. The comparative value and economy of roughages and concentrates will be discussed with instruction in the economical selection of a ration for cows in different localities.



STUDENTS JUDGING DAIRY COWS

Practice work in comparative judging of dairy cattle of different breeds and ages will be given in Dairy Stock Judging. The relation of type to production will be considered, and groups of cows and young animals of the different breeds will be placed and reasons given.

Testing dairy products is thoroly taught for both dairy test association work and creamery operation.

Separating milk and handling various cream separators and handling the milk and cream is given thoro attention.

Churning with both farm- and factory-size machines is a part of the regular course.

Business English and Dairy Arithmetic, Dairy Farm Bookkeeping, and Creamery Bookkeeping are systematically offered in this course.

The work will be the same for both the producing and the manufacturing sections for one month. Then the manufacturers will swing to special creamery butter-making practice while the producing section will specialize on dairy judging, records, and pedigree work.

It is earnestly suggested, further, that each student arrange to spend the month of March in some well-managed creamery or dairy herd to secure practical experience before offering to serve as a helper or assistant.

Certificates

The Regents of the University will grant certificates to students who have taken the butter-makers or cheese-makers short course and passed satisfactory examinations and in addition have demonstrated that they have acquired special skill in the art of butter- or cheese-making, and are thoroly qualified to take charge of a creamery or cheese factory.

From two to five years of successful experience are usually required after the Dairy School course has been taken before a Regents' certificate is granted, and then only after a man's work has been under observation for months and can be fully approved.

On the average, about one in five of those who take the Dairy School course is granted a certificate, therefore the certificate stands for more than mere school attendance and academic learning.

Refrigeration

Ice is still considered the most economical cooling agent in most of the northern creameries, but there are many places in this state where natural ice is expensive because of the absence of a near-by lake or river. In such places the best business management is to install some kind of refrigeration plant. To familiarize butter-makers with the ammonia expansion type of machines, that they may successfully meet the changing condition, a refrigeration outfit, in the main workroom, will be used daily. The students will also have instruction in the

working of the "gravity brine" natural-ice system of refrigeration, and an opportunity to observe such a plant in continuous operation at University Farm. The insulated house is also fully explained.

Testing

Testing milk and dairy products is one of the few things that can be taught in a school better than in a factory.



SCORING STARTERS

Milk, as well as cream, is now purchased on the fat basis, and it is imperative that factory operators not only know how to make the tests but also be able to standardize their product and to figure correctly the results obtained. The test room is provided with lactometers for the detection of adulteration, and with both steam and hand fat testers, the latest salt test, and the moisture test. The ability to test for salt and moisture in the butter, as well as for fat and acid in the cream, is now

demanded of most butter-makers, and opportunity is here given to learn how.



ADVANCED STUDENT TESTING MILK FOR ADULTERATION

CREAMERY MANAGERS' CONFERENCE
JANUARY 2 AND 3, 1919

The 625 coöperative creameries owned and operated by the producers, are the cornerstone of profitable dairying in Minnesota. They bring to the producer all there is in the business and provide healthy competition. If the time ever comes when the coöperative creamery ceases to exist in the Northwest, the producers of butterfat and of purebred dairy stock will suffer.

Of all the problems confronting the small creameries of Minnesota, the matter of efficient management is now the most pressing. Our veteran successful managers of coöperative creameries will be glad to pass on to the younger managers all they can of what they have learned.

To assist the farmer-managers to solve the many vexing problems, both old and new, a conference was established in 1915 and repeated every year since, when all sorts of questions of creamery interest were threshed out. With new and more rigid requirements, both legal and competitive, now, more than ever before, it is highly important that community enterprises safeguard their interests by all the information obtainable.



PRACTICAL LESSONS IN ENGINEERING

The two-day course will be repeated and enlarged this winter. Coming, as it does, during the Farmers' Week when there are so many other helpful meetings, a good attendance is expected.

The creamery associations represented could well pay a part of the expenses of their secretary or manager to attend. Special announcement will be issued later.

CREAMERY BUTTER-MAKERS SHORT COURSE STUDENTS 1917

<p>Abendschein, Henry N., Breckenridge, Minn. Ehlert, Richard, Mondovi, Wis. Halverson, Henry, Lyle, Minn. Harper, Harland A., Barnum, Minn. Harrison, Hoie, Clear Lake, Wis. Haugh, Joel L., Whitehall, Wis. Hortsch, Edward H., St. Donatus, Iowa Jensen, James, Blooming Prairie, Minn. Kaldahl, Chester, Glenwood, Minn. Kistner, William, Brownton, Minn. Thorson, Emil E., Jevne, Minn.</p>	<p>Kollman, Peter, Albany, Minn. Maberry, Ellsworth G., Starbuck, Minn. Martin, Charles, Mondovi, Wis. Past, J. C., Annandale, Minn. Polomis, James J., New Prague, Minn. Rasmussen, Rasmus, Twisp, Wash. Solomonson, Bennie J., Lafayette, Minn. Sorenson, John C., Madelia, Minn. Stolt, F. L., Prescott, Wis. Thorsell, B. P., Bronson, Minn.</p>
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ICE CREAM MAKERS SHORT COURSE STUDENTS 1917

<p>Abendschein, Henry N., Breckenridge, Minn. Ankeney, J. V., Germantown, Ohio Brohaugh, W. L., Shelly, Minn. Brown, Genevieve M., St. Paul, Minn. Doyle, Margaret, Minneapolis, Minn. Grathwol, Robert L., Excelsior, Minn. Gullickson, T. W., Detroit, Minn. Harper, Harland A., Barnum, Minn. Johnson, Beatrice L., Red Wing, Minn. Kaldahl, Chester T., Glenwood, Minn. Knowles, Katherine, St. Paul, Minn. Lauer, Carrie L., Thomasville, Pa.</p>	<p>Leahy, Katherine, Minneapolis, Minn. McCarthy, Chas. E., Madelia, Minn. Nannestad, Cora, Lake Park, Minn. Obermeyer, J. L., Fairmont, Minn. Peterson, Arthur M., Grafton, N. D. Putnam, Henry O., Battle Lake, Minn. Rasmussen, Rasmus, Twisp, Wash. Richards, Lloyd, Spring Valley, Minn. Rieke, Ben W., Gibbon, Minn. Schendler, R. L., St. Paul, Minn. Solomonson, Bennie J., Lafayette, Minn. Yoars, Fred P., Amboy, Minn.</p>
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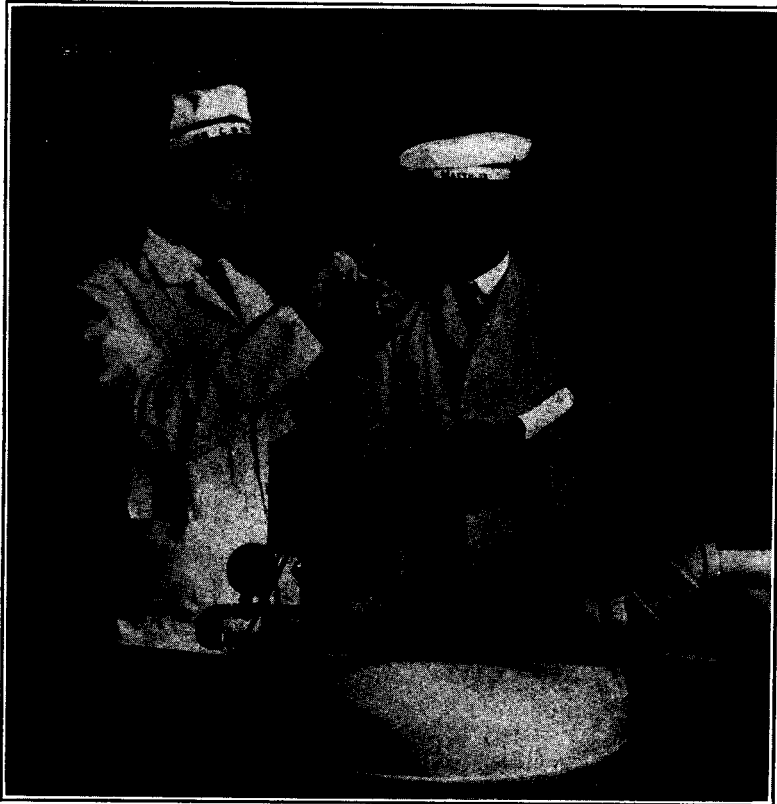
DAIRY SHORT COURSE STUDENTS 1918

<p>Aronson, Louis, Ivanhoe, Minn. Bauer, Walter, Delano, Minn. Bele, Frank A., Pine City, Minn. Carlson, A. McKay, Parkers Prairie, Minn. Carsten, John, Shafer, Minn. Chase, Chauncey, Excelsior, Minn. Dunham, Egan, Karlstad, Minn. Evans, Thomas, Mankato, Minn. Fowlds, Clifford, Terrace, Minn. French, George E., Armstrong, Minn. Gustafson, Olaf W., Erskine, Minn. Hagberg, E. T., Cokato, Minn. Helm, Carl E., Minot, N. D.</p>	<p>Johnson, Adolph O. R., Willmar, Minn. King, C. S., Waterloo, Iowa. Loftus, Frank, Merriam Park Sta., St. Paul, Minn. Meehl, Ralph J., Morristown, Minn. Meuleners, Henry J., Cologne, Minn. Nyflot, Carl J., Newfolden, Minn. Richards, W. T., Minneapolis, Minn. Rosby, Thorwald O., Farwell, Minn. Thompson, Albert, Starbuck, Minn. Tikalsky, Daniel, New Prague, Minn. Van Slambrouck, R. H., Crystal Bay, Minn. Williams, Gilbert, Tyler, Minn.</p>
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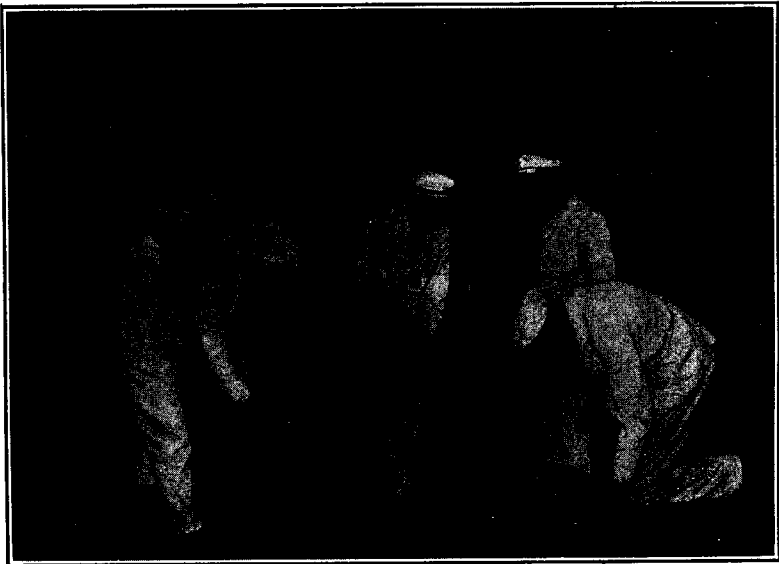
DAIRY SCHOOL CERTIFICATES GRANTED
1917-1918

Brown, Nels C., Litchfield, Minn.
Christianson, Christ, Askov, Minn.
Dugan, Joe C., Dodge Center, Minn.
Gregersen, George, Balaton, Minn.
Horsch, Ed., St. Donatus, Iowa
Johnson, Alvin, Hope, Minn.
Johnson, C. O., Granger, Minn.
Johnson, O. N., Comfrey, Minn.
Kelzenberg, William, Bluffton, Minn.

Kristensen, Valdemar, Clear Lake, Minn.
Larson, Otto C., Minot, N. D.
Lindvig, B. J., Milltown, Wis.
Meehl, R. J., Morristown, Minn.
Nelson, J. G., Wood Lake, Minn.
Pristegaard, E. O., Northwood, Iowa
Seyfuth, Lyman H., Durand, Wis.
Sturck, L. F., South Haven, Minn.
Thoen, C. C., Cyrus, Minn.



CHECKING UP



PACKING THE BUTTER

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

The College of Science, Literature,
and the Arts

Program for the Year

1918 - 1919



Vol. XXI No. 29 September 28 1918

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COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS, PROGRAM--1918-19

The change from a semester to a quarter plan has necessitated a renumbering of courses. A year course now has three numbers instead of two as before. Courses open to undergraduates are numbered from 1 to 100, those open to seniors and graduates from 100 to 200. The new numbers have no special relation to the old course numbers and should not be confused with them. The letters f, w, s, indicate the quarter the course is given as fall, winter, or spring. The column of Equivalent Courses gives the old course numbers of the corresponding course. Prerequisites are given in terms of the old course numbers and semester credits.

