

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

*The School of Business*  
*Announcement for the Year*  
**1919-1920**



*Vol. XXII No. 28 August 8 1919*

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

*Acceptance for mailing at special rate of postage provided for in section 1103,*  
*Act of October 3, 1917, authorized July 12, 1918*



# UNIVERSITY CALENDAR

1919-1920

1919			
September	20	Saturday	Payment of fees closes, except for new students
September	24-30	Week	Examinations for removal of conditions, and entrance examinations
September	30	Tuesday	Payment of fees for new students closes
September	26-27-29-30		Registration days
October	1	Wednesday	Classes begin at 8:30 a.m.
October	16	Thursday	Senate meeting, 4:00 p.m.
November	27	Thursday	Thanksgiving Day; a holiday
December	18	Thursday	Senate meeting, 4:00 p.m.
December	23	Tuesday	Christmas vacation begins 9:00 p.m.
1920			
January	2	Friday	Christmas vacation ends 8:30 a.m.
January	2	Friday	Registration day
January	3	Saturday	Classes begin at 8:30 a.m.
February	12	Thursday	Lincoln's Birthday; a holiday
February	19	Thursday	Senate meeting, 4:00 p.m.
March	25	Thursday	Winter quarter ends
March	31	Wednesday	Registration day
April	1	Thursday	Classes begin at 8:30 a.m.
April	2	Friday	Good Friday; a holiday
May	20	Thursday	Senate meeting, 4:00 p.m.
June	13	Sunday	Baccalaureate service
June	16	Wednesday	Spring quarter closes
June	17	Thursday	Forty-eighth Annual Commencement
June	18-19		Registration days for summer quarter
June	21	Monday	Summer quarter begins
September	3	Friday	Summer quarter closes

# THE SCHOOL OF BUSINESS

## FACULTY

MARION LeROY BURTON, Ph.D., D.D., LL.D., President of the University  
GEORGE WILLIAM DOWRIE, Ph.D., Dean of the School of Business  
CLARA F. SYKES, B.A., B.S., Secretary of the School of Business

JOHN DONALD BLACK, Ph.D., Associate Professor, Agricultural Economics  
ROY GILLISPIE BLAKEY, Ph.D., Professor of Economics  
WILLIAM W. CUMBERLAND, Ph.D., Associate Professor, Agricultural Economics

Z. CLARK DICKINSON, B.A., Assistant Professor of Economics

GEORGE WILLIAM DOWRIE, Ph.D., Professor of Economics

\*EDWARD DANA DURAND, Ph.D., Professor of Economics

JOHN FRANKLIN EBERSOLE, M.A., Professorial Lecturer, Economics

FREDERICK B. GARVER, Ph.D., Associate Professor of Economics

NORMAN SCOTT BRIEN GRAS, Ph.D., Professor of Economic History

JOHN HENRY GRAY, Ph.D., Professor of Economics

ALVIN HARVEY HANSEN, Ph.D., Associate Professor of Economics

CLARENCE L. HOLMES, M.A., Assistant Professor of Economics

\*J. HUGH JACKSON, B.A., C.P.A., Assistant Professor of Accounting

ALBERT CALDER JAMES, B.A., M.B.A., Assistant Professor of Economics

BRUCE D. MUDGETT, Ph.D., Associate Professor of Economics

HOWARD SCOTT NOBLE, B.A., Assistant Professor of Accounting

CLARE L. ROTZEL, C.P.A., Associate Professor of Accounting

THOMAS HENRY SANDERS, M.Com., Assistant Professor of Accounting

JOHN HENRY SHERMAN, B.A., Professorial Lecturer, Economics

J. WARREN STEHMAN, M.A., Assistant Professor of Economics

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

JOSEPH EARL CUMMINGS, M.A., Instructor in Economics

VICTOR H. PELZ, M.A., Instructor in Economics

CLARA F. SYKES, B.A., B.S., Instructor in Office Management

---

\* Absent on leave, 1919-20.



## GENERAL INFORMATION

### ORGANIZATION

The Regents of the University of Minnesota on June 18, 1919, passed a resolution containing the following provisions:

1. That a separate school for professional training in business be established, beginning July 1, 1919.
2. That this school be officially designated "The School of Business."
3. That in keeping with the present policy of the University for its professional schools provision be made in the College of Science, Literature, and the Arts for a two year pre-business course.
4. That in the judgment of this Board admission to the School of Business should be limited
  - (1) To graduates of standard colleges.
  - (2) To those who have completed the pre-business course in the College of Science, Literature, and the Arts, or its equivalent, and
  - (3) To mature students of considerable business experience who will be known as "special students" and will not be candidates for the degrees of the School.

### PURPOSE

The School of Business recognizes the professional status of the business executive. It aims to give prospective executives thoro training for the work they are to undertake. Professional education rather than detailed drill in narrow technical processes is the object toward which instruction is directed. Scientific method in analyzing business data, trained intelligence in dealing with the human relationships of which business is made up, and a well-developed sense of moral responsibility will be the foundations of business effectiveness in the future. The School of Business combines, with a well-rounded university education, the kind of training that will prepare students to analyze business situations accurately and to bring together results of analysis into practical working plans.

### INSTRUCTION

The educational, as distinguished from informational, emphasis in the work of the School determines the selection of subjects. The student in the pre-business course will have learned in some measure to use those common intellectual tools needed for his later study and his business dealings. He should also have acquired an approach to scientific method and some insight into the relation of business to society as a whole. After entrance into the School of Business, elective courses will offer opportunity for continuing work in fields like economics, political science, law, and other subjects which constitute a part of the executive's general equipment. In the two-year course leading to the first degree of the School of Business, the student will proceed to a more intensive study of business and later to specialization in particular branches of business, such as organization and management, accounting, finance, merchandising, selling, production, employment, and other subjects which have to do with specialized business functions.

In the third or graduate year of the business course, specialization will be carried further with the purpose of mastering in principle and in detail some particular business problem in a restricted field. The work of students during this year will be under the individual direction of members of the Faculty who are specialists in the field in which the student is studying. Systematic provision will also be made for definite contact with some appropriate business concern.

The Faculty of the School of Business is made up primarily of persons who are devoting their lives to the scientific study of business, but it also includes men in various departments of the University whose fields of study comprise fundamental material which forms an essential part of education for a business career. The School of Business aims to make all the resources of the University available for its students.

#### LOCATION AND EQUIPMENT

No university in America is better situated with respect to education for business than the University of Minnesota. With the business districts of the Twin Cities on either side, the opportunities for observing business processes and for effective field work and research are unequalled. The cordial support of business organizations and individual concerns in the Twin Cities is a large factor in making the resources of the metropolitan district available for developing and presenting subject-matter in every field of study covered. Equally valuable is the support of business men throughout the state. The close contact which members of the Faculty have with the business of the Northwest greatly enhances the opportunities that students in the School of Business enjoy. Coöperation with the College of Agriculture brings the School of Business into contact with the agricultural background of many business problems. This coöperation is especially exemplified in the joint provision in the two schools for work in agricultural economics. Coöperation with engineering, law, and various departments of the College of Science, Literature, and the Arts is also an important factor in bringing many viewpoints to bear upon the business problems with which the student has to deal.

The library and laboratory facilities of the University are of a sort to contribute effectively to the success of the work which the School of Business is undertaking.

#### ADMISSION

Candidates for admission to the degree courses offered by the School of Business must be either graduates of a university or college of approved standing or they must have completed the two-year pre-business course in the College of Science, Literature, and the Arts or its equivalent. Following are the requirements for admission to the pre-business course:

Admission is either by certificate or by examination. Candidates must have completed the equivalent of a four-year high school course and must present:

1. Four units of English; or three units of English and four units of a foreign language; or three units of English and two units in each of two foreign languages.

2. One unit of algebra and one unit of plane geometry.
3. Enough additional work to make in all fifteen units, of which not more than four may be in Group F.

A detailed statement of admission requirements may be found in the Bulletin of General Information.

Attention is called to the following rules governing students entering with advanced standing:

Credits of advanced standing are to be provisional and finally adjusted upon the following basis: Any student who, after one year's residence, has failures in at least six hours' work shall lose all advanced credit except in those courses which have been continued in this College with a grade of at least C. Credits forfeited in this way can be secured only by special examination.

Students entering with advanced standing must earn an average of one honor point per credit hour for all work taken in this College which is to be counted toward a degree.

The pre-business course in the College of Science, Literature, and the Arts required for admission to the School of Business, is made up as follows:

FIRST YEAR

REQUIRED

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Rhetoric .....	5	Rhetoric .....	5	Rhetoric .....	5
Economic History.....	5	Economic History.....	5	Prin. of Economics...	5

Laboratory science or Mathematics  
 \*Foreign language  
 Social science, other than Economics

ELECTIVE

Courses open to freshmen in the College of Science, Literature, and the Arts.

SECOND YEAR

REQUIRED (1919-1920 ONLY)

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Prin. of Economics....	5	Prin. of Economics....	5	Business Organization.	5
Accounting .....	4	Accounting .....	4	Statistics .....	5
Psychology .....	3	Psychology .....	3		

REQUIRED (1920-1921 AND THEREAFTER)

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Prin. of Economics....	5	Statistics .....	5	Business Organization.	5
Accounting .....	5	Accounting .....	5	Psychology .....	5

Laboratory science or Mathematics  
 \*Foreign language  
 Social science other than Economics

ELECTIVE

Courses open to sophomores in the College of Science, Literature, and the Arts.

---

\* Candidates for graduation are required to complete a minimum of 10 hours of laboratory science or Mathematics; 10 hours of social science other than Economics. Sufficient work in a foreign language (if not already acquired in preparatory school) to acquire a working knowledge. The student must satisfy the language department concerned, as to his ability to read economic and business literature in that language.

*Students in Other Schools or Colleges of the University*

Regularly enrolled students in other schools or colleges of the University may be admitted to courses in the School of Business for which they have the prerequisites. Such students are urged to select their business subjects in accordance with a definite plan and as far as possible to complete a systematic course of business study.

*Special Students*

Mature persons who have had considerable business experience may, after consultation, be admitted to the School as special students. In order to become candidates for a degree in the School of Business, such students must satisfy all the requirements for admission to the degree course.

## ADVANCED STANDING

Appropriate credit in the School of Business may be given for work of a similar character done in other approved colleges and universities, but no student may become a candidate for a degree in the School of Business who has not completed at least one full academic year of credit under the Faculty of that School.

## CREDITS

Requirements for graduation are expressed in credit hours, indicating amount of work done; and in honor points, indicating grade of work. Honor points are computed as follows: Each credit hour with the grade of A carries 3 honor points; each credit hour with the grade of B, 2 honor points; each credit hour with the grade of C, 1 honor point.

For admission to the School of Business in 1919-20 students must have a standing equivalent to 84 credits and 84 honor points; (90 credits and 90 honor points thereafter), and have fulfilled the requirements for the first two years of the four-year course in Business Education as outlined in the Bulletin of the College of Science, Literature, and the Arts, or its equivalent. All students registered in the School of Business are expected to earn 1 honor point per credit hour during each quarter.

Candidates for the degree of Bachelor of Science in Business must have a standing of 180 credits and 180 honor points.

College credits for admission or for advanced standing and high-school credits for admission to the pre-business course in the College of Science, Literature, and the Arts must be forwarded direct to the Registrar of the University by the principal or the registrar of the institution from which the credit is presented. Proper blanks will be forwarded on request.

## REGISTRATION

Registration in the School of Business will take place on September 26, 27, 29, 30. Prior to date of registration students should consult with a member of the Faculty of the School of Business in that field in which the student is interested, and should have his proposed program approved.

At time of registration, students should present: (1) the program approved by a member of the Faculty of the School of Business; (2) a statement that the requirements for entrance to the School of Business have been fulfilled; (3) a statement showing that all fees have been paid. Students desiring to register after September 30 must secure permission of the Dean. All changes in registration must be approved by the Dean.

#### DEGREES

##### *Bachelor of Science in Business*

Candidates who have met the conditions for entrance to the School of Business, having satisfactorily completed the work covered in the pre-business course at the University of Minnesota, should normally be able to qualify for the degree of Bachelor of Science in Business at the end of the two full academic years of study in the School of Business.

If within a reasonable time after admission to the School, a student's work does not give promise of effectiveness in the business field, he will be discouraged from continuing the course, even tho he may have received passing grades in the subjects taken. It is expected that students will meet the requirements imposed with the same professional spirit and measure of precision demanded in well-regulated business houses, and students who fail to come up to this standard will not be recommended for the degree. The degree is not awarded merely as the result of pursuing a specified number of courses.

##### *Master in Business Administration*

Students who have completed the course of study required for the degree Bachelor of Science in Business, or its equivalent, may become candidates for the degree Master in Business Administration. Such students must complete at least one full academic year of resident graduate work in the School of Business. During the year of resident graduate study, emphasis will be laid on individual work under the direction of particular members of the Faculty rather than upon fundamental class instruction, and the student must present evidence of at least six months of successful experience in a responsible business position. Every candidate for the degree Master in Business Administration will be required to undertake a piece of constructive investigation related to the particular business in which he intends to engage. The subject of this investigation must be filed with the Secretary of the School of Business not later than November 20, and a thesis containing the results of the study must be presented not later than May 20.

Formal application for the degree must be made before the end of the first quarter of the academic year in which the degree is to be awarded.

No candidate will be recommended for the degree Master of Science in Business who, in the judgment of the Faculty, is not qualified for a business position requiring a high degree of responsibility or expert business knowledge.

## COURSE OF STUDY

The course of study in the School of Business is adjusted in such a way as to meet the needs of each particular student. The following schedules indicate the work given in preparation for particular business careers.

### ACCOUNTING

#### FIRST YEAR

##### REQUIRED

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Cost Accounting.....	3	Industrial Accounting..	3	Industrial Accounting..	3
Accounting Practice and Procedure .....	3	Accounting Practice and Procedure .....	3	Accounting Practice and Procedure .....	3
Business Law.....	3	Business Law.....	3	Business Law.....	3
		Contracts (Law School)			

##### *\*Prescribed Elective Group*

Mathematics of Investment.....	5	Principles of Marketing.....	5
Money and Banking.....	10	Office Management .....	6
Corporation Finance.....	3	Value and Distribution.....	6
Business and Government.....	3	Investments .....	3

##### *Free Elective Group*

Courses for which the student has the necessary prerequisites.

\* A minimum of 20 hours of work should be selected from this group during the first and second years.

#### SECOND YEAR

##### REQUIRED

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Auditing .....	3	Auditing .....	3	Auditing .....	3
C. P. A. Problems....	3	C. P. A. Problems....	3	C. P. A. Problems....	3
Seminar in Accounting.	2	Seminar in Accounting.	2	Seminar in Accounting	2

##### *\*Prescribed Elective Group*

See First Year

##### *Free Elective Group*

See First Year

\* A minimum of 20 hours of work should be selected from this group during the first and second years.

### ADVERTISING AND SELLING

#### FIRST YEAR

##### REQUIRED

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Money and Banking...	5	Money and Banking...	5	Retail Marketing.....	3
Principles of Marketing	5	Advertising and Selling	3	Psychology .....	3
Psychology .....	3	Psychology .....	3		

## COURSE OF STUDY

11

### *\*Prescribed Elective Group*

Value and Distribution..... 6	Modern Business Corporation..... 3
Corporation Finance..... 3	Office Management ..... 6
Advanced Composition..... 9	Commercial Geography..... 5

### *Free Elective Group*

Any subject for which the student has the necessary prerequisites.

\* A minimum of 20 hours of work should be selected from this group during the first and second years.

## SECOND YEAR

### REQUIRED

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Business Law..... 3		Business Law..... 3		Business Law..... 3	
Seminar ..... 2		Seminar ..... 2		Seminar ..... 2	
Drawing and Design... 2		Drawing and Design... 2		Drawing and Design... 2	
Journalism ..... 3		Journalism ..... 3		Journalism ..... 3	

### *\*Prescribed Elective Group*

See First Year

### *Free Elective Group*

See First Year

\* A minimum of 20 hours of work should be selected from this group during the first and second years.

## BANKING

### FIRST YEAR

#### REQUIRED

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Money and Banking... 5		Money and Banking... 5		Mathematics of Invest- ment ..... 5	
Business Law..... 3		Business Law..... 3		Business Law..... 3	
Corporation Finance... 3		Advanced Corporation Finance ..... 3			

### *\*Prescribed Elective Group*

Cost Accounting..... 3	Principles of Marketing..... 5
Farm Finance ..... 3	Public Finance ..... 6
Foreign Trade ..... 3	Office Management ..... 6
Commercial Policies ..... 3	Commercial Geography..... 5

### *Free Elective Group*

Courses for which the student has the necessary prerequisites.

\* A minimum of 20 hours of work should be selected from this group during the first and second years.

## SECOND YEAR

### REQUIRED

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Bank Administration... 3		Investments ..... 3		Business Cycles..... 3	
Senior Seminar..... 2		Senior Seminar..... 2		International Exchange 3	
				Senior Seminar..... 2	

## SCHOOL OF BUSINESS

*\*Prescribed Elective Group*

See First Year

*Free Elective Group*

See First Year

\* A minimum of 20 hours of work should be selected from this group during the first and second years.

## COMMERCE AND MERCHANDISING

## FIRST YEAR

## REQUIRED

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Money and Banking...	5	Money and Banking...	5	Commercial Geography	5
Principles of Marketing	5	Advertising and Selling	3	Retail Marketing.....	3

*\*Prescribed Elective Group*

Cost Accounting.....	3	Labor Problems .....	3
Value and Distribution.....	6	Business and Government.....	3
Office Management .....	6	Corporation Finance .....	3
Modern Business Corporation.....	3	Industrial Relations .....	3

*Free Elective Group*

Courses for which the student has the necessary prerequisites.

\* A minimum of 24 hours of work should be selected from this group during the first and second years.

## SECOND YEAR

## REQUIRED

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Business Law.....	3	Business Law.....	3	Business Law.....	3
Seminar .....	2	Seminar .....	2	Seminar .....	2
Commercial Policies....	3	Foreign Trade.....	3	Transportation .....	3

*\*Prescribed Elective Group*

See First Year

*Free Elective Group*

See First Year

\* A minimum of 20 hours of work should be selected from this group during the first and second years.

## FOREIGN TRADE

## FIRST YEAR

## REQUIRED

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Principles of Marketing	5	Advertising and Selling	3	Retail Marketing.....	3
Money and Banking...	5	Money and Banking...	5	Commercial Geography	5
Business Law.....	3	Business Law.....	3	Business Law.....	3

*\*Prescribed Elective Group*

Additional Foreign Language.....	10	Industrial Relations .....	3
Public Finance .....	6	Office Management .....	6
Advanced Statistics.....	3		

*Free Elective Group*

Courses for which the student has the necessary prerequisites.

\* A minimum of 20 hours of work should be selected from this group during the first and second years.



## COURSE OF STUDY

13

### SECOND YEAR

#### REQUIRED

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Commercial Policies....	3	Foreign Trade.....	3	International Exchange	3
International Law.....	3	International Law.....	3	Transportation .....	3
Senior Seminar.....	2	Senior Seminar.....	2	Senior Seminar.....	2

*\*Prescribed Elective Group*

See First Year

*Free Elective Group*

See First Year

\* A minimum of 24 hours of work should be selected from this group during the first and second years.

### INSURANCE

#### FIRST YEAR

#### REQUIRED

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Life Insurance.....	3	Fire Insurance.....	3	General Insurance....	3
Advanced Statistics....	3	Advanced Statistics....	3	Advanced Statistics... 3	3

*\*Prescribed Elective Group*

Money and Banking.....	10	Advertising and Selling.....	3
Corporation Finance .....	3	Mathematics of Investment.....	5
Investments .....	3	Corporations—Public Utilities.....	6
Principles of Marketing.....	5	Business and Government.....	3
Labor Problems.....	3		

*Free Elective Group*

Courses for which the student has the necessary prerequisites. American History, Sociology, and Mathematics are recommended.

\* A minimum of 20 hours of work should be selected from this group during the first and second years.

### SECOND YEAR

#### REQUIRED

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Business Law.....	3	Business Law.....	3	Business Law.....	3
Advanced Insurance... 3	3	Advanced Insurance... 3	3	Advanced Insurance.. 3	3
				Social Insurance.....	3

*\*Prescribed Elective Group*

See First Year

*Free Elective Group*

See First Year

\* A minimum of 24 hours of work should be selected from this group during the first and second years.

### SECRETARIAL WORK

#### FIRST YEAR

#### REQUIRED

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Business Law.....	3	Business Law.....	3	Business Law.....	3
Advanced Composition. 3	3	Advanced Composition. 3	3	Advanced Composition 3	3
Labor Problems.....	3	Industrial Relations... 3	3	†Shorthand and Type-writing (no credit)	

## SCHOOL OF BUSINESS

*\*Prescribed Elective Group*

Commercial Geography .....	5	Public Speaking .....	9
Public Finance .....	6	Cost Accounting .....	3
Industrial Relations .....	3	Corporation Finance .....	3
Labor Problems .....	3	Accounting Practice and Procedure .....	3 to 9
Business and Government.....	3		

*Free Elective Group*

Courses for which the student has the necessary prerequisites.

\* A minimum of 20 hours of work should be selected from this group during the first and second years.

## SECOND YEAR

## REQUIRED

First quarter	Hours	Second quarter	Hours	Third quarter	Hours
Office Management.....	3	Office Management....	3	Seminar in Secretarial Administration ...	3
Principles of Marketing.	5	Advertising and Selling	3	Transportation .....	3
				†Shorthand and Type- writing (no credit)	

*\*Prescribed Elective Group*

See First Year

*Free Elective Group*

See First Year

\* A minimum of 20 hours of work should be selected from this group during the first and second years.

† Must be taken in University High School or some other approved school.

## DESCRIPTION OF COURSES†

### STATEMENT OF COURSES‡

Number	Credits	Title	Offered to	Prerequisites
1-2	10	Intro. to Econ. Hist.	Fr.	None
3f-4w	10	Principles of Econ....	Soph., jr., sr.	None
3s-4f	10	Principles of Econ....	Fr., soph.	None
5‡	5	General Economics....	Fr., soph., jr.	None
6‡	3	Agricultural Econ....	Soph., jr.	5
7‡	5	Principles of Econ....	Soph., jr., sr.	None
8-9-10	9	Principles of Econ....	See Engineering bulletin	
11f-12w	6	Statistics .....	Jr., sr.	3-4 or 5, 6, or 7
14s	5	Statistics .....	Soph.	3-4 or 5, 6, or 7
15-16-17	9	Economic Problems ..	See Engineering bulletin	
18‡	5	Problems in Agricultural Economics ...	Soph., jr., sr.	3-4 or 5, 6, or 7
19‡	5	Prin. of Agricultural Marketing .....	Jr., sr.	3-4 or 5, 6, or 7
20‡	5	Prob. in Rural Econ..	Soph., jr., sr.	3-4 or 5, 6, or 7
23	5	Prin. of Org. & Man..	Soph., jr., sr.	3-4 or 5, 6, or 7
25-26††	8	Prin. of Accounting..	Soph., jr., sr.	None
41	3	Financial Hist. of U.S.	Jr., sr.	3-4 or 5, 6, or 7
*51-52-53	9	Business Law .....	Jr., sr.	10 cr. in Econ. or Pol. Sci. or 5 in each
*54	3	Corporation Finance...	Jr., sr.	3-4 or 5, 6, or 7
*55	3	Adv. Corp. Finance..	Jr., sr.	*54
*59	3	Life Insurance.....	Jr., sr.	3-4
*60	3	Fire Insurance.....	Jr., sr.	3-4
*61	3	General Insurance....	Jr., sr.	3-4
*76	3	Commercial Policies..	Jr., sr.	3-4
*77	3	Foreign Trade .....	Jr., sr.	*76
*81-82-83	9	Econ. Hist. of Europe and U. S. 1750 to present .....	Jr., sr.	15 cr. Econ. or Hist. or Econ. and Hist. combined.
		(Not given 1919-20)		
*85	5	Prin. of Marketing...	Jr., sr.	3-4 or 5, 6, or 7
*86f	3	Advertising & Selling.	Sr.	3-4 and 9 other cr. in Ec.
*86w	3	Advertising & Selling.	Jr., sr.	19 or *85
*88	3	Retail Marketing ....	Jr., sr.	*85
*95-96	6	Office Management....	Jr., sr.	3-4 or 5, 6, or 7 and 25-6
*97	2	Seminar in Secretarial Administration .....	Sr.	*95-6
*100-101-102	9	Econ. Hist. of Europe 1300-1750 .....	Jr., sr., grad.	15 cr. Econ. or Hist. or Econ. and Hist. combined
*103-104	6	Value & Distribution.	Jr., sr., grad.	3-4 or 5, 6, or 7
*105	3	Hist. of Econ. Ideas.	Jr., sr., grad.	*103-104
*107‡	5	Land Tenure .....	Jr., sr.	3-4 or 5, 6, or 7

† Econ. 3f-4w (1919-20) is equivalent to 3f-4w-5s or 3w-4s (1918-19).

‡ Given at University Farm.

†† Students in the College of Agriculture, Forestry, and Home Economics may receive credit at the close of the first quarter.

## SCHOOL OF BUSINESS

Number	Credits	Title	Offered to	Prerequisites
*108†	5	Agricul. Statistics....	Jr., sr.	11
*109†	5	Econ. of Consumption	Jr., sr.	3-4 or 5, 6, or 7
*110†	5	Farm Market. Prob...	Jr., sr.	19
*112	3	Advanced Statistics...	Not given in	1919-20
*116-117-118†	9	Adv. Agri. Econ.....	Sr.	15 credits
*119-120-121†	9	Seminar in Agr. Econ.	Sr.	20 credits
*126-127-128†	9	Special Research Prob- lems in Agri. Econ.	Sr., grad.	15 credits
*131	3	Cost Accounting ....	Jr., sr., grad.	25-26
*132-133	6	Industrial Accounting.	Jr., sr., grad.	*131
*134-135-136	9	Auditing .....	Jr., sr., grad.	25-26
*137-138-139	9	Accounting Practice and Procedure .....	Jr., sr., grad.	25-26
*143-144	10	Money and Banking..	Jr., sr., grad.	3-4 or 5, 6
*145	3	International Exchange	Jr., sr., grad.	*143-144
*146	3	Investments .....	Jr., sr., grad.	3-4 or 5, 6
*147	3	Bank Administration..	Jr., sr., grad.	*143-144
*149	3	Business Cycles .....	Jr., sr., grad.	*143-144, *146
*150†	3	Farm Finance .....	Jr., sr., grad.	3-4 or 5, 6
*153	3	Modern Business Cor- poration .....	Jr., sr., grad.	*54
*154	3	Public Utilities .....	Jr., sr., grad.	3-4 or 5, 6
*155	3	Business and Govt... (Not given 1919-20)	Sr., grad.	3-4 or 5, 6
*156-157-158	6	Seminar in Business Policy .....	Sr., grad.	23
		(Not given 1919-20)		
*160	3	Economic Motives....	Jr., sr., grad.	3-4, Psych. 1-2
*161	3	Labor Problems .....	Jr., sr., grad.	3-4 or 5, 6
*162	3	Trade Unionism .....	Jr., sr., grad.	*161
*164	3	Police Power .....	See Pol. Sci.	
*165	3	Law of Labor.....	See Pol. Sci.	
*167	3	Industrial Relations.. (Not given 1919-20)	Sr., grad.	23
*169	3	Labor and Reform Movements .....	Jr., sr., grad.	*161
*173	3	Railway Problems ...	Jr., sr., grad.	*54
*191-192	6	Public Finance .....	Jr., sr., grad.	3-4 or 5, 6
*193	3	State & Local Taxation	Jr., sr., grad.	*191-192
*195-196-197	6	Seminar in Business Finance .....	Sr., grad.	18 cr. incl. *143-144
*210-211-212	6	Seminar in Economic History .....	Grad.	
*259-260	4	Seminar in Corpora- tions and Trust Problems .....	Grad.	18 credits
*261-262-263	6	Seminar for Gradu- ates exclusively ....	Grad.	

† Given at University Farm.

## ACCOUNTING

25f-26w. PRINCIPLES OF ACCOUNTING. The purpose and principles of account classification; capital and revenue; accruals; valuation; depreciation; preparation and interpretation of balance sheets, income ac-

counts and other statements; corporation accounts. A laboratory course with supplementary lectures. SANDERS and others.

- \*131f. COST ACCOUNTING. Principles determining costs; elements of cost; use of data in establishing standards; methods of arriving at costs, and of distribution of overhead; operation reports and statistics; elimination of waste, etc. Lectures and assigned problems. NOBLE.
- \*132w-3s. INDUSTRIAL ACCOUNTING. Continuation of cost accounting; a critical study of various methods applied to particular types of industry; practical experience through constructive work in advance; preparation of accounting systems with provision for adequate operating reports and statistics. NOBLE.
- \*134f-5w-6s. AUDITING. Preparation for, and conduct of, an audit; the auditor's report and certification, and legal responsibilities. Textbook, assigned readings, class discussions, and lectures. ROTZEL.
- \*137f-8w-9s. § ACCOUNTING PRACTICE AND PROCEDURE. Intensified study of numerous subjects discussed in Principles' course. First quarter treats partnerships, municipal accounts, bankruptcy, etc., second quarter, corporation accounts in all phases; third quarter, retail, wholesale, department store, branch, commission and consignment accounts. SANDERS.

#### AGRICULTURAL ECONOMICS‡

- 6f,w. AGRICULTURAL ECONOMICS. Principles of agricultural economics with special emphasis upon production. HOLMES.
- 18s. 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. BLACK.
- 19f. PRINCIPLES OF AGRICULTURAL MARKETING. The organization and methods of marketing; the functions of middlemen; the costs of marketing various products; coöperative marketing.
- 20w. PROBLEMS IN RURAL ECONOMICS. A survey of the economic aspects of the important problems of rural life, such as rural population, rural migration, tenancy, agricultural labor, marketing of farm products, co-operation, rural credit, land settlement. CUMBERLAND.
- \*107f. LAND TENURE. A study of several problems arising out of the land basis of civilization, such as property in land, land utilization, land classification, land settlement, status of the agricultural classes, farm labor, farm ownership and tenancy. BLACK.

§ Credit may be received for any quarter without completing course.

‡ Given at University Farm.

- \*108w. AGRICULTURAL STATISTICS. Study and practice of the special methods of statistical investigation, analysis and presentation which have been developed for agriculture, together with descriptive statistics of agriculture. BLACK.
- \*109s. ECONOMICS OF CONSUMPTION. Nature of human wants; standards of living; cost of living; income, administration of income; nature of demand; demand and price; relation of consumption to production; consumption and the population problem.
- \*110w. FARM MARKETING PROBLEMS. Studies in the methods of private and cooperative marketing of selected farm products.
- \*116f-7w-8s. ADVANCED PROBLEMS IN AGRICULTURAL ECONOMICS. Economic theory of production, consumption, exchange and value, and distribution applied to agriculture. BLACK, CUMBERLAND, HOLMES.
- \*119f-20w-21s. SEMINAR IN AGRICULTURAL ECONOMICS. Subjects for group study selected from the following: competition of types of farming; markets and transportation of farm products; farmers' cooperation; prices of farm products; rural credit; land valuation; land settlement; land taxation. BLACK, CUMBERLAND, HOLMES.
- \*126f-7w-8s. SPECIAL RESEARCH PROBLEMS IN AGRICULTURAL ECONOMICS. Intensive individual research work on problems not being studied in the seminar during the quarter. BLACK, CUMBERLAND, HOLMES.
- \*130s. FARM FINANCE. The financial needs of typical farmers. Present facilities for supplying them; institutions, their organization and operation, interest rates, defects and proposed remedies. The financing of the various farmers' organizations. The farmer as an investor. DOWRIE.

#### BANKING AND FINANCE

- 41s. FINANCIAL HISTORY OF THE UNITED STATES. American financial legislation from colonial times with special emphasis upon the distinction between maintaining a standard of value and the providing of a revenue for the needs of government. BLAKEY.
- \*54f. CORPORATION FINANCE. The organizing, financing, and managing of corporations. A study of corporate securities for purposes of promotion and reorganization and of facilities for marketing them. STEHMAN.
- \*55w. ADVANCED CORPORATION FINANCE. A study of the financial history of certain typical corporations with special reference to their promotion and reorganization. STEHMAN.
- \*143f-4w. MONEY AND BANKING. Relation to industrial system. Monetary principles with special reference to United States. American banking

and bank organization, principles of commercial banking, non-commercial banking, relation of government to banking, comparative study of leading foreign systems. DOWRIE, EBERSOLE, STEHMAN.

- \*145s. INTERNATIONAL EXCHANGE. Theory of international exchange, pars of exchange with gold, silver, and paper standard countries; the rates of exchange; financing imports and exports; bankers' bills; futures, arbitrage; specie movements; the present foreign exchange situation. DOWRIE.
- \*146w,s. INVESTMENTS. The social process of saving and investment; government, municipal, corporation, and real estate loans; stock exchange operations and money market influences as they affect the prices and net yield of prime securities. EBERSOLE.
- \*147f. BANK ADMINISTRATION. The modern commercial bank from the manager's point of view. Legal problems, department functions, profit-making methods, credits. Adjustment of bank policy to prospective business conditions. Lectures and laboratory work in local banks. EBERSOLE.
- \*149s. BUSINESS CYCLES. American business conditions since 1850 with regard to the great cycles of alternate prosperity and depression, and financial panics. Critical examination of all the available business barometers designed to forecast similar conditions. EBERSOLE.
- \*150s.† FARM FINANCE. The financial needs of typical farmers. Present facilities for supplying them; institutions, their organization and operation, interest rates, defects and proposed remedies. The financing of the various farmers' organizations. The farmer as an investor. DOWRIE.
- \*105f-6w-7s. SEMINAR IN BUSINESS FINANCE. The various unsettled monetary and banking problems of the United States will furnish topics for individual investigation. DOWRIE, EBERSOLE, STEHMAN.

## COMMERCE

- 19f.‡ PRINCIPLES OF AGRICULTURAL MARKETING. The organization and methods of marketing; the functions of middlemen; the costs of marketing various products; coöperative marketing.
- 23s. PRINCIPLES OF ORGANIZATION AND MANAGEMENT. Organization; principles applying to business in general and to particular concerns; evolution, functional divisions; specialization—functional and other forms; standardization. Management: personnel, information, coördination of functions, planning, external versus internal factors. PELZ.

---

‡ Given at University Farm.

- \*85f. PRINCIPLES OF MARKETING. Domestic merchandising methods of manufacturers. Problems of wholesalers and commission men; distributing system and market organization; price policies. SHERMAN.
- \*86f.w. ADVERTISING AND SELLING. Functions and principles of advertising; advertising media; planning and executing an advertising campaign. Copy. Sales management and personal salesmanship. PELZ, SHERMAN.
- \*88w. 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. SHERMAN.
- \*156f-7w-8s. SEMINAR IN BUSINESS POLICY. Individual investigations and reports upon fundamental questions of business policy. The investigations will have to do with the public relations of particular concerns and with their relations to customers, creditors, competitors, and employees. (Not given in 1919-20.)

#### CORPORATIONS AND PUBLIC UTILITIES

- \*153w. THE MODERN BUSINESS CORPORATION. Social and legal aspects of the corporation. The development of the trust and the regulatory policy of the government. GRAY.
- \*154s. PUBLIC UTILITIES. Economic and legal bases of classification. Relative advantages of public ownership and regulation. Central and municipal regulation compared. The basis of rates; relative rates; rates and service. Different theories of valuation. GRAY.
- \*155f. BUSINESS AND GOVERNMENT. Business expansion, diversification, conflicting interests. Laissez-faire versus regulation. Enforcement of minimum standards. Administration of business legislation. Coöperation between government and business. Public coördination of business forces. Reaction of war emergency measures on permanent policy. (Not given in 1919-20.)
- \*173s. ECONOMICS OF TRANSPORTATION. The theory and practice of rate making. Government regulation, the conflict between state and federal authorities, and suggested improvements in control of transportation agencies. GRAY.
- \*259w-60s. SEMINAR IN CORPORATIONS AND PUBLIC UTILITIES. Independent investigation by each student, under the guidance of the instructor, of some specific problem pertaining to corporations and public utilities. GRAY.



## ECONOMICS

- 1f-2w. INTRODUCTION TO ECONOMIC HISTORY WITH SPECIAL EMPHASIS ON THE UNITED STATES. Lectures and section work. A general survey of the development of agriculture, manufacture, transportation, storage, and the exchange of goods; economic crises; land, capital, management, and labor; the interplay of economic and political forces. GRAS, DICKINSON, and others.
- 3f-4w. PRINCIPLES OF ECONOMICS. Principles that underlie the present industrial order. Application of principles to economic problems such as labor, insurance, finance, transportation, industrial combination, government control. HANSEN, and others.
- 3s-4f. (See 3f-4w.)
- 5.‡ GENERAL ECONOMICS. Principles of economics combined with the necessary descriptive facts, as relating to economic life in general and to agriculture and forestry, in particular. HOLMES.
- 7.‡ PRINCIPLES OF ECONOMICS. Fundamentals of economic theory, with more than the usual amount of emphasis upon consumption. CHAMBERS.
- 8f-9w-10s. PRINCIPLES OF ECONOMICS (Engineers). See Engineering Bulletin.
- 15f-16w-17s. MODERN ECONOMIC PROBLEMS FOR ENGINEERS. Effect of industrial development; international commerce; corporation organization and finance; banking and credit; public ownership and finance; trusts, monopolies; transportation problems, insurance, conservation, labor problems. Lectures, textbook, talks by men actively engaged in fields studied. BLAKEY.
- 81f-82w-83s. ECONOMIC HISTORY OF EUROPE AND THE UNITED STATES, 1750 TO THE PRESENT. Graduates taking the course will be required to do some special work. (Not given in 1919-20.) GRAS.
- \*100f-1w-2s. ECONOMIC HISTORY OF EUROPE, 1300-1750. The chief interests are the manor; the town; the metropolis; national economic regulation; developments in agriculture, commerce, manufacture, and economic thought, leading up to the Industrial Revolution. GRAS.
- \*103f-4w. VALUE AND DISTRIBUTION. An advanced course in economic theory devoted chiefly to a study of recent theories of distribution. Assigned readings, reports, and discussions. GARVER.
- \*105s. HISTORY OF ECONOMIC IDEAS. History of economic thought; scope and logical methods, relation to other social sciences; methods of investigation and instruction. Assigned readings, reports, and class discussions. GARVER.

---

‡ Given at University Farm.

- \*109s.‡ **ECONOMICS OF CONSUMPTION.** Nature of human wants; standards of living; cost of living, income, administration of income; nature of demand; demand and price; relation of consumption and the population problem.
- \*160s. **ECONOMIC MOTIVES.** Incentives to work, to accumulation, to consumption. Necessary adjustments between industrial processes and human nature. DICKINSON.
- \*210f-1w-2s. **SEMINAR IN ECONOMIC HISTORY.** Some limited field or single topic in American or English economic history. Intended primarily as a training course in the methods and problems of economic history. GRAS.
- \*261f-2w-3s. **SEMINAR FOR GRADUATES EXCLUSIVELY.** Research to be arranged with individual instructors in the various fields of economics. Prerequisites: twelve credits in starred courses and the approval of the Department.

#### FOREIGN TRADE

- \*76f. **COMMERCIAL POLICIES.** 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. BLAKEY.
- \*77w. **FOREIGN TRADE.** Nature and methods of foreign trade. Present foreign trade situation with special reference to the United States. BLAKEY.
- \*145s. **INTERNATIONAL EXCHANGE.** Theory of international exchange, pars of exchange with gold, silver, and paper standard countries; the rates of exchange, financing imports and exports; bankers' bills; futures; arbitrage; specie movements; the present foreign exchange situation. DOWRIE.

#### GEOGRAPHY†

- 36s. **GEOGRAPHY OF NORTH AMERICA.** The regional geography of the United States and Canada; their physiography, climate, natural resources, and people. The utilization and conservation of natural resources emphasized. POSEY.
- 37s. **ECONOMIC AND COMMERCIAL GEOGRAPHY.** A study of the origin of the earth's physical features, of the distribution of natural resources, and of the geographic factors influencing the production and exchange of commodities. POSEY.

---

† Given in the College of Science, Literature, and the Arts.

‡ Given at University Farm.

- 116f. GEOGRAPHY OF SOUTH AMERICA. Regional geography of the South American countries; their geology, topography, climate, natural resources, people. Trade relations between South American countries and the United States given special attention. POSEY.
- 118w. GEOGRAPHY OF EUROPE. Regional geography of Europe; the geology, topography, climate, natural resources, people, industries, and trade of these countries. POSEY.
- 119s. GEOGRAPHY OF ASIA. The regional geography of Asia in its physical, economic, commercial, and political aspects. POSEY.

## INSURANCE

- \*59f. LIFE INSURANCE. Life insurance companies; types of policies and their uses, premiums, reserve, surrender values, dividends, and rights and obligations of the policy holder. Analysis and discussion of War Risk Insurance. JAMES.
- \*60w. FIRE INSURANCE. Basic theory and critical examination of fire insurance policy. Study of organization of stock and mutual companies, the agency system; reserves, rate making, and fire prevention. Special attention to laws of Minnesota and neighboring states. JAMES.
- \*61s. GENERAL INSURANCE. A study of basic principles and critical analysis of accident and health insurance, marine, plate glass window, burglary, credit, boiler and factory mutuals. JAMES.