The hour schedule is as follows:

I Hr.	8:30- 9:20
II Hr.	9:30-10:20
III Hr.	10:30-11:20
IV Hr.	11:30-12:20
V Hr.	1:30- 2:20
VI Hr.	2:30- 3:20
VII Hr.	3:30- 4:20
VIII Hr.	4:30- 5:20

The word "credit" as hereafter used, will mean a quarter credit as distinguished from a semester credit. Three quarter credits will equal two semester credits. Any difficulty in meeting graduation requirements which arises out of this change, will be adjusted by the Administrative Board.

Students who desire information regarding the requirements for a Teacher's Certificate in the various departments, should consult the departments concerned.

This program gives the schedule for the first quarter only. However, courses which run for two or three quarters are indicated by the sequence of numbers. Students who desire information as to courses to be offered the second quarter, should consult the departments concerned.

Members of the S.A.T.C. who wish this year's work to count as far as possible toward their college course, should meet the regular requirements. The subjects which S.A.T.C. freshmen may elect for this purpose are: Rhetoric, French or German, Medieval or English History, and Mathematics or a Science.

A number of courses of study are offered especially for the benefit of members of the S.A.T.C. (indicated in the program by these letters).

The following abbreviations are used: A, Armory; AB, Animal Biology; Ar indicates that the days, hours, or room are to be arranged (for information, apply to head of the department concerned); C, Chemistry Building; Ed, Education Building; En, Engineering Building, University Farm; F, Folwell Hall; G, Greenhouse; He, Home Economics Building, University Farm; L, Law Building; Lib, Library Building; M, Mines; MA, Mechanic Arts; ME, Main

Engineering Building; Mech E, Mechanical Engineering Building; MH, Millard Hall; Mu, Music Building; O, Observatory; P, Pillsbury Hall; PH&P, Institute of Public Health and Pathology; Ph, Physics Building; WGM, Women's Gymnasium.

The symbol ¶ indicates that the instructor is to be assigned.

ANIMAL BIOLOGY

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1-2-3	9†	General Zoology.....	1-2	All	None
		Sec. 1 Lab. I, II	MW	101AB	¶
		Lect. I, II	F	313AB	¶
		2 Lab. III, IV	MW¶	101AB	¶
		Lect. III, IV	F	313AB	¶
		3 Lab. V, VI	M, VI, VII W	101AB	¶
		Lect. V	WF	313AB	¶
		4 Lab. I, II	TTh	101AB	¶
		Lect. I, II	S	313AB	¶
		5(extra) Lab. I, II	FS	101AB	¶
		6(extra) Lab. III, IV	FS	101AB	¶
7-8-9	9†	Histology-Embryology.....	7-8	Soph., jr., sr.	1-2
		III, IV	MWF	201, 211AB	Downey
14f	3	Histology Technique.....	12	Soph., jr., sr.	1-2 and 7
		(See Anat. schedule)			
19-20-1	9†	General Physiology.....	15-16	Soph., jr., sr.	12 credits in An. Biol., or 6 in An. Biol., & 6 in Chem. or Physics
		V, VI	MWF	10AB	Lund
31-2-3	9†	Compar. Gross Anat. of Vert..	19-20	Soph., jr., sr.	1-2
		V, VI	MWF	107-109, 211AB	Johnson
37-38-39	9†	General Entomology.....	23-24	Soph., jr., sr.	1-2
		Sec. 1 III, IV	MWF	208-210AB	Oestlund
		2 I, II	TThS	208-210AB	Oestlund
44f	3	Animal Parasites.....	35	Soph., jr., sr.	1-2
		V, VI	MWF	Ar	Riley
45f	3	Relation Insects to Disease...	36	Soph., jr., sr.	1-2, 23-24 & 35
		III, IV	MWF	Ar	Riley
*48f	3	Morphology of Invertebrates...	56	Jr., sr.	9 cred. incl. 1-2
		I, II	TThS	211, 213AB	Sigerfoos
*74f-75w	6	Ornithology.....	28	Soph., jr., sr.	1-2
		V, VI, VII	TTh	211, 314AB	Roberts
*82-3-4	4†	Nature Study.....	31-32	Jr., sr.	12 credits in An. Biol.
		V, VI, VII	T	211, 213AB	Sigerfoos
*103f	3	Protozoology.....	117	Jr., sr.	9 cred. incl. 1-2
		I, II	TThS	211, 213AB	Sigerfoos
*109-10-1	9	General Ecology.....	107-108	Jr., sr., grad.	1-2, 23-24
		V, VI, VII	TTh	208-210AB	Chapman
*115-6-7	9	Adv. General Entomology....	101-102	Jr., sr., grad.	1-2, 23-24
		V, VI	MWF	208-210AB	Oestlund, Chapman
*123f	3	Biol. & Taxon-Aphidae.....	103	Jr., sr., grad.	1-2, 23-24
		III, IV	TS III Th	206AB	Oestlund
*127-8-9	9†	Histol. & Devel. Insects.....	105-106	Jr., sr., grad.	1-2, 23-24
		Ar	Ar	Ar	Riley

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
*152-3-4	9	Vertebrate Histology..... VI, VII	119-120 TThS	Sr., grad 201, 211AB	1-2, 7-8, Anat. 112 Downey
*145f	3	Hematology	New course	Jr. sr.	1-2 & 7-8 or Anat. 101
		V, VI, VII		201, 211AB	Downey
*148-9-50	9†	Blood of Vertebrates.....	123-124	Sr., grad.	1-2, 7-8, 131-132, reading knowl- edge of French and German
		VI, VII	TThS	201, 211AB	Downey
*157-8-9	9†	Embryology	131-132	Jr., sr., grad.	1-2, 7-8
		III, IV	MWF	202, 211AB	Nachtrieb
*163-4-5	9	Genetics and Eugenics.....	143-144	Sr., grad.	1-2
		V, VI, VII	TTh	202, 211AB	Nachtrieb
*175-6-7	9 or 18	Problems	161-162	Sr., grad.	1-2, and other courses pre- scribed by the Dept.

Ar Ar Ar Ar

† All quarters must be completed before credit is given for any quarter.

§ So far as possible students should register for both lecture and laboratory work in the same section.

For hours for Economic Zoology, see program of College of Agriculture.

ARCHITECTURE

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
31f-32w	9	Elements of Architecture....	31	Soph., or higher standing	None
		V MWF		309Eng.	Hamilton, Forsythe
		VI MWF		309Eng.	Hamilton, Forsythe
		VII MWF		309Eng.	Hamilton, Forsythe
21-22-23	6	Free-hand Drawing.....	21-22	Soph., or higher standing	None
		III MWF		302Eng.	Burton
		IV MWF		302Eng.	Burton
15-16-17	6	Architectural History—An- cient and Renaissance.....	15-16	Jr.	331-332 or An- cient History
		IV TThS		217Eng.	Forsythe
17-18-19	6	Architectural History—Med. and Modern.....	17-18	Sr.	331-332 or Med. History
		IV WF		217Eng.	Mann

The schedule for other courses in Architecture will be arranged later.

ASTRONOMY

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1f-2w	6	Descr. Astronomy.....	11	Soph., jr., sr.	None
		II MWF		124F	Leavenworth
		III TThS		124F	Beal
3f	3	Descr. Astronomy.....		124F	Leavenworth
		IV MWF	11	S.A.T.C. only	None
		IV TThS		124F	Leavenworth
4-5-6	9	Descr. Astron. & Obsy. Pract.		124F	Beal
		II TThS	13-14	Soph., jr., sr.	None

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
7f	3	Navigation and Spher. Trig... V MWF	17	124F All	Beal Consult Dept.
8-9-10	9	Intr. to Astronomy..... V MWF	21-22	125 Soph., jr., sr.	Leavenworth None
*11-2-3	9†	General Astronomy..... III MWF	51-52	124F Jr., sr.	Beal 9 cr. in Math. or Phy. Sci.
*101-2-3	9 or 18	Pract. Astronomy.....	101-102	Jr., sr., grad.	Math. 7 & 11 & Ast. 11 or 13 or 21 or 51 Leavenworth

† All quarters must be taken before credit is given for any quarter.

BACTERIOLOGY

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
6f	4‡	Elementary Bacteriology..... V, VI MW V, VI, VII F	6a	All Lab.PHP Lab.PHP	None Larson, et al. Larson, et al.

BOTANY

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1-2-3	9	General Botany..... Sec. 1 V, VI MWF Sec. 2 Lect. II TTh Lab. V, VI TTh	1-2	All 106IA 106IA 106IA	None ‡ ‡ ‡
3f	3	General Botany (last part)..... III, IV TThS	2	All 202AB	Course 1, or 1 yr. approved H. S. botany Huff
13-4-5	9	Physiology and Ecology..... III, IV MWF	9-10	Soph., jr., sr. Ar	2 Ar
17f-18w	6	Anatomy and Histology..... III, IV MWF	..	Soph., jr., sr. Ar	2 Butters
*101-2-3	9	Algae..... V, VI, VII TTh	105-6	Jr., sr., grad. 10AB	9 credits Tilden
*105f	3	Liverworts and Mosses..... Ar Ar	107	Jr., sr., grad. Ar	5-6 Butters
*113-4-5	9	Advanced Taxonomy..... Ar Ar	111-112	Jr., sr., grad. Ar	9 credits incl. 7-8 Rosendahl
*117-8-9	9	Cytology..... Ar Ar	117-118	Jr., sr., gfrd. Ar	12 credits Rosendahl
*121-2-3	9	Advanced Industrial Botany... III, IV T	119-120	Jr., sr., grad. 10AB	11-12 Tilden
*125-6-7	9	Taxonomy and Morphology of the Algae..... III, IV T	..	Sr., grad. 10AB	105-6 Tilden
*129-30-1	9	Adv. Plant Physiology..... Ar Ar	..	Jr., sr., grad. Ar	9-10 Ar

CHEMISTRY

DIVISION OF GENERAL AND INORGANIC CHEMISTRY

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1f	6	General Chemistry.....	1 or 3	All	None
		Lect. II	MWF	100C	†
		Lab. V, VI, VII	MT	110C	†
		Lect. II	TThS	100C	†
		Lab. V, VI, VII	WF	110C	†
		Lect. V	MWF	100C	†
		Lab. II, III, IV	TTh	110C	†
		Lect. II	TThS	225C	†
		Lab. II, III, IV	MF	110C	†
5f-6w	3	Qualitative Analysis.....	7-8	Soph., jr., sr.	1-2
		Lect. II	MW	111C	†
		Lab. V, VI	MW	110C	Sneed

DIVISION OF ANALYTICAL CHEMISTRY

8f-9w-10s	4	Beginning Quant. Anal....	11-12	Soph., jr., sr.	3-4 or 7-8 or 21-22 & 1 yr. Math. or Physics 1
		Lect. V	M	315C	Sidener
		Lab. VI, VII, VIII	M	310C	Sidener
		V, VI, VII	WF	310C	Sidener
11f	6	Beginning Quant. Anal....	11-12	Soph., jr., sr.	3-4 or 7-8 or 21-22 & 1 yr. Math. or Physics 1
		Lect. III	TS	315C	Sidener
		Lab. V, VII, VII	MTWThF	310C	Sidener
107f-108w	3	Adv. Quant. Anal.....	107-8	Jr., sr.	11-12
		Ar	Ar	317C	Sidener
106f	6	Adv. Quant. Anal.....	23 or 106 or 107	Jr., sr.	11-12
		Lect. III	WF	315C	Sidener
		Lab. V, VII, VII	MTWThF	317C	Sidener

DIVISION OF ORGANIC CHEMISTRY

13f	4	Medical Organic Chem....	13-14	Pre-Medical students	3-4, 7-8 or 21-22 & 1 yr. Biol. Sci.
		Lect. IV	MWF	100C	Hunter
		Lab. V, VI, VII	WF	10C	Hunter
115f-116w	2	Adv. Organic Chemistry...	115	Sr.	35-36
		II	MWF	325C	Hunter

DIVISION OF PHYSICAL CHEMISTRY

121f-22w-23s	2 or 3	Physical Chemistry.....	121	Jr., sr.	35-36 Physics 2 and 4
		Lect. II	WF	115C	MacDougall
		(¹)Lab. V, VII, VIII or F	F	117C	MacDougall
		II, III, IV	M	117C	MacDougall
125f-26w	2 or 3	Adv. Physical Chemistry...	125-126	Sr.	121-122
		Ar	Ar	Ar	MacDougall

(¹)Laboratory work may be omitted.

COMPARATIVE PHILOLOGY

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
*101f-2w	4	Science of Language.....	101	Jr., sr., grad.	Consult Dept.
		VI	WF	400F	Klaeber

EDUCATION

EDUCATIONAL ADMINISTRATION AND SUPERVISION

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
3f-4w	6	Social Aspects of Education II MWF	3	Jr., sr. Ar	Psychol. 1-2 Rankin, Sies
119f-120w	6	School Curricula..... VIII MWF	119	Sr., grad. 205Ed	1 or 101-2 and 3 Rankin
121f-122w	6	School Organ. & Admin... VII MWF	121	Sr., grad. 205Ed	1 or 101-2 and 3 Rankin
124f-125w	6	Educational Admin..... III MWF	124	Sr., grad. 111Ed	121 Sies
141f	3	School Sanitation..... I MWF	141	Sr., grad. 205Ed	1 or 101-2 and 3 Rankin

EDUCATIONAL PSYCHOLOGY

55f,w,s	3	Elem. Educ. Psychology... I MWF III MWF	105	Jr., sr. Ar Ar	6 cr. in Psychol. Dealey Dealey
106f-107w-108s	9	Adv. Educ. Psychology.... IV MWF	106	Sr., grad. 202Ed	Psychol. 1-2 Van Wageningen
126f-127w	4	Methods of Educ. Research VIII, IX T	125	Sr., grad. 205Ed	1 or 101-2 and 3 Van Wageningen
137f-138w-139s	1 to 9	Experimental Education.. VIII, IX Th Other hours arranged.	136	Sr., grad. 202Ed	Consultation with Instructor Van Wageningen
109f	2	Educational Diagnosis..... I, II S	109	Sr., grad. 206Ed	Psychol. 1-2 Van Wageningen
110f	3	Psychol. of Second. School Subjects	110	Sr., grad. 111Ed	Psychol. 1-2 Van Wageningen
149f-150w-151s	1 to 9	Psycho-Educ. Clinic.....	137-138	Sr., grad.	Psychol. 1-2; Ed. 109, 134 or 135
		12:30-2:30 MWF			126-128MH Dealey, Van Wageningen

HISTORY AND PHILOSOPHY OF EDUCATION

1f-2w	6	Brief Course in Hist. of Education	1	Jr., sr. 205Ed	Psychol. 1-2 Alexander
		I TThS		205Ed	Alexander
		II MWF		205Ed	Alexander
		III MWF		205Ed	Alexander
101f-102w-103s	9	Hist. Found. of Mod. Educ.	101	Jr., sr., grad.	Psychol. 1-2 & 6 cr. in Dept. of History
		I MWF		203Ed	Swift

THEORY AND PRACTICE OF TEACHING

11f,w,s	3	Technique of Teaching.... I MWF	111	Jr., sr. 125F	Psychol. 1-2 Morehouse, Sies
15f,w,s	3	Practice Teaching..... Ar Ar	15	Sr., grad. Ar	See statement Reeve

INDUSTRIAL EDUCATION

141tf	3	Industrial Education..... I, II S	142	Sr., grad. 111Ed	1 or 101-2 and 3 Rankin
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ENGLISH

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1-2-3	9	General Survey.....	1-2	Soph., jr., sr., and S.A.T.C.	Rhet. 1-2-3
		IV MWF		301F	¶
		IV MWF		110F	¶
		IV MWF		205F	¶
		IV MWF		204F	¶
		VI MWF		301F	¶
		VI MWF		116F	¶
		VI MWF		212F	¶
4f-5w	6	Old English.....	3a	Soph., jr., sr.	1-2†
		II TThS		204F	Klaeber
6f-7w	6	Chaucer	5a	Soph., jr., sr.	1-2†
		III TThS		204F	Firkins
		I MWF		204F	Firkins
8f-9w	6	Shakespeare	7	Soph., jr., sr.	1-2†
		I TThS		301F	Stoll
27f	1	Hist. English Language.....	27	Jr., sr.	3
		IV S		204F	Klaeber
*65f	3	Browning and Tennyson.....	*65	Jr., sr.	1-2
		III MWF		204F	Burton
*80f	3	Teachers' Course.....	*80A	Jr., sr., grad.	¶See statement
		VII TTh		206Ed	Inglis
*105f-6w	6	Eighteenth Cent. Poetry.....	*105	Jr., sr., grad.	1-2, and 6 cr. in courses below 10
		II MWF		204F	Moore
*113-4-5	9	Drama	*113-114	Sr., grad.	1-2, 7, and 3 cr. in courses below 10
		VII MWF		204F	Firkins
*117f	3	Bible as Literature.....	*117	Jr., sr., grad.	1-2, and 6 cr. in courses below 10
		V MWF		204F	Burton
*119-20-1	9	Principles of Lit. Criticism..	*119-120	Jr., sr., grad.	1-2, and 6 cr. in courses below 10
		VI MWF		109F	Firkins
*123-4-5	6	Studies in Victorian Novel...	*123-124	Sr., grad.	1-2, and 6 cr. in courses below 10
		V, VI T		204F	Beach
*129f	3	Modern Drama.....	*129	Sr., grad.	1-2, 7, and 3 cr. in courses below 10
		IV MWF		209F	Burton

RHETORIC

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1-2-3	9	Composition and Rhetoric...	1-2	Fr.	None
		I MWF		Assigned on registration	
		II MWF		Assigned on registration	
		III MWF		Assigned on registration	
		IV MWF		Assigned on registration	
		V MWF		Assigned on registration	

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
		VI MWF		Assigned on registration	
		I TThS		Assigned on registration	
		II TThS		Assigned on registration	
		III TThS		Assigned on registration	
		IV TThS		Assigned on registration	
2f	3	Composition and Rhetoric...	2	Fr.	None
		I MWF		Assigned on registration	
		VII MWF		Assigned on registration	
		I TThS		Assigned on registration	
11-2-3	9	Exposition, Description, and Narration	11-12	Soph., jr., sr.	1-2
		I MWF		311F	Hillhouse
		II MWF		311½F	Whitney
		IV MWF		305F	Hawthorn
		V MWF		306F	Phelan
		I TThS		311F	Ruud
		III TThS		306F	Phelan
15-6-7	9	Exposition and Argument....	15-16	Soph., jr., sr.	1-2
		II MWF		303F	Ford
		IV TThS		305F	Jackson
*8of	4	Teachers' Course.....	80	Jr., sr.	See note
		VII, VIII TTh		206Ed	Inglis
*103-4-5	9	Studies in Structure and Style	103-104	Jr., sr., grad.	1-2, 11-12, or 15-16
		VI MWF		303F	Ford
*107f	3	Imitative Writing.....	107	Jr., sr., grad.	See note
		IV MWF		303F	Thomas
*119-20-1	6	Seminar in Writing.....	119-120	Sr., grad.	See note
		V, VI T		302F	Thomas
80.		Open to juniors, seniors, graduates, qualifying for a certificate to teach English as a major subject. Credit only in Education.			
107, 11-2-3		Open to those who have taken 11-12-13 or 15-16-17 and have received a grade of A or B in either semester.			
119-20.		Open with special permission to seniors and graduates. Prerequisites: Courses 1-2-3, 11-12-13, and at least one other course in Rhetoric.			

PUBLIC SPEAKING

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
41-2-3	9	Public Speaking.....	41-42	Soph., jr., sr.	1-2
		I MWF		308F	Lindsley
		II MWF		308F	Rarig
		VI MWF		308F	Olmstead
		I TThS		308F	Olmstead
		II TThS		308F	Olmstead
		III TThS		308F	Lindsley
45-6-7	9	Argumentation and Debate....	45-46	Soph., jr., sr.	See note
		III MWF		308F	Lindsley
49f	3	Advanced Debate.....	47	Jr., sr.	See note
		Ar Ar		308F	Rarig, Lindsley
*81-2-3	9	Interpretative Reading.....	81-82	Jr., sr.	1-2, 41-42
		IV MWF		308F	Rarig
45-46-47		Open to those who have completed 1-2 and 41-42, or 1-2 and have had training in debating in preparatory school.			
49f		Open to juniors and seniors who are awarded places on the intercollegiate debating squad, or are chosen to represent the University in the Northern Oratorical League contest.			

GEOLOGY AND MINERALOGY

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1f	3	General Geology.....	1	Soph., jr., sr.	None
		III	TThS	225C	Emmons
		II	TThS	325C	Clark
		VII	MWF	315C	Quirke
3f	3	Laboratory Work.....	3	Soph., jr., sr.	Supports 301
		Ar	Ar	Ar	Quirks
5f	3	Economic Geology.....	5	Soph., jr., sr.	1 and 6
		II	MWF	109M	Quirke
7f	3	Geography for S.A.T.C.....	..	S.A.T.C.	
		IV	TThS	100C	Emmons
		IV	TThS	225C	Clark
		VII	MWF	325C	Dunbar
		III	TThS	100C	Butters
		VI	MWF	225C	Quirke
11f|	3	Paleontology Applied Geology	11	Jr., sr.	6
		II	MWF	304M	Dunbar
15f	1	Minerals and Rocks.....	15a	Jr., sr.	1
		Ar	Ar	Ar	Broderick
21f	3	Essentials of Mineralogy.....	21	Soph., jr., sr.	
		Lect. IV	TThS	345C	Broderick
		Lab. V-VIII	M	Ar	Broderick
23f	3	Elements of Mineralogy.....	23	Soph., jr., sr.	
		Lect. II	TThS	345C	Broderick
		Lab. V-VIII	M	Ar	Broderick
35f	3	Laboratory Work.....	35	Soph., jr., sr.	Supports 328
		Ar	Ar	Ar	Ar
37f	3	Phys. and Com. Geography...	37	Fr.	None
		II	MWF	225C	Clark
*55f	3	Teachers' Course in Geology..	55	Jr., sr., grad.	¶ Any one of 36, 39, 116, or 118
		I	TThS	215C	Clark
*105f	3	Elements of Rock Study.....	105	Jr., sr., grad	See bulletin
		VI-VIII	TThS	345C	Broderick
*111f	4	Ore Deposits.....	111	Sr., grad.¶	6, 22, 105
		II	TThS	215C	Emmons
*131f-32w	3	Advanced Petrology.....	131-132	Sr., grad.¶	196
		Ar	Ar	Ar	Broderick
*137f	3	Testing Econ. Minerals.....	137	Sr., grad.¶	6, 22, 105
		Lect. IV	MW	215C	Broderick
		Lab. VI-VII	W	Ar	Broderick
*151f	3	Advanced Gen. Geology.....	151	Jr., sr., grad.	6, 151
		IV	MWF	345C	Dunbar

GERMAN

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1-3	18	Beginning	1-3	All	None
		III	MTWThFS	209F	Myers
4-5-6	9	Beginning .....	.....	S.A.T.C. only	None
		II	MWF	207F	Burkhard
		II	TThS	207F	Davies
7-8-9	9†	Prose and Poetry.....	5-6	Fr., soph.	2 years prep.
		I	TThS	209F	German
		III	TThS	209½F	Kroesch
		V	MWF	209F	Burkhard
					Koenig

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
16-1-2	9	Drama	7-8 or 11-12	All	3 or 5-6 or 4 yrs. prep. German
		II MWF IV TThS		209F 209F	Kroesch Davies
21-2-3	9†	Scientific Intermediate	21-22 or 23-24	Soph., jr.	3 or 5-6 or 4 yrs. prep. German
		III MWF IV MWF		212F 212F	Burkhard Kroesch
24-5-6	3†	Elementary Composition	25-26	Fr., soph., jr. 209½F	See note a Davies
27-8-9	3†	Elementary Conversation ...	27-28	Fr., soph., jr. 207F 209½F	See note a Koenig Davies
30-1-2	3†	Advanced Conversation	29-30	Soph., jr., sr. 207F	See note b Schlenker
33-4-5	3†	Intermediate Composition ...	31-32	Soph., jr., sr. 207F	See note b Schlenker
*51f	3	Faust, Part I.....	51	Soph., jr., sr.	7-8 or 11-12 or 14 or 23-24
		IV MWF		209½F	Schlenker
*53-4-5	9	Survey	53-54	Soph., jr., sr.	7-8 or 11-12 or 14 or 23-24
		II TThS		209F	Myers
*56-7-8	6†	Advanced Composition.....	55-56	Jr., sr. 207F	31-32 Koenig
*60-1-2	3†	Teachers' Course.....	59-60	Jr., sr.	29-30 & 31-32 or 53-54
		VI F		209F	Schlenker
*63-4-5	6	Military German.....	..	S.A.T.C. 209F	5-6 or equiv. Koenig
*107-8-9	9†	Middle High German.....	107-108	Jr., sr., grad.	4 credits in starred courses
		VI MWF		209F	Kroesch
*135f	3	The Drama of Kleist.....	135	Sr., grad.	4 credits in starred courses
		V, VI, VII Th		209½F	Myers
*137-8-9	9†	Realism in 19th Century Lit- erature	137-138	Sr., grad.	4 credits in starred courses
		V, VI, VII T		209½F	Burkhard
*225-6-7	9†	Goethe Seminar.....	..	Honors & grad. 209½F	Schlenker
		V, VI, VII W			

† The three quarters must be completed before credit is given for any quarter.

a. Only students who are taking Course 7 or who have taken Course 5-6 or Course 16 may elect the supplementary courses 24 and 27, either one or both. But students electing Course 10 may elect Course 24. No credit will be granted for Course 24 or Course 27 if students elect them when taking or when they have taken courses numbered above 50.

b. Only students who are taking Course 10 or who have taken Courses 7-8 or Course 9-10 or Course 11-12 or Course 14 or Course 21-22 or Course 23-24 may elect the supplementary courses 30 and 33, either one or both together. Students electing Course 10 or Course 21 should take Courses 30 and 33 only after consultation with the instructor in charge.

c. Credit for only one of the following courses will be granted: Courses 7-8, 21-22-23.

d. Credit for only one of the following courses will be granted: Courses 10-11-12, 21-22-23.