## LABOR

- \*161f. LABOR PROBLEMS. Modern labor problems; woman and child labor, industrial hygiene, welfare work, profit-sharing, coöperation, labor unions, strikes, boycotts, conciliation, and arbitration; economic causes and effects of immigration. HANSEN.
- \*162w. TRADE UNIONISM. Development and activities of American trade unions. Economic and legal aspects of collective bargaining, closed shops, strikes, and boycotts. Employers' associations. Conciliation and arbitration. Social significance and probable future of trade unionism. HANSEN.
- \*167w. INDUSTRIAL RELATIONS. Relation of employer and worker in industrial enterprises; theory and mechanism of collective bargaining; joint agreements; shop committees; other plans for workers' participation in management; development of industrial government. (Not given in 1919-20.)
- \*169s. LABOR AND REFORM MOVEMENTS. A study of various proposals for economic reform. The growth and tactics of Socialist party in Europe and the United States, communism and the communistic experi-

ments, the Single Tax, profit sharing in industry, social insurance.  
HANSEN.

#### MATHEMATICS†

1. HIGHER ALGEBRA. A review and a collegiate treatment of the topics of elementary algebra for those who have had one year of elementary algebra. Not open to those who presented higher algebra for entrance.
2. COLLEGE ALGEBRA. Quadratic equations, equations in quadratic form, simultaneous quadratic equations, graphical representation, progressions, mathematical induction, the binomial theorem, permutations, combinations, probability, determinants, and the theory of equations with special reference to graphical methods.
6. TRIGONOMETRY. Logarithms and plane trigonometry.
20. THE MATHEMATICS OF INVESTMENT. The first principles of the mathematical theory of interest, annuities, amortization, valuation of bonds, sinking funds and depreciation, etc. Brief discussion of probability and its application to life annuities and some problems in life insurance.

#### POLITICAL SCIENCE†

- \*51f-2w-3s. BUSINESS LAW. Principles governing ordinary business transactions. Contracts—formation, operation, interpretation, breach, and discharge. Agency and service. Negotiable instruments. Business associations—partnerships and private corporations. Property—personal and real. YOUNG.
- \*164w. POLICE POWER. Nature of the police power; constitutional aspects of social and economic legislation, including safety, order, morals, and protection against business fraud and oppression; the fundamental rights under the police power. YOUNG.
- \*165s. LAW OF LABOR. Constitutional aspects of laws for the protection of labor; regulation of hours and wages; legal restraints on labor; legality of strikes, boycotts, picketing, etc. Legal aspects of settlement of labor disputes. CUSHMAN.

#### PSYCHOLOGY†

- 1f-2w-3s. GENERAL PSYCHOLOGY. An introductory survey of psychology; its material, fundamental laws, application, and relations to other sciences. Laboratory experiments provide illustrative material and training in methods. One lecture, one recitation, two laboratory hours per week. All instructors.

---

† Given in the College of Science, Literature, and the Arts.

- 137f-138w. APPLIED PSYCHOLOGY. A survey of applications of psychology, with special reference to business. MORGAN.

## PUBLIC FINANCE

- \*191f-2w. PUBLIC FINANCE. Public expenditures; public debt; budgetary legislation; tax systems. BLAKEY.
- \*193s. STATE AND LOCAL TAXATION. Problems of state and local taxation. Historic survey of various taxes and examination of present procedure in taxing different kinds of property; tax reforms. Particular attention given to conditions in Minnesota. BLAKEY.

## SECRETARIAL WORK

- \*95f-6w. OFFICE MANAGEMENT. Function of the office in business, showing principles of efficiency applied to daily routine; the layout, equipment, and flow of work in an office; standardization of stenographic work; filing, proofreading; practice with modern office appliances. SYKES.
- \*97. SEMINAR IN SECRETARIAL ADMINISTRATION. SYKES.

## STATISTICS

- 11f-12w. STATISTICS. Principles of collection, tabulation, and interpretation of statistical material, illustrated by present-day statistical data. Lectures, assigned readings, and special investigations by individual members of the class. MUDGETT.
- 14s. STATISTICS. See statement for 11f-12w.
- \*108w. † AGRICULTURAL STATISTICS. Study and practice of the special methods of statistical investigation, analysis and presentation which have been developed for agriculture, together with descriptive statistics of agriculture. BLACK.
- \*112s. ADVANCED STATISTICS. Dealing with more advanced problems connected with assembling, tabulating, interpreting, and using statistical information. As far as practicable the data used will be drawn from business. (Not given in 1919-20) MUDGETT.

## RELATED COURSES

The Department of Political Science in the College of Science, Literature, and the Arts has arranged the following courses of study:

---

† Given at University Farm.

## SCHOOL OF BUSINESS

## COURSE OF TRAINING IN STATE AND FEDERAL ADMINISTRATION

<i>First Year</i>		<i>Second Year</i>	
	Credits		Credits
Rhetoric-English .....	15	Laboratory Science .....	10
Modern Language .....	10 or 15	General Economics .....	10
American Government .....	5	State and Local Government or Com-	
History .....	10	parative European Government .....	5
Electives .....	5 or 6	Municipal Government .....	5
	<hr/>	American History .....	10
	45	Electives .....	5
			<hr/>
			45

*Third and Fourth Years*

## POLITICAL SCIENCE

Select 45 credits

†Constitutional Law (Federal or State)  
 †Legislative Power and Methods  
 †Comparative Administration  
 Political Parties  
 Principles of Political Science  
 Colonial Government  
 Comparative Federal Government  
 Elementary Law or Business Law  
 Police Power  
 Contemporary Political Problems  
 Seminar

† Required.

## HISTORY

Select 9 credits

Economic History of the United States  
 Recent American History  
 History of Minnesota  
 History of the West

## ECONOMICS

Select 18 credits

†Public Finance  
 †State and Local Taxation  
 Labor Problems  
 Railway Problems  
 Statistics  
 Business and Government  
 Public Utilities  
 Financial History of the United States

## OTHER ELECTIVES

Select 18 credits

Introduction to Sociology  
 American People  
 State Care of Dependents, etc.  
 Modern Social Reforms  
 Public Service Corporations  
 Elementary Educational Administration  
 Advanced Educational Administration  
 General Electives  
 (Students must take 10 more hours in  
 Science for the A.B. degree.)

*Fifth Year*

Research (Seminar)

Research Bureau

Courses omitted from third and fourth years

COURSE OF TRAINING IN MUNICIPAL ADMINISTRATION AND  
ENGINEERING

<i>First Year</i>		<i>Second Year</i>	
	Credits		Credits
Rhetoric-English .....	15	Municipal Government.....	5
Modern Language .....	10	General Economics.....	10
Engineering Mathematics.....	10 or 15	History .....	10
American Government .....	5	Physics .....	10
Electives .....	5 or 0	Drawing .....	5
	<hr/>	Electives .....	<hr/> 5
	45		45

*Third and Fourth Years*

## POLITICAL SCIENCE

- \*Municipal Corporations
- \*Municipal Administration
- \*Research in Municipal Administration
- Business Law
- Police Power
- Government of Minnesota
- State Constitutional Law

## ECONOMICS

- \*Principles of Accounting
- \*Public Finance
- \*State and Local Taxation
- \*Public Utilities
- Labor Problems
- Business Organization and Management
- Business and Government
- Transportation
- Statistics

## CHEMISTRY

- \*Chemistry
- \* Required.

## ENGINEERING

- \*Surveying
- \*Highways and Pavements
- \*Water Supply
- \*Sanitary Engineering
- City Planning
- Applied Elect: (51-52)
- Prime Movers
- Heating and Ventilating for Architects

## SOCIOLOGY

- Sociology I
- Housing Problems
- Social Statistics and Surveys

## OTHER ELECTIVES

- \*General Bacteriology
- \*Public Health

*Fifth Year*

In this year the student will carry such courses as have not been completed in the preceding years and which seem in the opinion of his adviser to be necessary for the completion of his training. In addition to this he will conduct in the Twin Cities or vicinity, a practical research in Municipal Government and Administration supplementing this work by work in the library and in the research bureau. The year will thus consist of about equal proportions of class work and research and reference bureau work. If desirable, the student will be allowed to take courses not mentioned above.

## COURSE OF TRAINING FOR DIPLOMATIC AND CONSULAR SERVICE

<i>First Year</i>		<i>Second Year</i>	
	Credits		Credits
Rhetoric-English .....	15	Comparative European Government..	5
Modern Language.....	15	Language .....	10
History .....	10	Economics .....	10
American Government.....	5	Laboratory Science.....	10
————	45	Commercial Geography.....	5
		Electives .....	5
			45

*Third and Fourth Years*

During the junior-senior years, students will take 18 credits in starred courses in Political Science; 15 credits in Economics, 15 credits in History, and 12 credits in Law; 15 credits in foreign language; 15 credits, of which 5 must be from the science group, in other electives.

The selection of these courses will be made under direction of the chairman of the committee in charge of the course.

*Fifth Year*

Research in Economics for the Consular Service  
 Research in History of Political Science for the Diplomatic Service  
 Additional starred courses in History, Economics, Law, or Political Science, or work in the Reference Bureau  
 Division of Research in Agricultural Economics.

Relations of the same sort exist between the School of Business and the College of Agriculture. The School of Business purposes to give to students in Agriculture, Forestry, and Home and Institutional Management, the basic training in economics and business which they need to fit themselves for the highest order of usefulness.

## ENGINEERING

Much attention has recently been directed to the desirability of engineering courses for business and business courses for engineers. Students in the School of Business who are looking forward to careers in the field of industrial management are urged to include in their business course as much fundamental work in engineering as it is possible for them to secure.

Conversely, it is the purpose of the School of Business to offer every opportunity for students in engineering to secure as much work as possible in the field of business administration. It is hoped that further study of the subject will enlarge the opportunities now open to students in each of the two schools to obtain work in the other school.

## EVENING COURSES IN EXTENSION

The General Extension Division of the University offers courses in the Twin Cities, Duluth, and elsewhere. The curriculum covers work in economic principles, banking, finance, transportation, management, advertising, and salesmanship. These courses are designed to meet the needs of mature persons already employed in business. Applicants must be at



DESCRIPTION OF COURSES

least eighteen years of age and must present evidence of sufficient experience and training to pursue the work with profit. The courses of the Extension Division are open to day students only on petition.

Further information with regard to evening classes may be had by applying to R. R. Price, Director of University Extension, University of Minnesota.

NATIONAL CITY BANK SCHOLARSHIP

The National City Bank of New York offers each year to students in this course one or more scholarships for the purpose of training young men in banking and foreign trade. These scholarships provide for expenses during certain periods of practical work and study in the National City Bank.

PROGRAM FOR FALL AND WINTER QUARTERS

NOTE: Economics 3f-4w (1919-20) equals 3f-4w-5s (1918-19).

Course No.	Title	Hours	Days	Room
1f-2w	Introduction to Economic History .....	III	MTThFS	Law Audit
	Sections to be arranged			
3f-4w	Principles of Economics..			
	Lecture	IV	T	Lit. Th.
	Sec. 1	II	MWThF	Ar
	2	II	MWThF	Ar
	3	III	MWThF	205F
	4	III	MWThF	25F
	5	IV	MWFS	209MA
	6	IV	MWFS	2F
	7	V	MWThF	109MA
	8	V	MWThF	102MA
	9	VI	MWThF	107F
	10	I	TThFS	109MA
	11	I	TThFS	113F
	12	III	TThFS	TThS 102MA
				F 202MA
	13	III	TThFS	Ar
3s-4f	Principles of Economics—See 3f-4w			
5f, s	General Economics .....	I	MWThFS	Farm
6f, w	Agricultural Economics... ..	III	MWF	Farm
7w, s	Principles of Economics..	III	MTWThF	Farm
8f-9w-10s	Principles of Economics..			
	Sec. 1	I	MWF	Engineers Ar
	2	IV	MWF	Engineers Ar
11f-12w	Statistics .....	IV	MWF	102MA
14s	Statistics .....			
	Sec. 1—Lect.	IV	MWF	Ar
	2—Lect.	I	MWF	Ar
	1—Lab.	VI, VII	M	Ar
	2—Lab.	VI, VII	Th	Ar
15f-16w-17s	Economic Problems.....	IV	MWF	Engineers Ar
18s	Problems in Agri. Econom.	III	MTWThF	Farm
19f	Prin. of Agri. Marketing	III	MTWFS	Farm
20w	Problems in Rural Econom.	IV	MTWThF	Ar
23s	Principles of Organization and Management.....	II	MTWThF	Ar

## SCHOOL OF BUSINESS

Course No.	Title	Hours	Days	Room
25f-26w	Principles of Accounting..			
	Sec. 1—Lect.	II	MWF	301MA
	2	III	MWF	301MA
	3	III	MWF	301MA
	4	IV	MWF	301MA
	5	IV	MWF	301MA
	6	I	TThS	301MA
	7	III	TThS	301MA
	Sec. 1—Lab.	V, VI	M	301MA
	2	III, IV	T	301MA
	3	V, VI	T	301MA
	4	VI, VII	T	301MA
	5	VI, VII	T	301MA
	6	VI, VII	W	301MA
	7	VI, VII	W	301MA
	8	II, III	Th	301MA
	9	VI, VII	Th	301MA
	10	VI, VII	Th	301MA
	11	V, VI	F	301MA
	12	VII, VIII	F	301MA
41s	Financial History of U. S.	I	MWF	Ar
*51f-52w-53s	Business Law.....	II	MWF	See Pol. Sci.
*54f	Corporation Finance.....			
	Sec. 1	II	TS	202MA
	2	I	TS	Ar
	3	III	TS	Ar
	Lect.	II	Th	202MA
*55w	Advanced Corp. Finance..	II	TThS	109MA
*59f	Life Insurance .....	III	MWF	102MA
*60w	Fire Insurance .....	III	MWF	102MA
*61s	General Insurance .....	III	MWF	Ar
*76f	Commercial Policies .....	I	MWF	209MA
*77w	Foreign Trade .....	I	MWF	Ar
*81f-82w-83s	Economic History of Europe and U. S.....		(Not given 1919-20)	
*85f	Principles of Marketing..	I	TWThFS	102MA
*86f, w	Advertising and Selling..	VI	MWF	202MA
*88w	Retail Marketing.....	I	TThS	102MA
*95f-96w	Office Management.....	V, VI	TTh	202MA
*97s	Seminar in Secretarial Ad- ministration .....	Ar	Ar	Ar
*100f-101w-102s	Economic History of Eu- rope 1300-1750 .....	II	TThS	218B Lib
*103f-104w	Value and Distribution... VII	VII	MWF	102MA
*105s	History of Economic Ideas	VII	MWF	Ar
*107f	Land Tenure .....	VI	MTWThF	Farm
*108w	Agricultural Statistics....	V	MTWThF	Farm
		VI	MWF	Farm
*109s	Economics of Consumption	Ar	Ar	Farm
*110w	Farm Marketing Problems	I	MTWThF	Farm
*112s	Advanced Statistics.....		(Not given 1919-20)	
*116f-117w-118s	Advanced Agri. Economics	II	TThS	Farm
*119f-120w-121s	Seminar in Agri. Econom.	Ar	Ar	Farm
*126f-127w-128s	Special Research Problems in Agri. Economics... Ar	Ar	Ar	Farm

DESCRIPTION OF COURSES

Course No.	Title	Hours	Days	Room
*131f	Cost Accounting .....	II	TThS	Ar
*132w-133s	Industrial Accounting..	II	TThS	Ar
*134f-135w-136s	Auditing .....	Ar	Ar	Ar
*137f-138w-139s	Accounting Practice and Procedure .....	II	MWF	102MA
*143f-144w	Money and Banking.....			
	Lecture	IV	T	202MA
	Sec. 1	II	MWThF	209MA
	2	IV	MWFS	202MA
	3	V	MWThF	209MA
*145s	International Exchange...	Ar	Ar	Ar
*146w	Investments .....	VI	MWF	209MA
*146s	Investments .....	Ar	Ar	Ar
*147f	Bank Administration.....	VI	MWF	209MA
*149s	Business Cycles .....	VI	MWF	Ar
*150s	Farm Finance .....	Ar	Ar	Farm
*153w	Modern Business Corp...	II	TThS	202MA
*154s	Public Utilities .....	II	TThS	Ar
*155f	Business and Government	(Not given 1919-20)		
*156f-157w-158s	Seminar in Business Policy	(Not given 1919-20)		
*160s	Economic Motives.....	Ar	Ar	Ar
*161f	Labor Problems .....	IV	MWF	Ar
*162w	Trade Unionism .....	IV	MWF	Ar
*164w	Police Power .....		See Pol. Sci.	
*165s	Law of Labor.....		See Pol. Sci.	
*167w	Industrial Relations.....	(Not given 1919-20)		
*169s	Labor and Reform Move- ments .....	Ar	Ar	Ar
*173s	Railway Problems .....	III	TThS	Ar
*191f-192w	Public Finance .....	III	MWF	213MA
*193s	State and Local Taxation	Ar	Ar	Ar
*195f-196w-197s	Seminar in U.S. Finance..	Ar	Ar	Ar
*210f-211w-212s	Seminar in Economic His- tory .....	Ar	Ar	Ar
*259w-260s	Seminar in Corporations and Trust Problems...	Ar	Ar	Ar
*261f-262w-263s	Seminar for Graduates Ex- clusively .....	Ar	Ar	Ar

# *The Bulletin of the University of Minnesota*

*General Extension Division  
Announcement of Evening Courses  
1919-1920*



*Vol. XXII No. 38 September 17 1919*

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

*Acceptance for mailing at special rate of postage provided for in section 1103,  
Act of October 3, 1917, authorized July 12, 1918*

## CALENDAR

1919-1920

1919

September 22-27	Week	Registration week
September 26	Friday	Annual opening of Extension Courses,
	8:15 p.m.	St. Paul
September 27	Saturday	Annual opening of Extension Courses,
	8:15 p.m.	Minneapolis
September 29	Monday	Regular class work begins
November 27	Thursday	Thanksgiving holiday
December 20	Saturday	Christmas recess begins
December 29	Monday	Class work resumed

1920

January 19-23	Week	Examination week, first semester
January 23	Friday	First semester ends
February 2	Monday	Second semester begins
February 2	Monday	Merchants' Short Course begins
May 18-22	Week	Examination week, second semester
May 21	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

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

LAUDER W. JONES, Ph.D., Dean of the College of Engineering and Architecture, and of the School of Chemistry

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

FRANCIS B. BARTON, Docteur de l'Université de Paris, Assistant Professor of Romance Languages

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

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

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

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

RICHARD BURTON, Ph.D., LL.D., Professor of English

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

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

SOLOMON M. DELSON, Ph.B., Instructor in Romance Languages

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. GARNS, B.A., Instructor in Story Telling, General Extension Division

ISAAC W. GEIGER, Ph.D., Assistant Professor of Chemistry

CYRIL A. HERRICK, B.A., Assistant Professor of Rhetoric

WILLIAM F. HOLMAN, Ph.D., Associate Professor of Mathematics and Mechanics

SIGURD B. HUSTVEDT, Ph.D., 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

## GENERAL EXTENSION DIVISION

- SAMUEL KROESCH, Ph.D., Assistant Professor of German  
 CHARLES F. LINDSLEY, M.A., Instructor in Public Speaking  
 ALBERT J. LOBB, LL.B., Ph.B., Instructor in Political Science  
 RUPERT C. LODGE, M.A., Assistant Professor of Philosophy  
 GEORGE A. MANEY, C.E., M.S., Assistant Professor of Civil Engineering  
 FREDERICK M. MANN, M.S. in Arch., C.E., Professor of Architecture  
 JOHN V. MARTENIS, M.E., Associate Professor of Mechanical Engineering  
 MAC MARTIN, Professorial Lecturer in Advertising. General Extension  
 Division  
 EDWIN R. MARTIN, B.S. in E.E., Instructor in Electrical Engineering  
 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. OLMSTED, Ph.D., Professor of Romance Languages  
 CHARLES H. PRESTON, B.A., Associate Professor of Business Administra-  
 tion, 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  
 M. EMMA ROBERTS, Lecturer in Art, General Extension Division  
 CLARE L. ROTZEL, B.C.S., C.P.A., Associate Professor of Accounting.  
 General Extension Division  
 FRANK B. ROWLEY, M.E., Associate Professor of Experimental Engineer-  
 ing  
 MARTIN B. RUUD, Ph.D., Assistant Professor of Rhetoric  
 WILLIAM T. RYAN, E.E., Associate 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 of Electrical Engineering  
 LESTER B. SHIPPEE, Ph.D., Assistant Professor of History  
 CHARLES F. SHOOP, B.S., Associate Professor of Experimental Engineer-  
 ing  
 EDWARD H. SIRICH, Ph.D., Assistant 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  
 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. 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.
- G. Community Service, through which the elements making up a community and its trading fringe are given advice and assistance for bringing together all the social forces into an organization whose purpose shall be to make the people healthy and wealthy and wise.
- H. Agricultural Extension, including lectures, demonstrations, institutes, and short courses under the direction of the College of Agriculture, Forestry, and Home Economics.



# EVENING EXTENSION 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 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 semester credits. Those requiring more time usually carry correspondingly more credit. In the Extension Division credits are still reckoned on the semester, not the quarter, basis.

The statement concerning credit for the Certificates in Accountancy, in Finance, and General Business will be found on pages 18 and 19.

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 per course.

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.

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.

#### REFUNDS

No fee will be refunded on account of withdrawal from any course. Exceptions to this rule will be made only in case of (a) removal from the city or (b) illness or physical disability as attested by the certificate of a reputable physician. Application for pro rata refund on the above conditions will not be considered later than fifteen days after registration.

## PLACES FOR CONDUCTING CLASSES

Most of the classes in engineering will be held in the Main Engineering Building, Electrical Engineering Building, the Mechanical Engineering, or the Experimental 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 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 twelve, 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 22-27). Students may also register with the instructor at the first meeting of 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 groups of courses.

## LOCATION OF EXTENSION OFFICES

The offices of the General Extension Division may be found on the ground floor of the Main Engineering Building, on Washington Avenue and Church 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 three 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 twelve. 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.

### AMERICANIZATION TRAINING AND ANTHROPOLOGY

#### THE AMERICAN PEOPLE

1. (\*113). OLDER IMMIGRANTS. Characteristics, contributions, and distribution of the older immigrant peoples in America, their modification and importance to us. Two credits (one evening a week); first semester. JENKS.
2. (\*114). NEWER IMMIGRANTS. Characteristics, contributions, and distribution of the newer immigrant peoples in America, their modification and importance to us. Two credits (one evening a week); second semester. JENKS.

- 3 (\*115). AMERICANISMS AND ASSIMILATION. Essential and unique historical Americanisms, and their value and virility for the future in America. Conditions and facts of assimilation. Two credits (one evening a week); second semester. JENKS.

## ART

1. ART APPRECIATION—RENAISSANCE. This is a cultural rather than a technical course, leading to the appreciation of architecture, sculpture, and painting as an expression of the civic and intellectual activities of the time in which the artist lived. Sixteen two-hour lectures illustrated with lantern slides. One hour required reading to supplement each lecture. Two Education credits (one evening a week); first semester. ROBERTS.
2. ART APPRECIATION—MODERN. This is a cultural rather than a technical course, leading to the appreciation of architecture, sculpture, and painting as an expression of the civic and intellectual activities of the modern period. Sixteen two-hour lectures, illustrated with lantern slides. One hour required reading to supplement each lecture. Two Education credits (one evening a week); second semester. ROBERTS.

## CHEMISTRY

1. GENERAL INORGANIC CHEMISTRY AND QUALITATIVE ANALYSIS. First semester, non-metals; second semester, metals and qualitative analysis. A study of the common elements and their principal compounds, discussions of the laws and theories of chemistry, and systematic qualitative analysis. One lecture, one recitation and three hours laboratory work per week. (T. and Th. 7:30-10:00.) The work of both semesters is equivalent to six semester or nine quarter credits. Students desiring credit in the College of Science, Literature, and the Arts can earn ten quarter credits by doing extra work by assignment. GEIGER.

## 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.
- 4 (5). THE AMERICAN SCHOOL. A general survey of the social and political ideals and factors determining the problem of public education in the United States, followed by an account of the educational institutions established for the purpose of solving this problem. This course is designed to present a comprehensive view of the present educational situation, including the most significant current movements and institutions. Two credits (one evening a week). SWIFT.

## ENGLISH

- 1 (8). SHAKESPEARE. An introductory study of Shakespeare's development as a poet and dramatist up to *King Lear*, with reading of representative plays. Two credits (one evening a week); second semester. RARIG.
- 2 (54). 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. NICHOLS.
- 3 (109-10). 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); first semester. RUUD.
- 4 (133). ENGLISH AND SCOTTISH POPULAR BALLADS. The study of a large number of traditional ballads, English and foreign, and the study of ballad style and origins. Two credits (one evening a week); second semester. HUSTVEDT.

## GERMAN

1. 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. 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. KROESCH.
3. ELEMENTARY CONVERSATION. Conversation on topics of every-day 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. 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.
5. COMMERCIAL GERMAN. Oral use of the language. Practical vocabulary. In the second semester attention will be given to business correspondence. Open to all with two years of German. Both semesters must be completed before credit is given for the first semester. Eight credits (two evenings a week). MYERS.

#### GREEK IN ENGLISH

1. 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.
- 2 (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, theaters, 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); second 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.
4. RECENT AMERICAN HISTORY. A study of the political, social, and economic movements in the United States since 1876. Considerable attention will be paid to international relations during this period. Two credits (one evening a week); first semester. SHIPPEE.

## 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 (124). POLITICAL AND SOCIAL ETHICS. A study of the ethical basis of society and the state and a consideration of some of the unsettled problems of politics and economics from the ethical point of view. Two credits (one evening a week); second semester. WILDE.

## 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 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. 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 (1-2-3). GENERAL PSYCHOLOGY. An introduction to the scientific study of the human mind. Two credits (one evening a week); first semester.
- 2 (137-138). APPLIED PSYCHOLOGY. The practical application of psychology, especially in the field of business. Prerequisite: Psychology 1. Two credits (one evening a week); second semester.

### 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. LINDSLEY.

- 6 (81-82). INTERPRETATIVE READING. Interpretation and oral expression of the various forms of literature, the essay, the short-story, lyric and narrative poetry, and the drama. Open to those who have credit for Course 1-2, College Composition and Rhetoric, and Public Speaking 41-42. Four credits (one evening a week); both semesters. RARIG.
- 7 (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.
- 8 (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.
- 9 (119-120). SEMINAR IN WRITING. Open to college graduates and other advanced students who write with facility and who desire personal direction and criticism. Special permission of the instructor must be obtained for registration in this course. Individual criticism and the reading before the class of manuscripts submitted. Special emphasis on the short-story and drama. Four credits (one evening a week); both semesters. THOMAS.
10. 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 viewpoint; (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.
- 11 (81). INTERPRETATIVE READING. The interpretation and expression of the various forms of literature, such as the essay, the short-story, lyric and narrative poetry, and the drama. The aim is intelligent and sympathetic reading. GARNES.

## ROMANCE LANGUAGES

- 1 (4-5). 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, BARTON.
- 2 (7-8). 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. SIRICH.
- 3 (13-14, 16-17). ELEMENTARY FRENCH CONVERSATION AND COMPOSITION. Four credits (one evening a week); both semesters. Prerequisite, French 1. DELSON.
- 4 (31-32). 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 (33-34). INTERMEDIATE SPANISH. Readings 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 4 (31-32) and are approved by the teacher. Four credits (one evening a week); both semesters. (Not offered in 1919-20.)
- 6 (40-41, 43-44). ELEMENTARY SPANISH CONVERSATION AND COMPOSITION. Prerequisite, Spanish 1. This course is open to students who have completed the course in either Beginning or Intermediate Spanish. Those who have had only Beginning Spanish and who take this course for credit, if they care to continue, may complete the Intermediate Spanish the following year when it will again be offered. Four credits (one evening a week); both semesters. OLMSTED.

## SCANDINAVIAN

1. MODERN NORWEGIAN LITERATURE. Works in the original of Wergeland, Welhaven, Moe, Björnson, Ibsen, Lie, Kielland will be studied. Also the Landsmaal movement. Two credits (one evening a week); first semester. BOTHNE.
2. MODERN NORWAY FROM 1814, IN ENGLISH. Lectures and translated works of modern authors. The aim of the course is to make students familiar with modern Norway. One evening a week; second semester. BOTHNE.
- 3 (10f, 11w). ADVANCED SWEDISH. Review of grammar, a brief survey of the history of Swedish literature and study of selected works of representative authors. Some attention given to the history and mythology of Sweden. Open to those who have had one year of Swedish in the University or its equivalent. Two credits (one evening a week); first semester. STOMBERG.

## 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 professions 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 six 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 (1)             | 9. Cost Accounting (2)         |            |
| 4. Accounting Laboratory B (1)             | 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 (6)      |            |

### 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 occupa-

tion, 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 examinations 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. PRESTON.
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.
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.

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 bimetallicism 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. Textbook and money-market articles in current newspapers will furnish material for discussion.

A thorough 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, or 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 principals, agents, and third parties. Text, lectures, and cases. Two credits (one evening a week); first semester. SMILEY.

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. SMILEY.

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.

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.

## 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 lockouts, 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, two credits for certificate in Business (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, two credits for certificate in Business (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, two credits for certificate in Business (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. No credit for degree, two credits for certificate in Business (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.

#### 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, two credits for Certificate in Business (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.

## 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

<i>First Semester</i>	<i>Second Semester</i>
Elementary Architectural Design	Elementary Architectural Design

SECOND YEAR

<i>First Semester</i>	<i>Second Semester</i>
Intermediate Architectural Design Shop Mathematics	Intermediate Architectural Design Mechanics, Strength of Materials

THIRD YEAR

<i>First Semester</i>	<i>Second Semester</i>
Advanced Architectural Design Structural Design	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

<i>First Semester</i>	<i>Second Semester</i>
Shop Mathematics Mechanical Drawing	Shop Mathematics—Advanced Structural Drafting

SECOND YEAR

<i>First Semester</i>	<i>Second Semester</i>
Applied Mechanics Elements of Structural Design	Strength of Materials Structural Design—Advanced

THIRD YEAR

<i>First Semester</i>	<i>Second Semester</i>
Reinforced Concrete Roof Trussed Bridges—Design	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 Experiments

*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

<i>First Semester</i>	<i>Second Semester</i>
Shop Management and Pattern Construction	Steam and Gas Laboratory
or	or
Heat Engines	Central Stations
Heating and Ventilation	Alternating Currents
or	or
Mechanical Equipment of Buildings	Elementary Machine Design
or	
Experimental Laboratory	

## 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. FORSYTHE.
- \*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.

*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.

\* Courses thus marked will be offered during the first semester of the year 1919-20.

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. HOLMAN.
- \*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. HOLMAN.
- \*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

\* Courses thus marked will be offered during the first semester of the year 1919-20.

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. RYAN.

- \*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. EDWARDS.
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; second semester. RYAN.
- \*16. EXPERIMENTAL ELECTRICITY. This course is provided for those students who have completed the course in Elementary Electricity. The course consists of experiments that each student should perform for himself, and the laws of electricity and magnetism will be fully developed. One evening a week; both semesters. MARTIN.
17. 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.
18. 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.
- \*19. 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.
20. 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.
21. GEOMETRY. A short course covering the first five books of plane geometry with numerous original exercises and theorems. One evening a week; both semesters. EDWARDS.
- \*22. TRIGONOMETRY. This course is designed for those who have had the subject 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.
23. 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.
24. 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.
- \*25. 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.
26. 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.

---

\* Courses thus marked will be offered during the first semester of the year 1919-20.

27. **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. MARTENIS.
28. **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. \*
29. **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.
30. **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.
- \*31. **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.
- \*32. **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.
- \*33. **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 31. One evening a week; both semesters. FRENCH.

- \*34. **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 31. One evening a week; both semesters. ROWLEY.
35. **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.
- \*36. **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.
37. **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, 19, 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.

---

\* Courses thus marked will be offered during the first semester of the year 1919-20.

## 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
David, 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*

Erblang, Alphonse A., St. Paul	Linnerooth, Sidney, St. Paul
Gustafson, Victoria, Minneapolis	Nimerfroth, Gertrude, Minneapolis
	Welliver, Le Roy, Minneapolis

### *Certificates in General Business*

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

### *Certificates in Finance*

Oberg, Ezra, Minneapolis

### *In Absentia*

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

## CERTIFICATE HOLDERS OF 1919

On May 26, 1919, the following persons were granted University business certificates in the courses indicated:

### *Certificates in Accounting*

Gothe, Oscar E., St. Paul	Melamed, M. L., St. Paul
Johnson, Lillian P., Minneapolis	Schmal, G. P., Minneapolis

### *Certificates in General Business*

Barton, A. D., Minneapolis	Ekblad, E. G., Minneapolis
----------------------------	----------------------------



# REGISTRATION 1918-1919

## SIGNIFICANCE OF SYMBOLS

- \* Also in St. Paul Business.
- \*\* Also in St. Paul Collegiate.
- \*\*\* Also in Engineering.
- † Also in Minneapolis Business.
- †† Also in Minneapolis Collegiate.

## DEPARTMENT OF COLLEGIATE INSTRUCTION

### MINNEAPOLIS

- Abbott, Jessie, 2618 Fremont Av. No.  
Abrahamson, Paul Kenneth, 206 Howard St. S.E.  
Abromovitz, Bertha, 912 14th Av. So.  
Adams, Marguerite E., 204 W. Grant St.  
Adams, Narcissa E., 3136 Portland Av.  
Afdem, Hilda, 2101 Knapp St., St. Paul  
Alder, Gottlieb, 1642 Sherburn Av., St. Paul  
Aldrich, Malcolm, Hopkins, Minn.  
Alexander, Jean H., 628 S.E. 4th St.  
Allee, Anne M., 2437 14th Av. So.  
Allen, Ethel L., 1112 8th St. S.E.  
Almquist, H. E., 4337 Zenith Av. So.  
Alsworth, Ida, 2709 Humboldt Av. So.  
Amonson, Maude, 1800 13th Av. So.  
Amonson, Nettie, 1800 13th Av. So.  
Anderson, Mrs. Alvin M., 1629 7th St. S.E.  
Anderson, Bertha L., 52 South 10th St.  
Anderson, Bessie, 1107 Harmon Place  
Anderson, Flama C., General Delivery  
Anderson, Hilda A., West High School  
Anderson, Margaret E., 78 Willow St.  
Angell, Laura W., 909 Summit Av.  
Angle, Ulynia, 3316 Girard Av. S.  
Anthony, Maude Retta, 3906 Thomas Av. S.  
Apfeld, Josephine J., 3032 Irving Av. S.  
Arthur, Beatrice M., 2716 Chowen Av.  
Aschenbeck, A. G., 731 4th Av. N.  
Austin, Alice A., 2818 1st Av. S., Flat C  
Austin, Harriet, 2646 Fremont Av. N.  
Auxer, Mrs. Caroline C., 4307 Dupont Av. N.  
Aves, Edith F., 511 Kenwood Parkway  
Babcock, M. Vinette, 3824 1st Av. S.  
Bacon, Eleanor J., 1310 S. 7th St.  
Baker, Janet M., 3030 Aldrich Av. S.  
Bakker, Gertrude, 719 E. 16th St.  
Baldwin, Louise Virginia, 2219 S. Dupont Av.  
Bancroft, Ella M., 3707 1st Av. S.  
Banker, May L., 3314 Elliott Av.  
Barber, Henry H., 2304 Oliver Av. S.  
Barber, Laura, 3232 2nd Av. S.  
Barnard, Florence, 2507 Logan Av. N.  
Barnes, Bernice, 2008 Bryant Av. S.  
Barron, Nora M., 1275 Curtis Court  
Bates, Dwight E., Hopkins, Minn.  
Bauman, Helen L., 91 Ash St.  
Beall, R. E., 3846 Grand Av.  
Beaubien, Archie G., 1424 Vine Place  
Beck, Eva L., 1322 6th St. S.E.  
†Beck, Frieda, 1900 3rd Av. S.  
Beggs, T. J., 3240 Dupont Av. S.  
Bele, Frank A., University Farm, Farm House  
Bell, Jane E., 3232 Blaisdell Av.  
Bell, Lois E., 602 E. 15th St.  
Benjamin, Paul L., 3129 Lyndale Av. S.  
Bennett, Mabel, 714 4th St. S.E.  
Ber, Adelaide, 3812 Pillsbury Av.  
Bercon, J. D., 937 14th Av. S.  
Berg, Robert D., 1557 Midway Parkway, St. Paul  
Berg, Mrs. Robert D., 1557 Midway Parkway, St. Paul  
Bergman, Burdette W., 3327 Chicago Av.  
†Berrisford, B. J., 3628 Stevens Av.  
Berry, Hannah E., 947 26th Av. N.E.  
Bickelhaupt, Jessie E., 4500 Fremont Av. S.  
Bird, Kathryn, Mrs., Hotel St. Regis  
Bittner, Alma R., Curtis Court  
Bjerke, Mrs. William, 3649 Park Av.  
Blaisdell, Frances M., 1786 Hennepin Av.

- Blakeslee, A. G., 3252 17th Av. S.  
 Blanpied, Mrs. D. R., 2643 Humboldt Av. S.  
 Bliven, Ranson M., 2932 2nd Av. S.  
 Blodgett, Della, 82 S. 12th St.  
 Blumenthal, Gazella, 800 N. Lyndale Av.  
 Blythe, Mrs. Virginia B., 544 Andrus Bldg.  
 Bodenhoff, Emma J., 202 Curtis Court  
 Boirrean, Adele Margaret, 119 Bedford St.  
 Bowden, Agnes A., 65 S. 11th St.  
 Boyd, Mrs. Helen N., 3336 Irving Av. S.  
 Boynton, F. E., 3318 25th Av. S.  
 Brackett, Constance E., 1801 1st Av. S.  
 Brennan, E. A., 1149 Ashland Av., St. Paul  
 Brennan, Mrs. Jessie, 1780 Bryant Av. S.  
 Brennan, J., 2002 2nd Av. S.  
 Briggs, Harriet E., 2635 Aldrich Av. S.  
 Briggs, Mrs. R. E., 3044 Pleasant Av.  
 Brigham, Helen, Curtis Court  
 Brock, Henry, 2057 Carroll Av.  
 †Brombach, Agnes, 2516 15th Av. S.  
 Brooks, Miriam W., 1805 1st Av. S.  
 Brown, Eliza K., 2412 Garfield Av.  
 Brown, F. S., 1050 W. Minnehaha, St. Paul  
 Brown, Mrs. J. W., 4609 Park Av.  
 Brown, Percy A., 1086 12th Av. S.E.  
 Bryant, Lora S., 728 E. 33rd St.  
 Brynes, Mary, 325 Franklin Av.  
 Buckle, Mrs. I. H., 1824 Park Av.  
 Budd, Clara, 16 Oak Grove St.  
 Bullard, Ava, 2616 Hennepin Av.  
 Burdick, Eugene E., 706 University Av. S.E.  
 Burdick, Mrs. Martha P., 63 Barton Av. S.E.  
 Burggren, J. O., 2126 Commonwealth St. Paul  
 Burns, Anna R., 2601 16th Av. S.  
 Burns, M., 999 Portland Av., St. Paul  
 Burris, Edna M., 615 4th Av. S.  
 Burt, Rebecca E., 1801 Vine Place  
 Burtham, Myrtle D., 2825 Columbus Av.  
 Butler, Florence H., 1815 1st Av. S.  
 Caduff, Lillian, 1912 3rd Av. S.  
 Carey, Mary L., 4745 Lyndale Av. S.  
 Carlson, Emily S., 2 S. 11th St.  
 Carlsten, Esther C., 602 E. 15th St.  
 Carpenter, Verna L., 3032 21st Av. S.  
 Carr, Mary, 3730 Garfield Av.  
 Carrington, Mabel S., 920 E. 19th St.  
 Cartwright, J. A., 2744 Aldrich Av. S.  
 Case, M. Maud., 1026 5th St. S.E.  
 Casleton, Walter E., 527 5th Av. S.E., Flat 3  
 Cavanor, Hoyle C., 409 Pierce Av. N.  
 Cecil, Ruth M., 909 Summit Av.  
 Cederstrom, Curtis, 627 13th Av. S.E.  
 Cederstrom, Doris, 627 13th Av. S. E.  
 Cederstrom, Moyle, 627 13th Av. S. E.  
 Cederstrom, Susan Mary, 627 13th Av. S.E.  
 Chandler, F. A., 1030 15th Av. S.E.  
 Chant, Sara E., 615 James Av. N.  
 Chase, Polly, Curtis Court  
 Cheney, Gertrude, 1106 7th St. S.E.  
 Chestnut, Mary, 3208 Dupont Av. S.  
 Chisholm, C. Tryphena, 2310 Lyndale Av. S.  
 Chollar, Louise C., 2416 Grand Av. S.  
 Chollar, Mrs. C. C. 2416 Grand Av. S.  
 Christensen, Emma D., 2344 Aldrich Av. S.  
 Christensen, May J., 901 Minnehaha  
 Christianson, A. Jeanette, Northwestern Hospital  
 Christie, Blanche, 1700 W. Lake St.  
 Clark, Bertha Winifred, 1307 7th St. S.E.  
 Clark, Elsie M., Curtis Court, 965  
 Clark, Mrs. D. F., 2110 Bryant Av. S.  
 Clarks, Ella May, Ingleside Apts.  
 Clawson, Kermit, 414 Oak St. S.E.  
 Clements, Arthur C., Anoka, Minn.  
 Cleveland, Esther M., 3144 4th Av. S.  
 Cleyes, Ella May, Ingleside Apts.  
 Cockburn, Edna G., 425 S.E. 6th St.  
 Coffin, Isa L. E., 4411 Morgan Av. N.  
 Cohn, Benj. Israel, 3211 Stevens Av.  
 Coleman, Gertrude, 612 E. 15th St.  
 Comstock, Ema E., 2505 10th Av. S.  
 Congdon, Mirah, 2620 Blaisdell Av.  
 Connell, Mary, 4013 Sheridan Av. S.  
 Contwell, Lucile M., 326 E. 34th St.  
 Cook, Elizabeth, 1311 Yale Place  
 Cooley, Mrs. Maude B., 54 S. 13th St.  
 Cort, Maude O., 4312 Linden Hills Blvd.  
 Costin, Julia, Hastings Hotel  
 Coulter, M. Etta, 1310 Lowry Av. N.  
 Covell, Susan A., 2429 Garfield Av.  
 Coveny, Marie T., 2441 Harriet Av.  
 Craig, Mrs. Adelaide, 1725 Portland Av.