GREEK

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1-2-3	15†	First Year Greek.....	1-2	Fr.,soph., jr., sr.	None
		II TWThFS		114F	†
		V MTWThFS		114F	†
4-5-6	9†	History and Epic Poetry.....	3-4	Fr., soph., jr., sr.	None
		III MWF		114F	Savage
7-8-9	9	Scientific Greek.....	5-6	Fr., soph., jr., sr., grad.	None
		V MWF		114F	Beggs
15f	3	Dramatic Poetry.....	7	Soph., jr., sr.	3-4
		VI MWF		114F	Savage
*51f	3	Philosophy	5†	Jr., sr.	3-4
		III TThS		114F	Savage
*101f	3	Lyric Poetry.....	*101	Sr., grad.	51-52
		IV MWF		114F	Savage
		Courses open to all.	No	knowledge of	Greek required
59f	1	Greek Architecture.....	59	Jr., sr.	None
		VI M		114F	Beggs
61f	2	Drama	61	Jr., sr.	None
		VI TTh		114F	Savage
63f	1	Mythology	63a,b	Jr., sr.	None
		VII TTh		114F	Savage
		I W		114F	Savage

HISTORY

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1-2-3	9	Med. and Mod. Europe (Lecture)	1-2	All	None
		VII Th		Little Theater	
		Rec. II TTh		5F	Krey, Tyler
		III TTh		111Lib	Krey, Tyler
		IV MW		111Lib	Krey, Tyler
		VII MF		112Lib	Krey, Tyler
4-5-6	9	English 1066-Present (Lect.)	3-4	All	None
		VII Th		301F	†
		Rec. II WF		112Lib	†
		II TTh		112Lib	†
		III TTh		112Lib	†
		VI WF		112Lib	†
7-8-9	9	American History (Lecture) ..	5-6	Soph., jr., sr.	6 credits
		III MW		301F	Shippee
		III Th		301F	Shippee
		IV F		301F	Shippee
		IV F		301F	Shippee
10-1-2	9	Introduction to Economic Hist.	.....	Soph., jr., sr.	6 credits
		III TThS		218b Lib	Gras
16f-17w	6	Military History.....	15	See note	
		II TThS		111Lib	Davis
25f	3	Teachers' Course.....	56-7	Jr., sr.	See statement
		VIII MW		111Lib	Krey, et al
*51-2-3	9	Europe 1815-1914.....	107-8	Jr., sr., grad.	9 credits
		VII MWF		111Lib	Tyler
*61-2-3	9	Economic History of Europe, 1300-1750 .....	.....	Jr., sr., grad.	9 credits
		Ar Ar		Ar	Gras

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
*71-2-3	9	Ancient Civilization..... III MWF	133-4	Jr., sr., grad. 218b Lib	See statement Davis
*101	3	Civil War and Reconstruction Ar Ar	156	Jr., sr., grad. Ar	9 cr., incl. 5-6 Shippee

Note.—Graduate students and qualified seniors may arrange for other advanced courses in consultation with the instructor concerned.

HOME ECONOMICS

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
3f	5	Textiles	3a or 3b	All	None
		I TWThFS		307, 211He	Phelps
		II TWThFS		307, 211He	Phelps
		V MTWThF		307, 211He	Phelps
		VI MTWThF		307, 211He	Phelps
11f	5	Garment Making.....	11a or 11b	All	None
		I TWThFS		304He	Phelps
		II TWThFS		304He	Phelps
		V MTWThF		304He	Phelps
		VI MTWThF		304He	Phelps
13f	5	Dress Making.....	13a or 13b	Soph., jr., sr.	1, 11
		III MTWThF		304He	Campiglia
		IV MTWThF		304He	Campiglia
		VII MTWThF		304He	Campiglia
		VIII MTWThF		304He	Campiglia
23f	5	Foods and Cookery.....	23a or 23b	Soph., jr., sr.	Biol. 9, 10; Chem. 3 or equiv. parallel
		I TWThFS		207, 309He	Vermilye
		II TWThFS		207, 309He	Vermilye
		III MTWThF		207, 309He	Vermilye
		IV MTWThF		207, 309He	Vermilye
33f	2	Home Care of the Sick.....	33	Jr.	Chem. 3, 7, or 21; Bact. 58
		Lect. I M		309He	Moorhead
		Lab. III M		N.W.W.H.	Fisher
34f	3	Home Management: Operation and Maintenance.....	34a,b	Jr., sr.	Economics
		Lect. III MWF		213He	Vermilye, Williams
		Lab. Ar Ar		Ar	Vermilye, Williams
51f	3	Drawing and Design.....	51a or 51b	All	None
		III MWF		311He	H. Goldstein
		IV MWF		311He	V. Goldstein
		III TThS		311He	¶
		IV TThS		311He	¶
		V, VI, VII TTh		311He	¶
52f,w,s	3	Historic Ornament.....			
		I MWF		311He	¶
		II MWF		311He	¶
		VII MWF		311He	¶
		VIII MWF		311He	¶
53f	3	Advanced Design.....	53a or 53b	Soph., jr., sr.	51
		I MWF		313He	Morse
		II MWF		313He	H. Goldstein
		VII MWF		313He	¶
		VIII MWF		313He	¶

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
32f	5	Home Equipment.....	32a,b	Jr., sr.	53
		III MTWThF		313He	Morse
		IV MTWThF		313He	Morse
19f	1	Military.....	19b	Jr., sr.	53, 11
		I W		305He	†
		II W		305He	†
		V T		303He	Carlotta Brown
		VI T		303He	Carlotta Brown
123f	5	Clothing Economics.....	17a,b	Sr., grad.	13, 51
		V MTWThF		305He	†
		VI MTWThF		305He	Campiglia
FOOD CONSERVATION					
A.	2	Food and the War.....	A	Jr., sr.	None
		VI TTh		15F	†
B.	3	Fundamentals of Nutrition.....	B	Jr., sr.	Course A
		VI MWF		15F	†

HUMAN ANATOMY

Students in this College may elect courses in Human Anatomy only by arrangement with the Faculty of this Department.

HUMAN PHYSIOLOGY

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1f-2w	6	Elem. Physiol.....	3a	All	Elem. Biol. and Chem.
		V MWF			Beard, Lyon
		VI MWF			Beard, Lyon
101f-2w	9	Physiologic Chem.....	151-2 or 102	Jr., sr., grad.	Org. Chem.
		See Medical School program			Pettibone
111f	6	Physiology of Muscle, etc.....	103	Jr., sr., grad.	Gen. Biol.; Org. Chem.
		V MTWF			Scott, Lyon
		VI MTWF			Scott, Lyon
		VII MTW			Scott, Lyon

For other courses see Medical School program.

JOURNALISM

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
13f	3	Reporting.....	13	Soph., jr., sr.	Rhet. 1-2
		V MWF		3F	Bing
17f	3	News Editing.....	17	Jr., sr.	16
		VI MWF		3F	Bing

LATIN

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1f	3	Beginning Latin.....	1	All	None
		II MTWThFS		107F	†
5-6-7	9	Latin Selections.....	3	All	1-2 or 2 or 3 yrs. prep. Latin
		III MWF		107F	†
8f	3	Livy.....	5	All	1-2 or 4 years prep. Latin
		III TThS		107F	†

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
*50f	3	Horace	57	Soph., jr., sr. 107F	6 Pike
		I MWF			
*100f	3	Advanced Caesar (Teachers' course)	101	Jr., sr. 107F	58 Pike
		I TThS			
*107f	3	Cicero De Officiis.....	107	Jr., sr., grad. 107F	58 Granrud
		IV MWF			

MATHEMATICS

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1-2-3	9†	Algebra	1, 3	Fr., soph. 102F	El. Alg. †
		I TThS		104F	†
		II TThS		102F	†
		III MWF		104F	†
		V MWF		104F	†
		VI MWF		104F	†
4f	3	Solid Geometry.....	6	All who have not had Solid Geometry 104F	Pl. Geom. †
		VII MWF			
5f-6w	6	College Algebra & Pl. Trig.....	2, 3-4, 5	Fr., soph. 104F	Prep. Higher Algebra †
		I TThS		105F	†
		II MWF		104F	†
		III MWF		105F	†
		IV TThS		102F	†
		VII MWF		102F	†
7f	3	Pl. Trigonometry	4	S.A.T.C. only 125F	El. Alg. †
		II MWF		125F	†
		III TThS		105F	†
		IV TThS		105F	†
		VI MWF		125F	†
		VII MWF		125F	†
8f-9w	6	Analytics	9	Soph., jr., sr. 105F	2, 4, or 5 Wright Barton
		III TThS		125F	
		VI MWF			
10-1-2	9	Calculus	11, 51	Soph., jr., sr. 101F	11 Bauer Brink
		II TThS		102F	
		IV MWF			
13f	3	Integral Calculus.....	51	Soph., jr., sr. 101F	11 Bussey
		III TThS			
*16f	3	Solid Analytics.....	71	Jr., sr. 104F	11 Shumway
		II MWF			
*117f	3	Differential Equations.....	106	Jr., sr., grad. 101F	51 Slobin
		III MWF			
*18f	3	Teachers' Course.....	54	Jr., sr. 115Ed	11 Reeve
		VII MWF			

† Work for the three quarters must be taken before credit for one quarter is given.

MILITARY LAW

A three hour course given in the Law School, hours to be arranged—open to S.A.T.C. only and carrying general credit in the College, but not in any department.

MUSIC

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1-2-3	9	Harmony III MWF	1-2	Fr., Music Mu	None Scott
*4-5-6	6	Counterpoint III TTh	3-4	Soph., Music Mu	1-2 Ferguson
10-11-12	6	Composition Ar Ar	5-6	Jr., sr. Mu	Ferguson
*11-12-13	3	Analysis IV W	7-8	Jr., sr. Mu	Harmony Scott
14-15-16	9	History of Music II MWF	9-10	Soph., jr., sr., Music	None Ferguson
17-18-19	3	Appreciation of Music V M	11-12	Jr., sr. Mu	None Reeves
*20-21-22	6	Bach-Beethoven V, VI T	13-14	Jr., sr. Mu	None Ferguson
25-6-7	6	Ensemble Ar F	31-32	Jr., sr. Mu	Pepinsky
39-40-41	6 or 12	First-year Pianoforte Ar Ar	15-16	Jr., sr. Mu	Scott, Ferguson, Reeves
42-43-44	6 or 12	Second-year Pianoforte Ar Ar	51-52	Soph., Music Mu	15-16 Scott, Ferguson, Reeves
45-46-47	6 or 12	Third-year Pianoforte Ar Ar	53-54	Jr. Mu	47-48 Scott, Ferguson, Reeves
48-49-50	6 or 12	Fourth-year Pianoforte Ar Ar	55-56	Sr. Mu	53-54 Scott, Ferguson
51-52-53	6 or 12	First-year Violin Ar Ar	19-20	Fr., Music Mu	Pepinsky
54-55-56	6 or 12	Second-year Violin Ar Ar	59-60	Soph., Music Mu	19-20 Pepinsky
57-58-59	6 or 12	Third-year Violin Ar Ar	61-62	Jr. Mu	59-60 Pepinsky
60-61-62	6 or 12	Fourth-year Violin Ar Ar	63-64	Sr. Mu	61-62 Pepinsky
63-64-65	6	First-year Vocal Training Ar Ar	21-22	Fr., Music Mu	Hull
66-67-68	6	Second-year Vocal Training Ar Ar	67-68	Soph., Music Mu	21-22 Hull
69-70-71	6	Third-year Vocal Training Ar Ar	69-70	Jr. Mu	67-68 Hull
72-73-74	6	Fourth-year Vocal Training Ar Ar	71-72	Sr. Mu	69-70 Hull
75-76-77	9	Public School Music VII WF VIII WF	27-28	Jr., sr. Ed Ed	Giddings Giddings
*78-79-80	9	Adv. Public School Music Ar Ar	39-40	Sr., grad. Mu	27-28 ¶
81-82-83	9	Normal Piano VI TF	29-30	Jr., sr. Mu	Reeves
*84-85-86	9	Adv. Normal Piano VIII TF	37-38	Sr., grad. Mu	29-30 Reeves
88-89-90	3	Ear Training VI Th	33-34	Jr., sr. Mu	Reeves
91-92-93	3	Orchestra 7:30 M	35-36	Soph., jr., sr. Mu	Ferguson
94-95-96	6 or 12	Other Orchestral Instruments Ar Ar	41-42	Jr., sr. Mu	¶
97-98-99	3	University Choir Ar Ar	47-48	Jr., sr. Mu	Scott

PHILOSOPHY

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1f	3	Problems of Philosophy..... II MWF	1	Soph., jr., sr. 322F	None Lodge
3f	3	Ethics IV TThS	3	Soph., jr., sr. 322F	None Wilde
9f	3	Philosophy and the War..... III MWF		Soph., jr., sr. 322F	None Wilde, Swenson, Lodge
*63f	3	Development of Religion..... II TThS	63	Jr., sr. 322F	6 credits Swenson
*101-2-3	9	General Hist. of Philosophy.. III TThS	121	Jr., sr., grad. 322F	6 credits Wilde
*141-2-3	9	Seminar in Philosophy..... Ar Ar	141-2	Sr., grad. 316F	12 credits Swenson

PHYSICAL EDUCATION

FOR MEN

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
3-4-5	0	Personal Hygiene and Cor- rective Gymnastics IV WF VI TTh	1, 9-10	All 100A 100A	None Foster, West Foster, West

PHYSICAL EDUCATION

FOR WOMEN

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1-2-3	None	Elementary Physical Train- ing IV MWF IV TThS VI MWF VII MWF	1-2 3, 151, 153WGm 3, 151, 153WGm 3, 151, 153WGm 3, 151, 153WGm	Required of all new students	None ¶ ¶ ¶ ¶
4-5-6	4½	Intermediate Physical Train- ing VI TTh	3-4	Soph., jr., sr. 153WGm	Equiv. 1-2 Kissock
7-8-9	4½	One other hour to be arranged Advanced Physical Training VII TTh One other hour to be arranged	5-6	Jr., sr. 153WGm	3-4, permission of director Ladd
11f-12w	None	Preliminary Hygiene..... I M IV M VI T VII T	11	Required of all new students 201WGm 201WGm 201WGm 201WGm	None ¶ ¶ ¶ ¶
13f	3	Personal Hygiene..... II MWF	13	Soph., jr., sr. 201WGm	An. Biol. 1-2 Norris
14f-15w	6	Hygiene of the Family..... Ar Ar	14	Jr., sr. Ar	An. Biol. 1-2 Ar

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
16-7-8	9	Principles of Physical Education	15-16	Sr.	1-2, 3-4, 31-32, 33-34
		Lect. II	MWF	201WGm	Norris, Kissock
		Lab. V	MWF	3, 151, 153WGm	Schill, Tolg
21-2-3	None	Rhythmic Expression.....	21-22	All	None
		VIII	TTh	153WGm	Ladd
		VIII	MW	153WGm	Ladd
31-2-3	None	Folk Dancing and Organized Games	31-32	All	None
		V	TTh	151WGm	Ladd
34-5-6	None	Hockey, Basket and Baseball	33-34	All	Permission of director
		VIII	MW	151WGm	Kissock
		VIII	TTh	151WGm	Kissock
43a,b,c	None	Elementary Swimming.....	43a,b	Required of soph. who need instruction in swimming	None
		IV	TTh	51WGm	Voss
		VI	TTh	51WGm	Ladd
		VII	TTh	51WGm	Voss
		VI	WF	51WGm	Voss
		VII	WF	51WGm	Voss

Diving and advanced strokes in swimming taught at VI, VII M, and at VIII W. General swimming without instruction, VIII F.

PHYSICS

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
21	3	Mechanics	1	Fr., soph.	3 yrs. Math. or 2 yrs. & reg. in Math.
		Lect. VII	M	30Ph	Zeleny
		Rec. II	TThS	16 & 17 Ph	Zeleny, Miller
		Rec. III	ThTS	16 & 17 Ph	Zeleny, Miller
		Rec. IV	TThS	16 & 17 Ph	Zeleny, Miller
		Rec. I	MWF	16 & 17 Ph	Zeleny, Miller
22	1	Mech. Lab.....	2	Fr., soph.	21 or reg in 21
		Lab. II, III	MTWThFS	23Ph	Miller
		Lab. V, VI	MTWThF	23Ph	Miller
31	3	Acoustics	31	Soph.	21, 22
		Rec. II	TThS	30Ph	Erikson
*121	3	Dynamics	121	Jr. sr., grad.	2 or 8 or 22 and Math. 51
		Ar	Ar	Ar	Ar
*162	3	Elect. Meas.....	163	Jr., sr., grad.	61, 62, or 63, 64
		Lab. II, III	MWF	31Ph	Zeleny
*182	3	Adv. Phys. Meas.....	181	Jr., sr., grad.	12 cr. in Physics
		Ar	Ar	20Ph	Erikson

POLITICAL SCIENCE

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1f	3	American Government.....	I	S.A.T.C. and soph., jr., sr.	None
		I MWF		109MA	Viesselman
		II TThS		Ar	Orfield
		III MWF		102MA	Young
		IV MWF		209MA	Orfield
		III TThS		Ar	Lobb
3f	3	State and Local Government	3, 7	S.A.T.C. and soph., jr., sr.	I
		III TThS		202MA	Viesselman
5f	3	Municipal Government.....	5, 6	Soph., jr., sr.	I
		IV MWF		102MA	Anderson
15f	2	Principles of International Law .....	..	S.A.T.C. only	None
		III TTh		102MA	Allin
*51f-2w-3s	9	Business Law.....	51-52	Jr., sr.	6 reg. cred. in P. S. or 6 in Econ. or 3 in each
		II MWF		202MA	Young
*101f-2w	6	American Constitutional Law	101	Jr., sr., grad.	6 credits
		II TThS		Ar	Lobb
*109f	3	Diplomacy	109	Jr., sr., grad.	6 credits
		VI MWF		102MA	Allin
*111f	3	Comp. European Govt.....	111	Jr., sr., grad.	6 credits
		III MWF		209MA	Anderson
*191f-92w-93s	9	Seminar .....	..	Sr., grad.	12 credits
		Ar Ar		Ar	All instructors

PSYCHOLOGY

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1-2-3	6	General Psychology.....	1-2	Soph., jr., sr.	None
		I MWF		321F	Peterson
		II MWF		321F	Peterson
		II TThS		321F	Lashley
		II TThS		209½F	Lowell
		III MWF		321F	Dodson
		III TThS		321F	Lowell
		III MWF		207F	Lashley
		IV MWF		321F	Dodson
		IV TThS		321F	Lashley
		VI MWF		321F	Lowell
		VI MWF		322F	Lodge
		V MWF		321F	Dodson
1f-2w	6	Elements of Psychology.....	1a	Ar	None
		VII MFW		Ar	Dodson
*101-2-3	9	Experimental Psychology.....	101	Jr., sr., grad.	1-2
		VIII T		316F	Peterson
		VI, VII TTh		318F	Peterson, Sullivan
*104f-5w	6	Comparative and Genetic Psych.	103-104	Jr., sr., grad.	1-2
		Ar Ar		Ar	Lashley
*108f	3	Social Psychology.....	107	Jr., sr., grad.	1-2
		I TThS		321F	Peterson

Students who desire to do research work should consult with the chairman of the Department.

ROMANCE LANGUAGES

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1-2-3	9	Beginning French.....	1a	S.A.T.C.	None
		II MWF		213F	†
		II TThS		213F	†
		III MWF		213F	†
		III TThS		213F	†
		IV MWF		213F	†
		IV TThS		213F	†
		V MWF		213F	†
		VI MWF		213F	†
		VII MWF		213F	†
4-5-6	18	Beginning and Intermediate French	1a & 3b	All	None
		I M-S		201F	†
		II M-S		201F	†
		III M-S		201F	†
		IV M-S		201F	†
7-8-9	9	Intermediate French.....	3a	S.A.T.C.	1a or equiv.
		VI MWF		107F	†
		VII MWF		201F	†
10-11-12	18	Inter. French and Fr. Survey	3a & 4	All	1a or equiv.
		I M-S		226F	Delson
		II M-S		226F	Guinotte
		IV M-S		226F	Clepton
13-14-15	9	French Survey.....	5-6	All	3a or equiv.
		II TThS		202F	LeCompte
		III TThS		226F	Phelps
		IV MWF		227F	van Roosbroeck
		VI MWF		227F	Delson
16-17-18	3	El. French Conversation.....	7-8	All	3a or equiv.
		II TTh		15F	van Roosbroeck
		II MW		202F	†
		VII MW		15F	Guinotte
19-20-21	3	El. French Composition.....	9-10	All	3a or equiv.
		II S		15F	van Roosbroeck
		II F		202F	†
		VII F		15F	Guinotte
22-23-24	9	El. Conversation and Comp..	..	S.A.T.C. and war workers	3a ore equiv.
		V MWF		107F	Frelin
31-32-33	18	Beginning and Inter. Spanish	31a & 35b	All	None
		I M-S		227F	Underwood
		II M-S		227F	Henriquez
		III M-S		227F	House
37-38-39	9	Beginning Spanish.....	33-34	All	None
		I MWF		207F	Olson
		V MWF		206F	†
		IV MWF		207F	Phelps
40-41-42	9	Inter. Spanish.....	37-38	All	31a or equiv.
		II MWF		15F	House
		III TThS		15F	Henriquez
43-44-45	9	Spanish Survey.....	39-40	All	35a or equiv.
		II TThS		205F	House
46-47-48	3	El. Sp. Conver.....	41-42	All	35a or equiv.
		IV MW		15F	Henriquez
49-50-51	3	El. Sp. Composition.....	43-44	All	35a or equiv.
		IV F		15F	House

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
61-62-63	9	Beginning Italian..... II MWF	51-52	All 205F	None Phelps
71-72-73	3	Advanced Fr. Conver..... VII MW	61-62	Jr., sr. 226F	7-8 Frelin
74-75-76	3	Advanced Fr. .Comp..... VII F	63-64	Jr., sr. 226F	9-10 Frelin
81-82-82	9	19th Cent. Fr. Lit..... IV TThS	75-76	Soph., jr., sr. 205F	5-6 Barton
*101-2-3	9	17th and 18th Cent. Fr. Lit.. III TThS	101-2 & 103-4	Jr., sr., grad. 102F	5-6 Searles
*113-14-15	3	French Syntax..... II Th	109-110	Jr., sr., grad. 212F	63-64 Barton
*131-2-3	3	Ad. Sp. Conversation..... IV TS	131-132	Jr., sr., grad. 227F	41-42 Henriquez
*134-5-6	3	Ar. Sp. Composition..... IV Th	133-134	Jr., sr., grad. 227F	43-44 House
*147-8-9	6	Sp. Lectures..... VIII TTh	147-147	Jr., sr., grad. 226F	41-42, 43-44 Henriquez
*151-2-3	6	Dante	151-152	Jr., sr., grad. 226F	51-52 & 53-54 or 5-6 or Eng. I Phelps
*154-5-6	3	Dante (in English)..... VI MW	153-154	Jr., sr., grad. 226F	Hist. 1-2 & Eng. 1 or Fr. 5-6 (Required for students taking 151-152)
*161-2-3	6	Teachers' Course..... VI TTh	161-162	Jr., sr., grad. 226F	Phelps See bulletin de Boer

* Who have had the five years' preparation required.

SCANDINAVIAN

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1-2-3	18	Beginning and Int. Norwegian.. I MTWThFS	1-2	All 206F	None ¶
4-5-6	9	Advanced Norwegian..... II TThS	3-4	Soph., jr., sr. 206F	2 ¶
7-8-9	18	Beginning and Int. Swedish.... I MTWThFS	5-6	All 25F	None ¶
10-11-12	9	Advanced Swedish..... II MWF	7-8	Soph., jr., sr. 206F	6 ¶
13-14-15	9	Hist. of North. Europe..... IV MWF	13-14	Soph., jr., sr. 206F	Consult Dept. ¶
*101-2-3	9	Modern Norwegian Literature.. III TThS	101-102	Jr., sr., grad. 206F	3-4 ¶
*105-6-7	9	Swedish Literature..... VI MWF	107-108	Jr., sr., grad. 206F	7-8 ¶

SOCIOLOGY AND ANTHROPOLOGY

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
108f	3	General Introduction.....	12	Soph., jr., sr. 9F	None Bernard
		VI MWF			Bernard
		III MWF		4Pl.Path.	Jenks
		II MWF		9F	Todd
		I TThS		9F	Melvin
108f	3	Social Psychology.....	117	Jr., sr., grad.	1, & 1 other & 1, 2 or 5 in Psychol.
		I TThS		321F	Peterson
*113f	3	American People.....	113	Jr., sr., grad.	1 & 2 others
		III MWF		9F	Jenks
*115f	3	American People (cont.).....	114	Jr., sr., grad.	1, 113, & 1 other
		V MWF		9F	Jenks

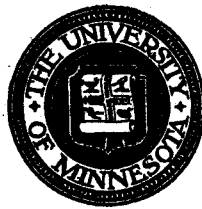
* Note.—Americanization Courses: Course 113, "Older Immigrants in America," not open to students who have credit for Course 113. Course 115, "Americanisms," not open to students who have credit for Course 114.