- Crane, Laura A., 100 Seymour Av. S.E.  
 Crane, Wilma, 3225 Colfax Av. S.  
 Crane, Frank M., 1879 Feronia Av., St. Paul  
 Crickmer, Nolie S., 3531 Lyndale Av. S.  
 Crockett, Clara S., 2512 Hennepin Av.  
 Curran, Hugh A., E. High School  
 Curry, Esther H., 1511 Breda St., St. Paul  
 Curtis, Oee, 2709 Portland Av.  
 Dahlstrom, Raymond E., 4048 Pleasant Av.  
 Darrington, Agnes, 1608 Hawthorne Av.  
 Daum, Augusta A., 1421 Park Av.  
 Dean, Helen M., 2017 Garfield Av.  
 Decker, Della, 2105 Bryant Av. S.  
 Densmore, Lydia M., 2105 Bryant Av. S.  
 Devany, Anne, 3801 Stevens Av.  
 Dickey, Mrs. Anna C., 1700 Park Av.  
 Dickenson, S. H., 3849 Garfield Av.  
 Disney, Florence H., 908 5th Av. S.  
 Donahue, M. F., 3201 Aldrich Av. S.  
 Donaldson, Floy, 3417 2nd Av. S.  
 Dooley, Winifred, 2168 Carroll Av., St. Paul  
 Dougherty, Eleanor M., 306 W. 40th St.  
 Drohan, Gertrude, 2716 Portland Av.  
 Drohan, Margaret, 2716 Portland Av.  
 Duesler, Grace, 1422 Portland Av.  
 Duffield, Frank P., 3408 Chicago Av.  
 Dunbar, Louise E., 3136 Humboldt Av. S.  
 Dungan, Minnie W., 4628 Lake Harriet Blvd.  
 Dunn, Cordelia, 1929 Fremont Av. S.  
 Dunn, Ella May, 1929 Fremont Av. S.  
 †Dunn, Eva L., 1705 25th Av. N.  
 Durand, Mrs. E. Dana, 629 5th St. S. E.  
 †Dwinnell, S. W., 253 Groveland Av.  
 Edgerton, Bessie E., 2919 Girard Av. N.  
 Edwall, Esther J., 625 E. 14th St.  
 Ellingson, Bertha, St. Barnabas Hospital  
 Ellis, Bert, 731 E. 27th St.  
 Ellis, Leola, 1725 Portland Av.  
 Engels, Clarice, 2405 Johnson St.  
 Epstein, Hymen, 1128 6th St. N.  
 Erb, Nellie M., 1415 Dupont Av. N.  
 Erickson, Beda, 3010 Girard Av. N.  
 Erickson, Carl, 617 19th Av. S.  
 Erickson, Julia, 1613 3rd Av. S.  
 Evers, Mrs. Bess M., 1730 Irving Av. S.  
 Faber, Clara J., 1413 Lyndale Av. N.  
 Fairchild, Elinor, 1915 1st Av. S.  
 Fairfield, Elizabeth, 4016 Bryant Av. S.  
 Falconer, Gertrude M., 2707 Fremont Av. N.  
 Fales, Henry Marshall, Jr., 211 W. 15th St.  
 Farseth, Elisa Pauline, 914 13th Av. S.  
 Fassett, John S., 1312 Stevens Av.  
 Fawcett, Jessie E., Curtis Court  
 Felt, Florence A., 820 University S.E.  
 Fetterly, Warren, 2740 Cedar Av.  
 Fineman, S., University Hospital  
 Finn, Delia A., 1600 1st Av. S.  
 Finnberg, Lillian, 913 21st Av. S.  
 Fitzgerald, Teresa J., 1309 7th St. S.E.  
 Fitzpatrick, Lulu G., 1316 Vine Place  
 Fitzpatrick, Mary A., Hastings Hotel  
 Fletcher, Clara M., 632 Park Av.  
 Flitten, L. T., 1819 4th Av. S.  
 Flynn, Kathleen, 3015 W. 47th St.  
 Folsom, Louise M., 3041 5th Av. S.  
 Ford, Mary F., 1939 Bryant Av. S.  
 Foss, Elizabeth H., 501 E. River Road  
 Foster, Rachel H., 36 Spruce Place  
 Fowler, Alice J., 209 S. 11th St.  
 Fox, William H., 3725 Garfield Av.  
 Foy, Mrs. Cordelia L., 1717 Stevens Av.  
 Frazer, Lillian M., 2617 Emerson Av. S.  
 Freeman, Eva I., 3302 Portland Av.  
 Fridley, John P., 707 E. 14th St.  
 Fridley, Mrs. John P., 707 E. 14th St.  
 Friedell, Luverne, 2408 1st Av. S.  
 Gamelyard, Mabel, 2645 3rd Av. S.  
 Gardner, Marie, 1115 Hawthorne Av.  
 Garvey, Anna T., 4305 Aldrich Av. S.  
 Garvey, Florence M., 2802 Fremont Av. N.  
 Garvey, Mary L., 4305 Aldrich Av. S.  
 Gates, Edith M., 1212 Yale Place  
 Gaus, Ottelie J., 2915 W. 44th St.  
 Gavin, Ethel, 2502 Grand Av.  
 Gaylord, Frank T., 1935 Bryant Av. S.  
 Geussenhainer, Ellanor, 2207 Hennepin Av.  
 Gilkey, Katherine, Vine Hall  
 Gillbrandsen, Miss S. M., 3132 Bryant Av. S.  
 Gilman, Howard B., 3417 Park Av.  
 Gilson, Rhea M., 2207 Hennepin Av.  
 Gjems, Lina, 2309 Irving Av. S.  
 Goddard, Mary A., 201 W. 15th St.  
 Goff, Edw. S., St. Louis Park  
 Goldsworthy, Zelma, 103 W. 52nd St.

- Gordon, Mrs. Anna M., 2313 Portland Av.
- Gordon, Pearl M., 2101 Irving Av. S.
- Gould, Mary, 1674 Hennepin Av.
- \*\*\*Grant, Mabel K., 204 W. Grant St.
- Grant, Maybelle E., 3229 17th Av. S.
- Grapp, O. R. 3900 12th Av. S.
- Graves, Alice M., 407 4th St. S.E.
- Graves, Helen, 4857 Emerson Av. S.
- Graves, Marie, 2706 Thomas Av. S.
- Graves, Mrs. Richard, 2219 Irving Av. N.
- Greaves, Leila E., 1821 Humboldt Av. S.
- Greenbaum, Esther, 1809 2nd Av. S.
- Green, Grace A., 2154 Dayton Av., St. Paul
- Grimm, Marguerite A., 322 13th Av. S.E.
- Grobel, Olive A., 1927 Elliott Av.
- Gross, Helen, 3216 S. Emerson Av.
- Grover, Elsie A., Curtis Court
- Guimont, Elmer Jas., 2651 Colfax Av. N.
- Guinotte, Marguerite, 2411 Fremont Av. S.
- Gunkle, W. H., 5052 43rd Av. S.
- †Gustafson, Victoria E., 1311 Chestnut Av.
- Guthrie, Marguerite, 2001 Aldrich Av. S.
- Hain, Eleanor, 920 14th Ave. S.
- Hall, Emma J., 1302 Raymond Av.
- Halvorsen, Daniel, 1631 Marshall Av., St. Paul
- Halsey, Sarah E., 2100 Bryant Av. S.
- Hamilton, Florence L., 3224 Nicollet Av.
- Hammer, Sophie, 2206 Hennepin Av.
- Hammond, Alice E., 4008 Bryant Av. S.
- Hammond, Grace H., 4008 Bryant Av. S.
- Haney, Elizabeth, 624 W. 50th St.
- Hansen, Meta, 2616 Hennepin Av.
- Hansen, Ruth M., 1513 W. Lake St.
- †Hanson, Lillian I., 733 E. 16th St.
- Hanson, Ruth A., 2729 Humboldt Av. S.
- Harding, Nellie, 5141 Camden Av.
- Harger, Lena L., 3906 Thomas Av. S.
- Harris, Jane, 606 E. Franklin Av.
- Harris, Mary, 606 E. Franklin Av.
- Harter, Edna C., 4332 Fremont Av. S.
- Hartig, Mrs. J. H., Hotel Ogden, 12th & Mary Place
- Hastings, Ruby Belle, 421 Walnut St. S.E.
- Haven, Kittie, 3145 Stevens Av.
- Hawes, Harriet M., 728 10th Av. S.E.
- Hawkins, C. S., 1523 Fremont Av. N.
- Hayes, A. M., 1701 University Av. S.E.
- Hayes, Bridget, 1701 University Av. S. E.
- Hayes, Effie M., 821 6th St. S.E.
- Hazeltine, Julia M., 353 Russell Av. N.
- Hecker, Alma, 3753 2nd Av. S.
- Hedberg, Alma E., 1510 Jefferson St. N.E.
- Hedberg, Elenor, 1510 Jefferson St. N. E.
- Hefferman, Susan, 2633 Humboldt Av. S.
- Hegel, Edith, 1310 7th St. S.
- Hellesen, Anna E., 4700 Bryant Av. S.
- Helm, C. B., 4825 Xerxes Av. S.
- Helm, Mrs. C. B., 4825 Xerxes Av. S.
- Henderson, Ida May, 3217 Aldrich Av. S.
- Henderson, Dora D., 3929 Sunnyside Av.
- Hendricks, E. L., 1012 Nicollet Av.
- Henegren, Marie, 4946 Garfield Av.
- Henricksen, Alpha, 1815 1st Av. S.
- Henry, Laura A., 2414 Garfield Av.
- Hepburn, Ethel M., 93 Orlin Av. S.E.
- Hicks, Frances, 1898 Laurel Av., St. Paul
- Hicks, Mildred, 3241 Stevens Av.
- Higby, George W., 900 30th Av. N.
- Hildebrandt, Janet, 323 Church St. S.E.
- Hildebrandt, Ruth, 323 Church St. S. E.
- Hilgesen, Cora T., Curtis Court
- Hillgren, Stella, 3342 Oakland Av.
- Hiscock, Jennie I., 715 13th Av. S.E.
- Hobart, Geo. H., 3726 Van Buren St. N.E.
- Hobart, Mrs. Geo. H., 3726 Van Buren St. N.E.
- Hoefflin, Elsie, 732 E. Franklin Av.
- Holmes, Susan, Abbott Hospital
- Holzchuh, Almee, 3814 Upton Av. S.
- Hopkins, G. M., 309 17th Av. S.E.
- Hort, James R., 3112 Portland Av.
- Horwitz, Aaron, 61 Highland Av.
- †Hotchkiss, Fred W., 119 State St. S. E.
- Hovan, Lillian G., 1802 15th Av. S.
- Houghtaling, Jay, 1519 Brook Av. S.E.
- Howard, Margaret L., 1786 Hennepin Av.

- Howe, Jane A., 1819 Lyndale Av. S.  
 Hoy, Grace V., 1402 Spruce Place  
 Hubbard, John Rector, 112 Church St.  
 Hubacek, Clara B., 2681 Lake of Isles Blvd.  
 Hudson, George L., 4048 Lake Harriet Blvd.  
 †Huffman, Harry H., 2325 Grand Av.  
 Hughes, Clarence A., 911 E. 22d St.  
 Hughes, Harriet J., 2433 Colfax Av. S.  
 Hull, May W., 2217 Girard Av. S.  
 Hulls, Mrs. Mabel G., 3918 Stevens Av.  
 Hult, Ann K., 1521 7th St. S.E.  
 Hurlburt, Frances, 3541 17th Av. S.  
 Hutchinson, Drusilla, 3806 Blaisdell Av.  
 Hynes, Agatha, 2158 Carroll Av., St. Paul  
 Ingold, Estelle M., 2424 Aldrich Av. S.  
 Ingraham, Florence, 26 Oak Grove St.  
 Ingram, Anna W., 2607 Columbus Av.  
 Irlle, Maud, 1684 Dayton Av., St. Paul  
 Iver, Ruth N., 1321 Nicollet Av.  
 Jacobsen, Nora V., 1725 Portland Av.  
 Jacobsen, Jessie S., 1725 Portland Av.  
 Jackson, Clifford, 2214 4th Av. N.  
 Jenson, Earl C., 1717 4th St. S. E.  
 Jenson, George W., 3102 Lyndale Av. N.  
 Johnson, Anna M., 3255 14th Av. S.  
 Johnson, Blanche, 1725 N. 3rd St.  
 Johnson, C. O., 4003 2nd Av. S.  
 Johnson, Domer, Curtis Court  
 Johnson, Frederick O., 2117 Commonwealth, St. Paul  
 Johnson, J., 14 W. 14th St.  
 Johnson, Lillian M., 1425 Vine Place  
 Johnson, Mrs. Morton, 301 Plaza Hotel  
 Johnson, Olivia K., 1300 7th St. S.  
 Johnson, Will R., 4525 York Av. S.  
 Jones, Elizabeth M., 2214 Emerson Av. S.  
 Jones, Hallie E., 729 10th Av. S.E.  
 Jones, Monica E., Hillcrest, F. 4, St. Paul  
 Jones, Zola Lucile, 1301 5th St. S.E.  
 Kappler, Mae E., 315 W. 15th St.  
 Keeler, Delphine M., 1617 4th St. S.E.  
 Kelley, Evie F., 3129 Portland Av.  
 Kelley, May E., 1786 Hennepin Av.  
 Kelley, Nellie, 16 S. 12th St., Apt. 3  
 Kelley, Katherine, 909 Summit Av.  
 Kendall, Calla, 912 W. 31st St.  
 Kennedy, Agnes M., 2533 Bryant Av. S.  
 Kennedy, Effie J., 4629 Fremont Av. S.  
 Kennedy, Marion, 2533 Bryant Av. S.
- Kibler, J. D., Antler Apartments  
 King, Hattie A., 2818 1st Av. S.  
 King, Julia E., 1034 19th Av. S.E.  
 King, L. Louise, 2818 1st Av. S.  
 Kinney, R. B., 3220 Bryant Av. S.  
 Knapp, Edward A., 417 Marshall Av., St. Paul  
 Knappen, Avis, 3241 Stevens Av. •  
 Koelisel, Minnie, 2417 Dupont Av. S.  
 Koelln, George, 872 Thomas St. St. Paul  
 Krase, Mrs. R. F., 4028 Queen Av. S.  
 Kriskey, Imogene E., 1212 Yale Place  
 Krogstadt, Marie C., 4336 Aldrich Av. S.  
 Kuehl, Bertha I., 2533 Chicago Av.  
 Kyllmgstad, Gertrude, 4740 Nicollet Av.  
 Lackey, Flonde A., Curtis Court  
 Ladd, Valeria G., 1309 7th St. S.E.  
 La Force, Zelma, 820 E. 36th St.  
 Lancaster, Mrs. W. A., 2008 Pillsbury Av.  
 Langebek, Mary Wyon, 35½ Curtis Court  
 Langemo, E. M., 2704 Pillsbury Av.  
 Larpenteur, Marie A., 3615 Park Av.  
 Larsen, Myrtle O. A., 3025 Central Av.  
 Larsen, Thelma, 1612 Stevens Av.  
 Larson, Ella S., 1127 4th Av. S.  
 Larson, G. A., 2516 Lyndale Av. N.  
 Laure, Muriel Ione, 3000 Emerson Av. S.  
 Lawson, Florence B., 2906 Humboldt Av. N.  
 Lealtad, Grace, 465 Mackubin St., St. Paul  
 Leatherman, Lydia L., 2310 Emerson Av. S.  
 Leet, Susan A., 2114 Hennepin Av.  
 Leighton, B. E., 1428 Breda St., St. Paul  
 Leininger, Florence, 1800 1st Av. S.  
 Leonard, J. H., 2130 Lyndale Av. N.  
 †Leverentz, Carl F., 55 Williams Av. S.E.  
 Lewis, H. Adelaide, 1006 E. 18th St.  
 Liedl, Rose M., 718 6th St. S.E.  
 Lien, Mrs. Adele Pomeray, 1806 3rd Av. S.  
 Lilley, Elizabeth, 2818 Fremont Av. N.  
 Lillie, Florence E., 2153 Scudder St., St. Paul  
 Lincoln, Guy E., 2871 Humboldt Av. S.  
 Lindberg, Edith, 25 Clarence Av.  
 Lindstedt, Esther, 2246 Pierce St. N.E.

- Little, Helen F., 3821 Waveland Terrace  
 Livermore, Harvey J., 352 Bates Av., St. Paul  
 Lofgren, Lena V., 130 E. 18th St.  
 Lombard, Lou, 101 W. 35th St.  
 Long, C. W., 685 Carroll Av., St. Paul  
 Long, Harvey L., 1015 Park Av. Apt. 1  
 Lord, Frances F., 225 W. 15th St.  
 Lowen, Maud B., 3240 Oakland Av.  
 Lund, Christian A., 957 Cromwell Av., St. Paul  
 Lund, Lillian, 326 E. 34th St.  
 Lynch, Mary, Hotel Leamington  
 McAlister, Gladys M., 4300 Colfax Av. S.  
 McAuleffe, Gertrude, 303 Curtis Court  
 McAuliffe, Kate, 1025 6th Av. S.  
 McCarren, Jane, 424 5th St. S.E.  
 McCarthy, Mary M., 4801 Girard Av. S.  
 McClellan, Edith, Leamington Hotel  
 McCormack, Katherine B., 2001 Aldrich Av. S.  
 McDermitt, John F., 3304 3rd Av. S.  
 McDonald, May C., 5049 Lyndale Av. N.  
 McGregor, Lulie, 502 W. Franklin Av.  
 McGuire, Gertrude M., Hotel Leamington  
 McHugh, John B., 101½ W. 7th St., St. Paul  
 McIntyre, Alice M. 4424 Upton Av. S.  
 McIntyre, Mary Ruth, 1801 Vine Place  
 McKee, Roland C., 513 Washington Av. S.E.  
 McLachlan, Katherine M., 2010 Park Av.  
 McLaughlin, Agnes, 4300 Lyndale Av. S.  
 McLaughlin, Josephine, 4300 Lyndale Av. S.  
 McMorrow, M. L., 2211 Oliver Av. N.  
 McNally, Lucile, 314 10th Av. S.E.  
 McPeik, Gladys, 78 Willow St.  
 McWhorter, Mrs. L. N., 3636 Portland Av.  
 MacGregor, Effie, 1275 Curtis Court  
 MacKinnon, Elizabeth, 2305 Grand Av. Av.  
 Madsen, Eva I., 1329 6th St. S.E.  
 Magnusson, Esther A., 3025 11th Av. S.  
 Malin, Ida B., 6 W. 14th St.  
 Malloy, Rosemary, 741 Kenwood Parkway  
 Malmsten, Ada D., 2109 Western Av.  
 Manley, Mary E., 3236 Holmes Av. S.  
 Mandel, Bessie R., 127 Highland Av. N.  
 Mandel, Bertha G., 127 Highland Av. N.  
 Mann, Ella C., 2802 Fremont Av. N.  
 Mann, Ida V., 1830 Stevens Av.  
 Manning, Raymond D., 609 Broadway N.E.  
 Marakoff, Sonja, 3245 1st Av. S.  
 Marchesseault, Albina M., 1201 Penn Av. N.  
 Martin, Leo H., 3309 University Av. S.E.  
 Mason, Adelaide E., 1108 15th Av. S.E.  
 Mason, Alvin B., 2900 12th Av. S.  
 Mather, Helen, 2701 Blaisdell Av.  
 Matland, John N., 3524 Stevens Av.  
 Maxwell, Myra, Hotel Ogden  
 Meason, Georgina, 1208 W. Franklin  
 Meeker, Mary K., 2548 Clinton Av.  
 Mellgren, Selma E., 228 6th Av. N., So. St. Paul  
 Menie, L. H., 2617 3rd Av. S.  
 Mergens, Loretta, 2019 Fremont Av. S.  
 Merrill, Lawrence H., 3833 Stevens Av.  
 Meyer, Emma, 1700 E. 27th St.  
 Miller, Bessie P., 707 Summit  
 Miller, Helen, 1212 Yale Place  
 Miller, Jane, 1873 Marshall Av., St. Paul  
 Minton, Marion L., 1903 1st Av. S., †  
 Mitchell, Morris B., 253 Groveland Av.  
 Mo, Helen George, 3044 Pleasant Av.  
 Moline, Elizabeth, 383 Dayton Av., Flat 10, St. Paul  
 Monasch, Marcella E., 2115 Penn Av. S.  
 Moorman, Lucile, 608 E. 15th St.  
 Morrissey, Ethel L., 3909 Harriet Av.  
 Morse, Anna E., 2316 Humboldt Av. S.  
 Morse, George, 518 Hennepin Av.  
 Morse, George S., 1680 Hennepin Av.  
 Morton, Catherine, 5122 Washburn Av. S.  
 Moynahan, Frances J., 2602 15th Av. S.  
 Muckley, Rose M., 1916 Laurel Av., St. Paul  
 Muller, Katherine J., 2622 3rd Av. S.  
 Mullins, Ella, 1916 2nd Av. S.  
 Mumm, Lydia C., 1908 N. 5th St.  
 Murphy, Mary V., 4109 Sheridan Av. S.  
 Murray, Agnes R., 2445 Aldrich Av. S.  
 Muth, Edna T., 156 Orlin Av. S.E.  
 Nancey, Mrs. C. S., 3848 Garfield Av.

- Naper, Martha E., 3149 Holmes Av. S.  
 Nason, Effie L., 1407 Clinton Av.  
 Neason, Gertrude E., 2123 Bryant Av. S.  
 Nec, William J., 314½ 20th Av. S.  
 Nelson, Fred C., 1300 Central Av.  
 Nelson, Henry, 214 Oak Grove St.  
 Nelson, Ruth, 123 W. Grant St., Apt. 112  
 Ness, W. Isabelle, 286 Dayton Av., St. Paul  
 Nessel, N., 1704 Park Av.  
 Newell, Bertha, 3012 Knox Av. S.  
 Newell, Margaret M., 1100 5th St. S. E.  
 Newman, Loretta, 923 Fairmont, St. Paul  
 Nickerson, Margaret L., 615 6th St. S.E.  
 \*Niedorff, Lillian R., 237 St. Albans St., St. Paul  
 Niles, Mrs. C. F., Hotel Hastings  
 Niles, Harriet S., Hotel Hastings  
 †Nimerfroh, Gertrude B., 4021 Bryant Av. S.  
 Noot, Arthur F., 910 3rd Av. N.  
 Nordeen, Alice Ruby, 1327 Madison St. N.E.  
 Norman, Ebba M., 1816 Elliott Av.  
 Northfield, Susan M., 1415 19th Av. N.  
 Noyes, Portia R., 3515 32nd Av. S. •  
 Numdinger, C. R., 2549 Blaisdell Av.  
 Nyhus, Nora C., Curtis Court, Apt. 26  
 O'Gordon, Hannah Jean, 808 9th Av. S.E.  
 O'Hearn, Mary, 208 W. Grant St.  
 Oakford, Frances, 1788 Hennepin Av.  
 Ohm, Eleanor B., 3225 3rd Av. S.  
 Okland, Herman J., 227 Cedar Av.  
 Olmstead, Chas. Floyd, 209 State St. S.E.  
 Olsen, Eleanor, 4018 Grand Av.  
 Olson, Anna H., 3107 2nd Av. S.  
 Olson, Carrie, 2232 Lincoln St. N.E.  
 Olson, Edward A., 2710 S. 9th St.  
 Olson, G. W., 713 Delaware St. S.E.  
 Olson, Ruby F., 1434 Jefferson St., N. E.  
 Orton, Wanda Adair, 3210 W. Calhoun Blvd.  
 Orvold, Oliver G., 4834 33rd Av. S.  
 Osborn, Mae A., 3612 Aldrich Av. S.  
 Ostberg, Mrs. Helen M., 2118 Dupont Av. S.  
 Osterberg, Lillian, 2623 Humboldt Av. N.  
 Owen, Bess, Vine Hall  
 Owen, Gertrude B., 1428 Spruce Place  
 Parker, Harriet, 130 E. 18th St.  
 Patchen, Mrs. Georgia A., 1811 1st Av. S.  
 Pattison, Edith S., 2646 Fremont Av. N.  
 Paul, Jennie D., 1786 Hennepin Av.  
 †Paulson, Myrtle M., 1113 E. 22nd St.  
 †Peabody, Edward M., 2905 Irving Av. S.  
 Percy, Lynne A., West Hotel  
 Pearson, Belle S., 408 W. Lake St.  
 Pearson, Frances, 2110 30th Av. S.  
 Peck, Etta H., 2701 Blaisdell Av.  
 Peck, A. E., 1912 Emerson Av. S.  
 Peck, Mrs. A. E., 1912 Emerson Av. S.  
 Peltier, Georgiana H., 1309 N. Irving Av.  
 Peltier, Irene E., 1309 N. Irving Av.  
 Pelton, Ella R., 3233 1st Av. S.  
 Penny, Edith M., 4408 Vincent Av. S.  
 Penrose, Alma M., 2729 Aldrich Av. S.  
 Perine, Mrs. Edw. J., 517 9th Av. S. E.  
 Perkins, Alice, 3120 James Av. S.  
 Perkins, Ellen, 3021 Park Av.  
 Pervier, Elsa Padde, 1312 17th Av. N.  
 Peterson, Mrs. Cornelia, 1931 3rd Av. S.  
 Peterson, J. C. N., 1931 3rd Av. S.  
 Peterson, Jno. Emil, 1708 Como Av.  
 Petri, Mrs. G. A., 1715 W. 31st St.  
 Pfeiffer, E. M., 1291 Lincoln Av., St. Paul  
 Pfeiderer, H. F., 2917 Harriet Av.  
 Phelps, Aura I., 719 5th Av. S.E.  
 Phillips, Anna, 1808 Stevens Av.  
 Phillips, Butler I., 3120 James Av. S.  
 Phillips, Jennie C., 2728 Portland Av.  
 Phillips, Kate E., 2728 Portland Av.  
 Pierie, Elizabeth, University Hospital  
 Pingle, Dorothea, 4720 Colfax Av. S.  
 Porter, Hattie W., 121 11th St. S.  
 Porter, Mary L., 3929 Clinton Av.  
 Powell, Louise M., University Hospital  
 Prim, Mrs. J. A., 1811 10th Av. S.  
 Prindeville, Helen, 209 E. 19th St.  
 Price, Cora Belle, 3012 Knox Av. S.  
 Price, Maude L., 2021 Harriet Av.  
 Purchase, Alvah Adams, 3625 Nicollet Av.  
 Putnam, C. Maude, 1830 Stevens Av.  
 Pybus, Emma M., 608 E. 15th St.  
 Quilty, Florence, 2725 18th Av. S.  
 Quilty, Marie, 2725 18th Av. S.  
 Raab, Frank, 13 Barton Av. S.E.

- Raddatz, Agnes, 3531 Lyndale Av. S.  
 Rachham, Henrietta, 3208 Humboldt Av. S.  
 Radebaugh, Katherine, 2426 32nd Av. S.  
 Radusch, Dorothea, 721 Erie St. S.E.  
 Radusch, Minna, 721 Erie St. S.E.  
 Raines, Mary Edith, 2604 Aldrich Av. S.  
 Randall, Ada M., 4250 Linden Hills Blvd.  
 Ransom, Cornelia B., 523 7th St. S.E.  
 Ray, Charlotte D., Hampshire Arms  
 Rees, Georgia May, 2658 Aldrich Av. S.  
 Regan, Mrs. Grace H., Hotel Leamington  
 Reynolds, Gertrude M., 3811 10th Av. S.  
 Rhame, Robert, 209 State St. S.E.  
 Richards, Mary L., 1111 Hawthorne Av.  
 Richards, Nellie, The Leamington  
 Riedell, Adaline, 3242 2nd Av. S.  
 Ritchie, Mrs. William H., 2687 Lake of Isles Blvd.  
 Ritze, Bertha L., 2549 Bryant Av. S.  
 Roberts, M. Emma, 14 E. 51st St.  
 Robinson, Harriet M., 2720 Elliott Av.  
 Robinson, Merle Etella, 1815 1st Av. S.  
 Rochford, Dr. W. E., 1940 James Av. S.  
 Rochford, Mrs. W. E., 1940 James Av. S.  
 Rogers, Mrs. Lois Waite, 500 Delaware St. S.E.  
 Rood, Mary B., 1025 Portland Av.  
 Rose, Mrs. Alex, 1201 Penn Av. N.  
 Rosseland, Johanna, 2818 4th St. N.  
 Roundy, A. L., 241 Leamington  
 Rowell, Elinore, 2611 Harriet Av.  
 Rowell, Ora M., 1408 Spruce Place, No. 3  
 Rowles, May, 1958 Selby Av., St. Paul  
 Rumbaugh, Mary L., 2436 Nicollet Av.  
 Rush, Mrs. Samuel, 4901 Vincent Av. S.  
 Russell, Clementina R., 2400 Grand Av. S.  
 Rutledge, Elizabeth C., 3232 Blaisdell Av.  
 Ryan, William T., 1827 Melbourne  
 †Ryberg, Anna B., 1480 N. Snelling, St. Paul  
 Sand, Anne, 2227 Polk St. N.E.  
 Sand, Borghild L., 612 E. 15th St., Apt. 32  
 Sanborn, George B., 4342 Pleasant Av.  
 Sanderson, Katherine, 875 St. Clair St., St. Paul  
 Saxton, Mrs. C. S., 3848 Garfield Av.  
 Scandling, J. C., 3027 Harriet Av.  
 Schaefer, Lydia E., 2545 Bryant Av. S.  
 Schill, Gertrude B., 805 E. River Road  
 Schoepp, Elizabeth D., 315 W. 15th St.  
 Schoonover, G. C., 4245 Bryant Av. S.  
 Schoonover, Mrs. G. C., 4245 Bryant Av. S.  
 Schulte, Sophia, 103 N. Victoria, St. Paul  
 Schussler, Emma W., 2722 Bloomington Av.  
 Schussler, Rose, 2722 Bloomington Av.  
 Scofield, Harriet E., 2609 Columbus Av.  
 Scripture, Elizabeth B., 1316 7th St. S.E.  
 Scully, Zita, 2413 Emerson Av. N.  
 Segerstrom, Mrs. A. A., 2641 Emerson Av. S.  
 Seiberlich, Mrs. Robert J., 2424 Dupont Av. S.  
 Sellhorn, Minnie D., 625 E. 14th St.  
 Severinson, Bernice, 612 E. 15th St.  
 Severinson, Mildred, 612 E. 15th St.  
 Seward, M. M., 1317 2nd Av. S.  
 Shea, Agnes, 20 N. 13th St.  
 Shelley, Clarence W., 409 4th Av. S.E.  
 Sheridan, Margaret, 1718 Oliver Av. S.  
 Sherin, Mabel, 1819 Lyndale Av. S.  
 Sherman, Laura I., 3041 Dupont Av. S.  
 Sherman, Marie F., 2208 16th Av. S.  
 Sieburt, Marie H., 3006 Oliver Av. N.  
 Sikes, Lena A., 2433 Colfax Av. S.  
 Silber, Gertrude, 127 Highland Av.  
 Silber, Mary, 127 Highland Av.  
 Simonds, Chas. A., 1502 Russell Av. N.  
 Sims, Mary E., Plaza Hotel  
 Skattehol, Lars, 225 W. 24th St.  
 Skibiness, Edw. J., 3620 14th Av. S.  
 Slider, Ethel M., 315 Washington Av. S.E.  
 Slocum, L. F., 1629 University Av. S.E.  
 Small, Hazel M., 1429 6th St. S.E.  
 Smilowe, David J., 1203 S. 7th St.  
 Smith, Claribel, 1224 Mary Place  
 Smith, Cleora F., 209 Groveland Av.  
 Smith, Earl D., 2524 Pierce St. N.E.  
 Smith, Florence M., 423 Oak St. S.E.  
 Smith, Gertrude E., 2608 Pillsbury Av.  
 Smith, Harriet H., 1811 1st Av. S.  
 Smith, Mrs. Harry, 639 E. 17th St.  
 Smith, H. B. 706 University Av. S.E.



- Smith, Loretta L., 2186 Dayton Av. So., St. Paul
- Smith, Ora Kathleen, 719 E. 18th St.
- Snider, Charles P., Lexington & Iglehart, St. Paul
- Snyder, Louise H., 208 W. 15th St., Apt. 60.
- Snyder, Mary, 1325 Vine Place
- Solien, Tilla J., 413 Oak St. S.E.
- Sommerfeld, Mrs. Emma Mae, 1319 Edmund St., St. Paul
- Somermeyer, A. G., St. Thomas College, St. Paul
- Spence, David J., 3831 Grand Av.
- Spencer, Pearl, 327 16th Av. S.E.
- Spohn, August, 4343 Folsom Av.
- Stahley, Laura, 1416 W. 27th St.
- Stanchfield, Steele S., 1110 13th Av. S.E.
- Starch, R. F., 515 E. 33rd St.
- Steadman, Sallie A., 217 W. Franklin Av.
- Stephen, Ruth R., 2100 Bryant Av. S.
- Sterrett, Lavinia B., 2309 Girard Av. S.
- Stevens, Imogene, 201 W. 15th St.
- Steward, Thomas, 512 Delaware St. S. E., Apt. 316
- Stewart, Alex W., 4416 Thomas Av. S.
- Sticks, Rose Lucy, 524 12th Av. S.E.
- Stivers, Elizabeth, 131 E. 14th St., Apt. 11
- Storlie, Carolyn N., 3145 Oakland Av.
- Strom, Harold F., 1228 5th St. S.E.
- Stromme, Minnie, 1013 13th Av. S.
- Sumner, Bernice, 625 E. 14th St.
- Sundean, Amonda, 2748 Hennepin Av.
- Sutton, L. L., Excelsior, Minn.
- Swaggert, Marion H., 123 W. Grant St., Apt. 117
- Taylor, Dolly, 3208 Aldrich Av. S.
- Taylor, Fannie B., 1109 Hawthorne Av.
- Telfair, Nellie M., 2444 Chicago Av.
- Teeter, Jenny L., 4833 Fremont Av. S.
- Tezeski, John, 1504 Russell Ave. N.
- Thomas, Mabel H., 3032 Irving Av. S.
- Thompson, Laurie S., Grimes Av. & W. 45th St.
- Thompson, Lydia, 4175 Bryant Av. S.
- Thompson, Ruth B., 4206 Harriet Av.
- Thompson, Ruth Gage, 4808 Nicollet Av.
- Tilden, Rose E., 102 E. 19th St.
- Todd, Erma E., 1217 Washburn Av. N.
- Todd, Nell Margaret, 3328 Pleasant Av.
- Tomlinson, Bessie A., 3115 13th Av. S.
- Tomlinson, Mabel E., 3115 13th Av. S.
- Tousley, Mrs. E. M., 3649 Park Av.
- Towey, Agnes M., 2746 Fremont Av. S.
- Towle, Robert E., 3124 Harriet Av.
- Trautman, Lucile I., 4805 Washburn Av. S.
- Treat, Mabel J., 1212 Yale Place
- Trufant, Nellie S., 2614 Clinton Av.
- Tuff, Paul B., 3005 E. 25th St.
- Turngren, Ellen M., 3229 2nd Av. S.
- Turnquist, Anna S., 2542 Chicago Av.
- Underwood, Elizabeth, 425 6th St. S. E.
- Upman, Marjorie, 1786 Hennepin Av., Apt. 57
- Van Camp, Kate, 517 6th Ave. S.E.
- Van Dusen, Mrs. Sarah H., 805 E. River Road
- Vanderhoof, Clare J., 500 Delaware St. S.E.
- Vannier, Marion L., University Hospital
- Van Tuyl, Ruth, 4236 Queen Av. S.
- Vehe, Dr. H. D., 2536 Colfax Av. S.
- Vertz, Leila W., 3208 Blaisdell Av.
- Vincent, Harry, 2635 Quincy Av.
- Vincent, Jean, 1819 Lyndale Av. S.
- Voight, Alfreda H., 26 Oak Grove
- Walker, Lenore, 625 E. 24th St.
- Waller, Lulu E., 3020 Irving Av. S.
- Walsh, Matthew R., 2742 Colfax Av. S.
- Waltman, Hy L., 2096 Dayton Av., St. Paul
- Walts, Grace, 2400 Lyndale Av. S.
- Ward, Lenore, 1801 Vine Place, Apt. 203
- Ward, Susanna, 4424 Upton Av. S.
- Walkins, Leona D., 2818 Fremont Av. N.
- Watson, Mrs. Louise, 2635 Humboldt Av. S.
- Webster, Maude C., 4115 Upton Av. S.
- Weidner, Rose B., 1311 17th Av. N.
- Wedin, Albert E., 4147 Dupont Av. N.
- Weeks, Ida May, 3036 Bryant Av. S.
- Welch, Esther Pearl, 76 S. 12th St.
- Wellan, Mrs. Gladys, 1614 Stevens Av.
- Welliver, L. R., 163 Bedford St. S.E.
- West, Alice M., 1619 Girard Av. N.
- West, Martha B., Plaza Hotel
- Westlund, Mary E., 3500 1st Av. S.
- Wetherbee, Flora, 311 Walnut St. S. E.

Wheeler, Eva G., 3336 Irving Av. S.  
 Whitcomb, Anna W., 3814 Upton Av.  
 S.  
 White, Carrie A., 1504 Chicago Av.  
 White, J. F., 2400 Sheridan Av. S.  
 White, Roy W., 80 Iglehart Av., St.  
 Paul  
 Wicklund, Evelyn, 2617 Fremont Av.  
 S.  
 Wicklund, Hazel, 3300 2nd Av. S.  
 Wichman, Vera, 3623 Stevens Av.  
 Wilkins, Mary S., 4644 Lake Harriet  
 Blvd.  
 Willard, Mary L., 2400 Humboldt Av.  
 S.  
 Willets, Florence D., 14 E. 51st St.  
 Wilson, Hallie V., 2906 Humboldt Av.  
 N.  
 Wilson, Ida M., 1416 W. 27th St.  
 Wing, Carolyn E., 3022 Minnehaha  
 Winter, Mabel R., 417 8th Av. S.E.  
 Woehler, Bernice, 1721 8th Av. N.

Wohlgemith, Anna C., 614 Stevens Av.  
 Wolfe, Vera M., 2317 Buchanan St.  
 N.E.  
 Wolfe, Walter P., 2647 Harriet Av.  
 Woltman, Marie H., Northwestern Hos-  
 pital  
 Woltman, Hy, 2096 Dayton Av., St.  
 Paul  
 Wood, Ruth M., 427 8th Av. S.E.  
 Wood, Stella L., 2502 Grand Av.  
 Woodbury, Jessie E., 3121 Dupont  
 Av. S.  
 Woodruff, Pearl E., 1208 W. Franklin  
 Woodward, Agnes Y., 1816 Fremont Av.  
 N.  
 Wright, James Edw., Grant-Portland  
 Hotel  
 Yahr, Cora, 2914 Bloomington Av.  
 Young, Roy A., 1610 W. Franklin  
 Young, Walter B., 143 Bedford  
 Zeidler, J. F., 1912 Hamline Av.  
 Zickrick, Theo., 214 Oak Grove

## ST. PAUL

Ahrens, Herbert, 530 Capitol Blvd.  
 Aynsley, Catherine A., 358 Pleasant  
 Av.  
 Baker, Mrs. E. Dorothy, 642 Ashland  
 Av.  
 Bassford, M. Hannah, 461 Iglehart Av.  
 Behrens, Marie, 539 Laurel Av.  
 Bennett, Mrs. J. Albert, 2013 Selby  
 Av.  
 Berkheimer, Bessie, 2228 Dayton Av.  
 Bragg, Goldye, Hillcrest Apts., So. St.  
 Paul  
 Brahy, Lou, 856 Duluth Av.  
 †Brotten, A., 1021 Charles St.  
 Bucklin, Mrs. C. A., 642 Ashland Av.  
 Buell, Irene L., 1528 Laurel Av.  
 Burch, Mrs. Katherine, 754 Linwood  
 Place  
 Burns, Maria, 999 Portland Av.  
 Burns, Mary Ray, 1857 Laurel Av.  
 Burns, Mrs. W. T., 1857 Laurel Av.  
 Carling, Kathleen, 841 Portland Av.  
 Carling, Marion, 841 Portland Av.  
 Daily, Gertrude B., 1901 Goodrich Av.  
 Daly, Elizabeth, 722 E. 5th St.  
 Davies, Margaret, 149 W. Summit Av.  
 Defiel, Margaret, 913 Laurel Av.  
 Dion, Anna C., 553 Orleans  
 Doermann, Marie, 1907 Marshall Av.  
 Dorsey, Elizabeth W., 459 Portland Av.  
 Drake, Marian, 109 W. College Av.  
 Easterbrook, Pearl, 457 Laurel Av.  
 Egan, Anastasia, 872 Hague Av.