TRAINING COURSE FOR SOCIAL AND CIVIC WORK

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
45f-46w	2	Elements of Social Hygiene and Community Protective Work	45-46	Jr., sr., 9F	Soc. & Anth. 1 Todd, Coffman, Ulrich
		VIII W and by appt.			
51f-52w	6	Treatment of Dependents and Defectives	51	Jr., sr.	Soc. & Anth. 1 or 6
		I TThS		9F	Bruno
*125-6-7	4	Community Center, Recrea- tion and Settlement Work.	125-126	Sr., grad.	2 courses in this Dept.
		VII, VIII W		12F	Aronovici
*133-4-5	3	Field Work in Hospital, So- cial Service	133-4	Sr., grad.	Consent of Di- rector
		By appointment			Tebbetts

The Bulletin
of the University of
Minnesota

The College of Education
Program for the Year
1918 - 1919



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COLLEGE OF EDUCATION

REVISED PROGRAM FOR THE FIRST QUARTER, 1918-1919

EXPLANATION

The following revised College of Education program has been made necessary by radical changes recently adopted in connection with the University of Minnesota calendar and curriculum. Subsequent to the printing of the College of Education announcement for the year 1918-19, the University of Minnesota was officially designated as one of the institutions at which a unit of the S. A. T. C. (Students' Army Training Corps) is to be organized.

COLLEGE OF EDUCATION OPEN TO S. A. T. C. STUDENTS

A graduate or an undergraduate student who has been inducted into the S. A. T. C. may register in the College of Education. (See University of Minnesota Bulletin, S. A. T. C. Students' Army Training Corps, Revised Statement, September, 1918, page 7.) All such students will be required to take the three-hour *war-aims* course and in addition scholastic courses totalling twelve hours.

CHANGES IN PROGRAM AND CREDITS

The newly assumed functions of the University, resulting from its being designated a S. A. T. C. unit have led to the adoption, in the place of the former two-semester school year, of three terms of twelve weeks each, separated by intervals of one week as follows:

First Term, Wednesday, October 2 to Saturday, December 21.

Second Term, Monday, December 30 to Saturday, March 22.

Third Term, Monday, March 31 to Saturday, June 21.

The above program shows that in place of two semesters of approximately eighteen weeks each, heretofore maintained, there will now be three terms of twelve weeks each. This reduction in the length of term affects at once the value of credits. The value of a term credit is only two thirds the value of a semester credit, since a term is only two thirds the length of a semester. A course coming three hours a week throughout a term will receive three credits, the same number that it received under the semester system, but the term credit is only two thirds the value of the semester credit. Consequently it will be necessary to increase by three halves the number of credits prescribed to meet any requirement: for graduation, for a major, for a minor, etc. For example, under the semester system it was necessary to earn one hundred twenty semester credits for graduation; under the term system one hundred eighty term credits will be required. In like manner a department which, under the semester system, required twenty-four semester credits for a major and eighteen semester credits for a minor will under the term system require thirty-six term credits for a major and twenty-seven term credits for a minor.

To determine the number of term credits to be earned to meet any requirement, subtract the number of semester credits already earned from the number required under the semester system, multiply the remainder by three halves and the result will be the number to be earned under the term system. Example: A student who has earned under the semester system ninety of the one hundred and twenty credits required toward graduation, and eighteen of the twenty-four credits required for a major in Department will be required under the term system to earn forty-five term credits for graduation and nine term credits to complete his major, computed as follows:

$$\begin{aligned} \text{Credits for Graduation} & \dots\dots\dots 120 - 90 = 30 \times \frac{3}{2} = 45 \\ \text{Credits for Major} & \dots\dots\dots 24 - 18 = 6 \times \frac{3}{2} = 9 \end{aligned}$$

It must be understood that all the above statements regarding the number of credits to be assigned to the various courses and the number of credits to be earned under the term system are open to modification. The general principles outlined above will be followed as closely as possible, but in numerous cases it will be necessary to vary from them somewhat.

Students who prior to October 2, 1918, had earned at least 106 credits may graduate at the close of the first term, December 21, if during this term they have earned not less than eighteen term credits and have satisfied all of the ordinary requirements for graduation, including honor points.

NUMBERING AND DESCRIPTION OF COURSES

Students are referred to the 1918-19 College of Education announcement already published for a detailed description of courses and for a statement of general regulations. It has been thought well, however, to call attention to certain important changes made necessary by the adoption of the term system. The course numbers employed in the College of Education 1918-19 announcement are for the most part retained in the present program but the abbreviations f., w., s., are joined with course numbers to indicate the term (fall, winter, and spring) when the course is given. These abbreviations taken together with the number of credits assigned to a course indicate whether the course is repeated in successive terms or whether it is a course continued through two or more terms. Thus, Education 11f,w,s, 3 credits, is a 3-credit course repeated each term; Education 101f-102w-103s, 9 credits, is a 3-term course continuous throughout the college year.

REGULATIONS GOVERNING THE ISSUANCE OF CERTIFICATES

Wherever under the semester system there were required 12 hours, 15 hours, or 24 hours of work in education, under the term system there will be required 18 hours, 24 hours, 36 hours in education.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS IN EDUCATION

Revised Requirements (Term System)*

- I. (a) 180 term credits.*
- (b) 180 honor points.*
- (c) Honor points as heretofore.*

* For a full explanation see College of Education 1918-19 announcement already published.

2. Prerequisites: 6 term credits in General Psychology is a prerequisite of all courses in education, normally taken during the sophomore year.†
3. No changes.†
4. Residence. At least 45 credits must be earned by residence in this College. Major and Minors.† Eighteen credits is the minimum required for a minor and 27 credits for a major in the College of Education. Usually a minor will demand from 24 to 27 credits.†

PRESCRIBED COURSE OF STUDY FOR THE UNIVERSITY TEACHERS'
CERTIFICATE†

No.	Title	Credits	To Be Taken	
			Term	Year
1f-2w	History of Education (Brief Course) or	6	1 and 2 or 2 and 3	Jr.
101f-102w-103s	History of Education (Long Course)	9	1, 2 and 3	Jr.
3f-4w	Social Aspects of Education..	6	1 and 2 or 2 and 3	Jr.
55f, w, s	Educational Psychology	3	1 or 2 or 3	Jr.
11f, w, s	Technique of Teaching.....	3	2 or 3	Jr.
	Teachers' Course	3*	2 or 3 or 1	Jr. Sr.
15f, w, s	Practice Teaching	3	1 or 2 or 3	Sr.

* It is very desirable every candidate for the University Teacher's Certificate shall have pursued teachers' courses covering at least two distinct high-school studies, as nearly all inexperienced teachers are obliged to teach more than one subject in the Minnesota high schools. A recent ruling of the State Department, however, has done away with the former requirements that methods courses shall cover two distinct high-school studies. The new regulation requires simply that the students shall have three credits in teachers' or special methods courses.

† For a full explanation see College of Education 1918-19 announcement already published.

PROGRAM OF COURSES
DEPARTMENT OF ART EDUCATION

Course No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
29f-30w-31s	9	Fundamental Principles of Design	AE31-32	All MA	None Raymond
32f-33w-34s	9	Freehand Drawing and Composition	AE33-34	All MA	None Small, Raymond
35f	1	Clay Modeling	AE35	All MA	None Willetts
37f-38w	2	Weaving and Basketry	AE37	All MA	None Marr
40f-41w-42s	9	Principles of Harmony in Form and Color.....	AE39-40	Soph., jr., sr. MA	AE31-32 or HE51a,b Raymond
43f-44w-45s	6	Freehand Drawing.....	AE41-42	Soph., jr., sr. MA	AE33-34 Small
46f-47w	4	Pottery	AE43	Soph., jr., sr.	AE31-32
48f-49w	4	Fundamental Principles of Design for the Grades..	AE65-66	Teachers MA	None

EDUCATIONAL ADMINISTRATION AND SUPERVISION

Course No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
3f-4w	6	Social Aspects of Educ..	3	Jr., sr. Ar	Psychol. 1-2 Rankin, Sies
119f-120w	6	School Curricula	119	Sr., grad. 205Ed	1 or 101-2 and 3 Rankin
121f-122w	6	School Organ. & Admin.	121	Sr., grad. 205Ed	1 or 101-2 and 3 Rankin
124f-125w	6	Educational Admin.	124	Sr., grad. 111Ed	121 Sies
141f	3	School Sanitation	141	Sr., grad. 205Ed	1 or 101-2 and 3 Rankin
160f-2w-3s	6	Theory of Supervision...	123	Sr., grad., teachers 112Ed	None Sies
205f-206w-207s	6	Seminar in Educ. Adm..	205-206	Grad. 202Ed	124, 125 Sies
208f-209w-210s	6	Seminar in American School	207-208	Grad. 203Ed	1 or 101-2 and 3 Swift

EDUCATIONAL PSYCHOLOGY

Course No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
55f, w, s	3	Elem. Educ. Psychology.. I MWF III MWF		Jr., sr.	6 cr. in Psychol. Dealey Dealey
106f-107w-108s	9	Adv. Educ. Psychology.. IV MWF	106	Sr., grad. 202Ed	Psychol. 1-2 Van Wageningen
126f-127w	4	Methods of Educ. Rsch. VIII, IX T	125	Sr., grad. 205Ed	1 or 101-2 and 3 Van Wageningen
137f-138w-139s	1 to 9	Experimental Education. VIII, IX Th Other hours arranged	136	Sr., grad. 202Ed	Consult with In- structor Van Wageningen
109T-f	2	Educational Diagnosis .. I, II S	109	Sr., grad. 206Ed	Psychol. 1-2 Van Wageningen
110f	3	Psychology of Secondary School Subjects VIII MWF	110	Sr., grad. 111Ed	Psychol. 1-2 Van Wageningen
134f-135w	2	Mental Diagnosis (not given in 1918-19)	134		
149f-150w-151s	1 to 9	Psycho-Educ. Clinic. 12:30-2:30 MWF	137-138	Sr., grad. 126-128MH	Psychol. 1-2; Ed. 109, 134, or 135 Dealey, Van Wageningen

HISTORY AND PHILOSOPHY OF EDUCATION

Course No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1f-w, 2w-s	6	Brief Course in History of Educ.	I	Jr., sr. 205Ed	Psychol. 1-2 Alexander
		I TThS		205Ed	Alexander
		II TThS		205Ed	Alexander
		II MWF		205Ed	Alexander
		III MWF		205Ed	Alexander
101f-2w-3s	9	Hist. Found. of Mod. Educ.. I MWF	101-102	Jr., sr., grad. 203Ed	Psychol. 1-2 and 6 cr. in Dept. of History Swift
214f-5w-6s	6	Seminar in Selected Prob- lems in Educ. History.... VIII, IX F	201-202	Grad. 203Ed	101-102 and 6 cr. in Dept. of History Swift

THEORY AND PRACTICE OF TEACHING

Course No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
11f, w, s	3	Technique of Teaching..... I MWF	11	Jr., sr. 125F	Psychol. 1-2 Morehouse, Sies
15f, w, s	3	Practice Teaching..... Ar Ar	15	Sr., grad. Ar	See statement Reeve
An. Biol. 82-3-4	4½	Nature Study	31-32	Jr., sr.	12 cr. in An. Biol.
Botany		V, VI, VII T		213AB	Sigerfoos

Course No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
133f-134w	6	Teachers' Course in Botany. III, IV MWF	121	Jr., sr., grad. Ar	12 cr. in Botany Johnson
English 80f, w	3	Teachers' Course in English VII TTh	80	Jr., sr. 206Ed	See statement Inglis
Geography 55f	3	Teachers' Course in Geog... I TThS	55	Jr., sr., grad. Ar	Any one of 36, 39, 116 or 118 Clark
German 60f-1w-2s	3	Teachers' Course in German VII F	59-60	Jr., sr. 209F	29-30 and 31-32 or 53-54 Schlenker
History 25f	2	Teachers' Course in History VIII MW	56-57	Jr., sr. 111L	See statement Krey
Latin 100f	3	Advanced Caesar I TThS	101	Jr., sr. 109F	Latin 58 Pike
Manual Training MT:1f	3	Teaching and Supervision of Manual Training VII MWF	MT:11	Sr. 114Ed	Consult Instr. Stockwell
Mathematics 18f, w, s	3	Teachers' Course in Math.... VII MWF	54	Jr., sr. 115Ed	Math. 11 Reeve
Music 75f-6w-7s	9	Public School Music..... VII WF VIII WF	27-28	Jr., sr. 117Ed 117Ed	None Giddings Giddings
Music 78f-9w-8os	9	Public School Music..... Ar Ar	39-40	All Ar	27-28 Ar
Phys. Educ. 16f-7w-8s	9	Prin. of Phys. Educ..... II MWF	15-16	Sr. 201WGm	Phys. Educ. 1-2, 3-4, 31-2, 33-4 Kissock, Schill, Tolg
Romance Languages 161f-2w-3s	6	Teachers' Course in Romance Languages..... VI TTh	161-162	Jr., sr., grad. 226F	See statement de Boer