Erickson, Statie, 2226 Scudder St.  
 Ferrey, Grace, 1750 Stillwater Av.  
 Fitzgerald, Teresa G., 1309 7th St. S.  
 E., Minneapolis  
 Friend, Vera, 2057 Lincoln  
 Gaughan, Sarah, 301 Dayton Av.  
 Geraghty, B. A., 308 Como Av.  
 Ginsberg, Daisy, 1744 Laurel Av.  
 Grant, Mary, 648 Brown Av.  
 Groser, Frank J., c/o N. W. Trust Com-  
 pany  
 Gundlach, Lucy, 870 Laurel Av.  
 Hamilton, Winifred C., 574 Selby Av.  
 Hansen, Gyda S., 1642 St. Anthony  
 Hawthorne, Elizabeth, 201 State St. S.  
 E., Minneapolis  
 Healy, Eva, 875 Hague Av.  
 Herzer, T. O. F., 866 W. Central  
 Hoad, Edna M., 590 Ashland Av.  
 ickler, Lydia Martha, 648 Delaware Av.  
 Janda, Coletta M., Stillwater, Minn.  
 Janes, Mrs. A. L., 588 Grand Av.  
 Jennings, Jennie, 20 Kent St.  
 Jennings, Mrs. Thos. B., 20 Kent St.  
 Jenny, Philomene S., 701 Como Blvd.  
 Jett, Dora C., 434 Laurel Av.  
 John, Augusta, 576 Carroll Av.  
 Johnston, Ida A., 177 Nelson Av.  
 Kearney, Hazel G., 487 Dayton Av.  
 Kueffner, William R., 10 Benhill Road  
 Larpenture, Ethel C., 737 Hudson  
 Lewis, Jennie E., 1757 Dayton  
 Linehan, Agnes, 147 Summit

Linehan, Lenore R., 147 Summit  
 Loomis, E. Gertrude, 591 Ashland  
 Lucius, Pearl G., 1741 Ashland  
 McAllister, Grace, Central School, So.  
 St. Paul  
 McGregor, Della, 118 Western Av.  
 Mahoney, Margaret A., 2170 Marshall  
 Av.  
 Masik, J. H., 193 E. Robie  
 Mason, Sue, 1062 Ashland Av.  
 Maxwell, Olive L., 569 Oakland Av.  
 Miller, Myrtle, 220 6th St. N.  
 Moulton, Charity, 539 Laurel Av.  
 Myers, Sara, 558 Farrington Av.  
 Niedorf, Katherine, 237 St. Albans  
 ††Niedorf, Lillian R., 237 St. Albans  
 Noonan, Dena M., 457 Laurel Av.  
 Norquist, Ernest O., c/o American Nat'l  
 Bank  
 O'Brien, Genevieve, 511 Harrison Av.  
 O'Brien, Minnie M., The Seville, Kent  
 St.  
 O'Halloran, Eline C., 460 Marshall  
 Oas, Edward A., St. Paul Park  
 Ortman, Anna B., 1153 Abell St.  
 Ouellette, C. A., 904 Arkwright St.  
 Palmes, Mary E., 410 Harvard St. S.E.,  
 Minneapolis  
 Powers, Florence, 2029 Grand Av.  
 Prout, Sadie M., 657 Grand Av.  
 Rice, Harry F., 428 State St.  
 Roby, Esperance, 79 W. Congress St.

Roberts, Margaret E., 576 Carroll Av.  
 Rosenholtz, Jennie, 819 Portland Av.  
 Roverud, Ellor, 643 Laurel Av.  
 Rynder, Ethel, 868 Ottawa  
 Salisbury, Marie, 220 6th Av. No., So.  
 St. Paul  
 Schwartz, Frank J., 1031 St. Clair St.  
 \*Schwartz, Henry F., 219 Pleasant Av.  
 Searl, Ethel M., 657 Grand  
 Season, Emeline H., 149 W. Summit  
 Sexton, Catherine, 790 Dayton Av.  
 Sexton, Mary J., 790 Dayton Av.  
 Shodorsky, Sara, 1905 Portland Av.  
 Spear, Mrs. C. T., 931 Marshall Av.  
 Stolpestad, Axel, 445 Wheeler Av.  
 Stundemayer, Adeline, St. Luke's Hos-  
 pital  
 Swan, James D., 283 Bates Av.  
 Synck, Emma, 443 Charles St.  
 Tallman, Corrine, 1168 Ashland Av.  
 Taylor, Mary E., 272 Dayton Av.  
 Thompson, Clara, 223 Dayton Av.  
 Tobin, Florence M., 1753 Marshall Av.  
 Torbenson, Otelia, 1814 Laurel Av.  
 Tresler, Barbara J., 949 Conway St.  
 Tuly, Elizabeth A., 2135 Lincoln  
 Virtue, Ethel Buell, 602 Dayton Av.  
 Wacker, Ruth, 722 Helly Av.  
 Weyer, Renaisie B., 218 Ambient  
 Weibel, E. J., 662 Armstrong Av.  
 Whitney, Maude H., 574 Selby Av.  
 Wind, Kate, 315 N. Snelling

## DULUTH

Alworth, Royal D., 2627 E. 7th St.  
 Bjorje, Oscar B., 1535 Woodland Av.  
 Boak, Joseph Wm., 2126 Jefferson St.  
 Burrows, J. Frank, 1401 E. 2nd St.  
 Callan, William D., 5349 London Road  
 Cant, Kerreth S., 28 S. 21st Av.  
 Clough, David H., 914 E. 1st St.  
 Coffin, Lioral C., 714 16th Av. E.  
 Dunning, Ernest B., 2308 Vermillion  
 Road  
 Forgette, Simon H., 4224 Gladstone St.  
 Grigges, Richard L., 2502 E. 2nd St.  
 Harley, Sydney A., 619 10th Av. E.  
 Hart, James Joseph, 618 N. 3rd Av. E.  
 Hassan, John S., 705 Woodland Av.

Herz, Gregor H., 2301 Vermillion Road  
 Horak, Joseph E., 31 Kent Road  
 Huntley, W. W., 2120 E. 5th St.  
 Kennedy, Laura A., 313 Fidelity Bldg.  
 Lee, Irving W., 2112 E. 4th St.  
 Lynett, Geo. E., 1804 E. 4th St.  
 Matzke, Herman C., 1925 Jefferson St.  
 Medaugh, F. W., Y. M. C. A.  
 O'Donnell, Frank J., 702 Woodland  
 Av.  
 Putnam, Willis A., 1528 E. 4th St.  
 Stack, James Raymond, 306 Sellwood  
 Bldg.  
 Swanstrom, Otto, 2601 W. 3rd St.  
 Welty, Le Roy E., 1915 E. 5th St.

## DEPARTMENT OF BUSINESS INSTRUCTION

## MINNEAPOLIS

Abrahamson, Agnes, 3100 47th Av. S.  
 \*Anderson, C. A. L., 954 Westminster  
 St., St. Paul

Anderson, David, 4001 Girard Av. N.  
 Anderson, H. V., 1706 Washington St.  
 N.E.

- Anderson, Hazel, 3900 4th Av. S.  
 Andrews, Frances E., 245 Clifton Av.  
 Arms, James P., 4121 Columbus Av.  
 Arnold, Walter L., 3751 North Penn Av.  
 Arnott, Mary, 2925 W. 40th St.  
 Aschenbeck, Laura, 731 4th Av. N.  
 Asselin, P. J., 3007 Oakland Av.  
 Auran, Olga, 3715 Bloomington Av.  
 Bailey, H. D., 2423 Central Av.  
 Baker, H. C., 1125 Nicollet Av.  
 Baker, Valdine, 1220 "Soo" Bldg.  
 Bartlett, Elizabeth, 4901 Fremont Av. S.  
 Barton, A. D., 3631 N. Dupont Av.  
 Bauer, Dr. Theo H., 2728 Chowan Av.  
 Beal, Ralph B., 925 17th Av. S.E.  
 ††Beck, Frieda, 1900 3rd Av. S., Apt. 35  
 Becker, A. K., 735 Washington St. N. E.  
 Bennett, Olive E., 4721 Lyndale Av. S.  
 Berg, Harvey D., 1503 E. 22nd St.  
 Berg, Leroy H., 2537 Chicago Av.  
 Berg, Olga K., 2121 E. 22nd St.  
 ††Herrisford, R. J., 3628 Stevens Av.  
 Bigford, Stanley J., First & Security Bank  
 Bishop, Joseph Lane, 2416 Fremont Av. S.  
 Bladis, Harry H., 70 12th St. S.  
 Bliss, Harry, 3521 33rd Av. S.  
 Blumberg, Alex, 815 Laurel Av., St. Paul  
 Boehme, Alma E., 2395 University Av., St. Paul  
 Boehme, Lubin G., 2215 Lyndale Av. N.  
 Bogren, Arthur, 3129 16th Av. S.  
 Bolling, Oscar S., 4047 37th Av. S.  
 Bolstad, Alfred E., 1100 12th Av. S.E.  
 Bonde, Marie Eleanor, 2411 26th Av. S.  
 Booker, A. W., 327 E. 16th St.  
 Borjes, Fred J., 1056 Hague Av., St. Paul  
 Bostwick, Ralph E., 3840 Upton Av. S.  
 Boulay, J. A., 428 S. 8th St.  
 Boyd, Roy Marion, 2117 Knapp St., St. Paul  
 Brancheau, Effie J., 1801 Irving Av. N.  
 \*Bremer, O. W., 354 Concord St., St. Paul  
 Brechley, H. E., 4933 Upton Av. S.  
 Brick, P. L., 4315 Harriet Av.  
 Brittain, A. T., 1617 W. 32nd St.  
 Broker, Florence, 20 E. Franklin Av.  
 ††Brombach, Agnes, 2516 15th Av. S.  
 Brown, Edgar J., 13 Florence Court  
 Brown, Lester G., 13 Florence Court, 10th and University S.E.  
 \*\*Brotten, A., 1021 Charles St., St. Paul  
 Buckette, Edith Marion, 4540 Xerxes Av. S.  
 Calvin, Carl A., 1306 7th St. S.  
 Cameron, C. A., 2326 Grand Av.  
 Carlson, Harold L., 3121 Oakland Av.  
 Carr, F. B., 4130 Nicollet Av.  
 Carroll, Eithne M., 3300 Columbus Av.  
 Cary, Walter E., 2209 Aldrich Av. S.  
 Chaney, Clarence, 4908 Colfax Av. S.  
 Chapman, Albro R., 1001 26th Av. N.E.  
 Chapman, Frank D. W., 3638 Van Buren St. N.E.  
 Chase, R. L., 3137 40th Av. S.  
 Cheney, R. C., 2309 32nd Av. S.  
 Christensen, Emma L., 2614 Irving Av. S.  
 Clancy, James J., 127 W. 15th St.  
 Clapp, Warner H., 1882 Ashland Av., St. Paul  
 Clark, Lem B., 2905 Colfax Av. N.  
 Clifford, Chas. W., 1911 Nicollet Av.  
 Conover, A. R., 1010 23rd Av. N.E.  
 Conover, W. C., 1225 Monroe St.  
 Cook, C. Vivian, 1200 W. Franklin Av.  
 Cooley, May, 3040 Stevens Av.  
 Coulthurst, Licut. A. L., Fort Snelling, Medical Supply Office  
 Coyle, Frank H., 2628 Harriet Av.  
 Cramer, Clarence, 1704 Park Av.  
 Crane, Leroy S., 2843 Bloomington Av.  
 Crawford, C. A., 3429 3rd Av. S.  
 Crawford, Maybelle, 1819 Lyndale Av. S.  
 Cross, Chas. W., 626 16th Av. S.E.  
 Cross, Osborne M., 3326 N. 32nd St.  
 Curtis, E. B., 1608 Clinton Av.  
 Cuzner, Dorothy, 1203 Talmage St. S.E.  
 Dahl, Christine, 1818 Park Av.  
 Dahl, T. A., 3729 Longfellow Av.  
 Dahl, V. F., 1325 Hawthorne Av.  
 Dahlstrom, Carl W., 1118 Dartmouth Av. S.E.  
 Danielson, F. C., 1416 Portland Av.  
 Davis, Gennette G., 717 6th St. S.E.  
 Davis, J. L., 4339 Pleasant Av.  
 Davis, Margaret, 149 W. Summit Av., St. Paul  
 Davis, W. M., 1824 Park Av.  
 Dawson, J. A., 2532 Stevens Av.  
 Dean, A. B., 2017 Garfield Av.

- De Lapp, Leslie, 2001 Western Av.  
 De Leyer, Howard, 3911 Girard Av. N.  
 Dennison, S. Virginia, 20 E. 19th St.  
 Deschene, Excilda, 511 James Av. N.  
 Devereux, Margaret, 1004 19th Av. S.E.  
 Dickson, Joseph M., 1018 19th Av. N.E.  
 Dietrich, Arthur, 819 Newton Av. N.  
 Dillahunt, W. G., 5521 Colfax Av. S.  
 Doe, Richard H., 404 Dewey Av., St. Paul
- Doimer, Arne L., 2011½ S. 6th St.  
 Dorelius, Harold V., 3456 Pillsbury Av.  
 Doughty, Ruth, 217 Walnut St.  
 Dreher, Homer E., 2919 9th St. So.  
 Du Bois, Edward A., 3739 23rd Av. S.  
 ††Dunn, Eva L., 1705 25th Av. N.  
 Dunning, Frances, 2232 Carter Av. St. Paul
- ††Dwinnell, Stanley, 253 Groveland Av.  
 Earenfight, Linnette G., 3634 Dupont Av. N.  
 Ekblad, E. G., 3112 43rd Av. S.  
 Ellinger, William H., Hotel Ogden, 12th and Mary Place  
 Ellis, Mrs. Elizabeth A. 1215 Mary Place  
 Elmquist, Nan C., 356 Pleasant Av., St. Paul
- Elser, L. B., 3641 Park Av.  
 Elson, Webster L., 3300 Clinton Av.  
 Elstad, Christian O., 329 Wilder Av., St. Paul
- Enches, Evelyn L., 2933 1st Av. S.  
 Engstrom, Ellen A., 4031 N. Fremont Av.
- Enos, J. G., 3133 23d Av. S.  
 Erickson, Arthur W., 1834 Fillmore St. N.E.  
 Erickson, Ernest W., 1707 4th St. N.  
 Erickson, J. K., 1670 Ashland Av., St. Paul
- Estling, Signe T., 337 East 15th St.  
 Evans, J. W., 3521 West 28th St.  
 Falkenheuer, Lester W., 2137 Erie Av. W.
- Farr, Frances M., Robbinsdale, Minn.  
 Farrington, Edgar N., 1215 Nicollet Av.  
 Faulian, George E., 3025 29th Av. S.  
 Feigal, Lillian, 2227 Grand St. N.E.  
 Fellows, E. D., 3007 E. Lake St.  
 Fenstad, James N., 1872 Laurel Av., St. Paul
- Ferguson, Beatrice M., Browndale Park, 44th St. and Mackay Av.  
 Ferrian, Walter S., 3552 16th Av. S.  
 Fessler, Edward J., 2014 Dupont Av. S.  
 Finden, Sitona, 1416 Portland Av.
- Fischer, Agnes A., 4011 Garfield Av.  
 Fisher, Edward J., 1430 Adams St. N.E.  
 Fitzsimmons, S. J., 2244 Bryant Av. S.  
 Fobes, Edna L., 2920 1st Av. S.  
 Frank, Genevieve, 3424 Oakland Av.  
 Freund, Mrs. S. E., 2642 Emerson Av. N.  
 Fristedt, Elmer, 2424 7th St. S.  
 Funsett, Harlow G., 3721 Oakland Av.  
 Ganzer, John H., 816 8th St. S.E.  
 Gates, Lloyd R., 593 Laurel Av., St. Paul
- Gensler, Sarah R., 709 Bradford Av. N.  
 George, Mark S., 1017 West 28th St.  
 Gesell, Henrietta, 2042 Portland Av., St. Paul
- Giere, W. I., 3217 Cedar Av.  
 Gjerde, Sigverd, 2303 30th Av. S.  
 Gieman, Walter, 2931 Fremont Av. N.  
 Godfrey, Percy E., 938 15th Ave. S.E.  
 Gordon, Amos J., 2313 Portland Av.  
 Graham, J. L., 300 Aldrich Av. N.  
 Grant, E. E., 3229 17th Av. S.  
 Greenstein, Mary M., 320 Colfax Av. N.  
 Greisen, S. L., 3415 East 40th St.  
 Gronberg, Eric T., 2222 7½ St. S.  
 Groschen, Leonard, 1610 Laurel Av., St. Paul
- Gross, Alice F., 3529 Stevens Av. S.  
 Grossman, Max, 1137 N. Lyndale  
 Grow, H. A., 53 Seymour Av. S.E.  
 Gudmundam, J. S., 1810 Bryant Av. S.  
 Guise, Fred R., 4638 Wentworth Av.  
 Guisen, S. L., 3415 E. 40th St.  
 ††Gustafson, Victoria E., 1311 Chestnut Av.
- Hafstad, Emma B., 828 21st Av. S.  
 \*Hagen, Agnes C., 62 S. Dale St., St. Paul
- Hagg, Arthur D., 3813 1st Av. S.  
 Hague, Norman Ed., 218 E. Grant St.  
 Haldorson, John, 506 Newton Av. N.  
 Halwig, Loren W., 2719 Johnson N.E.  
 Hamilton, Ada, 1613 W. 31st St.  
 Hamm, William P., 183 N. Cleveland, St. Paul.
- Hamrin, Frieda, 2015 Elliott Av.  
 Hanson, Carl, 3243 Colfax Av. N.  
 Hanson, Gertrude, 2121 Colfax Av. S.  
 Hanson, Haakon, 517 Plymouth Av.  
 ††Hanson, Lillian I., 733 E. 16th St.  
 Harris, Sally P., 1786 Hennepin Av.  
 Hartman, Laura J., 2801 W. 28th St.  
 Hartwig, Florence, 1714 Washington St. N.E.
- Harvey, A. J., 107 Spruce Place  
 Harvey, F. B., 624 W. 50th St.

- Haughland, Clifford, 1815 E. 35th St.  
 Hauge, Arthur W., 4052 10th Av. S.  
 Hazel, Stella F., 1626 6th St. S.E.  
 Hawkey, Hollis R., 2308 15th Av. S.  
 Hayes, Leo J., 2616 5th Av. S.  
 Heller, George, 2737 Garfield Av. S.  
 Hengler, Arthur J., 3323 Grand Av. S.  
 Henrickson, George, 304 Walnut St. S.E.  
 Hermanson, Ella S., 1800 1st Av. S.  
 Hermstad, Lief, 1910 Pierce St. N.E.  
 Hernlund, Kermit, 1308 S. 8th St.  
 Heywood, C. M., 209 E. 19th St.  
 Hicks, William F., 1820 Stevens Av.  
 Hines, F. W., 83 Bedford St. S.E.  
 Hoak, A. W., 3118 Pleasant Av.  
 Hodge, Melville H., Y. M. C. A.  
 Hogan, Kathryn E., 1710 Stevens Av.  
 Hollingsworth, R., 1107 13th Av. S.E.  
 Holm, Henry S., 3652 34th Av. S.  
 Holtman, Walter, 2119 Chicago Av.  
 Hoskins, Ethel, 1374 Spruce Place  
 ††Hotchkiss, Fred W., 119 State St. S.E.  
 Houston, G. Sidney, Jr., 3128 Irving Av. S.  
 Hoven, J. R., 3200 29th Av. S.  
 Howard, Isabelle, 2122 Portland Av.  
 Howind, Paul W., 1321 Knox Av. N.  
 Huch, Clara M., 715 Western Av.  
 Huebner, Elsa, 622 Plymouth Av.  
 ††Huffman, H. H., 2325 Grand Av.  
 Hughes, William H., 1214 E. 28th St.  
 Hurwitz, Yetta, 61 Highland Av.  
 Huseby, M. L., 3011 37th Av. S.  
 Huttner, F. A., 914 Chamber of Commerce  
 Iverson, Thora, 4133 Colfax Av. S.  
 Jackson, Agnes A., 3122 20th Av. S.  
 Jaekel, Gus C., 1508 10th Av. S.  
 Jarboe, G. F., 3348 Colfax Av. S.  
 Jensen, Ernest W., 3400 Elliott Av.  
 Jerde, Ida M., 124 W. Grant St.  
 Johanson, Waldemar, 1424 6th St. S.E.  
 Johns, Frank W., 1810 Bryant Av. S.  
 Johnson, Arthur C., 3417 Oakland Av.  
 Johnson, Arthur R., 2932 Clinton Av.  
 Johnson, Edna M., 1920 3d Av. S.  
 Johnson, Esther, 2923 Emerson Av. N.  
 Johnson, Evan M., 3027 Humboldt Av. N.  
 Johnson, Gerald A., 2214 28th Av. S.  
 Johnson, Ida B., 3824 Chicago Av.  
 Johnson, John F., Box 63, Robbinsdale, Minn.  
 Johnson, Leander H., 1115 Harmon Court  
 Johnson, Lillian P., 2911 N. Lyndale Av.  
 Johnson Mabel A., 2215 Russell Av. N.  
 Johnson, Mary, 2712 Aldrich Av. S.  
 Johnson, Minnie M., 3530 Elliott Av.  
 Johnson, Mrs. R. D., 2220 Irving Av. S.  
 Johnson, Robert C., 743 Buchanan St. N.E.  
 Johnson, Russell, 3135 18th Av. S.  
 Johnson, Russell O., 52 S. 7th St.  
 Johnson, W., 1076 25th Av. S.E.  
 Johnson, Will R., 4525 York Av. S.  
 Johnston, Harry S., 4529 Beard Av. S.  
 Jones, David A., 2413 1st Av. S.  
 Jones, David Thos., Hotel Ogden, Mary Place and 12th St.  
 Jones, Robert E., 3033 Harriet Av.  
 Jorgenson, Louise E., 1822 11th Av. S.  
 Julicher, George F., 3153 15th Av. S.  
 Jungquist, Hannah, 414 Penn Av. N.  
 Kaufmann, Mildred P., 2717 Colfax Av. S.  
 Keenan, James H., 2406 16th Av. S.  
 Kelliher, Irene M., 1335 Vine Place, Apt. 319  
 Kerker, Thomas, 1250 Capitol Av., St. Paul  
 Kettle, Thos. Hugh, 2911 James Av. S.  
 \*Kilby, Erminie, 1819 Marshall Av., St. Paul  
 Kindseth, E. L., 1424 6th St. S.E.  
 King, Grace E., 914 E. 19th St.  
 King, S. E., 2912 Fremont Av. N.  
 Kittelsen, Olga, 1612 Stevens Av.  
 Kittelson, Clyde E., 1820 Park Av.  
 Kjelsberg, Clara A., 3824 Chicago Av.  
 Knopke, Herman, 2651 Polk St. N.E.  
 Koch, A. J., 1115 Adams St. N.E.  
 Krafne, Fred O., 1415 10th Av. S.  
 Lamb, Ruth J., Wayzata, Minn.  
 Lang, Frank R., 2418 Bryant Av. N.  
 Larsen, A., 1115 Aldrich Av. N.  
 Lazerowitz, J., 519 Emerson Av. N.  
 Lebeis, Clara F., 100 E. 16th St.  
 Lee, Fred E., 1501 8th St. S.E.  
 Lee, J. A., 5048 42d Av. S.  
 Lee, William S., 4432 Upton Av. S.  
 Le Faire, Edgar F., 4147 Pleasant Av.  
 Lembeck, Anna E., 2915 W. 44th St.  
 Lengfeld, Fred, 938 Gaultier St., St. Paul  
 Lent, Dr. Erwin, 3914 Aldrich Av. N.  
 Lerner, Aaron H., 516 Fremont Av. N.  
 Leverentz, Carl F., 55 Williams Av. S.E.  
 Liljenstrom, Wm. J., 914 W. 36th St.

- Lillibridge, F. L., 3412 32d Av. S.  
 Lillo, Lesa C., 2316 Pierce Av., St. Paul  
 Linde, Hildur C., 2526 Emerson Av. S.  
 Lindholm, C. M., 1404 Spruce Place  
 Lindquist, H. C., 3725 Colfax Av. S.  
 Lindquist, Martin J., 2217 Locust St.  
 Linner, Hulda, 2018 Milwaukee Av. S.  
 Luikart, C. K., 4143 Russell Av. N.  
 Lukens, Effie M., 3829 Stevens Av.  
 Lund, Ledyer M., 3842 N. 6th St.  
 Lundeen, Mabel E., 1423 Washington St. N.E.  
 Louthan, Louise C., 904 3d Av. S.  
 McConoughey, Edward M., 266 Curtis Court  
 McConoughey, Mrs. Edward M., 266 Curtis Court  
 McCulloch, Roderick K., Y. M. C. A.  
 McCullough, J., 1360 Spruce Place, Flat 13  
 McElroy, Robert, 3012 Dupont Av. S.  
 McGlynn, James T., 1415 17th Av. N.  
 McInnis, T. A., 1229 Hennepin Av.  
 McKenna, Ethel M., 268 20th Av. S.  
 McKinnon, N. P., 1104 E. 36th St.  
 MacMahn, William Henry, 2641 Dupont Av. S.  
 McMillen, Alice C., 2724 Humboldt Av. S.  
 McNulty, B. Muriel, 967 14th Av. S.E.  
 Magnuson, Mabel G., 1116 14th Av. S.E.  
 \*Magcon, Richard Henry, 3447 Lyndale Av. S.  
 Maitrejean, E. A., 1302 W. Minnehaha Av., St. Paul  
 Martin, J. M., 2642 Girard Av. S.  
 Martinson, Clara, 306 Curtis Court  
 Mathews, A. A., 914 W. Lake St.  
 May, Margaret G., 2311 Elliott Av.  
 Meghen, Angela, 1524 Girard Av. N.  
 Melamed, Arthur C., 867 Iglehart Av., St. Paul  
 Merry, O. M., Hotel St. Regis  
 Millar, Jessie, 4051 Pillsbury Av. S.  
 ††Mitchell, Morris B., 253 Groveland Av.  
 Mitchell, Raymond, 3800 3d Av. S.  
 \*Moak, Floyd R., 2630 Territorial Road, St. Paul  
 Moe, Emil S., 3412 10th Av. S.  
 Moore, Lillian Marguerite, 1915 Columbus Av.  
 Morrison, R. L., 119 W. 15th St.  
 Mulcahy, Thos. R., 2545 Dupont Av. S.  
 Mullen, Melda V., 2617 3d Av. S.  
 Murnane, J. Ross, 3615 Park Av.  
 Murray, Lillian, 1721 Portland Av.  
 Murray, Olive, 1721 Portland Av.  
 Myers, Genevieve E., 2501 Bryant Av. S.  
 Nash, Ada B., 511 University Av. N.E.  
 Nauman, Richard, 89 Ash St.  
 Nelson, Arthur, 2711 Oliver Av. N.  
 Nelson, Clarence, Northwestern Nat'l Bank  
 Nelson, Clifford E., 2432 Chicago Av.  
 Nelson, Harold, 4512 E. Lake St.  
 Nelson, Harry E., 1439 Lafond St., St. Paul  
 Nelson, Oscar Rudolph, 1509 10th av. S.  
 Neumier, Chester J., 3820 Garfield Av.  
 Neville, James E., 4237 France Av. S.  
 Nevin, Genevieve M., 3424 Oakland Av.  
 Newcomb, A. L., 2736 Chowen Av. S.  
 Niemackl, W. E., 3441 Portland Av.  
 Nietno, Rose, 1608 Hawthorne Av.  
 Nimerfroh, G. B., 3740 Bryant Av. S.  
 Nolan, Agnes B., 1788 Hennepin Av.  
 Nolan, J. A., Jr., 2512 Chicago Av.  
 Nordby, Anna, 3054 15th Av. S.  
 Nordstrom, Maurice, 3844 13th Av. S.  
 Nott, H. H., 1115 E. 37th St.  
 Oberg, Ezra N., 2210 Polk St. N.E.  
 O'Keefe, Allan J., 1012 17th Av. N.  
 Olsen, T. J., 4042 Girard Av. N.  
 Olson, Chas. E., 1228 4th St. S.E.  
 Olson, Florence M., Northwestern National Bank  
 Olson, Marion, 1680 Hennepin Av.  
 Olson, Roy Edward, 1404 E. 27th St.  
 Opsahl, May P., 2831 Chicago Av.  
 Oreckorsky, Max, 1423 Girard Av. N.  
 Osborn, J. A., 2414 Como Av.  
 Parcelle, Wesley H., 1918 Clinton Av.  
 Parsons, Wilfred D., 4217 Bryant Av. S.  
 ††Paulson, Myrtle M., 1113 E. 22d St.  
 ††Peabody, Edward M., 2905 Irving Av. S.  
 Pearl, Oakley W., 3113 16th Av. S.  
 Pederson, Meta C., 3424 19th Av. S.  
 Person, Joseph, 1216 Humboldt Av. N.  
 Peterson, A. C., 923 26th Av. S.  
 Peterson, E. G., 1823 25th Av. N.  
 Peterson, Flora, 2626 Cedar Av.  
 Peterson, Klara V., 2016 28th Av. S.  
 Peterson, Lester P., 3252 Girard Av. N.  
 Peterson, Nellie, 2724 Oakland Av.  
 Peterson, William E., 2621 3d Av. S.  
 Petterson, E. W., 4219 Pleasant Av.

- Phillips, Grace C., 1686 Capitol Av.,  
St. Paul
- Pittorf, Albert T., 230 E. Mainzer St.,  
W. St. Paul
- Folazak, Matilda, 923 Marshall St. N.E.
- Porter, R. A., 2103 Crystal Lake Av.
- Potter, J. R., 1520 Hawthorne Av.
- Pratt, Geo. C., 230 Security Bldg.
- Preston, Frank S., 2214 Bryant Av. S.
- Prisch, H. W., 4428 Beard Av. S.
- Puccio, Vito, 430 Fillmore N. E.
- Radeck, Esther, 3744 Garfield Av.
- Raiche, F. H., 1422 19th Av. N.
- Reak, Lawrence D., 3144 Clinton Av.
- Remole, Arthur H., 2404 13th Av. S.
- Rendell, Harry C., 2881 Irving Av. S.
- Rich, Williston C., 2400 Irving Av. S.
- Richard, Hermina, 3513 Bryant Av. S.
- Richert, Paul M., 1822 Vine Place
- Rickel, Francis J., 4629 Fremont Av. S.
- Riggin, Geo. H., 4244 Linden Hills  
Blvd.
- Ringham, Fred E., 4105 West 45th St.
- Risinger, Dean J., 217 Pleasant Av.,  
St. Paul
- Ritchie, Cyrus H., 4618 Pillsbury Av.
- Robbins, Frank F., 180 W. University  
Av., St. Paul
- Roberts, Dorothy, 1815 1st Av. S.
- Robertson, Burton J., 10 Sidney Place  
S.E.
- Robinson, John, 1312 7th St. S.E.
- Rochat, J. B., 1938 Hayes St. N.E.
- Rochat, Sadie, 1938 Hayes St. N.E.
- Roehl, Catherine, 2011 N. 3d St.
- Rose, L. V., 325 W. 54th St.
- Rosenberger, Viola G., 1728 4th St.  
N.E.
- Rothsten, Rilla, 1365 Spruce Place, Apt.  
35
- Rundell, E. A., 3432 Holmes Av. S.
- Rush, Clara, 1723 Elliott Av.
- Rush, John D., 4000 Linden Hills Blvd.
- Russell, M. B., 3240 46th Av. S.
- Ruths, C. H., Y. M. C. A.
- Rutkowski, Eugene, 306 Fremont Av.  
N.
- Ryan, Ruth Gertrude, 3624 Lyndale Av.  
S.
- ††Ryberg, Anna Beatrice, 1480 N.  
Snelling Av., St. Paul
- Rychman, Joseph, 2644 30th Av. S.
- Rydell, Joseph, 2617 4th Av. S.
- Rye, Carlton D., 1407 Girard Av. N.
- Sadowsky, Marion W., 1822 4th St.  
N.E.
- Sandahl, Harold E., 1335 Vine Place
- Sandberg, C. Roger, 602 Essex St. S.E.
- Sandgren, Arthur N., 4237 Dupont Av.  
N.
- Scharf, Elmer J., 3237 Grand Av.
- Schmal, George P., 1786 Hennepin Av.
- Schoch, Fred J., 619 Cherry St., St.  
Paul
- Schumacher, Raymond E., 1212 Yale  
Place
- Schultz, Henry F., 34 Spruce Place,  
Apt. 7
- Scudder, Geo. M., 909 Gould Av. N.E.
- Searles, C. E., 131 W. 36th St.
- Season, H. J., 4 E. 14th St., Apt. E-1
- Segal, Harold L., 534 Aldrich Av. N.
- Semans, Ernest, Y. M. C. A.
- Shattuck, Irwin E., 3243 Garfield Av.
- Shimada, George F., 1118 Harmon  
Place
- Silberman, Sara, 2422 Chicago Av.
- Siblen, Mabel M., 3113 2d St. N.
- Siiik, Harry L., 41 27th Av. S.E.
- Sill, Jeannette, 1335 Vine Place.
- Sinclair, A. K., 1815 S. Humboldt Av.
- Skog, Frank A., 4033 Garfield Av. S.
- Smith, Clarence B., 1616 7th St. S.E.
- Smith, C. Frances, 2222 Nicollet Av.
- Smith, Anabel B., 5416 Stevens Av.
- Smith, Irene F., 89 S. 7th St.
- Snoddy, Lillian E., 1524 Laurel Av.
- Snyder, Helen, 600 11th Av. S.E.
- Solsten, Benjamin O., 2909 E. 50th St.
- Sorensen, Grace, 1913 Dupont Av. S.
- Spector, David S., St. Paul Athletic  
Club, St. Paul
- Stattine, Myrtle, 907 E. 15th St.
- Stanford, Lawrence, 3217 Irving Av. S.
- Stark, Linden, 1310 Jefferson St. N.E.
- Starks, Claude F., 4117 3d Av. S.
- Steadman, C. G., 959 24th Av. N.E.
- Steele, Violet, 4256 Upton Av. S.
- Stenson, A. G., 2512 14th Av. S.
- Stephens, Stella M., 920 8th Av. S.
- Stewart, Alvin, 3706 Quincy St. N.E.
- Stiles, William D., 2640 15th Av. S.
- Storlie, Meda, 13 Marquette Av.
- Styles, Wesley, 1465 Chelmsford. St.  
Paul
- Sulflow, R. F., 622 S. 9th St.
- Sullivan, Helen E., 934 Cromwell, St.  
Paul
- Sundby, Melvin, 1912 S. 8th St.
- Swaggert, Hazel R., Wayzata, Minn.
- Swanson, Harry O., 4316 Lyndale Av.  
S.
- Swanson, Reuben W., 4230 Nicollet Av.
- Swanson, Willard N., 4949 29th Av. S.



- Tausey, Bessie, 412 E. 15th St.  
 Taylor, Olive P., 3217 Irving Av. S.  
 Teige, Arnold, 3419 Cedar Av.  
 Thayer, R. O., 1915 2d Av. S., No. 6  
 Thompson, Chas. S., 741 E. 24th St.  
 Thompson, Gilbert R., 4618 Pillsbury Av.  
 Thompson, Roy E., 4728 Wentworth Av.  
 Thomson, Clara F., 511 Beacon St. S.E.  
 Thuras, H. C., 1520 1st Av. S.  
 Thyberg, Helen M., 114 W. Lake St.  
 Took, Jessie, 229 8th Av. S.E.  
 Toomey, J. J., 1458 Breda St., St. Paul  
 Turner, Walter H., 3224 Oakland Av.  
 Tyssee, Arnold, 1029 8½ Av. N.E.  
 Uhl, A. W., 312 Palace Bldg.  
 Van Selus, Vera, 3124 E. 25th St.  
 Venie, Irwin, 2826 W. 43d St.  
 Walburg, Emma M., 1823 10th Av. S.  
 Waldo, Earl A., 3003 Holmes Av. S.  
 Wallraff, William, 1096 Kilburn St., St. Paul  
 Ward, Henry C., 75 N. 17th St.  
 Warrick, Ethelbert, 3624 1st Av. S.  
 Waskey, George, 627 Oak St. S.E.  
 Watts, Jeanne M., 2218 Irving Av. N.  
 Watson, W. M., 810 W. 34th St.  
 Wegfoos, R., 304 Walnut St. S.E.  
 Weis, Lorene, 2121 Hennepin Av.  
 Weiske, Carl F., 999 Central Av.  
 Weisenberger, Albert L., 2541 Chicago Av.
- Weitzel, E. Frederick, 5152 Washburn Av. S.  
 Wells, Katherine, 1346 Raymond Av.  
 West, Nellie M., 2807 17th Av. S.  
 Wickman, Edward W., 2421 Girard Av. S.  
 Will, Fred L., 1801 Vine Place  
 Wilson, George L., Hennepin and 11th St.  
 Wilson, William C., 812 Washington Av. S.E.  
 Wing, Mrs. Carolyn, 3032 Minnehaha Av.  
 Wingblade, Alfred, 1311 Adams St. N.E.  
 Wold, Bergliot S., 1623 11th Av. S.  
 Wolff, Walter E., 914 Beech St., St. Paul  
 Wood, George B., 3144 Clinton Av.  
 Woodruff, R. A., 3145 Clinton Av.  
 Worum, T., 1920 Roblyn Av., St. Paul  
 Wright, Ethel J., 3220 Grand Av. S.  
 Wright, W. W., 2805 19th Av. N.  
 Yahn, Otto E., 3641 Elliott Av.  
 Young, P. A., 2322 Lincoln St. N.E.  
 Youngquist, Karin, 3312 2d Av. S.  
 Zikan, Joseph W., 476 Herschel Av.  
 Zimmerman, Helen, 3015 1st Av. S., Apt. 6  
 Zimmerman, H. L., 3236 Columbus Av.  
 Zimmerman, John P., 3014 15th Av. S.  
 Zwich, Willard E., 1602 N. Emerson Av.

## ST. PAUL

- Abel, George J., 783 Aurora  
 Ackerson, L., 359 E. Geranium  
 Albert, Victor H., 252 Charles St.  
 Altman, Philip, Room 539, Y. M. C. A.  
 †Anderson, C. A. L., 954 Westminster  
 Auger, Amy M., 69 W. Congress St.  
 Bergquist, W. J., 729 Case St.  
 †Bremer, O. W., 354 Concord St.  
 Buckham, Clifford, 2944 43d Av. S., Minneapolis  
 Carpender, Charles H., 1773 Goodrich Av.  
 Casey, Florence Marie, 501 North St.  
 Conklin, O. J., 1632 Sherburne Av.  
 Copeland, Winfield Leslie, 453 Whitall St.  
 Cramsie, Russell E., 460 Aurora Av.  
 Cress, Mrs. Ruth E., 483 Marshall Av.  
 Demers, Josephine A., 441 Strykel  
 Doran, Laurence, 1495 Sherburne Av.  
 Dunivon, Nellie M., 1938 Laurel Av.
- Dwyer, Joseph M., 191 Stevens St.  
 Epstein, Israel, 429 Winslow Av.  
 Farley, Harold, 898 Cromwell Av.  
 Flanagan, Henry, 2041 Selby Av.  
 Fleming, Margaret A., 538 Dayton  
 Gallagher, Leigh J., Y. M. C. A.  
 Galvin, Nellie, 144 Nina  
 Gates, Edgar B., 1846 Carroll Av.  
 Gaumnitz, Fred, 22 Nourse  
 Goldman, Carl L., 1828 Portland Av.  
 Gothe, Oscar E., 655 Case St.  
 Grove, Ralph H., 1398 Breda St.  
 Hagen, Agnes C., 1377 Lincoln Av.  
 Hagenbeck, Max, 1879 Feronia Av.  
 Hammond, R. E., 600 Holly Av.  
 Harding, Arthur R., 410 Iglehart Av.  
 Hayes, H. J., 1999 Ashland Av.  
 Heard, S. E., Macalester College  
 Heimbach, E. M., 1299 Lincoln Av.  
 Herrick, C. A., 2172 St. Anthony  
 Herseth, Oscar A., 947 Sylvan St.