HIGH-SCHOOL RURAL TRAINING DEPARTMENT METHODS

Course No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
152f	1	Elem. Methods in Reading VII T	152	Jr., sr., grad. 111Ed	Educ. 1 or 101-2 and 3 Lommen
154f	1	Elem. Methods in Indus. Arts VII Th	154	Jr., sr., grad. 111Ed	Educ. 1 or 101-2 and 3 Lommen

AGRICULTURAL EDUCATION

Course No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
11f, s	2	Principles of Voc. Educ.. II TThS III TThS	11	Soph., jr., sr. 317Ad 317Ad	None Dyer Dyer
21f	2	Industrial Education ... II MWF	21	Soph., jr., sr. 307Ad	None Mayne
41f-w, 42w-s	6	Teaching	41	Sr. 317Ad	131, Agron. 5, 104; see de- scription Storm, Gile, Field, Ankeny, Barker
63f	2	General Agriculture Ar Ar	63	All Ar	None Storm, Mayne, Barker
131f, w, s	2	Methods	131	Sr. 317Ad	11 Field
151f-w, 152w-s	6	Organ. and Management IV MWF	151	Sr. 317Ad	68 Storm, Dyer
161f	2	Fundamentals of Agric.. Ar Ar	161	Jr., sr. Ar	None Storm, Barker
171f	2	Extension Work	171	Sr. Ar	None Storm, Barker
173f, w	2	History of Agric..... Ar Ar	173	Soph., jr., sr. Ar	None Ar
175f, w	2	Visual Presentation..... Ar Ar	175	Jr., sr. Ar	None Ar
181f	2	Graphic Representation and Agr. Statistics... Ar Ar		Soph., jr., sr. Ar	None Ar
191f-92w-93s	3 to 9	Seminar		Sr., grad Ar	Storm

HOME ECONOMICS EDUCATION

Course No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
HE45f	1	Home Economics Educ. ... II M	HE45	Sr. 213HE	HE42 Berry
HE47f-w-s	5	Observation and Teaching.. IV TTh	HE47	Sr. 106HE	HE42 Weigley
HE48f-w-s	5	Observation and Teaching.. IV TTh	HE48	Sr.	HE42

MANUAL TRAINING

Course No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
1†	3	Mechanical Drawing		Soph., jr., sr. Ar	None French
3f, w, s,*	3	Mechanical Drawing..... Ar Ar		Soph., jr. Ar	None Tyler
3†	2	Descriptive Geometry		Jr. ME	None Kirchner
43†	3	Specifications and Working Drawing		Jr., sr. ME	Mech. Draw. Cederburg

No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
MT7†	2	Woodturning and Pattern Making		Sr. ME	1-5 Richards
		Ar Ar			
MT8†	2	Foundry Work		Sr. ME	1-5, 7 Ar
		Ar Ar			
MT9†	2	Forge		Sr. ME	1-5 Hobart
		Ar Ar			
MT10†	2	Machine Shop		Sr. ME	1-5 Shipley
		Ar Ar			
MT11f	3	Teaching and Supervision of Manual Training		Sr. 114Ed	Consult Instr. Stockwell
		VII MWF			

* Agricultural Engineering.

† Engineering.

‡ Architecture.

Course numbers and credits of the above courses in Engineering are subject to change.

INDUSTRIAL EDUCATION

Course No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
142T-f	3	Industrial Education.....	141.	Sr., grad. 111Ed	1 or 101-2 and 3 Rankin
		I, II S			
		One hour arranged			

VOCATIONAL EDUCATION

Course No.	Credits	Title	Equiv. course	Offered to	Prerequisite courses
V25f, w, s	2	Organ. and Supervis. of Vocational Educ.	V25a or 26b		
		VIII, IX M	Ar		Phillips, McGarvey
V27f, w, s	2	Industrial History.....	V27a or 28b		
		VIII, IX T	Ar		Morehouse
V29f, w, s	2	Trade Mathematics.....	V29a or 30b		
		VIII, IX W	Ar		Edwards
V31f, w, s	2	Applied Science.....	V31a or 32b		
		VIII, IX Th			Powers
*Eng. 21 or 22	2	Technical Drawing			
		I, II MWF			Kirchner
AE29f	2	Drawing and Design for Printers			
		VIII, IX F			Raymond
V37f, w, s	2	Practice Teaching.....			
		Ar Ar			
217f, w, s	2	Seminar	V41a or 42b	Grad.	Consult Instr. Swift, Sies
		VIII, IX W			
V45f, w, s	Ar	Shop Trade Courses.....			
		Ar Ar			
V39f, w, s	2	Psychology of Trade Ed..	V39a or 40b		
		I S			Van Wagenen, Dealey
V47f, w, s	2†	Vocational Guidance.....			
		VIII, IX W		Ar	Ball

* Subject to change.

† Not given first quarter.

The Bulletin of the University of Minnesota

*Announcement of Courses
in Vocational Education for the Year
1918 - 1919*



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UNIVERSITY CALENDAR

1918-1919

1918			
September	11	Wednesday	Registration closes except for new students
September	11-18	Week	Fees payable except for new students
September	17-24	Week	Examinations for removal of conditions and entrance examinations
September	23-24		Registration and payment of fees for new students
September	25	Wednesday	First semester begins
September	30	Monday	First semester evening extension classes begin
October	17	Thursday	Senate meeting, 4:00 p.m.
November	5	Tuesday	General Election Day; a holiday
November	27	Wednesday	Thanksgiving recess begins 9:00 p.m.
December	2	Monday	Thanksgiving recess ends 8:00 a.m.
December	21	Saturday	Christmas vacation begins 12:00 m.
1919			
January	2	Thursday	Christmas vacation ends 8:00 a.m.
January	20	Monday	Second semester registration closes except for new students
January	24	Friday	First semester evening extension classes close
January	27	Monday	Final examinations begin
January	27	Monday	Payment of second semester fees closes except for new students
January	31		Registration and payment of fees for new students
February	1		
February	3	Monday	Second semester begins
February	3	Monday	Second semester evening extension classes begin
February	12	Wednesday	Lincoln's Birthday; a holiday
February	20	Thursday	Senate meeting, 4:00 p.m.
February	22	Saturday	Washington's Birthday; a holiday
April	17	Thursday	Easter recess begins 9:00 p.m.
April	22	Tuesday	Easter recess ends 8:00 a.m.
April	22-28	Week	Condition examinations in certain colleges
May	15	Thursday	Senate meeting, 4:00 p.m.
May	23	Friday	Final examinations begin 2:00 p.m.
May	23	Friday	Second semester evening extension classes close

May	30	Friday	Memorial Day; a holiday
May	31	Saturday	Second semester closes
June	1	Sunday	Baccalaureate service
June	2	Monday	Senior Class Day exercises
June	4	Wednesday	Alumni Day
June	5	Thursday	Forty-seventh Annual Commencement
June	6	Friday	Summer vacation begins
June	16	Monday	Summer Session begins

The University year for 1919-20 will begin Tuesday, September 16.
Classes will begin September 24.

COURSES IN VOCATIONAL EDUCATION

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GEORGINA LOMMEN, Instructor in Methods of High School Teacher Train-
ing Departments
WILLIAM D. REEVE, B.S., Acting Principal University High School and
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LEILA GERRY
GEORGE MCGARVEY
E. M. PHILLIPS
INA C. WISNER

UNIVERSITY HIGH SCHOOL

JOSEPHINE DE BOER, B.A., French
MARIE B. DENEEN, B.A., Latin
ETHEL DUSTIN, Art
SYBIL FLEMING, B.A., History
SOPHIA HUBMAN, M.A., German
REWEY BELLE INGLIS, B.A., English
JAMES F. MACKELL, B.A., Science
FRANCES M. MOREHOUSE, M.A., History
SAMUEL R. POWERS, B.A., Science
WILLIAM D. REEVE, B.S., Mathematics
DORA V. SMITH, B.A., English
W. RAY SMITH, B.A., Mathematics
LYNNE E. STOCKWELL, Manual Training

ASSISTANTS

RAYMOND N. CARR, Assistant in Public School Music
MRS. AGNES FRYBERGER, Assistant in Public School Music
JUDITH JACOBS, B.A., Assistant in Educational Psychology
HELEN MAER, Assistant in Art Education
HAZEL SMALL, Assistant in Art Education
FLORENCE D. WILLETS, Assistant in Art Education

GENERAL INFORMATION

ORGANIZATION

The passage of the Smith-Hughes Bill in February, 1917, provided that each state in submitting its plan to the Federal Board for Vocational Education should make provision for the training of vocational teachers in Agriculture, Trades and Industries, and Home Economics.

The State Board for Vocational Education designated the University of Minnesota as the training center for the preparation of teachers of Vocational Education; and during the past year, 1917-18, the University has offered courses in Vocational Agriculture, Vocational Home Economics, and Trade Education. These courses have been offered in the regular sessions of the University, in the summer sessions, and in extension courses conducted at various centers.

The purpose of this bulletin is primarily to outline courses of study for the preparation of supervisors and teachers of trade and industrial subjects. For courses preparing teachers for conducting Vocational Agricultural and Home Economics classes, see the bulletin of the College of Agriculture.

AGENCIES COÖPERATING WITH THE UNIVERSITY OF MINNESOTA

Within easy access to the University of Minnesota are various types of trade and industrial schools; as, unit industrial day schools for boys and girls, corporation schools, evening, part-time, general continuation classes, and correspondence schools. These schools and other institutions and state and city departments listed below are coöperating with the University in the preparation of trade teachers and in carrying on investigations in Vocational Education:

- Bureau of Coöperative Research
- City Civic and Commerce Association
- Dunwoody Institute
- Extension Department of the University
- Federal School of Commercial Designing
- Girls' Vocational High School
- State Board for Vocational Education
- State Department of Labor

OPPORTUNITIES FOR INVESTIGATIONS

The University has established two scholarships for advanced students in education who are qualified professionally and have the vocational training necessary to carry on investigations in the field of Vocational Education. These scholarships pay \$225 each. Anyone interested may write to the Dean of the College of Education for particulars.

Graduate students in Education may choose as subjects of investigation in their seminar courses problems relating to Industrial Education; or they may take part in state and local surveys and investigations conducted by the University and the State Board for Vocational Education.

TYPES OF THE INDUSTRIAL SCHOOL

1. Unit trade schools for boys and girls in cities over 25,000
2. General industrial schools for boys and girls in cities less than 25,000
3. Part-time classes
 - a. Trade extension classes for boys or girls 14 years of age or over
 - b. Trade preparatory classes for boys and girls 14 years of age or over
 - c. General continuation classes for boys and girls between 14 and 18
4. Evening trade classes for men and women
5. Emergency war training classes for conscripted men

KINDS OF TRADE AND INDUSTRIAL TEACHERS NEEDED

1. Supervisors and teachers of industrial schools
2. Teachers of shop subjects
3. Teachers of related subjects
4. Teachers of non-vocational subjects
5. Teachers in general continuation classes
6. Instructors in evening classes

Supervisors and teachers of industrial schools: Schools and classes in industrial subjects are being established as fast as properly qualified teachers can be found. A four-year course is outlined under Courses of Study for Vocational Teachers. This course leads to the degree Bachelor of Science in Education and to a teacher's certificate in Vocational Education. In order that the industrial school may serve the ends for which it is organized, its teachers must have, besides the necessary trade experience, an understanding of educational theory and principles relating to industrial education and also a grasp of the industrial, economic, and social problems that have led up to the establishment of Vocational Education.

Teachers of shop subjects: Shop teachers must be masters of their trades; they must possess a fair technical knowledge; and, in addition, they must have the ability to deal with mature people as well as with boys and girls. The course for shop teachers is outlined under Course of Study.

Teachers of related subjects: Besides a two-year technical course, trade experience sufficient to enable them to make practical application of the subject matter to the various trades is required of all teachers of related subjects. A course for related subject teachers is outlined under Courses of Study.

Teachers of non-vocational subjects: It is not required that teachers of history, general mathematics, English, general science, and civics in vocational classes possess other than their high school teacher's certifi-

cate, but it is well that they have at least a layman's knowledge of the trades that their pupils are studying. A short course for teachers of non-vocational subjects is outlined under Course of Study.

Teachers in general continuation classes: Teachers of these classes should possess the qualifications necessary for teaching in a Junior High School. In addition to this, the teacher should have some natural mechanical ability and an interest in things industrial. The course of study outlined for non-vocational teachers is required for teachers of general continuation classes.

Instructors in evening schools: The purpose of the evening industrial school is to give to the worker a further knowledge of his particular trade. The men and women conducting short-unit courses in evening classes must have a thoro knowledge of their particular trade and also the ability to impart this knowledge to others.

CERTIFICATION OF VOCATIONAL TEACHERS

The State Board for Vocational Education has the authority for granting certificates to properly qualified teachers. The conditions upon which these certificates are granted are based on (a) trade experience, (b) educational qualifications, and (c) fitness for teaching. The educational qualifications are listed under the various courses of study for the training of teachers.

Teachers of emergency war-training evening classes or short-unit courses will be selected and certificated by the State Board for Vocational Education.

PLANS FOR TEACHER TRAINING

1. Professional courses at the regular session of the University of Minnesota: The courses of study are outlined in this bulletin.

2. Summer session courses: Courses covering six weeks' work outlined in the University summer session bulletin.

3. Correspondence courses: The extension department of the University of Minnesota offers several courses in Vocational Education through correspondence. Write to the Director of the University Extension for a bulletin of correspondence courses.

4. Extension courses at various centers in the state: During the year the University will establish training centers in the state wherever the demand for the courses justifies their establishment. Write to the College of Education or to the State Board for Vocational Education for a list of the training centers and the subjects offered.

5. Evening courses in Vocational Education will be offered in the cities where the demand for the courses warrants their establishment.

COURSES OF STUDY

A four-year course leading to the degree of Bachelor of Science in Education with a major in Vocational Education for the preparation of directors, supervisors, and teachers in trade and industrial schools is outlined below.

Requirements for graduation: (a) Completion of the following outlined course, (b) trade experience of at least one year beyond the apprenticeship period, the trade experience to have been gained previous to taking up the work or to be acquired during the time of taking the course.

FIRST YEAR

Department	Number of Course	Title of Course	Credit
Rhetoric	3 and 4	Composition and rhetoric.....	6
Mathematics	71a and 72	Algebra, trigonometry, and analytical geometry	10
Chemistry	29 and 30	General chemistry	6
Engineering	1 and 2	Mechanical drawing and descriptive geometry	6
or		Free-hand drawing	6
Education	33 and 34	Industries and commerce.....	3
Economics	Ec 2		—
Total.....			31

SECOND YEAR

Department	Number of Course	Title of Course	Credit
Mathematics	73a and 74	Differential and integral calculus.....	10
or		Mechanics and strength of materials..	8
Mathematics	90 and 92	General physics	8
Physics	1 and 2	Graphics	4
Engineering	5 and 6		—
or		Specifications and working drawings... 6	6
Engineering	Arch. 43-44	American government	3
Political Science	1a	American history	6
History	5-6		—
or			6
Elective			6
Total:.....			31

THIRD YEAR

Department	Number of Course	Title of Course	Credit
*See note	V45a or V46b	Shop course depends on trade experience	8
Education	1a	History of education.....	3
Engineering	21 or 22	Technical drawing	2
Education	V31a or V32b	Applied science	2
Education	V29a or V30b	Trade mathematics	2
Education	3a or 3b	Social aspects of education.....	3
Education	V27a or V28b	Industrial history	2
Electives chosen from group (b) below.....			8
Total.....			30

FOURTH YEAR

Department	Number of Course	Title of Course	Credit
*See note		Shop course depends on trade experience	8
Education	V25a or V26b	Organization and supervision of vocational education	2
Education	V37a or V38b	Practice teaching	2
Education	11b	Technique of teaching.....	3
Education	V39a or V40b	Psychology of trade education.....	2
Electives chosen from group (b) below.....			13
Total.....			30

* Note: The shop courses should be selected from the same group in which the student has had his trade experience. Below are listed shop and technical courses for printers.

Department	Number of Course	Title of Course	Credit
Dunwoody Institute	Pr. 2	Job composition	2
Dunwoody Institute	Pr. 11	Linotype (mechanism and operation)..	3
Dunwoody Institute	Pr. 15	Make ready on a cylinder press.....	1
Dunwoody Institute	Pr. 16 and 17	Mixing colors and color-work for pressmen	2
Education	Art E. 31-32	Fundamental principles of design.....	6
Education	Art E. 33-34	Free-hand drawing and composition....	6
Journalism	16	Copy reading	3
Federal School of Designing		Half tone work and zinc etching.....	3
Commercial Plants		Methods of embossing and engraving..	2
Commercial Plants		Bookbinding	2

The shop work to be given at commercial plants can be arranged for on the half-day plan during the regular school year, or the work can be taken up during the summer vacations. Some of the shop courses are given in evening classes as well as in day classes.

Arrangements have been made for offering shop courses to the following:

Machinist	Sheet metal worker
Plumber	Cabinet maker
Steam fitter	Pattern maker
Carpenter	Interior decorator
Electrician	Power machine operator
Bricklayer	Textile machine operator
Plasterer	Dressmaker
Mechanical draftsman	Milliner
Architectural draftsman	Commercial designer
Painter	

Group (b). The electives chosen during the junior and senior years will depend somewhat on the trade experience of the students and on the courses taken the first two years.

Students should consult their advisers before selecting electives. The following are suggestive electives.

Department	Number of Course	Title of Course	Credit
Education	142	Industrial education	3
Education	105-106	Educational psychology	6
Education	123-124	Supervision and administration.....	6
Education	119	School curricula	3

Department	Number of Course	Title of Course	Credit
Education	M. Tr. 1	Advanced drawing	2
Education	M. Tr. 6	Advanced wood work.....	2
Education	M. Tr. 11a,b	Teaching and supervision of manual training	3
History	155	American economic and social history.	3
History	144	History of Minnesota	3
Rhetoric	11-12	Exposition, description, and narration..	6
Sociology	6	Social reform movements.....	3
Sociology	111-112	American people	6
Journalism	13-14	Reporting	6
Economics	161	Labor problems	3
Engineering	21	Building sanitation	2
Engineering	41	Elements of structure.....	3

A SHORT COURSE OF STUDY OUTLINED FOR SHOP TEACHERS

Requirements: (a) A shop teacher shall possess at least an elementary education and also exceptional skill in the subject to be taught. He shall have completed during the year 1918-19 six credits in Vocational Education chosen from the course outlined below.

Department	Number of Course	Title of Course	Credit
Education	V25a or V26b	Organization and supervision of vocational education	2
Education	V37a or V38b	Practice teaching	2
Education	V43b	Trade teaching for women.....	2
Education or Engineering	V29a or V30b	Trade mathematics	2
Engineering	21-22	Technical drawing	2

A SHORT COURSE OF STUDY OUTLINED FOR TEACHERS OF RELATED SUBJECTS

Requirements: (a) A teacher of related subjects shall present evidence of the satisfactory completion of a four-year high-school course and at least a two-year technical course in the subjects to be taught, or in each case its equivalent; (b) He shall have had at least one year of shop experience and during the year 1918-19 shall have completed six or more credits in Vocational Education chosen from the courses outlined below.

Department	Number of Course	Title of Course	Credit
Education	V25a or V26b	Organization and supervision of vocational education	2
Education	V43b	Trade teaching for women.....	2
Education or Education or Education or Education or Education or Engineering	V37a or V38b	Practice teaching	2
Education or Education or Education or Education or Education or Engineering	V29a or V30b	Trade mathematics	2
Education or Education or Education or Education or Education or Engineering	V31a or V32b	Applied science	2
Education or Education or Education or Education or Education or Engineering	V39a or V40b	Psychology of trade education.....	2
Education or Education or Education or Education or Education or Engineering	21a or 22b	Technical drawing	2

Certification: The State Board for Vocational Education will issue certificates to teachers of shop and related subjects when they have completed the above requirements.

For courses offered at other times and places see statement of evening and extension classes.

A SHORT COURSE OF STUDY OUTLINED FOR TEACHERS OF NON-VOCATIONAL SUBJECTS

Under non-vocational subjects are included history, general mathematics, English, general science, and civics. In the all-day and part-time vocational classes the teachers of these subjects will be the regular high-school teachers of history, mathematics, English, and science. To do the teaching successfully the teachers must have at least a layman's knowledge of the machines used and the trades taught in the school. The following course is suggested for teachers of these subjects:

Department	Number of Course	Title of Course	Credit
Education	V43b	Trade teaching for women and girls..	2
Education	V27a or V28b	Industrial history	2
Education	V29a or V30b	Trade mathematics	2
or			
Education	V31a or V32b	Applied science	2
or			
Education	V47a or V48b	Vocational guidance	2

COURSES FOR EVENING CLASS TEACHERS

Teachers of evening classes are, in most instances, to be trained in service. Teachers will be examined and certificated by the State Board for Vocational Education for the year 1918-19.

VOCATIONAL EDUCATION COURSES

For the description of other courses mentioned in the outlined course of study see the bulletin of the department in which the subject is given.

Number	Credit	Title	Hour	Day	Instructor
V25a or 26b	2	Organization and Supervision of Vocational Education	4:00-5:30	M	Phillips, McGarvey
V27a or 28b	2	Industrial History	4:00-5:30	T	Morehouse
V29a or 30b	2	Trade Mathematics.....	4:00-5:30	W	Edwards
V31a or 32b	2	Applied Science	4:00-5:30	Th	Powers
Eng. 21 or 22	2	Technical Drawing	8:00-9:00	MWF	Kirchner
35a or 36b	2	Drawing and Design for Printers	4:00-5:30	F	Raymond
V37a or 38b	2	Practice Teaching			
V39a or 40b	2	Psychology of Trade Education	8:00-9:00	S	Van Wagenen, Dealey
V41a or 42b	2	Seminar in Vocational Education	4:00-5:30	MW	Swift, Sies
V43b	2	*Trade Teaching in Vocational Schools for Women and Girls	3:00-4:30	F	Fish, Wisner, Gerry
V45a or 46b		Shop Trade Courses...	Arranged		
V47a or 48b	2	*Vocational Guidance....	3:00-4:30	W	Ball

* Not given first semester.

DESCRIPTION OF COURSES

V25a or 28b. ORGANIZATION AND SUPERVISION OF VOCATIONAL EDUCATION.

The course will include a careful study of the Smith-Hughes Act for Vocational Education. Particular attention will be given to the Minnesota plan for establishing vocational courses in our public schools. Consideration will be given to the various types of vocational schools, to adapting vocational courses to community needs, and to the methods of organization and supervision. The methods of making an analysis of certain trades will be discussed, and recent vocational surveys will be studied.

V27a or 28b. INDUSTRIAL HISTORY. A survey of the steps by which modern industries have been developed from their first forms in primitive times, with consideration of the social and economic effects of each change made. A study of the nature, significance, and results of labor under many conditions. The course closes with a brief review of labor history in Minnesota and a discussion of present day problems. MOREHOUSE.

V29a or 30b. TRADE MATHEMATICS. The course is planned to meet the needs of the teachers of the various trade subjects. The course includes practical arithmetic together with those principles of algebra, geometry, and trigonometry that find application in the shop. Part of the work will be individual in that it will relate to the mathematics of the trade which the teacher is preparing to teach. EDWARDS.

V31a or 32b. APPLIED SCIENCE. The applications of the principles of science to concrete and practical problems in the trades and industries. The course will consist of frequent trips to local industrial establishments, assigned readings, and special reports. Special attention will be given to methods of teaching applied science. POWERS.

Eng.21-22. TECHNICAL DRAWING. In this course emphasis will be placed on the study of the standard conventions in drawing as used by the different trades. Besides the regular drafting room work, outlines of drawing courses that relate to the various trades will be made. KIRCHNER.

V35a or V36b. DRAWING AND DESIGN FOR PRINTERS. The object of this course is to show the close relationship between art and printing. Simple design and composition will be studied and practical application made by sketching layouts of letter heads, title pages, panels, and cover designs. RAYMOND.

V37a or 38b. PRACTICE TEACHING. This course will provide the opportunity for the prospective teacher to teach under the supervision of a helpful critic. Arrangements will be made for the work to be carried out at the Girls' Vocational School and at Dunwoody Institute.

- V39a or 40b. **PSYCHOLOGY OF TRADE EDUCATION.** Study of the formation of habits; individual differences, their nature, extent, and causes, and the part they play in acquisition of special trades. VAN WAGENEN.
- V41a or 42b. **SEMINAR—CURRENT PROBLEMS IN VOCATIONAL EDUCATION**
Members of the class will be expected to make critical studies of various phases of Vocational Education. These studies may be in the form of an analysis of the working program for the vocational school, outlining the course of study for certain subjects; or they may consist of making a survey of a community or district for the purpose of suggesting a vocational program.
- V43b. **TRADE TEACHING FOR WOMEN AND GIRLS.** The purpose of this course will be to give a survey of the principal positions open to women and girls in the professional, commercial, and industrial fields. This course will be of special value to those preparing to teach girls' vocational classes. FISH.
- V45a or 46b. **SHOP TRADE COURSES.** Technical trade courses offered at Dunwoody Institute, at the University of Minnesota, and at certain commercial plants, for which University credit will be given. Consult the director of Vocational Education for a list of subjects and a statement of conditions under which these courses may be taken.
- V47a or 48b. **VOCATIONAL GUIDANCE.** In this course young women may study the social and economic conditions which affect the employment of women, the occupations which are open to women, the salaries and other rewards which may be expected in these occupations, and the training and qualifications which are essential for success. BALL.

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