Higgins, Mary, 225 Arundel, No. 5  
 Hoffman, Florence, 1178 Ashland Av.  
 Hogan, Zita, 79 W. Summit Av.  
 Hoklas, H. W., 1408 Hythe St., Apt. 7  
 Horcish, F. R., 17 Wilken  
 Hultman, T. W., 660 Case St.  
 Jacobson, John A., 1315 W. Minnehaha  
 Jirik, Adolph A., 981 Margaret St.  
 Johnson, Ervin R., 1697 Edgerton St.  
 Johnson, Richard A., 971 Fuller Av.  
 Kadela, A. L., 389 View St.  
 Kaese, Albert A., 356 Bates Av.  
 Karschnia, Paul T., 1656 E. 4th St.  
 Kaupp, Kenneth G., 1752 Laurel Av.  
 Kennedy, Daniel, 1296 Hague Av.  
 †Kilby, Erminie, 1819 Marshall Av.  
 Le Borius, William, 721 E. 4th St.  
 Lewis, James D., 923 De Soto St.  
 Ley, Raymond H., 233 Nelson Av  
 Lovdahl, Victoria, 233 W. 5th St.  
 Lyman, Arthur, 653 York  
 McDonnell, E. T., First National Bank  
 McHugh, John B., 101½ W. 7th St.  
 McKay, Gordon J., 1212 Margaret St.  
 McKenzie, Edith, 347 Chestnut St.  
 †Magoon, R. H., 3447 Lyndale Av. S.,  
 Minneapolis  
 Melamed, Maurice L., 867 Iglehart  
 Miner, George, 201 Goodrich  
 †Moak, Floyd R., 2630 Territorial Road  
 Murphy, Rose, 538 Dayton Av.  
 Nash, C. R., 616 Cherokee Av.  
 Nelson, Hugo E., 1784 Carroll Av.  
 Peter, E. W., 906 St. Clair St.  
 Picha, Frank J., 891 Raymond Av.  
 Pierce, George B., 600 Holly Av.  
 Rasmussen, Gustav C., 217 Pleasant  
 Av.  
 Rasmussen, Walter H., 299 N. Snelling  
 Ruth, Augustin M., 2090 Niles St.  
 St. Martin, Isabelle, 211 W. 6th St.  
 Schaffhausen, N. M., 230 Aurora Av.  
 Scharff, Edward W., 367 Sherburne  
 Schilling, Louise, 754 St. Anthony  
 Schulte Bernard, 810 Margaret St.  
 Schwartz, Mary, 1031 St. Clair St.  
 \*\*Schwartz, Henry F., 217 Pleasant  
 Av., Flat 7.  
 Scoville, Melvin J., 1231 Raymond Av.  
 Siep, Charles A., 1842 Laurel Av.  
 Stoffel, Jos. C., 985 E. 5th St.  
 Stone, George, 715 Jessamine St.  
 Sullivan, Josephine, 538 Dayton Av.  
 Thomas, Leo J., 673 Iglehart Av.  
 Throdahl, Elizabeth, 79 East Summit  
 Treibel, Emma A., 404 Winslow Av.  
 Tvedt, Laurence A., Room 511, Y. M.  
 C. A.  
 Vars, R. L., 421 Fuller Av.  
 Wangerin, Raymond H., 888 Thomas

## DULUTH

Anderson, Anna, 1217 E. 3d St.  
 Anderson Hannah, R. F. D. No. 2,  
 Box 21  
 Anderson, Oscar A., 631 E. 5th St.  
 Aune, Alma N., 129 N. 24th Av. W.  
 Bateman, L. W., 929 W. 9th St.  
 Benz, J. L., 2 Munger Terrace  
 Boden, Ernest A., 2952 Exeter St.  
 Cameron, Albert D., 107 W. 4th St.  
 Carlson, Ida T., 907 Alworth Bldg.  
 Chisholm, Joseph A., 513 First Av. W.  
 Cosgriff, Dan V., 1022 E. 4th St.  
 Crawford, James, 518 10th Av. E.  
 Deighton, J. Denis, 2725 Minnesota  
 Av.  
 Dunlap, Burton E., 2013 Waverly Av.  
 Dunham, Clyde E., 4932 Tioga St.  
 Erickson, Raymond S., 902 N. 57th Av.  
 W.  
 Evans, C. G., 21 E. 6th St.  
 Fayling, Ammon, 2615 W. 5th St.  
 Ferguson, Leonard C., 1021 E. 6th St.  
 Finn, Leo S., 201 E. 2d  
 Gerard, John R., 421 N. 42d Av. W.  
 Gladson, Walter, 111 Park Terrace  
 Greenfield, Walter, 813 E. 1st St.  
 Hanford, D. R., 1418 Jefferson St.  
 Highmark, T. L., 411 N. 59th Av. W.  
 Hopkins, John J., 130 Laurie St.  
 Idzorek, George I., 110 Wolvin Bldg.  
 Johnson, Axel A., 624 Lake Av. N.  
 Johnson, Frederick S., 11 4th Av. E.  
 Johnson, Walter R., 905 E. 5th St.  
 Larsen, N. S., 1221 E. 9th St.  
 Laskowski, Frank S., 215 N. 34th Av.  
 W.  
 Lundberg, Olga, 3808 W. 4th St.  
 Lundgren, Gustaf, 712 Lake Av. S.  
 McCormick, Alice E., 713 N. 18th St.  
 E.  
 McLeod, Clifford R., 626 10th Av. E.  
 McLeod, W. E., 626 10th Av. E.  
 Marjamaa, Jafet, Flat D, 506½ E. 4th  
 St.  
 Mead, C. G., 421 N. 18th Av. E.  
 Meldahl, John D., 901 Grand View Av.  
 Meyer, Morrista, 3823 W. Michigan St.  
 Moeller, John H., 2628 W. 3d St.  
 Morrison, William, 627 Board of Trade  
 Mostue, Erling, 123 E. Union St.

O'Brien, John, 1003 E. 5th St.  
 Olson, Elmer S., 616 N. 56th Av. W.  
 Pearson, Edwin L., 1309 E. 2d St.  
 Peterson, Alvin, 2001 E. 4th St.  
 Pierce, Margaret A., 525 W. 4th St.  
 Potter, A. K., 506½ East 4th St.  
 Pyfer, George, 120 8th Av. E.  
 Ryan, Elizabeth J., 224 W. Wabasha St.  
 Schroeder, Glenn M., American Exchange National Bank  
 Stephens, C. L., 419 18th Av. E.

Thompson, Louis A., 4218 E. Superior St.  
 Toivonen, A. A., 1731 Minnesota Av.  
 Townsend, R. E., 605 Woodland Av.  
 Wheaton, Frank Eli, Apt. 333, 6th St., Morgan Park  
 Walstad, Justin A., 6415 Green St.  
 Weaver, Roger M., 611 West Boulevard  
 Westrom, Henry C., Care Clyde Iron Works  
 Wilhelmson, J. A., 421 First Av. E.  
 Williams, Thomas A., 224 E. 4th St.  
 Zygmanski, John P., 1215 E. 8th St.

## DEPARTMENT OF ENGINEERING INSTRUCTION

## MINNEAPOLIS

Aliperto, Charles, 59 Phalen Creek, St. Paul  
 Ameter, E. A., 364 Sherburne Av., St. Paul  
 Barfus, Jeannette, 863 Clark St., St. Paul  
 Bartishofski, Frank, St. Joseph's Hospital, St. Paul  
 Batzli, O., 222 S.E. 6th St.  
 Behrens, Fred F., 1498 Albany St., St. Paul  
 Belka, C., 308 Webster St., St. Paul  
 Benson, John Reynold, 1130 Beech St., St. Paul  
 Beousch, J. F., 310 Vance St., St. Paul  
 Berkheimer, Effie, 2228 Dayton Av.  
 Berres, Henry Nic, 315 20th Av. N.  
 Blake, Floyd, 2620 14th Av. S.  
 Blum, John, 3105 43d Av. S.  
 Boker, V. A., 88 Arthur Av.  
 Bravo, Toney, 50 Irvin Park, St. Paul  
 Brooks, Jno. Woolson, 1805 1st Av. S.  
 Brorson, Carl A., 1521 10th Av. S.  
 Byrne, Philip J., 859 Sherburne Av., St. Paul  
 Carlson, Carl Verner, 2637 13th Av. S.  
 Carlson, Sexton, 2400 Western Av.  
 Chambard, Margaret, 1501 Park Av.  
 Christianson, S. H., 2321 Butler Place  
 Clark, G. W., 1125 James St., St. Paul  
 Clark, Rose A., 1400 Yale Place  
 Coles, James A., 3637 12th Av. S.  
 Copp, Robert W., 1239 Edmund St., St. Paul  
 Didion, Vincent, 417 Sinnen St., St. Paul  
 Disney, Donald Chas., 1820 Stevens Av., Apt. 19

Donahue, Thos., 1084 Selby Av., St. Paul  
 Durr, C. Warren, 409 Virginia Av., St. Paul  
 Eck, Lester J., 700 Cromwell Av., St. Paul  
 Edquist, Erich, 1358 Payne Av., St. Paul  
 Elmond, George W., 536 Ashland Av., St. Paul  
 Erickson, Gust, 856 Lawson, St. Paul  
 Erickson, H. C., 171 E. Cook St.  
 Fearing, Thos. R., 199 South St., St. Paul  
 Fellrath, Frank, St. Joseph's Hospital, St. Paul  
 Ferguson, Roy A., 78 Bedford S.E.  
 Flanagan, John B., 1262 Edmund St., St. Paul  
 Fletcher, George C., 34 East Summit, St. Paul  
 Forsman, J. A., 101 E. Dearborn St., St. Paul  
 Frenzel, Hermann M., 450 Fuller Av., St. Paul  
 Frost, E. E., 4421 Zenith Av. S.  
 Goode, Myra A., 65 Clarence Av. S.E.  
 Graham, J. W., 16 Nourse St., St. Paul  
 ††Grant, Mabel K., 204 W. Grant  
 Gustafson, Pier, 713 46th Av. N.  
 Hafner, J. M., 1621 Washington St. N.E.  
 Hall, Carl R., 2105 10th Av. S.  
 Hanson, Gertrude, 2200 Fremont Av. S.  
 Hanson, Ruth A., 2729 Humboldt Av. S.  
 Harding, Frederic T., 1826 Laurel Av., St. Paul

- Harrington, Archie D., 612 6th Av. S.E.
- Henderson, Joe, 354 Dale St., St. Paul
- Hentschell, C. J., 4108 4th Av. S.
- Hobart, Victor, 459 Curtis Court
- Hogan, Earl, 1404 Western Av. N.
- Holman, Henry W., 628 St. Peter St., St. Paul
- James, Mary L., 3906 Thomas Av. S.
- Jandrich, Henry M., 369 Duke St., St. Paul
- Jelmer, Fred M., 1805 2d Av. S.
- Jeppeson, Einair J., R. F. D. No. 2, Hopkins, Minn.
- Johnson, Kenneth A., 385 Clinton, St. Paul
- Johnson, Victor, 368 E. Winifred, St. Paul
- Kirby, George, 482 Dayton Av., St. Paul
- Klingberg, C., c/o Minneapolis Steel & Mach. Co.
- Klingenberg, C. F., 3101 Minnehaha Av.
- Lange, K. C., 548 Dayton Av., St. Paul
- La Mie, William R., 230 Girard Av. N.
- Larson, Edward, 654 E. Jessamine St., St. Paul
- Laub, W. C., 2651 Elliott Av.
- Lindem, Chris J., 3752 3d Av. S.
- Linn, Frank H., 1202 Juno St., St. Paul
- Lundquist, Mrs. M. L., 2219 Taylor St. N.E.
- McCluney, S. G., 265 Selby Av., St. Paul
- McInnis, M. R., 3355 Penn Av. N.
- McQuillan, Jas. A., 505 Selby Av., St. Paul
- Magnuson, Andrew, 882 E. Como Phalen, St. Paul
- Maiser, W. L., 1201 Como Av. S.E.
- Martin, Leo, 3309 University Av.
- Martin, Steve, 1601 Middleton Av., St. Paul
- Martin, Victor C., 776 Case St., St. Paul
- Minuti, Torello J., 441 Virginia Av., St. Paul
- Moldenhauer, L. A., 716 Simon Av., St. Paul
- Moldenhauer, R. C., 320 Sydney St., St. Paul
- Munson, Raymond, 1404 Blair, St. Paul
- Murasko, Joseph, 830 8th Av. S.
- Nelson, Carl W., 608 Lawson, St. Paul
- Nelson, John, 985 Burr St., St. Paul
- Newell, L. T., 731 Fulton St. S.E.
- Nicholson, J. H., 2633 Pillsbury Av.
- Nygren, A., 1029 Reane / St., St. Paul
- Odenbreit, Frank L., 2212 E. 34th St.
- Olseen, Elsie M., 757 8th Av. S.
- Olson, Herman F., 1313 3d St. S.
- Olson, Oscar B., 92 N. Snelling Av., St. Paul
- Overholt, L. E., 2707 Emerson Av. S.
- Parks, Orville, 2633 Pierce St. N.E.
- Patnaude, V. E., 1407 Hague Av., St. Paul
- Pavlecka, Raymond P., 259 Erie St., St. Paul
- Peterson, Harvey Frank, 630 Fillmore St. N.E.
- Pich, Miss L. M., 818 E. 18th St.
- Powers, R. T., 923 Sherburne Av., St. Paul
- Pallman, E., 1009 Como Place, St. Paul
- Ramute, A. J., 2509 Fillmore St. N.E.
- Rath, Harvey, 202 S. 13th St.
- Redeen, John Albert, 411 9th St. S.E.
- Rich, A. L., 189 W. 7th St., St. Paul
- Rodgers, Frederick A., 3645 Park Av.
- Roiger, Joseph, 1280 St. Anthony Av., St. Paul
- Ronning, Adolph, 1018 19th Av. N.E.
- Rose, C. W., 475 University Av., St. Paul
- Ruud, Peter H., 616 19th Av. S.
- Russell, Jno. F., 2322 Jackson N.E.
- Rydell, Maurice G., 832 Pusey Av., St. Paul
- Schmidt, Carl L., 462 Fuller, St. Paul
- Selway, Sidney, 3225 41st Av. S.
- Severson, Carl J., 3607 1st Av. S.
- Sheldin, Clarence E., 7 Orlin Av. S.E.
- Shepherd, William C., 410 Harvard St. S.E.
- Sitter, A. T., 966 Woodbridge Av., St. Paul
- Smith, Aurilla, 1801 Vine Place
- Sommer, Axel J., 2917 Bloomington Av.
- South, Mrs. Lillian A., 1728 4th St. S.E.
- Stevens, Milo F., 1442 W. Lake St.
- Sullivan, Ed. 1615 Girard Av. N.
- Swenson, Arne, 3244 N. 6th St.
- Thompson, Ethel G., 1800 3d Av. S.

Tice, Ethel A., 1815 1st Av. S.

Topper, Alice, 2014 5th Av. S.

Turner, Howard A., 1223 Washburn  
Av. N.

Volker, J. E., 863 Cherokee Av., St.  
Paul

Walker, Neila, 353 Prior Av., St. Paul

Wemer, Robert C., 2487 Long Av., St.  
Paul

Wheelan, James E., 540 Laurel Av., St.  
Paul

White, Wilfred C., 1500 W. Minne-  
haha, St. Paul

Young, Hanna L., 2514 James Av. N.

CORRESPONDENCE COURSES

1919-20

Bulletin not printed for this  
year

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

*The School of Agriculture*  
*Announcement for the Year*  
**1919-1920**



*Vol. XXII No. 36 September 12 1919*

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

*Acceptance for mailing at special rate of postage provided for in section 1103,*  
*Act of October 3, 1917, authorized July 12, 1918*

1919							1920																
<b>JULY</b>							<b>JANUARY</b>							<b>JULY</b>									
Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa			
..	..	1	2	3	4	5	..	..	..	..	1	2	3	..	..	..	..	1	2	3			
6	7	8	9	10	11	12	4	5	6	7	8	9	10	4	5	6	7	8	9	10			
13	14	15	16	17	18	19	11	12	13	14	15	16	17	11	12	13	14	15	16	17			
20	21	22	23	24	25	26	18	19	20	21	22	23	24	18	19	20	21	22	23	24			
27	28	29	30	31	..	..	25	26	27	28	29	30	31	25	26	27	28	29	30	31			
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..			
<b>AUGUST</b>							<b>FEBRUARY</b>							<b>AUGUST</b>									
..	3	4	5	6	7	1	2	1	2	3	4	5	6	7	1	2	3	4	5	6	7		
8	9	10	11	12	13	14	15	8	9	10	11	12	13	14	8	9	10	11	12	13	14		
16	17	18	19	20	21	22	23	15	16	17	18	19	20	21	15	16	17	18	19	20	21		
24	25	26	27	28	29	30	..	22	23	24	25	26	27	28	22	23	24	25	26	27	28		
31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29	30	31	..	..	..	..		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
<b>SEPTEMBER</b>							<b>MARCH</b>							<b>SEPTEMBER</b>									
..	7	8	9	10	11	12	13	..	7	8	9	10	11	12	13	..	..	..	..	1	2	3	4
14	15	16	17	18	19	20	21	14	15	16	17	18	19	20	5	6	7	8	9	10	11		
21	22	23	24	25	26	27	28	21	22	23	24	25	26	27	12	13	14	15	16	17	18		
28	29	30	..	..	..	..	..	28	29	30	31	..	..	..	19	20	21	22	23	24	25		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	26	27	28	29	30	..	..		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
<b>OCTOBER</b>							<b>APRIL</b>							<b>OCTOBER</b>									
..	5	6	7	8	9	10	11	..	..	..	..	1	2	3	..	..	..	..	..	1	2		
12	13	14	15	16	17	18	19	4	5	6	7	8	9	10	3	4	5	6	7	8	9		
19	20	21	22	23	24	25	26	11	12	13	14	15	16	17	10	11	12	13	14	15	16		
26	27	28	29	30	31	..	..	18	19	20	21	22	23	24	17	18	19	20	21	22	23		
..	..	..	..	..	..	..	..	25	26	27	28	29	30	..	24	25	26	27	28	29	30		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	..	..	..	..	..	..		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
<b>NOVEMBER</b>							<b>MAY</b>							<b>NOVEMBER</b>									
..	2	3	4	5	6	7	8	..	..	..	..	..	1	..	1	2	3	4	5	6			
9	10	11	12	13	14	15	16	2	3	4	5	6	7	8	7	8	9	10	11	12	13		
16	17	18	19	20	21	22	23	9	10	11	12	13	14	15	14	15	16	17	18	19	20		
23	24	25	26	27	28	29	30	16	17	18	19	20	21	22	21	22	23	24	25	26	27		
..	..	..	..	..	..	..	..	23	24	25	26	27	28	29	28	29	30	..	..	..	..		
..	..	..	..	..	..	..	..	30	31	..	..	..	..	..	..	..	..	..	..	..	..		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
<b>DECEMBER</b>							<b>JUNE</b>							<b>DECEMBER</b>									
..	7	8	9	10	11	12	13	..	..	1	2	3	4	5	..	..	..	1	2	3	4		
14	15	16	17	18	19	20	21	6	7	8	9	10	11	12	5	6	7	8	9	10	11		
21	22	23	24	25	26	27	28	13	14	15	16	17	18	19	12	13	14	15	16	17	18		
28	29	30	31	..	..	..	..	20	21	22	23	24	25	26	19	20	21	22	23	24	25		
..	..	..	..	..	..	..	..	27	28	29	30	..	..	..	26	27	28	29	30	31	..		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		



# CALENDAR

## SCHOOL OF AGRICULTURE

1919-1920

1919

September	29	Monday	First term begins; entrance examinations, registration, payment of fees
September	30	Tuesday	Regular class work begins
November	27	Thursday	Thanksgiving day; a holiday
December	19	Friday	First term closes; Christmas vacation begins 4:30 p.m.

1920

January	5	Monday	Second term begins; entrance examinations, registration, payment of fees
January	6	Tuesday	Regular class work begins
February	12	Thursday	Lincoln's Birthday; a holiday
March	20	Saturday	Second term closes
March	23	Tuesday	Alumni day
March	24	Wednesday	Thirty-first Annual Commencement.

# THE SCHOOL OF AGRICULTURE

## FACULTY

MARION LEROY BURTON, Ph.D., D.D., LL.D., President  
CYRUS NORTHRUP, LL.D., President Emeritus  
ROSCOE W. THATCHER, M.A., Dean of the Department of Agriculture  
DEXTER D. MAYNE, Principal  
RODNEY M. WEST, B.A., Secretary  
GEORGINA L. LOMMEN, Preceptress  
HARRIET W. SEWALL, B.A., Librarian  
FREDERICK J. ALWAY, Ph.D., Chief of Division of Soils  
ARTHUR L. ANDERSON, B.S., Livestock  
PHILIP A. ANDERSON, B.S., Meats  
ALBERT C. ARNY., B.S. in Agr., Farm Crops  
ELIZABETH L. BACON, B.A., Drawing and Design  
LOUIS B. BASSETT, Farm Implements  
WILLIAM A. BILLINGS, D.V.M., Bacteriology  
ANDREW BOSS, Chief of Division of Agronomy and Farm Management  
WILLIAM BOSS, Chief of Division of Farm Engineering  
WILLARD L. BOYD, D.V.S., Veterinary Medicine  
WILFRED G. BRIERLEY, M.S. in Hort., Chairman of Division of Horticulture  
EDGAR B. BROSSARD, M.S., Farm Management  
CARLOTTA BROWN, Millinery  
CLARA M. BROWN, B.A., Textiles and Clothing  
LEROY CADY, B.S. in Agr., Horticulture  
NORRIS K. CARNES, B.S., Animal Husbandry  
EDWARD G. CHEYNEY, B.A., Chief of Division of Forestry  
ESTELLE COOK, Public Speaking  
JOSEPH C. CORT, M.S.A., Dairy Husbandry  
ROBERT C DAHLBERG, B.S., Agricultural Botany  
FRANC P. DANIELS, B.S., Horticulture  
GRACE E. DENNY, B.S., Director of Physical Training  
J. GRANT DENT, Mechanics Laboratory  
JEAN M. DORSEY, B.S., Foods and Home Management  
CHARLES H. ECKLES, M.S.A., D.Sc., Chief of Division of Dairy Husbandry  
HALLY J. FISHER, R.N., Home Nursing  
CLIFFORD P. FITCH, M.S., D.V.M., Chief of Division of Veterinary Medicine  
LLOYD V. FRANCE, M.S. in Agr., Beekeeping  
EDWARD M. FREEMAN, Ph.D., Chief of Division of Plant Pathology and Botany  
CARL W. GAY, D.V.M., B.S.A., Chief of Division of Animal Husbandry  
CORR A. GIERE, Normal Training

- ROSS AIKEN GORTNER, Ph.D., Chief of Division of Agricultural Biochemistry
- EDWIN O. HANSON, Dairy Husbandry
- ELIZABETH HAUSE, B.A., Rhetoric
- MAURICE G. JACOBSON, Drawing
- FRANCIS JAGER, Chief of Division of Bee Culture
- PEDER L. JOHNSRUD, B.S. in Agr., Mathematics
- ALLEN D. JOHNSTON, Blacksmithing
- KATHERINE KESTER, B.A., Rhetoric
- ROBERT C. LANSING, M.A., Chief of Section of Rhetoric
- ALVIN H. LARSON, B.S., Agricultural Botany
- RUTH M. LINDQUIST, B.S., Foods and Home Management
- GEORGINA L. LOMMEN, B.A., Social Training, Normal Training
- GUSTAF A. LUNDQUIST, M.A., Rural Sociology
- FOREST W. MCGINNIS, M.S., Farm Crops
- OLIVE B. MACCOMBER, Textiles and Clothing
- DEXTER D. MAYNE, Parliamentary Law
- MAUDE J. MILLER, B.S., Foods and Home Management
- D. C. MITCHELL, B.S. in C.E., Director of Military Drill and Gymnasium
- MARTHA B. MOORHEAD, M.D., Hygiene and Home Nursing
- GEORGE H. NESOM, B.S., Soils
- THEODORE J. ODLAND, B.S., Farm Crops
- <sup>1</sup> FRANCIS W. PECK, M.S., Farm Management
- ABE PEPINSKY, Music
- WALTER H. PETERS, B.S.A., Livestock
- GEORGE A. POND, B.S., Farm Accounts
- MYRON H. REYNOLDS, M.D., D.V.M., Veterinary Medicine
- WILLIAM A. RILEY, Ph.D., Chief of Division of Entomology and Economic Zoology
- HARRY B. ROE, B.S. in Eng., Drainage and Roads
- ARTHUR G. RUGGLES, M.A., Entomology
- ARTHUR C. SMITH, B.S., Chief of Division of Poultry Husbandry
- JAMES B. TORRANCE, B.S. in Agr., Farm Motors
- HENRY W. VAUGHAN, M.S. in Agr., Animal Husbandry
- ROBERT M. WASHBURN, B.Agr., M.S.A., Dairy Husbandry
- MILDRED WEIGLEY, B.S., Chief of Division of Home Economics
- ANNA P. WENTZ, M.S., Biology
- HALL B. WHITE, B.S. in Agr., Carpentry and Farm Buildings
- JOHN J. WILLAMAN, M.S., Chemistry
- MABEL WILLSON, Piano
- LESLIE V. WILSON, B.S. in Dy. Husb., Dairy Husbandry

<sup>1</sup>Absent on leave 1919-20.

## COMMITTEES

*Executive.*—The Executive Committee of the Department of Agriculture

*Curriculum.*—FITCH, W. BOSS, CLARA BROWN, FIELD, LANSING

*Students' Work and Eligibility.*—BASSETT, P. A. ANDERSON, COOK, DORSEY,  
WHITE

*Enrollment.*—MAYNE, ANKENY, LINDQUIST, LUNDQUIST

*Dormitory and Dining Hall.*—W. BOSS, CADY, GAY, LOMMEN, Matron of  
Boys' Dormitories

*Summer Practice.*—A. BOSS, JOHNSRUD, LUNDQUIST, MAYNE, REYNOLDS

*Entertainment.*—MAYNE, A. BOSS, LOMMEN, Matron of Boys' Dormitories

## GENERAL INFORMATION

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

### HOW TO GET TO THE SCHOOL

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

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

Monday and Tuesday, September 29 and 30, members of the Y. M. C. A. wearing lettered badges will be at the Union Station in St. Paul, and at the Great Northern, Milwaukee and St. Louis Stations in Minneapolis, to meet and direct new students. Take the Como-Harriet or Como-Hopkins car from either St. Paul or Minneapolis, and get off at Doswell Avenue. The dormitories are about a ten minute walk from the car line. Students with a large amount of hand baggage are advised to change to the Inter-Campus Special at Eustis Avenue. This car goes direct to the School, but does not run before 8 a.m., after 6 p.m., or on Sunday.

### TIME OF OPENING AND CLOSING

The School of Agriculture will open Monday, September 29, 1919, and close March 24, 1920. The fall term will close at 4:30 p.m., Friday, December 19, and the winter term will begin Monday, January 5, 1920.

Instruction begins promptly at the opening of each term. Students should be present the first day and remain until the close of the term.

### PURPOSE

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

### ADMISSION

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

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

*Minimum age.*—No student under seventeen years of age will be admitted. Exceptions to this rule may be made in the case of applicants

who have completed one full year of high-school work. Similar exception may be made when no high school is immediately available to the applicant.

*Scholastic preparation.*—Students who have completed eighth-grade work, or its equivalent, in the common schools, are admitted without examination. Each applicant for admission should send to the Secretary for a certificate of admission which when properly filled out by former teacher or superintendent and returned to the Secretary will be accepted in place of entrance examinations. Diplomas should not be sent.

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

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

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

Minimum number of credit hours	
High-school graduate .....	40
Non-graduate—per unit.....	2½
Agriculture—per unit (boys).....	12½
Maximum number of credit hours.....	80

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

#### COURSES OF STUDY

*Diploma (three years) Course.*—The course of study offered covers a wide range of subjects and is largely vocational in character; but provision is made for some instruction in English, mathematics, and other academic subjects. The course is briefly outlined on pages 19 to 22. Instruction is given in the workshop, laboratories, barns, and fields, as well as in the classroom. The course requires three winters of six months each for completion, and is coeducational. The methods of instruction tend to educate students toward the farm instead of away from it and to develop in them a love for farm life by showing them its possibilities. In this respect the School has been very successful, as over eighty per cent of its graduates continue agricultural pursuits.

*Farm Motors (twelve weeks) Course.*—The extensive use of gasoline and kerosene motors on Minnesota farms has created such an intense

interest among young men that it is very necessary that special opportunity be given them to become familiar with the construction of these machines, learn to operate them successfully and be able to judge where motors may be used to advantage. Many of these men are not able to be away from home more than three months. To such men the Farm Motors Course is offered.

This course will be repeated each term of the school year.

Students completing the course are given credit which may be used in the diploma course of the School of Agriculture should they desire to continue with that course.

Admission requirements and provision for special students are the same as for the diploma course. See page 7.

#### HOME PROJECTS

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

The students may have a free choice as to the nature of their projects but are obliged to choose those connected with the class work being taken. Freshmen should select projects connected with freshmen subjects, juniors those connected with junior subjects, etc.

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

During the summer season the work of the student will be inspected two or more times by instructors from the School. The project book must be submitted to the instructors and the home project committee for final approval.

Three credits of home project work is all that any student should attempt to earn in one season. These may be counted toward graduation from the School or, in the event that a student expects to enter the College of Agriculture, it may be used as one credit toward entrance to the College.

#### RULES AND REGULATIONS

##### *Registration*

1. No student will be allowed to register after the second week of the term except by permission of the Students' Work Committee.
2. Unclassed students will be governed by the same rules and will be required to carry the same amount of work as regular students except when excused by the Students' Work Committee.

3. Students who wish to carry three credit hours more or less than the required amount of work must obtain permission from the Students' Work Committee.

#### *Visitors in Classes*

4. Visitors in classes are limited to students registered in the School of Agriculture.

5. All visitors in classes must be registered as such in the Secretary's Office, and such registration will be allowed only on approval of the Students' Work Committee and the instructor concerned.

6. No credit will be given to visitors for attendance in classes.

#### *Cancellation of Registration*

7. No student may drop a subject for which he is registered without the permission of the Students' Work Committee.

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

9. The Students' Work Committee may at any time require delinquent students to cancel a portion of their work.

10. A report of the work of all doubtful and below-grade students is sent to the Secretary's Office at the end of each month.

11. No student will be permitted to graduate who has an unremoved incomplete, condition or failure.

#### *Absences*

12. No student, without a pass from the Principal's Office, will be admitted into any class from which he has been absent.

#### *Classification*

13. In order to be classified as a junior, a student must have not to exceed twelve credit hours less than the required number for the freshman year.

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

15. The following table shows the basis for classification exclusive of each year's requirements for military drill and gymnasium:

Freshman .....	—23
Junior .....	24—65
Senior .....	66—108

#### *Marking System*

16. The passing mark is 65 on the scale of 100.

17. All grades are submitted to the Secretary's Office as A, B, C, D, E, F, or I, or in percentage.

18. The passing grades A, B, C, and D have the following values:

D, 65-73 inclusive; C, 74-82 inclusive; B, 83-91 inclusive; A, 92-100 inclusive.

19. A grade of I (incomplete) represents that the required work of the course has not been completed and that the final mark has not been



determined. An incomplete does not necessarily infer delinquent or below-grade work.

20. An incomplete not removed by Saturday of the fourth week of the following term becomes a condition.

21. Extension of time for the removal of incompletes may be granted by the Students' Work Committee.

22. When a student fails to remove an incomplete within the specified time, or when his deficiency in a subject is such that it may be removed by an examination and such supplementary work (if any) as the department concerned may impose, his grade is reported as E (condition).

23. Conditions may be removed only during the eighth week of the term following that in which the condition was received.

24. When a student fails to remove a condition at the specified time or when his work in a subject is so seriously deficient as to require that the course be repeated in order to obtain credit therein, a grade of F (failure) is reported.

25. Courses for which failures are received must be repeated in class in preference to any advanced work.

#### *Eligibility*

26. Any student who has more than one below-grade mark due to failure, condition, or below-grade work of the current term, will not be allowed to participate in any of the following student activities without special permission from the Students' Work Committee:

(a) Inter-literary society debates; (b) inter-class debates; (c) class or literary society plays; (d) student publications as a board member; (e) athletic contests with other schools and colleges.

#### *Student Organizations*

27. *Registration of organizations.*—All student organizations making use of any of the School buildings must file a statement with the Secretary's Office giving the names of the president, secretary treasurer, and such other information as may be required.

28. *Deposit of fees.*—All organizations collecting fees must deposit the fees with the department Cashier or a responsible Twin City bank, and turn in their books at least once a term to be audited by the Auditing Committee.

29. No class will be allowed to become indebted to the out-going class to such an extent as to make it impossible for them to complete payment from the current funds of the class before the current commencement.

30. Lower class officers must report to the chairman of the Auditing Committee before the end of the first month of the school year, just what indebtedness they are proposing to incur toward the Senior Class and the Agrarian.

31. The Auditing Committee in conference with the Principal has power to limit such indebtedness.

32. *New organizations.*—Any group of students intending to form a new organization should first consult with the Chairmen of the Committees on Entertainment and Auditing.

33. No class party or public entertainment held on the campus for which members of the class shall be held bound in honor to contribute shall be given without previous permission of the Committee on Entertainment. The chairman will furnish application forms which should be filled and returned if possible two weeks before the date of the function.

34. Students desiring a room on the campus for class, society, or committee meetings, or for other purposes should apply to the Secretary's Office.

#### HOME LIFE ON THE CAMPUS

The life of the students while attending the School of Agriculture is subject to supervision. The home life of each student is carefully guarded, and everything is done to promote a healthful and moral atmosphere. The use of tobacco and spirituous liquors of all kinds is strictly forbidden. No person will be permitted 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 promoting a strong moral growth should not come to the School of Agriculture.

#### STUDENTS IN DORMITORIES

The Principal 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 Dean of the Department of Agriculture.

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

#### ASSEMBLY

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

#### HOLIDAYS

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

Lincoln's birthday, February 12, and Washington's birthday, February 22, will be observed as holidays.

#### REQUIREMENTS FOR GRADUATION

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

1. The prescribed course of study, including all of the required work and enough elective work to make a total of 108 credit hours. For boys at least half of the elective credit must be in agricultural subjects.

2. Military drill and gymnasium, 12 credit hours.

3. An honorable standing in department.

4. 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.

5. For young men, a practical experience in field work at the University Farm or elsewhere, as shall appear in reports received from responsible sources.

#### EXPENSES

The necessary expenses for the year do not exceed \$175. This amount does not include traveling and personal expense.

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

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

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

Each student provides four sheets, one pair of blankets, one quilt, one bedspread, one pillow, three pillowcases, towels, napkins, comb and brushes, one glass tumbler, and one teaspoon.

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

Each girl is required to provide two large aprons suitable for the protection of her clothing while working in the foods and cooking laboratory.

For the girls' gymnasium work a uniform suit is required. This should be obtained at the School. All freshman and junior girls will be required to buy the regulation gymnasium shoe sold at the book store.

Each girl should be provided with a kimono or bath-robe, a pair of bedroom slippers, at least four changes of undergarments, night gowns, and hosiery. It is suggested that each girl be provided with a good woolen skirt to be worn with wash waists, one woolen school dress, and a dress suitable for social occasions. Rubbers and umbrella are necessities.

*Free tuition.*—The State will pay the tuition of any student who served in the army, navy, or marine corps of the United States during any war in which the United States has been involved, including members of the National Guard or who, upon the call of the President performed military service outside the borders of Minnesota in any trouble with Mexico and of any student who performed overseas service as a regularly

enlisted full-time worker of the Red Cross, engaged in nursing the sick or assisting in the care of soldiers in any government hospital, field, or camp which service has been officially recognized by the National Government. The amount of this free tuition is not to exceed \$200 for any person and the benefits of this act will not extend beyond July 1, 1924. The amount to be paid in any year will be limited by the legislative appropriation for that year. Application for this free tuition should be made to the Secretary's Office at the time of registration. This applies only to students who at the time of enlistment were citizens and residents of the State of Minnesota.

Tuition includes all of the regular term charges listed below except the deposit, dormitory room, board, gymnasium suit, etc.

#### TABLE OF CHARGES

Tuition fee, per term. Residents of the state.....	\$3.00
Non-residents.....	6.00
Deposit as guaranty for the return of books and other material.....	5.05
Gymnasium fee. Required of every student. Per term.....	1.20
Post-office box fee. Required of those not rooming on the campus.....	.20
Text book fee. For those not desiring to purchase their books. Per term.....	1.25
Health fee. Per term.....	2.00
Room in dormitory. Per term.....	12.00
Board. Per term. (Price subject to change).....	54.00
Laundry. Per term. (Price subject to change.) Required of all in dormitories..	6.00
Gymnasium suit—boys. (Price subject to change).....	2.50
Girls. (Price subject to change).....	3.25
Average cost drawing instruments, notebooks, stationery, and supplies per year.....	\$10.00-12.00

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

	FIRST TERM	SECOND TERM
Student in dormitory (resident).....	\$84.50	79.50
Non-resident.....	87.50	82.50
Day student (resident).....	12.70	7.70
Non-resident.....	15.70	10.70
Not in attendance first term, add \$5.00 to the second term charges given above.		

#### DORMITORIES

Each student in attendance at the School who expects to return the following year and who desires to room in the dormitory will, before going home, make a deposit of \$2 with the Cashier as evidence of good faith that he expects to return on the opening day of the following school year. Dormitory rooms will be assigned to new students in the order in which their applications are received. Each prospective student who desires to room in the dormitory will be required to send a deposit of \$2, which will be returned in case the application is received after all dormitory rooms are spoken for.

In case of either a former student or a prospective student, this two-dollar deposit will be forfeited if the student does not appear for registration on the opening day of the school term, unless he has signified in

writing to the Secretary at least ten days before the opening that he does not intend to return. All money orders or checks should be made payable to University of Minnesota, Department of Agriculture.

Applicants from outside of the state will be accommodated in the dormitories only when all applicants who are residents of Minnesota, and who desire rooms, have been provided for.

#### STUDENT'S HEALTH SERVICE

A health fee of \$2 per term is paid by each student for the maintenance of the Students' Health Service. This entitles the student to physical examination, and medical service and care when needed.

The offices of the Health Service and the Students' Hospital and Dispensary are located in the Boys' New Dormitory, first floor. The services of the hospital and dispensary are available at all hours of the day and night. The telephone call is Midway 1642.

Physicians of the Health Service will be in attendance daily. Their office hours will be announced.

All services to students are absolutely free, and students are urged to consult the Health Service frequently in any and all things pertaining to health.

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

There are three main lines to the activities of the University Health Service. (1) Personal attention, (2) Sanitation, and (3) Education.

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

(a) Provisions for maintaining the health of normal physically sound students. Coöperation with the department of physical education regarding physical exercise. Education along lines of right living. Guarding environment.

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

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

(d) Treatment and care of all students who are ill or in need of medical advice or treatment.

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

2. Division of sanitation: The students' environment must be made as hygienic as possible. Hence this division concerns itself with the sanitary conditions both on and off the campus. Rooming- and boarding-houses must be both inspected and regulated.

3. Education: Finally every student must be made familiar with the fundamentals of both personal and public hygiene. Through courses in this subject, daily bulletins, exhibits, public lectures, etc., education in hygiene and right living will be conducted.

#### STUDENTS' TRUST FUNDS

The Class of 1902 and the Class of 1916 each left with the School a fund of \$100 "to assist by temporary loans, at a reasonable rate of interest, deserving students needing such help, who are not below the junior class in the School of Agriculture." This fund is in charge of a committee consisting of the Dean, the Principal, the Preceptress, and the President of the senior class.

#### THE LUDDEN TRUST

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

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

This fund produces \$400 a year. Those wishing to avail themselves of its benefits should apply to the Executive Committee of the Board of Regents of the University of Minnesota. Application blanks may be obtained from the office of the Dean of the Department of Agriculture.

#### LECTURES AND ENTERTAINMENTS

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

*Students' Christian Association.*—The Young Men's and Young Women's Christian Associations are voluntary organizations which have

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

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

*Minnesota Farm Review.*—The *Minnesota Farm Review* is a weekly owned by the alumni of the School of Agriculture, but operated under the direction of a committee representing the Faculty, the alumni, and the students of the School of Agriculture and the College of Agriculture, Forestry, and Home Economics, and edited by the Division of Publications and Rural Journalism, as laboratory equipment for students in Journalism.

#### LIBRARY

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

The Librarian and her assistants are always ready and glad to give whatever assistance they can, both to those interested in special research work and to those doing regular reference work in connection with their classes. All those wishing to read or study are made welcome and are given whatever privileges the library can provide.

#### ZOOLOGICAL MUSEUM

The Zoological Museum is on the third floor of the Administration Building, connecting with the entomology lecture room. It contains one

of the finest collections of birds in the Northwest, a large series of mammals, shells, anatomical models, etc., all used in class instruction. One case is given up to models of injurious insects. Another case is devoted to a beautiful series of Minnesota fishes, reptiles, and amphibians, and on two sides of the large room devoted to museum purposes are cases containing thousands of pinned insects. Friends of the institution who are inclined to donate zoological specimens may rest assured that they will be properly installed and given the best of care.



## COURSES OF STUDY

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

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

For description of the courses in the following outline see pages 24 to 40.

See page 9 for statement with reference to home project work.

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

Adults desiring a special course should consult the Enrollment Committee.

### DIPLOMA COURSE FOR BOYS

#### FRESHMAN YEAR

<i>Required</i> <i>Fall or Winter Term</i>	<i>Required</i> <i>Winter or Fall Term</i>
Business English, 3(f,w)	English Classics, 3(f,w)
Cereal Crops and Soils, 5(f,w)	Corn, Forage Crops and Potatoes, 5(f,w)
Judging Types and Breeds, 5(f,w)	Farm Horticulture, 3(f,w)
Hygiene and Public Health I, 1(f,w)	*Farm Arithmetic, 4(f,w)
Military Drill and Gymnasium, 2(f)	Hygiene and Public Health II, 1(f,w)
	Military Drill and Gymnasium, 2(w)

\* Not required of those having a High School Board certificate in Arithmetic or its equivalent.

#### ELECTIVES

An average of 22 credit hours (including Military Drill and Gymnasium) is required each term to make up the 120 credit hours for graduation. Enough electives may be selected to make, with the required work above, from 18 to 22 credit hours. Registration for more or less than this amount must first be approved by the Students' Work Committee.

Physiology, 3(f,w)	Elementary Beekeeping, 3(f)
Advanced Farm Arithmetic, 4(f,w)	Advanced Beekeeping, 3(w)
Agricultural Botany, 3(f,w)	Spelling, 1(f,w)
Blacksmithing I, 3(f,w)	Penmanship, 1(f,w)
Carpentry, 3(f,w)	Elements of Music I, 2(f,w)
Farm Motors, 3(f,w)	Elements of Music II, 2(f,w)
Mechanics Laboratory, 2(f,w)	*Violin, ½(f,w)
Electricity and Heat, 2(f,w)	*Piano, ½(f,w)
Drawing and Farm Buildings, 3(f,w)	*Instrumental Music, ½(f,w)
Dairy Barn Practice, 2(f,w)	*Vocal Music, ¼(f,w)
Animal Biology, 3(w)	Orchestra, ½(f,w)
Poultry, 3(f,w)	Chorus, ½(f,w)
Management of Laying Flock, 1(f,w)	

\* A special fee of ten dollars per term is charged for this course.

#### JUNIOR YEAR

<i>Required</i> <i>Fall Term</i>	<i>Required</i> <i>Winter Term</i>
English Grammar, 3(f,w)	Composition I, 3(f,w)
Feeds and Feeding, 3(f)	Milk Production, 5(w)
Military Drill and Gymnasium, 2(f)	Military Drill and Gymnasium, 2(w)

## ELECTIVES

An average of 22 credit hours (including Military Drill and Gymnasium) is required each term to make up the 120 credit hours for graduation. Enough electives may be selected from the following courses and from the freshman year elective courses not previously completed to make, with the required work above, from 18 to 22 credit hours. Registration for more or less than this amount must first be approved by the Students' Work Committee.

Algebra I, II, 14(f,w)	Geometry I, II, 14(f,w)
Pork Production, 3(f)	Seed Testing, 2(w)
Agricultural Physics, 3(f,w)	Care and Marketing of Milk, 4(w)
Commercial Vegetable Gardening, 3(w)	Meats, 2(w)
Industrial History, 3(f)	Elements of Bacteriology, 3(w)
Soil Management and Fertility, 4(f)	Blacksmithing II, 3(w)
Plant Propagation, 3(w)	Incubating and Brooding, 3(w)
Parliamentary Law, 1(f,w)	Chemistry, 5(f)

## SENIOR YEAR

<i>Required Fall Term</i>	<i>Required Winter Term</i>
Public Speaking, 3(f,w)	Composition II, 3(f,w)
Beef Production, 5(f)	Civics, 3(f,w)
Military Drill and Gymnasium, 2(f)	Farm Management, 5(f,w)
	Military Drill and Gymnasium, 2(w)

## ELECTIVES

An average of 22 credit hours (including Military Drill and Gymnasium) is required each term to make up the 120 credit hours required for graduation. Enough electives may be selected from the following courses and from the freshman and junior year electives not previously completed to make, with the required work above, from 18 to 22 credit hours. Registration for more or less than this amount must first be approved by the Students' Work Committee.

Farm Implements, 3(f)	Floriculture, 3(w)
Plant Diseases, 3(f)	Insect Pests of Plants, 3(w)
Commercial Fruit Growing, 3(f)	Hygiene of Breeding Animals, 2(w)
Common Diseases, 5(f)	Breeds and Breeding, 3(w)
Veterinary Studies, 5(w)	Water-supply, Plumbing, Heating, Light- ing, 2(w)
Animal Parasites, 3(f)	Rural Sociology, 3(w)
Elementary Economics, 3(f)	Concrete, 2(w)
English Literature I, 5(f)	Mutton and Wool Production, 3(w)
English Literature II, 5(w)	Farm Horses, 3(f)
Drainage and Roads, 3(f)	Farm Records and Accounts, 3(f,w)
Landscape Gardening, 3(f)	Dairy Stock Feeding, 2(f)
Rural Economics, 3(w)	Dairy Stock Selection, 3(w)
Advanced Public Speaking, 3(f,w)	

## DIPLOMA COURSE FOR GIRLS

## FRESHMAN YEAR

<i>Required Fall Term</i>	<i>Required Winter Term</i>
Biology, 3(f)	English Classics, 3(f,w)
Business English, 3(f,w)	Physiology, 3(f,w)
Foods and Cookery I, 3(f,w)	Foods and Cookery II, 3(f,w)
Garment Making I, 2(f,w)	Garment Making II, 2(f,w)
Drawing and Design I, 1(f,w)	Drawing and Design II, 1(f,w)
Social Training, 2(f)	Physical Training, 2(w)
Personal Hygiene, 1(f)	
Physical Training, 2(f)	

ELECTIVES

An average of 22 credit hours (including Physical Training) is required each term to make up the 120 credit hours for graduation. Enough electives may be selected to make, with the required work above, from 18 to 22 credit hours. Registration for more or less than this amount must first be approved by the Students' Work Committee.

- |                                  |                                    |
|----------------------------------|------------------------------------|
| Farm Arithmetic, 4(f,w)          | Agricultural Botany, 5(w)          |
| Advanced Farm Arithmetic, 4(f,w) | General Agriculture, 3(w)          |
| Domestic Dairying, 3(f)          | Business Forms, 3(f,w)             |
| Elements of Music I, 2(f,w)      | Typewriting I, 3(f,w)              |
| Elements of Music II, 2(f,w)     | Stenography, 3(f,w)                |
| Chorus, ½(f,w)                   | Spelling, 1(f,w)                   |
| *Violin, ½(f,w)                  | Penmanship, 1(f,w)                 |
| *Piano, ½(f,w)                   | Poultry, 3(f,w)                    |
| *Instrumental Music, ½(f,w)      | Management of Laying Flock, 1(f,w) |
| *Vocal Music, ½(f,w)             | Elementary Beekeeping, 3(f)        |
| Orchestra, ½(f,w)                | Advanced Beekeeping, 3(w)          |

\* A special fee of ten dollars per term is charged for this course.

JUNIOR YEAR

*Required  
Fall Term*

- English Grammar, 3(f,w)
- Foods and Cookery III, 3(f,w)
- Dressmaking I, 2(f,w)
- Drawing and Design III, 1(f,w)
- Chemistry, 5(f)
- Physical Training, 2(f)

*Required  
Winter Term*

- Composition I, 3(f,w)
- House Planning and Furnishing, 3(f,w)
- Dressmaking II, 3(f,w)
- Drawing and Design IV, 1(f,w)
- Home Nursing I, 2(w)
- Physical Training, 2(w)

ELECTIVES

An average of 22 credit hours (including Physical Training) is required each term to make up the 120 credit hours for graduation. Enough electives may be selected from the following courses and from the freshman year electives not previously completed to make, with the required work above, from 18 to 22 credit hours. Registration for more or less than this amount must first be approved by the Students' Work Committee.

- |                           |                                |
|---------------------------|--------------------------------|
| Landscape Gardening, 3(f) | Home Gardening, 3(w)           |
| Algebra I, 7(f)           | Incubating and Brooding, 3(w)  |
| Algebra II, 7(w)          | Plant Propagation, 3(w)        |
| Geometry I, 7(f)          | Elements of Bacteriology, 3(w) |
| Geometry II, 7(w)         | Letter Writing, 3(f,w)         |
| Industrial History, 3(f)  | Typewriting II, 3(f,w)         |
| Parliamentary Law, 1(f,w) | Dictation I, 3(f,w)            |

SENIOR YEAR

*Required  
Fall Term*

- Public Speaking, 3(f,w)
- Elementary Dietetics, 3(f)
- Textiles and Millinery, 3(f)
- Civics, 3(f,w)
- Home Nursing II, 2(f)
- Physical Training, 2(f)

*Required  
Winter Term*

- Composition II, 3(f,w)
- Home Management and Household Accounts, 5(w)
- Dressmaking III, 3(w)
- Physical Training, 2(w)

ELECTIVES

An average of 22 credit hours (including Physical Training) is required each term to make up the 120 credit hours for graduation. Enough electives may be selected from the following courses and from the freshman and junior year electives not previously completed to make, with the required work above, from 18 to 22 credit hours. Registration for more or less than this amount must first be approved by the Students' Work Committee.

Elementary Economics, 3(f)  
 English Literature I, 5(f)  
 English Literature II, 5(w)  
 Household Physics, 5(w)  
 Advanced Public Speaking, 3(f,w)  
 Fruit Growing, 3(f)  
 Insect Pests, 3(w)  
 Rural Economics, 3(w)  
 Floriculture, 3(w)

Advanced Millinery, 3(w)  
 Duplicating and Mimeographing, 3(f,w)  
 Filing and Indexing, 3(f,w)  
 Dictation II, 3(f,w)  
 Commercial Law, 3(f)  
 Comptometer Practice, 2(f,w)  
 Business Ethics, 1(w)  
 Rural Sociology, 3(w)

### FARM MOTORS COURSE

See statement under Courses of Study, page 8

The following courses are required of all students in the course and constitute full work. The full course is repeated each term. Students who complete this course may return for additional terms of work in the Diploma Course and apply the credits indicated below on that course.

Farm Motors, 3(f,w)  
 Blacksmithing, 3(f,w)  
 Drawing and Farm Buildings, 2(f,w)  
 Farm Implements, 2(f,w)  
 Business English, 3(f,w)  
 Mathematics of Farm Motors, 4(f,w)  
 Electricity and Heat, 2(f,w)  
 Mechanics Laboratory, 2(f,w)  
 Military Drill and Gymnasium, 2(f,w)

### NORMAL TRAINING COURSE FOR RURAL TEACHERS

A course in training for rural school teaching similar to the courses now offered in the state high schools is open to graduates of the School of Agriculture. The course is in charge of two teachers, covers a period of one summer school of six weeks in the State Teachers' Training School held on the campus and a year of eight months at the University Farm. Fees similar to those in the three-year School course are charged for the eight months' session. The course includes supervised teaching in rural schools, rural school methods, rural sociology, and such other professional and academic subject-matter as will preëminently qualify the students for service in the rural schools of the State.

Seniors in the School of Agriculture who expect to take the training course are advised to select during the senior year in the School, from the elective list, a course in general agriculture suited to the needs of rural school pupils and such other subjects as meet these needs. The summer session provides opportunity for instruction in penmanship and in drawing.

#### *First Term*

Teaching Process  
 English Grammar  
 Arithmetic  
 Reading—Material and Methods of Teaching  
 Primary Occupations  
 Music  
 Gymnasium  
 Observation and Teaching

#### *Second Term*

Country School Management and  
 Country Life  
 Geography  
 History and Civics  
 English Composition  
 Nature Study  
 School Lunches  
 Wood Work and Rope Work  
 Teaching

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

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

## DESCRIPTION OF COURSES

*Explanation of course numbers.*—All courses in the School of Agriculture are distinguished by the capital letter A from collegiate courses offered by the same divisions. The letter *f* indicates fall term courses; the letter *w*, winter term courses. For example, 5f*w* indicates that course 5 is offered both fall and winter terms. 5f-6*w* would indicate a year course continuing through two terms.

### AGRICULTURAL BIOCHEMISTRY

ROSS AIKEN GORTNER, Chief; JOHN J. WILLAMAN.

#### COURSES

No.	Title	Credits	Offered	Prereq. courses
A1 <i>w</i> .	Chemistry.....	5	Jr., sr. boys	None
A3 <i>f</i> .	Chemistry.....	5	Jr., sr., girls	None

A1*w*. CHEMISTRY. The fundamental principles of chemistry necessary for an understanding of common daily phenomena. The scope of agricultural chemistry and the help which the farmer may expect from the chemical laboratories of the state are outlined. WILLAMAN.

A3*f*. CHEMISTRY. Planned to give an understanding of the general principles of chemistry which are of every-day importance. Particular attention is given to human foods, textiles, dyeing, and cleansing agents. WILLAMAN.

### AGRONOMY AND FARM MANAGEMENT

ANDREW BOSS, Chief; ALBERT C. ARNY, LOUIS B. BASSETT, EDGAR B. BROSSARD, FORREST W. MCGINNIS, THEODORE J. ODLAND, FRANCIS W. PECK,\* GEORGE A. POND.

#### COURSES

No.	Title	Credits	Offered to	Prereq. courses
A1 <i>f,w</i> .	Cereal Crops and Soils.....	5	All boys	None
A3 <i>f,w</i> .	Corn, Forage Crops, and Potatoes.	5	All boys	None
A4 <i>w</i> .	General Agriculture.....	3	All girls	None
A11 <i>f</i> .	Farm Implements.....	3	Sr. boys	None
A12 <i>f,w</i> .	Farm Implements.....	2	F. Motors Crse.	None.
A21 <i>f,w</i> .	Farm Records and Accounts.....	3	Sr. boys	None
A22 <i>f,w</i> .	Farm Management.....	5	Sr. boys	Dy. Husb. A1

A1*f,w*. CEREAL CROPS AND SOILS. A brief study of the soil as a plant habitat and of the cereal crops, including the history, culture, judging, uses, and the diseases that commonly affect the crops. ODLAND.

A3*f,w*. CORN, FORAGE CROPS, AND POTATOES. A study of the history culture and judging and preservation of corn and potatoes. ODLAND.

\* Absent on leave, 1919-20

- A4w. GENERAL AGRICULTURE. Soil formation, tillage, and culture. Classes and varieties of cereal and forage crops, their history culture, and use in the provision of food and clothing. Types and breeds of livestock and their place in farming. ODLAND.
- A11f. FARM IMPLEMENTS. Studies and discussions of the selection, operation, and care of farm machinery; also the cost, depreciation, efficiency, and adaptability of the various machines to the work to be accomplished. BASSETT.
- A12f,w. FARM IMPLEMENTS. Similar in outline to Course A11. Special attention given to power driven machinery. BASSETT.
- A21f,w. FARM RECORDS AND ACCOUNTS. Lectures, recitations, and practice in keeping farm records. PECK, POND.
- A22f,w. FARM MANAGEMENT. Farm management, dealing with types of farming, cropping systems, cost of producing farm crops, farm labor, marketing of farm produce, and the general business management of the farm. BROSSARD, BOSS, BASSETT.

## ANIMAL HUSBANDRY

CARL W. GAY, Chief; ARTHUR L. ANDERSON, PHILIP A. ANDERSON, NORRIS, K. CARNES, WALTER H. PETERS, HENRY W. VAUGHAN.

## COURSES

No.	Title	Credits	Offered to	Prereq. courses
A1f,w.	Judging Types and Breeds.....	5	All boys	None
A2f.	Pork Production.....	3	Jr., sr., boys	A1
A3w.	Meats.....	2	Jr., boys	None
A4w.	Breeds and Breeding.....	3	Sr. boys	A1, Vet. A4
A5f.	Beef Production.....	5	Sr. boys	A1
A6w.	Mutton and Wool Production....	3	Sr. boys	A1
A7f	Farm Horses.....	3	Sr. boys	A1

- A1f,w. JUDGING TYPES AND BREEDS. Demonstrations on the types of horses, cattle, sheep, and swine; the origin, identification, and adaptability of the breeds; score card practice and judging. A. L. ANDERSON, CARNES.
- A2f. PORK PRODUCTION. Feeding and management of market and breeding stock, marketing, the pure-bred herd, buildings and equipment, judging, fitting for show and sale. VAUGHAN.
- A3w. MEATS. Lectures, demonstrations, and practice work in dressing, cutting, and curing meats. P. A. ANDERSON.
- A4w. BREEDS AND BREEDING. Livestock improvement and variation, heredity, environment, and selection as factors therein; the breeds, linebreeding, inbreeding, cross-breeding and grading up; the pure-bred sire; pedigree registration; practical breeders problems. GAY.

- A5f. BEEF PRODUCTION. The foundation and management of the beef breeding herd, steer feeding, baby beef, building equipment and labor. Practice in judging and in fitting for sale and show. PETERS.
- A6w. MUTTON AND WOOL PRODUCTION. Practical sheep husbandry, judging, feeding, care, and management of the flock; fattening lambs and growing wool. P. A. ANDERSON.
- A7f. FARM HORSES. Horse labor on the farm, factors influencing a horse's efficiency for work; the feeding and management of the work horse, the brood mare, the stallion, and the colt. CARNES.

## BEE CULTURE

FRANCIS JAGER, Chief; LLOYD V. FRANCE.

## COURSES

No.	Title	Credits	Offered to	Prereq. courses
A1f.	Elementary Beekeeping.....	3	All	None
A2w.	Advanced Beekeeping.....	3	All	A1

- A1f. ELEMENTARY BEEKEEPING. Fundamentals of bee behavior throughout the cycle of the year. Fundamentals of beekeeping practice through the year. Modern equipment for beekeeping practice. JAGER.
- A2w. ADVANCED BEEKEEPING. Production of comb honey, extracted honey, and wax. Bee house, extracting machinery, grading, packing, and selling. Raising bees for market. Increase, moving, uniting, feeding. Bee diseases. Outdoor and indoor wintering. Bee cellars. JAGER.

## DAIRY HUSBANDRY

CHARLES H. ECKLES, Chief; JOSEPH C. CORT, EDWIN O. HANSON, ROBERT M. WASHBURN, LESLIE V. WILSON.

## COURSES

No.	Title	Credits	Offered to	Prereq. courses
A1f.	Feeds and Feeding.....	3	Jr., sr. boys	None
A2w.	Milk Production.....	5	Jr., sr. boys	None
A3f.w.	Dairy Barn Practice.....	2	All boys	See statement
A4w.	Care and Marketing of Milk....	4	Jr., sr. boys	None
A5f.	Dairy Stock Feeding.....	2	Sr. boys	A1
A6w.	Dairy Stock Selection.....	3	Sr. boys	A2
A7f.	Domestic Dairying.....	3	All girls	None

- A1f. FEEDS AND FEEDING. The composition of feeds and the animal body, digestion, assimilation; a study of the various feed stuffs. CORT, WILSON.
- A2w. MILK PRODUCTION. Characteristics of the dairy breeds, dairy type selection and management of the dairy herd, selection of the sire, calf raising; dairy barns. ECKLES, WILSON.



- A3f,w. DAIRY BARN PRACTICE. Actual practices in the care, feeding, and handling of dairy cattle. Registration must be approved by the instructor. WILSON.
- A4w. CARE AND MARKETING OF MILK. Milk, its composition, properties, cleanly production, and care. Principles of, and practice in, milk and cream standardization, pasteurizing, bottling, separating, and testing. Forms and methods of marketing. WASHBURN, HANSON.
- A5f. DAIRY STOCK FEEDING. Feeding the cow for milk production and the growing animals. Formulation of rations with special attention to economy and efficiency, a study of roughages and concentrates. WILSON.
- A6w. DAIRY STOCK SELECTION. A study of type and comparative judging, a study of pedigrees in relation to values. Visits to noted herds near the Twin Cities. CORT, WILSON.
- A7f. DOMESTIC DAIRYING. Composition and properties of milk. How to care for it in the home and the dairy. Principles and practice in separating, testing, farm butter, cheese, and ice-cream making, market milk. WASHBURN, HANSON.

## ENTOMOLOGY AND ECONOMIC ZOOLOGY

WILLIAM A. RILEY, Chief; ARTHUR G. RUGGLES, ANNA P. WENTZ.

## COURSES

No.	Title	Credits	Offered to	Prereq. courses
A1w.	Animal Biology.....	3	Fr. boys	None
A3f.	Biology.....	3	Fr. girls	None
A11f.	Animal Parasites.....	3	Sr. boys	None
A16w.	Insect Pests of Plants.....	3	Sr.	None

- A1w. ANIMAL BIOLOGY. Study of general principles of animal life such as metabolism, respiration, digestion, growth, and reproduction. WENTZ.
- A3f. BIOLOGY. An elementary course dealing with such topics as inheritance, reproduction, natural selection, nervous activity, and metamorphosis—with special reference to the economic relations of birds, insects, and bacteria to mankind. WENTZ.
- A11f. ANIMAL PARASITES. A study of life histories and methods of prevention and control of various external and internal parasites of domestic animals. RILEY.
- A16w. INSECT PESTS OF PLANTS. A study of life cycles of insect pests injurious to cultivated plants and methods of combating them. RUGGLES.

## FARM ENGINEERING

WILLIAM BOSS, Chief; J. GRANT DENT, MAURICE G. JACOBSON, ALLEN D. JOHNSTON, HARRY B. ROE, JAMES B. TORRANCE, HALL B. WHITE.

No.	Title	Credits	Offered to	Prereq. courses
A1f,w.	Blacksmithing I.....	3	All boys	None
A2w.	Blacksmithing II.....	3	Jr., sr. boys	A1
A11f,w.	Farm Motors.....	3	All boys	None
A16f,w.	Mechanics Laboratory.....	2	All boys	None
A18w.	Water Supply, Plumbing, Heating, and Lighting.....	2	Sr., boys	A16, A43
A19f,w.	Electricity and Heat.....	2	All boys	None
A20w.	Concrete.....	2	Sr. boys	None
A21f,w.	Carpentry.....	3	All boys	None
A31f,w.	Drawing and Farm Buildings....	3	All boys	None
A41w.	Household Physics.....	5	Sr. girls	None
A43f,w.	Agricultural Physics.....	3	Jr., sr. boys	None
A51f.	Drainage and Roads.....	3	Sr. boys	None

A1f,w. BLACKSMITHING I. Instruction is given in the management of the forge, in bending, shaping, and welding iron, thus familiarizing the student with the operations necessary for blacksmith repair work on the farm. JOHNSTON.

A2w. BLACKSMITHING II. Instruction is given in bending, shaping, and welding steel, and tempering steel tools, thus familiarizing the student with the operations necessary for blacksmith steel work on the farm. JOHNSTON.

A11f,w. FARM MOTORS. This course offers theory of, and practice in gasoline traction engines and automobiles. Textbook required. TORRANCE.

A16f,w. MECHANICS LABORATORY. Instruction and practice in rope splicing and halters, belt lacing, soldering, pipe fitting, and electric wiring. Actual work in the laboratory will be done in each of these lines. DENT.

A18w. WATER SUPPLY, PLUMBING, HEATING AND LIGHTING. A study of theory installation and care of modern house equipment. ....

A19f,w. ELECTRICITY AND HEAT. The practical application of the principles of electricity and heat giving special attention to farm motors and machinery. ....

A20w. CONCRETE. Properties of cement, selection of sand and gravel, methods of mixing. Use of concrete on the farm. WHITE.

A21f,w. CARPENTRY. The care and use of tools is taught by means of shop exercises. Each student is required to sharpen his own tools and is given instruction in painting, estimating building materials, and farm building construction. WHITE.

- A31f,w. DRAWING AND FARM BUILDINGS. Reading and interpreting working drawings. Pencil drawings with T square, scale, and triangle. No instruments required. JACOBSON.
- A41w. HOUSEHOLD PHYSICS. A study of household mechanics, air, and water pressure, heat and electricity. The economics of power, heat, light, and electricity in the home are fully considered. ....
- A43f,w. AGRICULTURAL PHYSICS. The questions considered in their relation to the farm are: matter and force, their nature; air and water pressure; mechanics, with especial reference to draft, heat, electricity, and protection from lightning. ....
- A51f. DRAINAGE AND ROADS. Conditions requiring, purposes of, benefits from drainage. Legal organization for extensive drainage. Kinds of drainage: essential features of drainage system; practice ditching and tile laying to grade. Country road administration; earth road construction and maintenance. ROE.

## HOME ECONOMICS

MILDRED WEIGLEY, Chief; ELIZABETH L. BACON, CARLOTTA BROWN, CLARA M. BROWN, JEAN M. DORSEY, HALLY J. FISHER, RUTH M. LINDQUIST, OLIVE B. MACCOMBER, MAUDE J. MILLER, MARTHA B. MOORHEAD.

## COURSES

No.	Title	Credits	Offered to	Prereq. courses
A1f,w.	Garment Making I.....	2	Fr. girls	None
A2f,w.	Garment Making II.....	2	Fr. girls	A1
A3f,w.	Dressmaking I.....	2	Jr. girls	A2
A4f,w.	Dressmaking II.....	3	Jr. girls	A3
A5f.	Textiles and Millinery.....	3	Sr. girls	A4
A6w.	Dressmaking III.....	3	Sr. girls	A5
A7w.	Advanced Millinery.....	3	Sr. girls	A5
A11f,w.	Foods and Cookery I.....	3	Fr. girls	None
A12f,w.	Foods and Cookery II.....	3	Fr. girls	A11
A13f,w.	Foods and Cookery III.....	3	Jr. girls	A12
A15f.	Elementary Dietetics.....	3	Sr. girls	A13
A16w.	Home Management and Household Accounts.....	5	Sr. girls	A15
A21f,w.	Drawing and Design I.....	1	Fr. girls	None
A22f,w.	Drawing and Design II.....	1	Fr. girls	A21
A23f,w.	Drawing and Design III.....	1	Jr. girls	A22
A24f,w.	Drawing and Design IV.....	1	Jr. girls	A23
A26f,w.	House Planning and Furnishing.	3	Jr. girls	A22
A31f.	Personal Hygiene.....	1	Fr. girls	None
A33w.	Home Nursing I.....	2	Jr. girls	None
A34f.	Home Nursing II.....	2	Sr. girls	A33

- A1f,w. GARMENT MAKING I. Qualities and prices of standard muslins; construction and care of the sewing machine; reading and alteration of commercial patterns; application of handsewing in the making of undergarments and simple waists; repair of clothing. MACCOMBER, BACON.

- A2f,w. GARMENT MAKING II. Continuation of Course A1. MACCOMBER, BACON.
- A3f,w. DRESSMAKING I. A study of standard cotton and linen dress fabrics; of design in tailored dresses; of the processes involved in the construction of simple dresses; designing and making a washable dress. MACCOMBER.
- A4f,w. DRESSMAKING II. The study of standard wool fabrics; design in simple tailored dresses; fitting of the dressform; the use of the dressform and the processes of construction involved in making a simple wool dress of tailored design. MACCOMBER.
- A5f. TEXTILES AND MILLINERY. (a) Standard fabrics and textile fibers; tests for adulterations; clothing and health; the clothing budget. (b) Design and color harmony in hats; alteration of frames; making and trimming of simple fall hats. Renovation of used materials. BROWN.
- A6w. DRESSMAKING III. The study of fabrics and design adapted to lingerie dresses; simple modeling on the dress-form; design and construction of a lingerie dress. BROWN.
- A7w. ADVANCED MILLINERY. The construction of wire frames; moulding of buckram frames; making and trimming of simple spring hats. BROWN.
- A11f,w. FOODS AND COOKERY I. Production, manufacture, and composition of typical foods, and their classification into food principles. MILLER, LINDQUIST.
- A12f,w. FOODS AND COOKERY II. A study of fundamental science principles underlying the cookery of the carbohydrate foods, and their application. MILLER, LINDQUIST.
- A13f,w. FOODS AND COOKERY III. A continuation of Course A12, as applied to the study of proteins and fats; a study of fermentation and its application in bread-making and food preservation. DORSEY.
- A15f. ELEMENTARY DIETETICS. A course dealing with simple problems of nutrition; food for adult man and woman; children of different ages; planning of family dietary; cost of dietaries; food for the sick and convalescent. DORSEY, MILLER.
- A16w. HOME MANAGEMENT AND HOUSEHOLD ACCOUNTS. Distribution of family income, household accounts; purchasing of supplies; planning and serving meals; relation of cost to income; sanitary cleanliness and its application in the care of the house; importance of labor saving devices. DORSEY, LINDQUIST, MILLER.
- A21f,w. DRAWING AND DESIGN I. Principles of design and color harmony, with special emphasis upon design as expressed in clothing, house-

furnishing, and articles in common use; the working out of designs for garments to be made in Course A1. BACON.

A22f,w. DRAWING AND DESIGN II. Continuation of Course A21. The working out of designs for garments to be made in Course A2. BACON.

A23f,w. DRAWING AND DESIGN III. This course teaches the principles developed in Courses A21 and A22 by means of more advanced problems and illustrations; the working out of designs for dresses to be made in Course A3. BACON.

A24f,w. DRAWING AND DESIGN IV. Continuation of Course A23. The working out of designs for dresses to be made in Courses 4 and 6. Application of principles of color and design to house-furnishing. BACON.

A26f,w. HOUSE PLANNING AND FURNISHING. Location of farm buildings; types of farm dwellings, sketches of floor plans for the farm home; plumbing; heating equipment; interior finish, wall and floor coverings, furniture, curtains, pictures; labor-saving equipment. DORSEY.

A31f. PERSONAL HYGIENE. The course aims to inspire each pupil with a desire to reach and maintain the highest physical efficiency. Specific directions relating to the care of the body and simple rules for avoiding infection are given. MOORHEAD.

A33w. HOME NURSING I. (a) Communicable diseases, means of prevention, control, disinfection. (b) Home nursing equipment and methods practicable in the household. MOORHEAD, FISHER.

A34f. HOME NURSING II. (a) Hygienic requirements during infancy, childhood, womanhood, maternity. (b) Household emergencies; preparation for maternity; care of infants. MOORHEAD, FISHER.

## HORTICULTURE

WILFRED G. BRIERLEY, Chairman; LEROY CADY, FRANC P. DANIELS.

### COURSES

No.	Title	Credits	Offered to	Prereq. courses
A1f,w.	Farm Horticulture.....	3	All boys	None
A2f.	Commercial Fruit Growing....	3	Sr. boys	None
A3w.	Commercial Vegetable Gardening	3	Jr. boys	None
A4f.	Fruit Growing.....	3	Sr. girls	None
A5w.	Home Gardening.....	3	Jr. girls	None
A6w.	Floriculture.....	3	Sr.	None
A7w.	Plant Propagation.....	3	Jr., sr.	None
A8f.	Landscape Gardening.....	3	Sr.	None

A1f,w. FARM HORTICULTURE. Growing fruits, vegetables, and ornamentals for use on the farm. Location and planning of the orchard and

garden and the culture of the important crops. Propagation of common plants. Culture and use of ornamentals, lectures and reference. DANIELS.

- A2f. COMMERCIAL FRUIT GROWING. The location, establishing, and management of the commercial orchard or small fruit field. Harvesting and marketing methods. Text, lectures, and laboratory. DANIELS.
- A3w. COMMERCIAL VEGETABLE GARDENING. Growing of vegetable crops for market. Location, planting, and care of the commercial garden; consideration of the important crops; marketing methods; types of glass structures, their uses, and the production of vegetables under glass. DANIELS.
- A4f. FRUIT GROWING. A general course dealing with the commercial growing of our important orchard and small fruits. A consideration of the sites, soils, and methods of planting, culture, and marketing essential to successful fruit production. DANIELS.
- A5w. HOME GARDENING. The planning, planting, and care of the home grounds. A study of the ornamental, fruit, and vegetable plants best adapted to home growing and the most satisfactory methods of handling each. Text, lectures, and laboratory. DANIELS.
- A6w. FLORICULTURE. The purpose of this course is to give the student a working knowledge of the culture and uses of house plants, annuals, and perennials. Lectures, reference reading, laboratory, and field trips. CADY.
- A7w. PLANT PROPAGATION. Methods of propagation of plants by seeds, cuttings, layers, grafting, and budding are studied. The principles of greenhouse management, transplanting, watering, and ventilation are studied. Lectures and laboratory. CADY.
- A8f. LANDSCAPE GARDENING. A general course in practice and principles of ornamental planting as applied to the home and community. A study of common trees, shrubs, and herbaceous perennials. Lectures, reference reading, and field trips. CADY.

### MILITARY DRILL AND GYMNASIUM

D. C. MITCHELL, Director.

The Reserve Officers' Training Corps is provided for by the National Defense Act of June 3, 1916, which is essentially a peace time measure.

The Junior R. O. T. C. is designed, through standardized physical training, the teaching of the fundamentals of military training and leadership as well as a respect for lawful authority, to offer just the kind of training which will best enable the average educated man to perform his civic duties in time of war as well as in time of peace.

The School of Agriculture, being a duly authorized institution, receives the following support from the Federal Government.

1. The services of a Regular Army Officer to devote all his time to the military work.

2. Each student enrolled will receive annually :

1 coat wool O. D.	1 leggins pair canvas
1 breeches wool O. D.	1 hat service
1 shoes russet or marching	2 collar ornaments
1 shirt wool O. D.	1 hat cord
1 overcoat O. D. short	1 belt

chevrons

The following is copied from the official circular: "The R. O. T. C. in no way undertakes to assume any military control of the schools where units are authorized. Parents and school authorities lose none of their control over the students. The members are not enlisted in the army, they sign no oath, they are not subject to calls for military duty any more than are other citizens of the same age."

In accord with the spirit of this Act all male students, not physically unfit, 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 manoeuvres, guards, and the theoretical and practical use of firearms.

The officers and non-commissioned officers are required to be good students in the other departments, soldier-like in the performance of their duties, exemplary in their general deportment, and able to pass a creditable examination in drill regulations.

In general, the officers are selected from the senior class; sergeants and corporals from the junior class.

Practice playing in the school military band will be given to such students as desire to take their military training in the band. Any desiring this work should bring band instruments with them.

The Military Drill includes certain time set aside for gymnasium and athletic work. It has for its object the betterment of health conditions on the campus and to make the farm boys more agile. Emphasis is laid upon free arm gymnastics, apparatus work, and competitive games. Shower baths and a swimming pool are provided.

## PHYSICAL TRAINING

GRACE E. DENNY, Director

The aim of this Department is to maintain the health of the students; to give gymnastic exercise and deep breathing; to stimulate functional activity and to give coördination and poise. The Department offers opportunities for swimming in the gymnasium swimming pool, organized

games, cross-country tramps, and skating. Every girl is required to pass a swimming test before graduating, proving that she can save her life in case of an accident on the water.

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

### PLANT PATHOLOGY AND BOTANY

EDWARD M. FREEMAN, Chief; ROBERT C. DAHLBERG, ALVIN H. LARSON.

#### COURSES

No.	Title	Credits	Offered to	Prereq. courses
A1f,w.	Agricultural Botany.....	3	Fr. boys	None
A2w.	Seed Testing.....	2	Jr., sr. boys	None
A4w.	Agricultural Botany.....	5	All girls	None
A11f.	Plant Diseases.....	3	Sr. boys	None

A1f,w. AGRICULTURAL BOTANY. The parts of flowering plants, emphasizing their significance in relation to agricultural practices. A brief study of weeds and seeds, and seed testing, a short study of fungi causing diseases of plants, and decay. LARSON.

A2w. WEEDS AND SEED TESTING. The seeds of the common farm weeds, with special attention to those of noxious weeds, are studied. A set of seed cases is made and practice is given in testing seeds for purity and germination. DAHLBERG.

A4w. AGRICULTURAL BOTANY. A study of complete flowering plants is made. The course also contains a brief study of molds, mushrooms, rots or decays, and yeast. LARSON.

A11. PLANT DISEASES. A short course laying emphasis on the recognition of the plant diseases common in Minnesota and the practical methods for combating those diseases. ....

### POULTRY HUSBANDRY

ARTHUR C. SMITH, Chief.

#### COURSES

No.	Title	Credits	Offered to	Prereq. courses
A1f,w.	Poultry.....	3	All	None
A2f,w.	Management of Laying Flock...	1	All	A1 or parallel
A3w.	Incubating and Brooding.....	3	Jr., sr.	A1

A1f,w. POULTRY. Principles of general management, house construction, artificial incubation and brooding, feeding for egg production; common ailments and simple treatments. SMITH.



A2f,w. MANAGEMENT OF LAYING FLOCK. Practice in feeding and management, mixing feeds, a study of laying rations, keeping accounts. SMITH.

A3w. INCUBATION AND BROODING. A study of the best methods of incubation and brooding, natural or artificial, includes selection of breeders, eggs for incubation, feeding and care of chicks, how to avoid losses. SMITH.

### RHETORIC

ROBERT C. LANSING, Chief; ESTELLE COOK, ELIZABETH HAUSE, KATHERINE KESTER.

#### COURSES

No.	Title	Credits	Offered to	Prereq. courses
A1f,w.	Business English.....	3	Fr.	None
A2f,w.	Classics.....	3	Fr.	None
A3f,w.	English Grammar.....	3	Jr.	None
A4f,w.	Composition I.....	3	Jr.	A3
A5f,w.	Public Speaking.....	3	Sr.	A4
A6f,w.	Composition II.....	3	Sr.	A4
A14f,w.	Advanced Public Speaking.....	3	Sr.	A5
A21f-22w.	English Literature I, II.....	10	Sr.	A5

A1f,w. BUSINESS ENGLISH. Business correspondence and forms. HAUSE.

A2f,w. ENGLISH CLASSICS. Reading and analysis of the works of American and English authors. COOK, HAUSE, KESTER.

A3f,w. ENGLISH GRAMMAR. A study of principles and practice in them, with composition. HAUSE, KESTER.

A4f,w. COMPOSITION I. Paragraphs and themes in narration, description, and exposition. Analysis of prose models. HAUSE, KESTER.

A5f,w. PUBLIC SPEAKING. Voice exercise, platform deportment. Practice in delivery of memorized and extemporaneous speeches. COOK, KESTER.

\*A6f,w. COMPOSITION II. Exposition and argument. Gathering and outlining material. Instruction in the writing of the senior thesis. Debating. COOK, KESTER.

A14f,w. ADVANCED PUBLIC SPEAKING. A continuation of Course A5. Selecting and organizing material for speeches and the presentation of speeches before a given audience effectively. COOK.

A21f-22w. ENGLISH LITERATURE I, II. The history of English literature with a study of selections. For students planning to enter the College of Agriculture. KESTER.

\* Students exempted from Course A6 because of credits gained in high school will be required to attend a rhetoric class while writing their senior theses.

## SCHOOL (MISCELLANEOUS)

DEXTER D. MAYNE, Principal; PEDER L. JOHNSRUD, GEORGINA L. LOMMEN,  
GUSTAF A. LUNDQUIST, ABE PEPINSKY, MABEL WILLSON.

## COURSES

No.	Title	Credits	Offered to	Prereq. courses
A1f.w.	Farm Arithmetic.....	4	All	None
A2f.w.	Advanced Farm Arithmetic.....	4	All	State H. S. Board Certif. in Arith. or equiv.
A3f.w.	Mathematics of Farm Motors...	4	Farm Motors Course.....	None
A 4f-5w.	Algebra I, II.....	14	All	None
A6f-7w.	Geometry I, II.....	14	All	None
A21f.w.	Elements of Music I.....	2	All	None
A22f.w.	Elements of Music II.....	2	All	A21
A23f.w.	Chorus.....	1/2-3	All	See course descrip.
A24f.w.	Violin.....	1/2-3	All	See course descrip.
A25f.w.	Piano.....	1/2-3	All	See course descrip.
A26f.w.	Instrumental Music.....	1/2-3	All	See course descrip.
A27f.w.	Orchestra.....	1/2-3	All	See course descrip.
A28f.w.	Vocal Music.....	1/2-3	All	See course descrip.
A41f.w.	Parliamentary Law.....	1	Jr., sr.	None
A42f.w.	Civics.....	3	Jr., sr.	None
A43f.	Elementary Economics.....	3	Sr.	None
A44w.	Rural Economics.....	3	Sr.	None
A45f.	Industrial History.....	3	Jr., sr.	None
A46w.	Rural Sociology.....	3	Sr.	None
A61f.w.	Spelling.....	1	All	None
A62f.w.	Penmanship.....	1	All	None
A63f.w.	Typewriting I.....	3	All girls	None
A64f.w.	Typewriting II.....	3	Jr., sr. girls	A63
A65f.w.	Stenography.....	3	All girls	None
A66f.w.	Dictation I.....	3	Jr., sr. girls	A65
*A67f.w.	Dictation II.....	3	Sr. girls	A66
A68f.w.	Business Forms.....	3	All girls	None
A69f.w.	Letter Writing.....	3	Jr., sr. girls	None
*A70f.w.	Filing and Indexing.....	3	Sr. girls	None
*A71f.w.	Duplicating and Mimeographing	3	Sr. girls	A64
*A72f.	Commercial Law.....	3	Sr. girls	None
A73f.w.	Comptometer Practice.....	2	Sr. girls	None
*A74w.	Business Ethics.....	1	Sr. girls	None
A81f.	Social Training.....	2	All girls	None

\* Not offered in 1919-20.

A1f,w. ARITHMETIC. Drill for accuracy, speed in simple mathematical processes, applications of principles to problems requiring measurements of material, extension, capacity. Practical applications to farm and home life. Assists in the mathematics of the technical School courses. JOHNSRUD.

A2f,w. ADVANCED FARM ARITHMETIC. Similar in outline to Course A1. Intended for students who hold State High School Board certificates in arithmetic. JOHNSRUD.

- A3f,w. MATHEMATICS OF FARM MOTORS. The practical application of problems in arithmetic such as the measurements of surfaces, capacity, weight, etc. Calculating the speed of engine, shafting, pulleys, and belting. Horse power of engines, boilers, and farm motors. JOHNSRUD.
- A4f-5w. ALGEBRA I, II. The first term includes the fundamental operations, factoring, and fractions. The second term covers simultaneous equations, evolution, quadratics, and application of equations to the solution of practical problems .....
- A6f-7w. GEOMETRY I, II. The usual theorems and problems of plane geometry are completed with special attention given to their applications in mechanics and surveying. ....
- A21f,w. ELEMENTS OF MUSIC I. Theory of fundamental principles, notation, pitch, rhythm, intervals, formation of major and minor scales, triads, chords of the seventh and ninth and suspensions. PEPINSKY.
- A22f,w. ELEMENTS OF MUSIC II. (a) Musical forms; terms of foreign derivation. (b) History, origin, development of music; the oldest instrument; origin and development of stringed instruments. Great composers of the last three centuries. Lives of Bach, Handel, Haydn, Mozart, Beethoven. PEPINSKY.
- A23f,w. CHORUS. The chorus furthers the interest in practical community singing. PEPINSKY.
- A24f,w. VIOLIN. Elementary studies in the first position. Wichtl's *Young Violinist*. Kayser's *Thirty-six Elementary and Progressive Etudes*. Kreutzer's *Forty-two Studies*. Suitable solo material. Ten thirty-minute lessons, \$10 per term. ....
- A25f,w. PIANO. Elementary studies by Kuntz. Sonatinas by Clementi. Finger exercises of major and minor scales. Bach Two Part Inventions, Mozart Sonatas. Ten thirty-minute lessons, \$10 per term. WILLSON.
- A26f,w. INSTRUMENTAL MUSIC. Those desiring to make arrangements for the study of instruments not classified, confer with the instructor. Ten thirty-minute lessons, \$10 per term. ....
- A27f,w. ORCHESTRA. The object of this course is to improve the sense of intonation, rhythm, and phrasing. Registration must be approved by the instructor. PEPINSKY.
- A28f,w. VOCAL MUSIC. Ten thirty-minute lessons, \$10 per term. ....
- A41f,w. PARLIAMENTARY LAW. Instruction in principles of parliamentary law, how to organize a society, duties of officers, how to record proceedings, and how to conduct meetings. Students will be given practice under the direction of the instructor. MAYNE.

- A42f,w. CIVICS. Origin, necessity, nature, and various forms of government. The legislative, judicial, and executive departments and the functions of each. The relations of the state to the federal government. MAYNE.
- A43f. ELEMENTARY ECONOMICS. Fundamental laws governing production, consumption, distribution, and exchange. Subjects of special interest to farmers, such as taxation, rural credit, coöperation, and the growth of tenantry. The subject is given in lectures and assigned readings. LUNDQUIST.
- A44w. RURAL ECONOMICS. The general principles of economics as applied to the farmers' relationships, as a producer and as a consumer. Special topics considered. Marketing of farm products, coöperative societies, rural credits, taxation, farm labor, and tenantry. LUNDQUIST.
- A45f. INDUSTRIAL HISTORY. Sanford's *Story of Agriculture*, supplemented by Moore's *Industrial History*. Recitation and written summaries from the texts, special reports, and outlines. Agricultural history is emphasized in this study of general industrial development in the United States. LUNDQUIST.
- A46w. RURAL SOCIOLOGY. A practical course including a study of rural conditions, how to make a survey, the cause of present conditions and how they may be improved. Study of rural organizations, religions, and educational institutions. LUNDQUIST.
- A61f,w. SPELLING. Students poor in spelling should elect this course and continue until able to spell words in ordinary conversation and correspondence. A spelling text is used and drills on lists of commonly misspelled words are given. ....
- A62f,w. PENMANSHIP. A standard muscular movement system is taught and the Curtis tests are applied. Students who are poor in penmanship should elect this course. ....

### BUSINESS COURSES FOR GIRLS

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

The subject-matter of the course in home-making and agriculture fits students, with the training in business subjects, to take positions as office assistants in farm bureaus, coöperative creameries, and in local elevators.

- A63f,w. TYPEWRITING I. The touch method of typewriting is taught. Simple finger exercises followed by copying letters and business papers. The standard machines are furnished for practice. ....

- A64f,w. TYPEWRITING II. Writing of form letters, billing, and tabulating. Writing letters and memoranda taken at dictation. Lessons on different machines, and their care. ....
- A65f,w. STENOGRAPHY. Principles of phonography are taught by the Gregg system. Thoro drill is given in word forms and in combining them into phrases and sentences. ....
- A66f,w. DICTATION I. Students review carefully the principles of stenography, and take short letters by dictation, which are transcribed on the typewriter. Accuracy of transcription is the aim, rather than speed. ....
- A67f,w. DICTATION. (Not offered in 1919-20.) ....
- A68f,w. BUSINESS FORMS. The forms used in business are carefully studied and practice is given in filling out business forms and legal papers. ....
- A69f,w. LETTER WRITING. Correct forms of letters of various kinds are studied and numerous models are copied. Dictated letters are transcribed on the typewriter. Correct spacing, spelling, punctuation, and paragraphing are required.
- A70f,w. FILING AND INDEXING. (Not offered in 1919-20.) ....
- A71f,w. DUPLICATING AND MIMEOGRAPHING. (Not offered in 1919-20.) ....
- A72f. COMMERCIAL LAW (Not offered in 1919-20.) ....
- A73f,w. COMPTOMETER PRACTICE. (Not offered in 1919-20.) ....
- A74w. BUSINESS ETHICS. (Not offered in 1919-20.) ....
- A81f. SOCIAL TRAINING. The fundamental principles governing the individual in social contacts; with attention to the rights and responsibilities of the individual in institutional life; special emphasis upon the home as the social center. LOMMEN.

## SOILS

FREDERICK J. ALWAY, Chief; GEORGE H. NESOM.

## COURSE

No.	Title	Credits	Offered to	Prereq. courses
A1f.	Soil Management and Fertility.	4	Jr. boys	None

- A1f. SOIL MANAGEMENT AND FERTILITY. Minnesota soils, their formation, composition, properties, and characteristics. Acidity, alkalinity, and remedies. Farm manures, green manures, commercial fertilizers. Field studies, laboratory demonstrations. Examination of home farm soils, and discussion of any problems presented by these. NESOM.

## VETERINARY MEDICINE

CLIFFORD P. FITCH, Chief; WILLIAM A. BILLINGS, WILLARD L. BOYD, MYRON H. REYNOLDS.

No.	Title	COURSE		Prereq. courses
		Credits	Offered to	
A1w.	Physiology . . . . .	3	All	None
A2f,w.	Hygiene and Public Health I. . .	1	All boys	None
A3f,w.	Hygiene and Public Health II. . .	1	All boys	A2
A4w.	Elements of Bacteriology. . . . .	3	Jr., sr.	A1
A5w.	Hygiene of Breeding Animals. . . .	2	Sr. boys	A4
A6f.	Common Diseases. . . . .	5	Sr. boys	A4
A7w.	Veterinary Studies. . . . .	5	Sr. boys	None

A1f,w. **PHYSIOLOGY.** This course consists of the study of the **body**, its functions and care. REYNOLDS.

A2f,w. **HYGIENE AND PUBLIC HEALTH I.** This course consists of lectures on public health, causes and prevention of common diseases, accidents and emergencies, diet, exercise, clothing, and habit-forming drugs REYNOLDS.

A3f,w. **HYGIENE AND PUBLIC HEALTH II.** Continuation of Course A2. REYNOLDS.

A4w. **ELEMENTS OF BACTERIOLOGY.** Lectures and demonstrations of the fundamental principles underlying the science of bacteriology, with special reference to organisms which cause disease. Instruction will be given in the preparation and use of vaccines, bacterines, anti-toxins, immune sera. FITCH, BILLINGS.

A5w. **THE HYGIENE OF BREEDING ANIMALS.** A study of the gross anatomy of the reproductive organs; physiology of reproduction; the breeding season; gestation and care of the female during parturition and lactation. BOYD.

A6f. **COMMON DISEASES.** Causes and prevention of disease, common simple medicines and their uses; lameness and unsoundness of horses, simple surgical operations which every stockman should know, e.g., wounds, castration, dehorning, tapping for bloat, etc. REYNOLDS.

A7w. **VETERINARY STUDIES.** For students who take but one term of veterinary work. Causes of animal disease; farm sanitation and animal hygiene; common diseases and accidents of farm stock and their management including treatment as far as practical. REYNOLDS.

## INDEX

Page		Page	
Absences .....	10	Health Service .....	15
Admission .....	7	High school work, credit for.....	8
Admission to college.....	23	Holidays .....	12
Age requirement for admission....	7	Home Economics .....	29
<i>Agrarian</i> .....	17	Home projects .....	9
Agricultural Biochemistry.....	24	Horticulture .....	31
Agronomy and Farm Management.	24	Library .....	17
Animal Husbandry .....	25	Ludden trust fund.....	16
Assembly .....	12	Marking system .....	10
Bee Culture .....	26	Military drill .....	32
Business Courses .....	38	<i>Minnesota Farm Review</i> .....	17
Calendar .....	3	Museum .....	17
Classification .....	10	Music .....	37
Committees .....	5	Normal Training Course for Rural Teachers .....	22
Course descriptions .....	24	Physical training .....	33
Course numbers, explanation of....	24	Plant Pathology and Botany.....	34
Courses of study.....	8, 19	Poultry Husbandry .....	34
Credit hour .....	19	Registration .....	9
Dairy Husbandry .....	26	Rhetoric .....	35
Debating societies .....	16	Rules and regulations.....	9
Diploma Course .....	8	Scholastic preparation for admission	8
Dormitories .....	14	School (Miscellaneous) .....	36
Eligibility regulations .....	11	Soils .....	39
Entomology and Economic Zoology.	27	Special courses .....	19
Expenses .....	13	Student organizations .....	11
Faculty .....	4	Student trust funds.....	16
Farm Engineering .....	28	Unclassed students .....	8
Farm experience .....	7	Veterinary Medicine .....	40
Farm Motors Course.....	8	Visitors in classes.....	10
Fees .....	14	Y. M. C. A.....	16
Free tuition .....	13	Y. W. C. A.....	16
General information .....	7		
Graduation, requirements for.....	12		
Gymnasium .....	32		

## NOTICE TO PROSPECTIVE STUDENTS

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

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

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

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



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

*Northwest School and Experiment*  
*Station*

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



*Vol. XXII No. 11 April 15 1919*

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

*Acceptance for mailing at special rate of postage provided for in section 1103,*  
*Act of October 3, 1917, authorized July 12, 1918*

## 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 NORTHROP, 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  
CORR PAULSBERG, Accountant

### AGRICULTURAL ENGINEERING

ARNOLD M. FOKER, Carpentry and Farm Engineering; Superintendent of Buildings  
CARL BERG, Farm Motors  
SEVERIN RISHOV, 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 middy 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 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	Credit Hours
5 English A		5 English A
5 Livestock* Poultry G		5 Livestock* Study Breeds A
5 Farm Dairying B		5 Farm Crops* Cereal Crops A
5 Farm Crops* Plant Life A		5 Arithmetic A* Personal Hygiene A Gymnasium
5 Arithmetic A* Personal Hygiene A 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/>		<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/>		<hr/>	
25		5	Elective from the following:
5	Elements of Business	5	Elements of Business
	Typewriting		Typewriting
	Stenography		Stenography
	Letter Writing		
5	Rural Sociology A	5	Rural Economics B
1	Music	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

2 Poultry G	4 Plant Life A†
5 Industrial Geography A**	3 Farm Dairying B†
	5 Industrial History B**
	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 Dress-making 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
<hr/> 25		<hr/> 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 Hours	Credit 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. Babbitting 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. BENGTSO.
- 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. BENGTSO.
- B. RURAL SOCIOLOGY. The problems of rural communities, of rural health and sanitation, and of rural social institutions will receive attention. BENGTSO.
- 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-Lobby-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 coordination 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<sup>\*</sup>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, beeves, 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 coöperation 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, Martha, 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, Tarjie, 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

Lindhahl, 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  
Toilefson, Ella, Hatten, 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, Gently  
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  
 Henrikson, 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  
 Krbecek, Sophie, Erie  
 Landby, Esther, Swift  
 Landby, John, Swift  
 Larson, George, Kennedy  
 Larson, Marie, Argyle  
 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  
 Meleck, Harry, Strathcona  
 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, Veri, Crookston  
 Sall, Clarice, Plummer  
 Sall, Ella, Plummer  
 Sather, Edwin, Halstad  
 Shannon, Elmer, Fosston  
 Simpson, Russell F., Minneapolis  
 Skarp, David, Karlstad  
 Skime, Elmer, Gonvick  
 Skonovd, Emna, 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, Strathcona

*The Bulletin  
of the University of  
Minnesota*

*West Central School and Station  
Morris, Minnesota  
Announcement for the Year  
1919-1920*



*Vol. XXII No. 19 June 16 1919*

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

*Acceptance for mailing at special rate of postage provided for in section 1103,  
Act of October 3, 1917, authorized July 12, 1918*

## SCHOOL CALENDAR

1919-1920

1919			
September	29	Monday	First term opens; registration
September	30	Tuesday	Organization of classes
November	1	Saturday	Field Day
November	27	Thursday	Thanksgiving Day; a holiday
December	13	Saturday	Inter-society debate
December	19	Friday	First term closes; Christmas vacation begins
1920			
January	5	Monday	Christmas vacation ends; second term opens; registration
January	6	Tuesday	Organization of classes
February	12	Thursday	Lincoln's Birthday (special exercises)
February	6	Monday	Farmers' Short Course opens
February	22	Sunday	Washington's Birthday (special exercises)
February	21	Saturday	Farmers' Short Course closes
March	22	Monday	Commencement Week
March	25	Thursday	Junior-Senior-Alumni Banquet
March	26	Friday	Commencement Day
April	6	Monday	Junior Short Course opens
April	10	Saturday	Junior Short Course closes
May	30	Sunday	Memorial Day; a holiday
June	16	Wednesday	Short Course for Farm Women opens
June	19	Saturday	Short Course for Farm Women closes
June	21	Monday	Teachers' Training School opens
July	4	Sunday	Independence Day; a holiday
July	30	Friday	Teachers' Training School closes



# WEST CENTRAL SCHOOL AND STATION

## FACULTY

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

### 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  
CHARLES J. ROBERTSON, Farm Engineering  
ALBERT C. HEINE, Blacksmithing

### AGRONOMY

ROY O. BRIDGFORD, B.S., Agronomy and Farm Management  
OTTO SWENSON, Assistant in Agronomy

### ANIMAL HUSBANDRY

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

### HOME ECONOMICS

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

### SCHOOL

ARTHUR J. LARSON, B.A., Science  
MARY E. KING, B.A., Social Science  
MARGARET BEGGIN, B.A., English and Public Speaking  
IRMA HATHORN, B.A., Mathematics  
EDWIN J. VOLDEN, Accounting  
ETHEL HEDMAN, B.A., Music

### OFFICERS OF ADMINISTRATION

OLE O. BYE, Superintendent of Buildings  
MABEL ANDERSON, B.S., Matron  
CHRISTINE B. LAMBIE, School Nurse  
EDWIN J. VOLDEN, Accountant  
ANNA MCCARTHY, Office Clerk

## COMMITTEES

*Students' Work.*—STEVER, JORDAN, HATHORN, KIMBALL.

*Organizations.*—HEINE, BRIDGFORD, ROBERTSON, KING, ANDERSON.

*Social.*—KIMBALL, HEDMAN, BOSS, HEINE, ANDERSON.

*Short Course for Farmers.*—JORDAN, BRIDGFORD, BYE, ANDERSON.

*Short Course for Farm Women.*—HATHORN, KIMBALL, MILLER.

## GENERAL INFORMATION

### PURPOSE

The West Central School of Agriculture was organized in 1910 as a part of the Department of Agriculture of the University of Minnesota, and is governed by the Board of Regents. It was established primarily for the training of young men for the profession of farming and of young women for the profession of home-making. The School now offers exceptional opportunities to young men and young women who desire a technical training in either of these professions. Since it is a secondary school and accepts students directly from the eighth grade, it offers great opportunities for that large group of young people who can not take advantage of the high schools or university, and who are limited in the time that they can give to the completion of their education. The work is planned and subjects are taught with the purpose of making the students efficient in their 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 economical and sociological aspects of farm life. The farmer must have a broad grasp of his profession in its relationship with other callings, as well as a realization of the possibilities of its social development. The technical courses are amply supplemented with cultural subjects designed to give the students a broad and liberal viewpoint and the necessary preparation for useful citizenship.

### LOCATION

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

### ADMISSION

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

### TIME OF OPENING

The fall term of the School of Agriculture will open Monday, September 29, and close Friday, December 19. The winter term will open

Monday, January 5, and close Friday, March 26. The school work covers a period of six months at a time when the students can best be spared from home.

#### ROOMS IN DORMITORIES

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

#### WHAT TO BRING

Each student should bring with him two comforts and blankets for one single bed, towels, comb, brushes, one tumbler and teaspoon, and at least two nightgowns.

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

#### EXPENSES

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

Each student is required to pay for breakage of apparatus used in practical work, for all damage done to School property, and fines imposed as further explained under the paragraph headed, "Home life on the campus."

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.

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

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

The cost to the student for board is the actual cost of maintaining the table (including management). Board is payable the first of each

month in advance. A sur-charge of 10 per cent is added to all bills delinquent more than ten days. No deduction is made for board for any absence of less than five days. If students are compelled to be absent for that length of time they are allowed half rates provided they make arrangements with the matron before leaving. No increases will be made unless living costs necessitate an increase in the cost of board.

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

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

TABLE OF CHARGES

Registration fee for any part of School year.....	\$5.00
Deposit as guarantee of proper treatment of School property....	5.00
Post-office box per term .....	.20
Nurse fee per term required for all students except those living at home .....	1.50
Board per week.....	3.50
Room per week.....	1.25

HOSPITAL FUND

The hospital fund, which is made up from nurse fees, is expended as follows:

It insures for all students the care and attention of the regular School nurse and such medicines and materials as she may use.

It does not provide medical treatment by physicians.

It does not provide for special nurses, if such be required by reason of serious illness or because of epidemics.

It does not provide for services to any one student in excess of \$10.

RULES AND REGULATIONS

*Registration*

1. No student will be allowed to register for less than 23 credit hours of work except by special permission of the Students' Work Committee.
2. Students who wish to carry more than 28 credit hours of work must obtain permission from the Students' Work Committee.
3. All fees must be paid or arranged for at the time of registration.
4. No student will be allowed to register after the second week of the term except by permission of the Students' Work Committee.

*Cancellation of Registration*

5. No student may drop a subject for which he is registered without permission of the Students' Work Committee.
6. If a student is below grade in a subject at the time of cancellation, his record in that subject will be entered as a failure.

7. For each change in registration after the first week of school a charge of 25 cents will be made. All such changes must be approved by the Students' Work Committee on the proper form which the student may obtain at the Registrar's office.

8. No laboratory fees will be returned unless the registration is cancelled in the Registrar's office, within two weeks after the opening of school.

#### *Delinquent Students*

9. The Students' Work Committee may at any time require students to cancel a portion of their work.

10. A report of all the work of all doubtful and below-grade students is sent to the Registrar's office at the end of each month.

11. Below-grade students are required to appear before the Students' Work Committee at the end of each month for consultation concerning their delinquent work.

12. No student will be permitted to graduate who has an unremoved incomplete, condition, or failure, in any of the required subjects.

#### *Absences*

13. No student will be admitted to class after an absence without a pass from the Preceptor or Preceptress.

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

#### *Classification*

15. In order to be classified as a junior, a student must have not to exceed 12 credit hours less than the required number for the freshman year.

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

#### *Marking System*

17. The passing mark is 75 on the scale of 100.

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

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

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

21. Extension of time for the removal of conditions may be granted by the Students' Work Committee.

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

#### *Eligibility*

23. In all interscholastic athletic contests the same eligibility rules will apply as are now used by the Minnesota State High School Association. Rule VIII of this agreement provides:

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

#### REQUIREMENTS FOR GRADUATION

1. Completion of the prescribed course of study, including all required work and enough electives to make a total of 160 credit hours.
2. One summer of supervised home project work. Of the 160 credits necessary for graduation 5 must be home project work, and 10 will be allowed.
3. An honorable standing in deportment.

#### HOME LIFE IN THE DORMITORIES

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

The Preceptor and Preceptress have charge of the students in their dormitories, and 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 profanity, 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.

Students who break any of the rules of dormitory conduct will be subject to a fine which will be charged against their deposit fee. The system of fines will be announced at the first house-meeting at the beginning of the school year. Continued infraction of dormitory rules will mean dismissal from the dormitories.

#### 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, making 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.

#### ASSEMBLY PERIOD

An 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. The assembly period is also used as a forum for public discussion of the many questions and announcements of importance to the student body. The various societies and organizations also use this period for the promotion of their work.

#### HOLIDAYS

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

#### ORGANIZATIONS AND PUBLICATIONS

##### *Students' Literary Societies*

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 regular weekly meetings during the school year: the Vincent Literary Society, the *Agricolae* Literary Society, the Ceres Club.

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

##### *Students' Christian Associations*

The Young Men's and Young Women's Christian Associations are voluntary organizations which have for their objects the maintenance of a positive moral and religious atmosphere and the development of complete Christian manhood and womanhood,—physical, intellectual, social, and spiritual. These Associations carry on various lines of activity. A general reception is given at the beginning of each term. Each Sunday morning special Bible classes are conducted, and at 6:15 each Sunday evening a joint service is conducted by both organizations.



It is expected that the Catholic students will be organized into an association beginning with the year 1919-20.

#### *Musical Organizations*

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 last year. Credit will be given for membership and regular attendance at practices and entertainments.

#### *Moccasin*

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

#### *West Central School News*

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

#### STUDENT LOAN FUNDS

##### *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 5 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.

#### 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 basketball 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 the cost of \$1 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 describing 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 is 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 to study intelligently 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, dress-making, 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 home farms, one additional school year of six months and one additional summer's work or the equivalent thereof, will be admitted to the College of Agriculture, Forestry, and Home Economics of the University of Minnesota.

#### 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.

The projects for boys include sheep management, management of the dairy herd, corn growing, alfalfa growing, potato growing, fertilizer tests, forage crops, orchard management, 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, 1920. This course, lasting one week, is designed for mature farmers who can not leave their farms for a longer 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 on 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, April 6 to 10. This course is open to all boys and girls from 12 to 18 years old. A charge of \$3 covers all expenses, including board and room for the entire week. Boys are given work in the machine shops, forge and wood-work 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 1920 Minnesota State Fair. For the girls, contests in bread making and canning are held, with scholarships to the School of Agriculture as prizes. Special instruction will be given in all boys' and girls' club projects. Games, music, entertainments, and a special Junior Short Course party will make the entire week one of 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, 1920.

#### SHORT COURSE FOR FARM WOMEN

An annual short course for farm women is held during the third 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 16 to 19, 1920.

#### 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 21 to July 31, 1920. The Faculty who will offer the technical work, will be made up from the

staff of the School, and a corps of instructors from the State Department 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 instruction and professional training in such special subjects as will entitle teachers to receive a first-class certificate or one of higher rank; third, 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

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

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

A class period is 45 minutes and a laboratory period is 90 minutes.

For description of the following courses see pages 20-29.

See page 30 for statement with reference to credit for home project work.

### COURSE FOR BOYS

#### FRESHMAN YEAR

Required—first term	{	English I, 5 Farm Accounts, 5 Spelling, 1 Corn Growing, 5 Types and Breeds, 5 Milk Testing, 1 Carpentry I, 2 Blacksmithing I, 2 Gymnasium, 1
Required—second term	{	English II, 5. Anatomy and Hygiene, 5 Carpentry II, 2 Blacksmithing II, 2 Stock Judging I, 1 Penmanship, 1 Gymnasium, 1
Eight credit hours must be chosen from this group during second term, freshman year	{	Cereal Crops, 5 Industrial Geography, 5 Gas Tractors, 6 Steam Tractors, 6 Electricity, 2 Gas Engines, 3 Piano, 2 Violin, 2

#### JUNIOR YEAR

Required—first term	{	English III, 5 Chemistry, 5 Gymnasium, 1
Required—second term	{	English IV, 5 Agricultural Physics, 5 Gymnasium, 1

Subjects must be selected from this group or from electives not taken in freshman year to make a total of 25 credit hours with the required subjects, for each term.	}	General History I, 5	}	First term only
		Bookkeeping I, 5		
		Algebra I, 5		
		Garden and Orchard, 3		
		Grain Judging, 3		
		Cement Construction, 1		
		Drainage, 5		
		Mechanical Drawing, 3		
		Stock Judging II, 1		
		Poultry, 3		
Beef Production, 3				
}	}	Piano, 2	}	May be taken either term
		Violin, 2		
		Orchestra, 1		
		Band, 1		
}	}	Glee Club, ½	}	Second term only
		Public Speaking, 3		
		Bookkeeping I-II, 5		
		Algebra II, 5		
		General History II, 5		
		Forage Crops, 3		
		Commercial Seed Production, 3		
		Farm Structures I, 3		
		Rural Sanitation, 3		
		Stock Judging III, 1		
Feeds and Feeding, 5				
Dairy Production, 3				

SENIOR YEAR

Required—first term	}	English V, 5	}		
		Farm Management, 5			
		United States History, 5			
		Gymnasium, 1			
Required—second term	}	English VI, 5	}		
		Farm Records and Accounts, 2			
		Government, 5			
		Gymnasium, 1			
Subjects must be selected from this group or from electives not taken in freshman or junior years to make a total of 25 credit hours with the required subjects for each term.	}	Geometry I, 5	}	First term only	
		Farm Structures II, 3			
		Stock Judging IV, 1			
	}	}	Animal Breeding, 3	}	Second term only
			Geometry II, 5		
			Botany, 5		
			Soils, 5		
	}	}	Farm Mechanics, 5	}	May be taken either term
			Animal Diseases, 3		
			Piano, 2		
Violin, 2					
Band, 1					
}	}	Orchestra, 1	}		
		Glee Club, ½			

Two credits shall be allowed for participation in the senior class play. Two credits shall be allowed for participation in an interscholastic debate. One credit shall be allowed for membership in an interscholastic

athletic team and such members will be excused from gymnasium classes. Not more than seven special credits, including credits for play, debate, and musical organizations, shall count towards graduation.

### COURSE FOR GIRLS

#### FRESHMAN YEAR

Required—first term	{	English I, 5	}			
		Garment Making I, 4				
		Foods and Cookery I, 3				
		Drawing and Design I, 1				
		Gymnasium, 1				
Required—second term	{	English II, 5	}			
		Garment Making II, 3				
		Foods and Cookery II, 4				
		Drawing and Design II, 1				
		Gymnasium, 1				
Eleven to fourteen credit hours must be chosen from this group each term.	{	Spelling, 1	}	May be taken either term		
		Piano, 2				
		Penmanship, 1				
		General Science, 5				
		Commercial Geography, 5				
		Home Accounts, 5				
		Nursing I, 5				
		Glee Club, $\frac{1}{2}$				
					Spelling and Penmanship, 5	Must be taken both terms
					Typewriting, 2	

#### JUNIOR YEAR

Required—first term	{	English III, 5	}			
		Dressmaking I, 2				
		Food Preservation, 3				
		General History I, 5				
		Gymnasium, 1				
Required—second term	{	English IV, 5	}			
		Dressmaking II, 2				
		Dietetics, 3				
		General History II, 5				
		Gymnasium, 1				
Nine to twelve credit hours must be chosen from this group each term or from electives not taken in freshman year.	{	Algebra I, 5	}	First term only		
		Bookkeeping I, 5				
		Shorthand I, 5				
		Typewriting, 2				
		Chemistry I, 5				
					Algebra II, 5	Second term only
					Bookkeeping I-II, 5	
					Shorthand II, 5	
					Typewriting, 2	
					Chemistry II, 5	
		House Planning, and Decoration, 3	Either term			
		Public Speaking, 3				
		Nursing II, 5				
		Piano, 2				
		Glee Club, $\frac{1}{2}$				



SENIOR YEAR		
Required—first term	<ul style="list-style-type: none"> <li>{ English V, 5</li> <li>{ Dressmaking III, 2</li> <li>{ Home Management I, 3</li> <li>{ United States History, 5</li> <li>{ Gymnasium, 1</li> </ul>	
Required—second term	<ul style="list-style-type: none"> <li>{ English VI, 5</li> <li>{ Dressmaking IV, 2</li> <li>{ Home Management II, 3</li> <li>{ Government, 5</li> <li>{ Gymnasium, 1</li> </ul>	
Nine to twelve credit hours from this group or from electives not taken in the junior year.	<ul style="list-style-type: none"> <li>{ Geometry, 5</li> <li>{ Chemistry, 5</li> <li>{ Algebra, 5</li> <li>{ Bookkeeping I, 5</li> <li>{ Dictation I, 2</li> <li>{ Business Training I, 5</li> </ul>	} First term only
	<ul style="list-style-type: none"> <li>{ Chemistry II, 5</li> <li>{ Algebra II, 5</li> <li>{ Geometry II, 5</li> <li>{ Bookkeeping I-II, 5</li> <li>{ Dictation II, 2</li> <li>{ Business Training II, 5</li> </ul>	} Second term only
	<ul style="list-style-type: none"> <li>{ Millinery and Art Needlework, 3</li> <li>{ Public Speaking, 3</li> <li>{ Piano, 2</li> <li>{ Nursing III, 5</li> <li>{ Glee Club, ½</li> </ul>	} Either term

Through their choice of electives, girls may prepare themselves for one of several lines of work. At the time of registration, girls will be advised how to choose their work so that it will prepare for the future work which they desire. They may prepare for business positions, for normal training work, for college entrance, or for nurses' training. A carefully planned course in Home Economics is the foundation of all the courses for girls.

## 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.

**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, 50 cents.

**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.

**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. 3 hrs.; Lab. 2, 2 hrs.; 5 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 I.** The study and practice in the use of the score card, showing the relation of the body structure to economical production. Lab. 1, 2 hrs.; 1 credit.

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

**STOCK JUDGING III.** A continuation of Stock Judging II. Lab. 1, 2 hrs.; 1 credit.

**STOCK JUDGING IV.** A continuation of Stock Judging III. 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. 3 hrs.; 3 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

- WOOD WORK I.** Carpentry: care, use, and sharpening of tools; laying off work; making of joints and framing, and work designed to be especially helpful in planning, framing, and construction of farm buildings. Lab. 2, 2 hrs.; 2 credits; fee, \$1.25.
- WOOD WORK II.** Continuation of Course A. Lab. 2, 2 hrs.; 2 credits; fee, \$1.25.
- FORGE WORK I.** 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, 2 hrs.; 2 credits; fee, \$1.50.
- FORGE WORK II.** Continuation of Forge Work I. Lab. 2, 2 hrs.; 2 credits; fee, \$1.50.
- MECHANICAL DRAWING I.** The use of drawing instruments, lettering, and the making of working drawings. Lab. 3, 2 hrs.; 3 credits.
- MECHANICAL DRAWING II.** A continuation of Mechanical Drawing I. 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.
- 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 I.** 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 II.** A continuation of Farm Structures I. Designing of buildings needed on the home farm, and the working out of a general plan that will meet the builder's requirements. Lab. 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.
- 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.
- GAS ENGINES.** 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.

**GAS TRACTORS.** A course including a study of the construction, repair, and operation of the traction engine. Rec. 3 hrs.; Lab. 3, 2 hrs.; 6 credits; fee, \$1.

**STEAM TRACTORS.** 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; fee, \$1.

**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; fee, 50 cents.

**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 hrs.; 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 I.** 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 II.** Continuation of English I. Letter writing in connection with simple sentence and paragraph structure. Several selections are memorized. Rec. 5 hrs.; 5 credits.

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

**ENGLISH IV.** A continuation of English III. Rec. 5 hrs.; 5 credits.

**ENGLISH V.** Advanced work in written composition of a narrative type. An appreciation of good literature is cultivated by extensive reading. Rec. 5 hrs.; 5 credits.

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

ENGLISH VII. English literature. The history of English literature with readings from masterpieces. Rec. 5 hrs.; 5 credits.

ENGLISH VIII. English literature. Continuation of English VII. Rec. 5 hrs.; 5 credits.

ENGLISH IX. Public speaking for boys. Drill in voice exercise, platform deportment, and memorized selections for expression; extemporaneous speaking, and debate. Rec. 3 hrs.; 3 credits.

ENGLISH X. Public speaking for girls. Drill in voice exercise, platform deportment, and memorized selections for expression. Students are trained to present readings before the public. Rec. 3 hrs.; 3 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. Rec. 5 hrs.; 5 credits.

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 I. Designed to cover the usual first year academic credit work in elementary algebra. Rec. 5 hrs.; 5 credits.

ALGEBRA II. Continuation of Course I. Rec. 5 hrs.; 5 credits.

PLANE GEOMETRY I. Planned to cover usual academic course in plane geometry. Rec. 5 hrs.; 5 credits.

PLANE GEOMETRY II. Completion of Plane Geometry I. Rec. 5 hrs.; 5 credits.

BOOKKEEPING I. Purposes of accounts and principles of account classification; capital and revenue; accruals; principles of valuation; depreciation; preparation and interpretation of balance sheets, income accounts and other business statements. Rec. 5 hrs.; 5 credits.

BOOKKEEPING II. Continuation of Course I. Rec. 5 hrs.; 5 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. Rec. 5 hrs.; 5 credits.

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 I. 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.

GENERAL HISTORY II. Continuation of Course I. 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

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 in chemistry treating of the fundamental principles necessary for an understanding of common daily phenomena. Rec. 3 hrs.; Lab. 2, 2 hrs.; 5 credits.

FOOD AND HOUSEHOLD CHEMISTRY. Application of general principles of chemistry to food and its uses and to household problems such as textiles, dyeing, soaps and other cleansing agents. Rec. 3 hrs.; Lab. 2, 2 hrs.; 5 credits; fee, \$1.50.

AGRICULTURAL CHEMISTRY. A general introductory course preparatory for later work in agronomy and animal husbandry. Rec. 3 hrs.; Lab. 2, 2 hrs.; 5 credits; fee, \$1.50.

### HOME ECONOMICS

#### DOMESTIC ART

GARMENT MAKING I. A cooking outfit, including holder, towel and aprons and a suit of underwear are made. Various kinds of material and

their wearing qualities, simple decorative trimmings and the cost of the finished garments are discussed. Lab. 4, 2 hrs.; 4 credits.

**GARMENT MAKING II.** This course consists in the study of cotton and linen dress fabrics and the processes involved in making simple dresses. Two uniform house dresses and a black petticoat or a middie are made. Lab. 3, 2 hrs.; 3 credits.

**DRAWING AND DESIGN I.** Principles of design and color harmony with emphasis upon design as expressed in clothing, house furnishing, and articles in common use. Lab. 1, 2 hrs.; 1 credit.

**DRAWING AND DESIGN II.** Continuation of Drawing and Design I. Lab. 1, 2 hrs.; 1 credit.

**DRESSMAKING I.** Two uniform house dresses and a shirt waist are made during this course. Lab. 2, 2 hrs.; 2 credits.

**DRESSMAKING II.** A sport suit and a light summer dress are made during this course. Lab. 2, 2 hrs.; 2 credits.

**DRESSMAKING III.** A silk or wool dress is made in this course. Materials are purchased under direction of the instructor. Lab. 2, 2 hrs.; 2 credits.

**DRESSMAKING IV.** An inexpensive graduation dress is designed and made. Materials are purchased under direction of the instructor. Lab. 2, 2 hrs.; 2 credits.

**HOUSE PLANNING AND DECORATION.** Location of farm buildings, types of farm dwellings, study of house plans, choice of site, exposure, plumbing, heating, interior finish, walls, floors, furniture, curtains, pictures. Rec. 1 hr.; Lab. 2, 2 hrs.; 3 credits.

**TEXTILES.** Standard fabrics and textile fibers; tests for adulterations in fabrics; clothing in relation to health; the clothing budget. Rec. 5 hrs.; 5 credits.

**MILLINERY AND ART NEEDLEWORK.** (a) Design and color harmony in hats, alterations of frames; making and trimming simple hats. (b) Color combinations, and making designs for embroidery and stenciling. Lab. 3, 2 hrs.; 3 credits.

#### DOMESTIC SCIENCE

**FOODS AND COOKERY I.** Digestion and absorption of food, disposal of wastes, classification of foods, and a study of the scientific principles underlying the cooking of carbohydrates. Lab. 3, 2 hrs.; 3 credits; fee, \$1.

**FOODS AND COOKERY II.** Continuation of Course I including the study of batters and doughs including popovers, griddle cakes, muffins,



quick breads, cake, puddings, pies, and bread. Lab. 4, 2 hrs.; 4 credits; fee, \$1.

FOOD PRESERVATION. Study of bacteria, yeasts, molds; canning, jelly making, use of preservatives, cold storage. Rec. 1, Lab. 2, 2 hrs.; 3 credits; fee, \$1.50.

DIETETICS. Study of needs of the body, planning of dietaries, menus, serving, meal planning, and the actual serving of meals in small groups. Rec. 1, Lab. 2, 2 hrs.; 3 credits; fee, \$1.50.

HOME MANAGEMENT I. Review of foods and cookery problems applied to more advanced cookery. Special emphasis on economy of time and labor and the establishing of a high standard. Rec. 1, Lab. 2, 2 hrs.; 3 credits; fee, \$1.50.

HOME MANAGEMENT II. Study of dietaries, problems in management, and the actual management of the home management dining-room and kitchen. Rec. 1, Lab. 2, 2 hrs.; fee, 50 cents.

#### HOME NURSING

HOME NURSING I. Structures and functions of the human body; personal hygiene, bed making, bandaging. Rec. 5, 5 credits.

HOME NURSING II. Communicable diseases; home-nursing equipment; hygienic requirements during infancy, childhood, womanhood, maturity; care of infants. Rec. 5; 5 credits.

HOME NURSING III. Study of diseases and medicines. Rec. 5; 5 credits.

#### MUSIC

PIANO I. Exercises for hand position and rhythm; two-, three-, and five-finger exercises; major scales. Studies: Gurlitt, *Technic and Melody*; Tapper, *First Piano Book*, or *Graded Studies*, Grade I. Solos: Tapper, Sartorio, etc. 2 credits; fee, \$9.50.

PIANO II. Exercises for hand and arm control; thumb exercises, major scales, transposition of five-finger exercises, two- and three-finger exercises. Studies: Streabbog's *Twelve Very Easy Studies*, Czerny's *Anthology*, Vol. 1. Solos: *Graded Pieces*, Grade II. 2 credits; fee, \$9.50.

PIANO III. Scales with different rhythms, one and two notes, 80 mm.; broken chords. Studies: Concone's *Twenty-four Melodious Studies*; Tapper's *Graded Studies*, Grade III; Czerny's *Anthology*, Vol. II. Solos: Beethoven, Heller, etc. 2 credits; fee, \$9.50.

PIANO IV. Scales with different touches, one, two, three, and four notes, 80 mm.; Herz exercises, arpeggios; block chords with pressure

and drop arm. Foote, first-year Bach; Czerny; wrist and forearm studies. Solos: Grade III; Mozart; Sonatinas. 2 credits; fee, \$9.50.

PIANO V. Lynne's *Key Circle Exercises*, Book I; Heller, *Opus 47*; first-year Bach. Solos: easy sonatas by Haydn and Mozart. *Graded Pieces*, Grades III and IV, Tapper, *Graded Pieces III*. 2 credits; fee, \$9.50.

PIANO VI. Studies: Schmitt finger exercises; major and minor scales, hands separate, legato and staccato in varied rhythms; octave studies. Solos: Pieces by Schumann, Mendelssohn, Jenson, etc. Easier Beethoven works. 2 credits; fee, \$9.50.

#### 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.

#### BUSINESS

SPELLING. Students are required to secure one credit in spelling. Rec. 2 hrs.; 1 credit.

PENMANSHIP. Students are required to secure one credit in penmanship. Rec. 2 hrs.; 1 credit.

SPELLING AND PENMANSHIP I. Daily drill and individual instruction in penmanship; daily drill in spelling, the use and meaning of words and rules for spelling. Rec. 5 hrs.; 5 credits.

SPELLING AND PENMANSHIP II. Continuation of Course I. Rec. 5 hrs.; 5 credits.

TYPEWRITING. Taught throughout the course. Provides individual instruction in the use of the machine. Memorization of the key board and graded lessons are used. Each lesson must be done correctly before the student is advanced. 2-5 credits; fee, \$3.

SHORTHAND I. Gregg system supplemented with speed studies is used. Rec. 5 hrs.; 5 credits.

SHORTHAND II. Continuation of Course I. Rec. 5 hrs.; 5 credits.

DICTATION I. When students are capable of taking ordinary dictation and transcribing their notes on the typewriter, they are given office work to do and thus gain experience while still at school. Lab. 2, 2 hrs.; 2 credits.

DICTATION II. Continuation of Course I. Lab. 2, 2 hrs.; 2 credits.

BUSINESS TRAINING I. Duplicating and mimeograph, filing and indexing, business ethics. Rec. 5 hrs.; 5 credits.

BUSINESS TRAINING II. Continuation of Course I. Rec. 5 hrs.; 5 credits.

## HOME PROJECT WORK

Five credits in home project work are required for graduation, and ten such credits will be allowed. All students registered for this work are supplied with a complete file covering the prosecution of each project. This file includes the following sub-divisions:

*Project agreement:* This is a contract entered into between the student, his father, and the instructor under whose direction the project is being carried out. The following agreement is required from all students who register for home project work:

### WEST CENTRAL SCHOOL OF AGRICULTURE HOME PROJECT AGREEMENT

I, ....., agree to permit  
(name of parent)  
.....to carry out a.....project  
according to the plan submitted; to furnish.....  
.....  
in addition to time required; to allow him to participate in the profits and to check  
up time records and to vouch for the same.

I, .....agree to carry out all  
(name of pupil)  
the details of the project, to follow instructions of the Agricultural Instructor, to  
record and report truthfully upon all items of labor, cost, and income, and to write  
a final report of the whole project to be filed in records of the School.

I, .....agree to assist the  
(name of teacher)  
pupil to obtain all information needed; to render adequate supervision through visita-  
tion, correspondence, and monthly reports during the time covered by the project;  
to accept the work when completed as part of the regular school work and grant  
credit therefor toward graduation, according to the indication on the introductory  
sheet of this project.

This agreement entered into this.....day of.....19...  
.....Parent  
.....Pupil  
.....Instructor

*Outline of project:* This is a review of the entire project. It contains the purpose, plan of procedure, etc. It tells how to proceed with the particular project and outlines the work.

*General information:* This section includes the necessary information which the student should have to carry on the project. In most cases it is a brief summary of previous work covered in the classroom in some of the regular school courses.

*Accounts:* Students are required to keep careful and accurate records of all accounts and in order to do this the record must be made the day the purchase or sale is made or the particular work is completed. A labor record or cash record should be kept on the proper forms provided in each project.

*Reports:* Complete reports covering the progress of the work done upon all projects will be required from time to time during the summer. Proper forms are provided for these reports. The grade and credit which is given for home project work will depend upon the character of these reports and the care and promptness with which they are made.

*Bulletins:* The bulletins for each project are included with the project file and are for supplementary study as required during the term of the project.

*Financial statement:* This is a final report on the project. Students will be required to prepare a history of their project from the data they have recorded in their various reports. The complete financial statement made out on the proper forms will be included in this final report of the project.

#### COURSES IN HOME PROJECT WORK

PROJECT: FRUIT GROWING; CREDITS, 3.

*Department:* Horticulture; Supervisor, J. A. Anderson.

*Purpose:* To teach the practical application of the principles of successful fruit growing as taught in the classroom of the West Central School of Agriculture.

*Plan of procedure:* The student should take over the entire management of the orchard for one season, doing as much of the actual work connected with it as possible. It involves the cultivating, mulching, spraying, pruning, thinning of fruit if necessary, picking, and storing of fruit. The orchard must be managed to the best of the student's ability and in keeping with the most approved methods as taught in the class work of the West Central School of Agriculture.

*Reports:* Reports must be made in duplicate. The original to be sent back to the School and the copy retained in this binder. The reports should be sent in immediately when called for by the supervisor.

*Record of labor:* A careful record of all labor should be kept in the labor record form and should be reported as indicated.

*Visitations:* Visits will be made by the supervisor in charge of this project at which time the work will be checked up and advice and counsel given.

*Written summary:* At the close of the project the student must write up a complete summary of the work.

*References for supplementary readings:* Extension Bulletin, No. 22; Extension Bulletin, No. 16; Extension Bulletin, No. 9, the N. D. Farm Fruit Garden; Circular No. 69, Care of Young Apple Trees; Bulletin No. 212, Plums and Cherries; Bulletin No. 205, Soil Management in a Young Orchard; Farmers' Bulletin, 113, The Apple and How to Grow It; Farmers' Bulletin, 181, Pruning.

PROJECT: POTATO GROWING; CREDITS, 5.

*Department:* Horticulture; Supervisor, J. A. Anderson.

*Purpose:* To teach the practical application of the principles of potato growing as taught in the classroom of the West Central School of Agriculture.

*Plan of procedure:* The general plan of procedure is to have the student take over the entire management of the potato field, doing as much of the actual work connected with it as possible. It involves the preparation of land, cutting and treating the seed, planting, culture, spraying, ridging, digging, selection of seed potatoes, and storing. The field must be managed to the best of the student's ability and in keeping with the most approved methods as taught in the class work of the West Central School of Agriculture.

*Reports:* Reports must be made in duplicate. The original to be sent back to the School and the copy retained in this binder. The reports should be sent immediately when called for by the supervisor.

*Record of labor:* A careful record of all labor should be kept in the labor record form, and should be recorded as indicated.

*Visitation:* Visits will be made by the supervisor in charge of the project at which time the work will be checked up and advice and counsel given.

*Written summary:* At the close of the project, the student must write up a complete summary of the work.

*References for supplementary readings:* Agricultural Extension Bulletin, No. 38, Potato Growing in Minnesota; Agricultural Experiment Station Bulletin, No. 158, Potato Diseases; U. S. Farmers' Bulletin, No. 753, Handling, Grading, and Marketing Potatoes.

PROJECT: ALFALFA GROWING; CREDITS, 3.

*Department:* Agronomy; Supervisor, R. O. Bridgford.

*Purpose:* To have the student put into practical application on his own farm the principles of successful alfalfa production, in accordance with the plan outlined in this project.

*Plan of procedure:* The general plan of procedure is to have the student grow a field of alfalfa, doing as much of the actual work connected with it, himself, as possible. It involves the selection of the seed, preparation of the ground, inoculation (where needed), seeding, and the management of the field during the growing season. All of the work is to be done to the best of the student's ability, putting into practice at all times, the most approved methods as taught at the School of Agriculture, and further outlined in the literature for supplementary reading for this project.

*Reports:* Reports must be made in duplicate. The original to be sent back to the School and the copy retained in this binder. These reports should reach the School on or before the date specified.

*Record of labor:* A careful record of all the labor must be kept in the labor record form and must be reported as indicated. In reporting the labor, a careful record should be kept, from the time the project is started, and entries made on the days that the work is done or as soon after this as possible. This will eliminate chances for error and will also facilitate a complete and accurate record for the student's final report.

*Visitation:* Visits will be made by the supervisor in charge of the project, at which time the work will be checked up and such advice given as he deems necessary.

*Written summary:* At the close of the project, the student must write a complete summary of the work.

*References for supplementary reading:* Wilson and Warburton, Field Crops, Subject "Alfalfa"; Farmers' Bulletin, No. 339.

PROJECT: CORN GROWING; CREDITS, 5.

*Department:* Agronomy; Supervisor, R. O. Bridgford.

*Purpose:* To have the student apply in a practical way the principles of successful corn growing as taught in the classroom of the Agricultural School.

*Plan of procedure:* The general plan of procedure is to have the student take over, manage, and assume the responsibility of raising a field of corn, doing as much of the actual work connected with it, himself, as possible. It involves the selection and testing of seed corn, the preparation of the ground, planting, cultivating, and harvesting the crop. All the work is to be done to the best of the student's ability and in keeping with the most improved methods, as taught in the class work of the School.

*Reports:* Reports must be made in duplicate. The original to be sent back to the School and the copy retained in this binder. The reports should reach the School on or before the date specified.

*Record of labor:* A careful record of all the labor must be kept in the labor record form, and must be reported as indicated. In reporting the labor, a careful record should be kept from the start, and entries made the days that the work is done or as soon after this as possible. This will eliminate chances for error and will also facilitate a complete and accurate record for the student's final report.

*Visitation:* Visits will be made by the supervisor in charge of the project, at which time the work will be checked up, and such advice given as he deems necessary.

*Written summary:* At the close of the project a student must write a complete summary of the work.

*References for supplementary reading:* Field Crops, by Wilson and Warburton; Farmers' Bulletin No. 199.

PROJECT: FARM MANAGEMENT; CREDITS, 5.

*Department:* Agronomy; Supervisor, R. O. Bridgford.

*Purpose:* To have the student apply in a practical way the principle of keeping accurate farm accounts as taught in the classroom of the School of Agriculture.

*Plan of procedure:* The general plan of procedure is to have the student assume the responsibility of handling the business of his home farm for a year, and of keeping a record of all transactions that take place on the farm during that time.

It involves:

1. The taking of an inventory of all livestock, feed, supplies, seed grain, and machinery on the first day of April.
2. The making of a table showing the acreage of all crops grown, and later the yield of same.
3. The keeping of an accurate record of all receipts from:
  - a. Sale of crops
  - b. Sale of stock
  - c. Cream, milk, and butter
  - d. Poultry
  - e. Other sources
4. Keeping an accurate record of all expenses for:
  - a. Stock
  - b. Crops
  - c. Equipment
  - d. Permanent improvements
  - e. All other farm expenses
5. Closing inventory and figuring the labor income for the year.
6. Final financial statement.

*Reports:* The student will be expected to send in a written report on his project at its close. This should include a general review of the project, any interesting data concerning it, and any modifications which the student plans on making the following year, as a result of having kept the records and accounts.

*Visitation:* The supervisor will visit the student during the course of the project at which time the work will be checked up, and such advice given as he thinks necessary.

*References for supplementary reading:* Warren's Farm Management; Boss' Farm Management; Farmers' Bulletin No. 511, U. S. Department of Agriculture.

**PROJECT: SWINE MANAGEMENT; CREDITS, 5.**

*Department:* Animal Husbandry; Supervisor, P. S. Jordan.

*Purpose:* To teach the practical application of the principles of successful swine management as taught in the classroom of the Agricultural School.

*Plan of procedure:* The general plan of procedure is to have the student take over the entire management of the farm herd for one season, doing as much of the actual work connected with it, himself, as possible. It involves the invoicing of the herd at the beginning of the project and the close, the keeping of records of the number of pigs farrowed per litter, sex, number raised, ear markings, etc. A statement of housing provided, feeds fed, costs of production by close estimates. A record of all sales and all other details connected with the management of the herd. It is one of the requirements of this project that some pasture be provided. The herd must be managed to the best of the student's ability and in keeping with the most approved methods as taught in the class work of the School.

*Reports:* Reports must be made in duplicate. The original to be sent back to the School and the copy retained in this binder. The reports should reach the School on or before the date specified.

*Record of labor:* A careful record of all labor should be kept in the labor record form and should be reported as indicated. In recording the labor, a careful record should be kept the first week or two and entries made every day. After that, entries may be made once a week using the record of the first two weeks as a basis for estimating the average amount of time spent in doing the chores with the hogs. When special work is done, such as marking, ringing, etc., an entry of this labor should be made at once.

*Visitation:* Visits will be made by the supervisor in charge of this project at which time the work will be checked up and advice and counsel given.

*Written summary:* At the close of the project the student must write up a complete summary of the work.

*References for supplementary readings:* Dietrich, Swine; Henry and Morrison, Feeds and Feeding; Smith's Profitable Stock Feeding; Wisconsin Bulletin No. 242, Pork Production in Wisconsin; U. S. Farmers' Bulletin 874, Swine Management.

## HOME PROJECTS FOR GIRLS

*Purpose:* With the purpose of assisting the girl to continue her study of home-making problems throughout the summer months and to put into practice her instruction in regard to these same problems, each girl is assigned one or more definite home projects to be carried on between April 1 and October 1.

*Nature of work:* Each project consists of written reports upon the work done and a record of the time spent. Each project is carried on under the supervision of an instructor who outlines the work and visits the student two or more times during the summer.

*Work required:* Of a total of 160 credit hours required for graduation, five credit hours must be made and ten may be made in home project work. This makes it necessary for each girl to carry on project work during one summer of her school course, and possible for her to do so for two summers.

*Projects:* The project for freshman girls is a kitchen project. This project is a study of the home kitchen to show the convenient and inconvenient features and the possibilities of rearranging the working units so that many steps and extra work may be saved. The study is taken up as follows: (1) use; (2) exposure; (3) size and shape; (4) lighting; (5) walls and woodwork; (6) floors; (7) arrangement; (8) convenience; (9) suggestions for improvement.

The project for junior girls is a clothing project. This project is a study of the annual cost of a girl's clothing in relation to the family income, and her earning capacity in making her own clothes. It consists of:

Part I. (1) Inventory of clothing on hand April 1; (2) clothing purchased ready made April 1 to October 1; (3) clothing made at home April 1 to October 1.

Part II. (1) Clothing purchased ready made October 1 to April 1; (2) clothing made at school or at home October 1 to April 1; (3) summary of expenditures for clothing for entire year.



## WEST CENTRAL EXPERIMENT STATION

### STATION STAFF

R. W. THATCHER, M.A., Director  
ANDREW BOSS, Vice Director  
P. E. MILLER, B.S., Superintendent  
P. S. JORDAN, B.S., Animal Husbandry  
R. O. BRIDGFORD, B.S., Agronomy  
J. A. ANDERSON, B.S., Horticulture

The West Central Experiment Station, as a branch of the Minnesota Experiment Station, was established in 1910. Investigational work was begun in 1914. Beginning with 1915 the results and progress of the work have each year been published in the Annual Report of the Station. The Station is now conducting extensive experimental work in agronomy, soils, horticulture, and animal husbandry.

The Station is coöperating with the Central Experiment Station and the United States Bureau of Soils in a complete soil survey of Stevens County, the results of which will be ready for publication in 1919.

Most of the experimental work is entirely regional and all experiments are planned with the view that the results will be applicable to western Minnesota conditions. The results of the work are now finding direct application on the farms throughout the district.

In 1918 the work with phosphate fertilizers was extended by demonstrations on many farms throughout the territory served by the Station. The results so fully substantiate the findings on the experimental plots of the Station, that the investigations begun in 1914 appear destined to have immediately a prominent part in the management of western Minnesota soils. The results of these coöperative experiments are reported in Special bulletin No. 34 of the Agricultural Extension Division entitled, "Phosphate Demonstrations in Stevens County in 1918."

The following is a brief outline of the experimental projects:

*Varietal tests of farm crops.*—This project was begun in 1915. The purpose is to study the variety characteristics and conduct variety tests under the environmental conditions with a view to getting the best yielding and thoroly adapted strains to meet the economic and crop conditions of western Minnesota. Over one hundred varieties of corn, wheat, oats, barley, rye, speltz, field beans, soy beans, etc., are now in test. Pure seed stocks of many promising varieties are being increased.

*Selecting Minnesota No. 13 corn for yield and early maturity.*—This project was begun in 1914. The object is to adapt more thoroly Minnesota No. 13 corn to Western Minnesota conditions and to improve the maturity and type by selection and breeding. The improvement work is based on centgener selections and increase work in bulk plots. Before doing centgener work the best selections are grown in bulk plots until sufficient promise is given to warrant centgener tests.

*The breeding and testing of pedigreed strains and types of alfalfa.*—This project was begun in 1914. The object is to determine the hardiness and yield of the various types and pedigreed strains of alfalfa and make selections from the most promising strains for further improvement. The commercial varieties and the improved selections of the various experiment stations are secured as occasion permits and are planted in the alfalfa nursery. Performance records including yield, hardiness, and plant characteristics are kept. Selections and increase work are carried on with the most promising strains.

*Crop rotation experiments.*—This project was begun in 1916. It includes the following divisions:

1. The utilization of medium red clover in a 4-year rotation of corn, wheat, barley, and clover to determine the effect of the various methods of utilizing the clover crop in such a rotation upon crop yields and soil fertility.

2. An 8-year rotation without manure, including 4 years of cereal crops and 4 years of alfalfa, to determine the crop which will most profitably follow alfalfa and the value of alfalfa in an 8-year rotation.

3. The use of barnyard manure applied at rates varying from 0 to 32 tons per acre on a 4-year rotation of corn, wheat, barley, and clover to determine the value of manure applied at these various rates per acre.

4. The use of crop residues applied at rates varying from 0 to 2 tons per acre on a rotation of corn and wheat to ascertain the effect of crop residues in different amounts upon soil conditions, and upon crop yields.

5. The continuous growing of corn, wheat, oats, and barley on the same land to demonstrate the effect of continuous cropping upon soil conditions and crop yields.

*Phosphate fertilizer tests.*—The following tests were begun in 1914:

1. The use of acid phosphate, of rock phosphate and of manure alone as well as rock phosphate with manure and acid phosphate with manure, and the use of lime with all of the above combinations on a 4-year rotation of corn, wheat, oats, and clover to determine the value of these fertilizers for the soils of western Minnesota, when the above cropping systems are used.

2. The use of gypsum, manure, rock phosphate, acid phosphate, sulphate of potash and the last two in combination, and the use of lime with all the above combinations on alfalfa to determine the fertilizer needs of alfalfa for the soils of western Minnesota.

*Rotations and alternate cropping experiments.*—These experiments were begun in 1919 and include the following cropping systems:

1. A 3-year rotation of oats, clover, corn with 6 tons of barnyard manure per acre applied to the land preceding corn, to determine the value of this form of rotation.

2. A 4-year rotation of oats, clover, corn, barley, with 8 tons of barnyard manure per acre applied preceding corn, to determine the value of this form of rotation.

3. A 5-year rotation of oats, clover hay, timothy and clover hay to determine the value of a standard 5-year rotation in comparison with one of shorter duration.

4. A 5-year rotation of oats, wheat

A 5-year rotation of oats, barley

A 5-year rotation of wheat, barley.

The object of these rotations is to show the effect of alternate cropping of the various crops and a comparison of this system with the above rotations.

5. Continuous cropping of oats

Continuous cropping of wheat

Continuous cropping of barley.

To demonstrate the effect of continuous cropping as compared with alternate cropping and the 3-, 4-, 5-year rotations.

*Rate of seeding oats.*—These experiments were begun in 1914. Seedings of 48, 64, 80, 96, and 112 pounds per acre are made, to determine the most satisfactory amount of seed to sow per acre.

*Corn and soy bean silage tests.*—Corn and soy beans are drilled in rows together and cut for silage. Field weights are obtained and analysis of the silage is made for comparison with straight corn silage.

*Investigations in cereal breeding.*—The testing of selections, hybrids, etc., in rod rows with the purpose of ultimately producing better varieties of cereal grains for Minnesota.

*Potato investigations.*—This project was begun in 1918 and includes the following work:

1. Variety tests to determine which varieties of potatoes are best adapted to western Minnesota conditions.

2. Cultivation experiments to determine the method of cultivation which is most satisfactory in the cropping of potatoes, surface or ridged cultivation.

3. Depth of planting trials to determine which depth of planting will give the best results.

4. Spraying experiments to determine the value of spraying potatoes for fungus diseases.

5. Hill-selection experiments to determine the value of hill selections as compared with the tuber-unit method.

*The testing of trees and ornamentals.*—This project was begun in 1914. The object is to determine the comparative value of the various trees, shrubs, and ornamentals, for farm planting under Western Minnesota conditions.

All the standard varieties of trees and shrubs have been planted in the nursery and on the campus. These plantings will be added to from year to year as new stock is obtained. All seedlings are set in the nursery and grown there until they are of proper size. They are then transplanted to their permanent location on the campus, in accordance with an organized plan of landscape planting for the development of

the School grounds. Notes as to rapidity of growth, time of bloom, winter-killing, and resistance to mechanical injury are kept.

*Variety tests of vegetables.*—This project was begun in 1917 to determine which varieties of vegetables are best suited to Western Minnesota conditions, and to compare new varieties with the standard varieties.

*Bush and fruit investigations.*—This project was begun in 1917 to determine which varieties of bush and tree fruits are best suited for planting under Western Minnesota conditions.

Several varieties of bush and tree fruits have been planted in the orchard and small fruit garden. These will be added to from year to year, as new stock is obtained. Careful notes as to earliness, hardiness, yield, quality of fruit, resistance to disease, and freedom from disease will be kept.

*Feeding experiments with swine.*—This project was begun in 1916 and has the following parts:

1. Growing pigs on alfalfa pasture in combination with the self-feeder as compared with growing pigs in a dry lot in combination with the self-feeder, to determine the gains and the cost of gains made by these methods.

2. Growing pigs on alfalfa pasture in combination with a full grain ration (hand fed) as compared with growing pigs in a dry lot in combination with a full grain ration (hand fed), to determine the gains and the cost of gains made by these methods.

3. Growing pigs on alfalfa pasture in combination with the self-feeder with a full grain ration (hand fed) as compared with growing pigs on alfalfa pasture in combination with a reduced grain ration (hand fed), to determine the gains and the cost of gains made by these methods.

4. Growing pigs in a dry lot in combination with the self-feeder as compared with growing pigs in a dry lot in combination with a full grain ration (hand fed), to determine the gains and the cost of gains made by these methods.

5. The effect of pasturing hogs on the growth and stand of alfalfa.

## SUMMARY OF ATTENDANCE

1918-1919

Regular School Course	Men	Women	Total
Advanced Course .....	4	0	4
Seniors .....	8	6	14
Juniors .....	15	17	32
Freshmen .....	115	62	177
	<hr/>	<hr/>	<hr/>
Total regular School course.....	142	85	227
Summer Session, 1918.....	0	70	70
Farm Women's Short Course, 1918.....	0	71	71
Farmers' Tractor School, 1919.....	65	0	65
Junior Short Course, 1919.....	...	...	270
	<hr/>	<hr/>	<hr/>
Total .....	207	226	703

## STUDENTS

1918-1919

### ADVANCED—4

Cummings, Kenneth, Dawson  
Erdahl, Manford, St. Cloud

Mahoney, Francis, Correll  
Nelson, Earl, Dawson

### SENIORS—14

Brisbane, Lowell, Morris  
Dosen, Karen, Starbuck  
Dripps, Allen, Morris  
Erickson, Ethel, Nelson  
Halvorson, Roy, Kerkhoven  
James, Harold, Glenwood  
Kerr, Isabella, Holloway

Mecklenburg, Dora, Nashua  
Myrum, Viola, Louisburg  
Rolighed, Marvin, Appleton  
Saterlie, Arthur, Appleton  
Stegner, Wesley, Beardsley  
Thompson, William, Glenwood  
Ulvestad, Ruth, Morris

### JUNIORS—32

Carton, Agnes, Owatonna  
Crissey, Orville, Morris  
Crissey, Raymond, Morris  
Dehne, Reuben, Holloway  
Dale, Selina, Dawson  
Dell, Mildred, Hardwick  
Eastman, Victor, Beardsley  
Erdahl, Selmer, St. Cloud  
Evans, Emily, Correll  
Fauskee, Ella, Brooten  
Hendrickson, Stella, Kensington  
Hoff, Ole, Chokio  
Howard, Myra, Rochester  
Hoyum, Lillian, Dawson  
Landes, Lillian, Hancock  
Leaf, Earl, Homer

Lewig, Laura, Nashua  
Madsen, Alice, Herman  
Malm, Leo, Browns Valley  
Marple, Lawrence, Wendell  
Nelson, Jessie, Dawson  
Norberg, Gladys, Kensington  
Odden, Olga, Echo  
Potts, Clarence, Browns Valley  
Pushor, Kyle, Donnelly  
Quarve, Olive, Louisburg  
Ray, Ruth, Hancock  
Sather, Clifford, Morris  
Shaw, Curtis, Chokio  
Stark, Charlotte, Kensington  
Thoen, Elmer, Dawson  
Torgelson, Elmer, Milan

### FRESHMEN—177

Aarvig, Earl, Willmar  
Anderson, Arthur, Fort Ransom, N. D.  
Anderson, Edwin, Alberta  
Anderson, LeRoy, Alexandria  
Anderson, Theodore, Ortonville  
Anderson, Viola, Kensington  
Arnold, Arthur, Correll  
Arnold, Lydia, Correll  
Arndt, Emma, Hardwick  
Austin, Marion, Campbell  
Austvold, Sophia, Glenwood  
Bahnsen, Alice, Morris  
Bakken, Annie, Dawson  
Bakken, Adolph, Dawson  
Bakke, Edgar, Granite Falls  
Barsness, James, Glenwood  
Barsness, Peter, Glenwood  
Barsness, Sydney, Glenwood

Bearl, Rodger, Morris  
Behl, Foster, Morris  
Benson, Carl, Morris  
Berg, Carl, Chokio  
Berwald, Ernest, Big Stone, S. D.  
Berwald, Sophy, Big Stone, S. D.  
Bloomquist, Irene, Starbuck  
Bloomquist, Alvin, Starbuck  
Bouska, Lillian, Raymond  
Brown, Julia, Chokio  
Brandby, Gerhard, Glenwood  
Bridel, Virgil, De Graff  
Brownell, Dale, Granite Falls  
Bugbee, Robert, Wendell  
Busse, Anna, Appleton  
Carlin, Lillian, Donnelly  
Carlin, Mae, Donnelly  
Carton, Evelyn, Owatonna

Clausen, Jens, Raymond  
 Conger, Calving, Bary  
 Donnen, John, Tintah  
 Donnen, Ida, Tintah  
 Eastman, Ethel, Beardsley  
 Eckert, Virgil, Glenwood  
 Erickson, Helen, Starbuck  
 Erickson, Jennie, Starbuck  
 Ellis, George, Beardsley  
 Eliason, Ingvald, Alberta  
 Estenson, Ruth, Hancock  
 Eystad, Oscar, Alberta  
 Eystad, Otto, Alberta  
 Erickson, Oswald, Chokio  
 Fath, Nicholas, De Graff  
 Ferdon, Glen, Herman  
 Ferdon, Lee, Herman  
 Ferry, Leo, De Graff  
 Fessler, Meta, Hardwick  
 Fransen, Marvin, New Effington, S. D.  
 Fondell, Pearl, Dawson  
 Giese, Anna, Holloway  
 Gilbertson, Guy, Glenwood  
 Green, Rex, Clinton  
 Grindahl, Luella, Belgrade  
 Gunnafson, Wallace, Cyrus  
 Gustafson, Bert, Cyrus  
 Haase, Gertrude, Morris  
 Hagen, Harold, Danvers  
 Hanson, Chester, Graceville  
 Hanson, Walter, Graceville  
 Hanson, Lydia, Nelson  
 Hasse, Elsie, Tintah  
 Hendrickson, Arthur, Norcross  
 Hendrickson, Esther, Kensington  
 Hendrickson, Elvin, Norcross  
 Hendrickson, Waldemar, Kensington  
 Herring, Esther, Renville  
 Hyland, Lucius, Colgan, N. D.  
 Hoffman, Myrtle, Morris  
 Hovde, Brynjolf, Glenwood  
 Holten, Gena, Glenwood  
 Iverson, Gyda, Granite Falls  
 Jacobson, Joseph, Alberta  
 Johnson, Delia, Nelson  
 Kellen, Leonard, Madison  
 Kjera, Alfred, Cyrus  
 Kjera, Ingvald, Cyrus  
 Kleven, Bertina, Starbuck  
 Klovstad, Fred, Milan  
 Knutson, Elmer, Beardsley  
 Koll, Karl, Hardwick  
 Koll, Ella, Hardwick  
 Koosman, Gertrude, Correll  
 Koosman, Fred, Holloway  
 Kolodgy, Louis, Donnelly  
 Kvistero, Julia, Granite Falls  
 Larson, Ella, Dawson  
 Larson, Lyda, Glenwood  
 Lindberg, Pearl, Campbell  
 Laudenslager, Ernest, Donnelly  
 Lerdahl, Edward, Cyrus  
 Lerdahl, William, Cyrus  
 Leverson, Elmo, Brooten  
 Lewig, Lloyd, Nashua  
 Lindberg, Clair, Campbell  
 Leuneberg, Ernest, Herman  
 Luhman, Reuben, Chokio  
 Lund, George, Madison  
 McNally, John, Chokio  
 Melin, Berger, Appleton  
 Miller, Ben, Chokio  
 Moe, Arthur, Mora  
 Minners, Frieda, Johnson  
 Munson, Roy, Doran  
 Mortenson, Carl, Alberta  
 Murphy, Francis, Luce  
 Narragon, Archie, Raymond  
 Nelson, Bernard, Clinton  
 Ness, Cora, Dawson  
 Nilson, Dora, Kensington  
 Neuschwander, Arthur, Big Stone City,  
 S. D.  
 Nordstrom, Lillian, Kensington  
 Nysteu, Reuben, Morris  
 Ogdahl, Norman, Glenwood  
 Olson, Selmer, Morris  
 Osterberg, Bertha, Farwell  
 Paulson, Anna, Alexandria  
 Peterson, Agnes, Madison  
 Predmore, Eva, Norcross  
 Reedy, John, Graceville  
 Rice, George, Renville  
 Rime, Martin, Murdock  
 Rolen, Wallace, Clinton  
 Romo, Lawrence, Granite Falls  
 Rood, Perry, Herman  
 Rustad, Joseph, Battle Lake  
 Rud, Thea, Starbuck  
 Salmonson, Rolland, Clinton  
 Sather, Lawrence, Morris  
 Saterlie, Ernest, Montevideo  
 Schlegal, Clark, Chokio  
 Schnaser, Oscar, Big Stone City, S. D.  
 Schnaser, Clara, Big Stone City, S. D.  
 Schmidt, Helen, Big Stone City, S. D.  
 Schroeder, Lena, Appleton  
 Schroeder, Clarence, Morris  
 Schwartz, Ben, Morris  
 Skoin, Alvin, Dawson  
 Smedstad, William, Starbuck  
 Smedstad, Cora, Starbuck  
 Spilseth, Milo, Kensington  
 Spilseth, Palmer, Kensington  
 Shandorf, Ralph, Browns Valley  
 Steen, John, Nashua

Stock, Carl, Kensington  
Stock, Clara, Kensington  
Stark, Ruth, Kensington  
Steen, Bertha, Nashua  
Summer, Clifton, Chokio  
Swift, James, Wendell  
Syverson, Palmer, Alexandria  
Thimmesch, Anthony, Osakis  
Thimmesch, Theodore, Osakis  
Thompson, Magnus, Starbuck  
Thompson, Peter, Starbuck  
Thompson, Victor, Madison  
Tonn, Herbert, Hancock

Torgrimson, Lloyd, Madison  
Vold, Alice, Glenwood  
Waechter, Carl, Appleton  
Weaver, John, Wendell  
Weaver, Eva, Wendell  
Welfare, Agnes, Morris  
Welfare, LeRoy, Morris  
Werner, Arvid, Brandon  
Wetterling, Flavia, Kensington  
Wickstrom, Ralph, Alberta  
Wenschlag, Elsie, Clair City, S. D.  
Wenschlag, Frances, Clair City, S. D.  
Wiese, Laura, Luverne



THE UNIVERSITY OF MINNESOTA

WEST CENTRAL SCHOOL OF AGRICULTURE

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

One hundred fifty dollars will pay the entire expenses for 6 months. There is also a limited amount of work around the School whereby a few students can earn part of their expenses.

.....  
Mail the following application to the Registrar, West Central School of Agriculture, Morris, Minnesota.

To the Registrar:

West Central School of Agriculture,  
Morris, Minnesota.

I am enclosing \$2 for a room reservation in one of the dormitories. I wish to room with the following person.....  
.....(state preference if any). I expect to enter School about.....  
Name .....  
Home Address: R. F. D....., Post Office.....

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

*The Summer Session*  
*Announcement of Courses*  
*June 23 to August 2*  
**1919**



*Vol. XXII No. 14 May 10 1919*

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

*Acceptance for mailing at special rate of postage provided for in section 1103,*  
*Act of October 3, 1917, authorized July 12, 1918*

# THE SUMMER SESSION

## FACULTY

### ADMINISTRATION

MARION LEROY BURTON, Ph.D., D.D., LL.D., President  
CYRUS NORTHROP, LL.D., President Emeritus  
LOTUS D. COFFMAN, Ph.D., Director of Summer Session, Professor of  
Education  
ROBERT C. LANSING, M.A., Vice Director of Summer Session, College of  
Agriculture  
EDWARD E. NICHOLSON, M.A., Dean of Student Affairs  
GUY STANTON FORD, Ph.D., Dean of the Graduate School  
GERTRUDE H. BEGGS, Ph.D., LL.D., Dean of Women

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

CEPHAS D. ALLIN, LL.B., M.A., Professor of Political Science  
EARL BAKER, (Minneapolis Public Schools) Instructor in Public School  
Methods  
WILLIAM BALL, (Minneapolis Public Schools), Special Lecturer in Ameri-  
canization Training  
FRANCIS B. BARTON, Docteur de l'Université de Paris, Assistant Professor  
of Romance Languages  
RALPH M. BARTON, B.A., Assistant Professor of Mathematics  
WILLIAM O. BEAL, M.A., M.S., Assistant Astronomer  
CAROLINE BEDFORD, B.A., Supervisor of Field Work  
LUTHER L. BERNARD, Ph.D., Associate Professor of Sociology  
RAYMOND W. BRINK, Ph.D., Assistant Professor of Mathematics  
CARLETON BROWN, Ph.D., Professor of English  
FRANK J. BRUNO, B.A., B.D., Special Lecturer in Sociology  
OSCAR BURKHARD, Ph.D., Assistant Professor of German  
WILLIAM H. BUSSEY, Ph.D., Associate Professor of Mathematics  
ARTHUR R. CADE, M.S., Instructor in Chemistry  
BERTHA W. CLARK, M.A., Instructor in Americanization Training  
JOHN COLLIER, (League for Constructive Immigration Legislation, New  
York City) Special Lecturer in Social Work  
JAMES DAVIES, Ph.D., Assistant Professor of German  
MARIE B. DENNEEN, B.A., Instructor in Latin  
HARRIET DOW, (Yorkville Neighborhood Association, New York City)  
Special Lecturer in Americanization Training  
HAL DOWNEY, Ph.D., Professor of Animal Biology  
ELIAS J. DURAND, B.A., B.S.C., Professor of Botany  
HENRY A. ERIKSON, Ph.D., Professor of Physics  
GEORGE FAIRCLOUGH, Instructor in Music  
DONALD N. FERGUSON, B.A., Assistant Professor of Music  
DANIEL FORD, M.A., Assistant Professor of Rhetoric

- ISAAC W. GEIGER, Ph.D., Assistant Professor of Chemistry  
 NORMAN S. B. GRAS, Ph.D., Professor of Economic History  
 HASTINGS H. HART, Ph.D., (Department of Child Helping, Russell Sage Foundation) Special Lecturer in Social Work  
 CYRIL A. HERRICK, B.A., Instructor in Rhetoric  
 WILLARD E. HOTCHKISS, Ph.D., Professor of Economics  
 GERTRUDE HULL, B.A., Instructor in Music  
 ALBERT E. JENKS, Ph.D., Professor of Anthropology and Americanization Training  
 OSCAR W. JUNEK, Ph.D., Assistant Professor of Americanization Training  
 WILLIAM S. KREBS, M.A., Professor of Economics  
 AUGUST C. KREY, Ph.D., Associate Professor of History  
 SAMUEL KROESCH, Ph.D., Assistant Professor of German  
 CHARLES F. LINDSLEY, M.A., Instructor in Public Speaking  
 RUPERT C. LODGE, M.A., Assistant Professor of Philosophy  
 FRANCES E. LOWELL, B.A., Instructor in Psychology  
 JAMES F. MACKELL, B.A., Instructor in Physics  
 J. LEWIS MAYNARD, Assistant in Chemistry  
 BRUCE LEE MELVIN, Assistant in Anthropology  
 LOUALLEN F. MILLER, M.A., Professorial Lecturer in Physics  
 CECIL A. MOORE, Ph.D., Professorial Lecturer in English  
 WALTER R. MYERS, Ph.D., Assistant Professor of German  
 ANNE M. NICHOLSON, Ph.D., (Public Schools, San Francisco) Special Lecturer in Americanization Training  
 GEORGE N. NORTHROP, M.A., Assistant Professor of English  
 EVERETT W. OLMSTED, Ph.D., Professor of Romance Languages  
 CHESSELY J. POSEY, M.S., Assistant Professor of Geology and Geography  
 FRANK M. RARIG, M.A., Associate Professor of Rhetoric and Public Speaking  
 WILLIAM D. REEVE, B.S., Instructor in Mathematics  
 GERTRUDE REEVES, Instructor in Music  
 CHARLES A. SAVAGE, Ph.D., Professor of Greek  
 CARL SCHEURER, Instructor in Music  
 CARL SCHLENKER, B.A., Professor of German  
 GERTRUDE B. SCHILL, B.A., Instructor in Physical Education  
 CARLYLE M. SCOTT, Professor of Music  
 COLBERT SEARLES, Ph.D., Professor of Romance Languages  
 AMELIA SEARS, (Chicago) Special Lecturer in Social Work  
 LESTER B. SHIPPEE, Ph.D., Assistant Professor of History  
 M. CANNON SNEED, Ph.D., Associate Professor of Chemistry  
 GEORGE M. STEPHENSON, Ph.D., Instructor in History  
 JOHN SUNDWALL, M.D., Special Lecturer in Social Work  
 JOHN T. TATE, Ph.D., Associate Professor of Physics  
 MARION TEBBETTS, B.A., Supervisor of Field Work  
 JOSEPH M. THOMAS, Ph.D., Professor of Rhetoric  
 JOSEPHINE E. TILDEN, M.S., Professor of Botany  
 ARTHUR J. TODD, Ph.D., Professor of Sociology

EVELYN VOSS, Instructor in Swimming  
 BERT A. WALLACE, B.A., Instructor in Economics  
 FRANK C. WHITMORE, Ph.D., Instructor in Chemistry  
 ERNEST P. WILES, M.A., (Public Schools, Akron, Ohio) Special Lecturer  
 in Americanization Training  
 GUY H. WOOLLETT, Ph.D., Instructor in Chemistry  
 CHESTER H. YEATON, Ph.D., Instructor in Mathematics  
 N. A. YOUNG, (County Superintendent of Schools, St. Louis County)  
 Special Lecturer in Americanization Training  
 JEREMIAH S. YOUNG, Ph.D., Professor of Political Science

## COLLEGE OF EDUCATION

JEAN H. ALEXANDER, M.A., Instructor in History of Education  
 LOTUS D. COFFMAN, Ph.D., Professor of Education  
 JAMES F. MACKELL, B.A., Instructor Teachers' Course in Physics  
 WILFORD S. MILLER, Ph.D., Assistant Professor of Education  
 ALBERT W. RANKIN, B.A., Professor of Education  
 WILLIAM D. REEVE, B.S., Instructor in Education, Principal of the Uni-  
 versity High School  
 RAYMOND W. SIES, Ph.D., Professor of Education  
 LYNNE E. STOCKWELL, Instructor in Manual Training  
 MARVIN J. VAN WAGENEN, Ph.D., Assistant Professor of Education

## UNIVERSITY HIGH SCHOOL

CLARA BROWN, B.S., Instructor in Home Economics  
 ETHEL DUSTIN, Instructor in Art  
 SOPHIA HUBMAN, M.A., Instructor in German  
 MRS. MARTHA KROESCH, B.M., Instructor in Piano  
 RUTH M. LINDQUIST, B.S., Instructor in Home Economics  
 JAMES MACKELL, B.A., Instructor in Science  
 FRANCES MOREHOUSE, M.A., Instructor in History  
 SAMUEL R. POWERS, B.A., Instructor in Science  
 DORA V. SMITH, B.A., Instructor in English  
 W. RAY SMITH, B.A., Instructor in Mathematics

## 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  
 ANDREW J. WEISS, Instructor in Dentistry

## COLLEGE OF ENGINEERING AND ARCHITECTURE

HANS H. DALAKER, B.A., Assistant Professor of Mathematics  
 ROBERT W. FRENCH, B.S. in C.E., Assistant Professor of Drawing and  
 Descriptive Geometry

WILLIAM F. HOLMAN, Ph.D., Assistant Professor of Mathematics and Mechanics  
 WILLIAM H. KIRCHNER, B.S., Professor of Mathematics and Mechanics  
 GEORGE C. PRIESTER, B.E., M.S., Assistant Professor of Mathematics and Mechanics  
 WILLIAM H. RICHARDS, Instructor in Shop and Manual Training  
 S. CARL SHIPLEY, M.E., Assistant Professor of Shop and Manual Training

## LAW SCHOOL

ANDREW A. BRUCE, B.A., LL.B., Professor of Law  
 WILBUR H. CHERRY, B.A., LL.B., Professor of Law  
 HENRY J. FLETCHER, LL.M., Professor of Law  
 JAMES PAIGE, M.A., LL.M., Professor of Law

## MEDICAL SCHOOL

ELEXIOUS T. BELL, B.S., M.D., Associate Professor of Pathology  
 ANNE BENTON, M.A., Instructor in Bacteriology  
 EDGAR D. BROWN, Ph.D., M.D., Associate Professor of Pharmacology  
 CHARLES A. ERDMANN, M.D., Associate Professor of Anatomy  
 CHARLES C. GAULT, B.A., Instructor in Physiology  
 ESTHER GREISHYMER, B.S., Instructor in Physiology  
 ARTHUR T. HENRICI, M.D., Assistant Professor of Bacteriology  
 ARTHUR D. HIRSCHFELDER, B.S., M.D., Professor of Pharmacology  
 CLARENCE M. JACKSON, M.S., M.D., Professor of Anatomy  
 WINFORD P. LARSON, M.D., Professor of Bacteriology  
 THOMAS G. LEE, B.S., M.D., Professor of Anatomy  
 GUSTAVE J. NOBAK, B.S., Instructor in Anatomy  
 HJALMER L. OSTERUD, M.A., Instructor in Anatomy  
 CHAUNCEY J. V. PETTIBONE, Ph.D., Assistant Professor of Physiological Chemistry  
 ANDREW T. RASMUSSEN, Ph.D., Assistant Professor of Anatomy  
 HAROLD E. ROBERTSON, B.A., M.D., Professor of Pathology  
 RICHARD E. SCAMMON, Ph.D., Professor of Anatomy  
 FREDERICK H. SCOTT, Ph.D., M.B., Sc.D., Professor of Physiology  
 MARGARET WARWICK, B.S., M.D., Instructor in Pathology and Bacteriology

## COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

## FACULTY

ROSCOE W. THATCHER, M.A., Dean of the Department of Agriculture  
 EDWARD M. FREEMAN, Ph.D., Dean of the College of Agriculture, Forestry, and Home Economics  
 \*ASHLEY V. STORM, M.A., Director of Short Courses  
 ROBERT C. LANSING, M.A., Vice-Director of the Summer Session  
 RODNEY M. WEST, B.A., Secretary  
 LOUIS B. BASSETT, Assistant Professor of Farm Management  
 ALICE BIESTER, M.A., Assistant Professor of Nutrition

\* On leave of absence.

GUY R. BISBY, M.A., Assistant Professor of Plant Pathology  
ANDREW BOSS, Professor of Agronomy and Farm Management  
WILLARD L. BOYD, D.V.S., Assistant Professor of Veterinary Medicine  
WILFRID G. BRIERLEY, M.S., Associate Professor of Horticulture  
LEROY CADY, B.S. in Agr., Associate Professor of Horticulture  
JOSEPH C. CORT, M.S.A., Assistant Professor of Dairy Husbandry  
WILLIAM P. DYER, B.A., Assistant Professor of Agricultural Education  
ALBERT M. FIELD, M.S., Assistant Professor of Agricultural Education  
CLIFFORD P. FITCH, M.S., D.V.M., Professor of Animal Pathology and  
Bacteriology  
EDWARD M. FREEMAN, Ph.D., Professor of Botany and Plant Pathology  
HARRIET I. GOLDSTEIN, Assistant Professor of Drawing and Design  
EDWIN O. HANSON, Assistant Professor of Dairy Husbandry  
FRANCIS JAGER, Professor of Bee Culture  
DEXTER D. MAYNE, Professor of Agricultural Pedagogics  
CLARENCE A. MORROW, M.A., Assistant Professor of Agricultural Bio-  
chemistry  
OSCAR W. OESTLUND, Ph.D., Assistant Professor of Animal Biology  
MAUDE E. PATCHIN, B.S., Assistant Professor of Textiles and Clothing  
MYRON H. REYNOLDS, B.S.A., D.V.M., M.D., Professor of Veterinary  
Medicine  
WILLIAM A. RILEY, Ph.D., Professor of Entomology  
HARRY B. ROE, B.S. in Eng., Assistant Professor of Agricultural Engi-  
neering  
ARTHUR C. SMITH, B.S., Professor of Poultry Husbandry  
ELVIN C. STAKMAN, Ph.D., Professor of Plant Pathology  
NOLA TREAT, B.S., Assistant Professor of Institutional Management  
ROBERT M. WASHBURN, M.S. in Agr., Professor of Dairy Husbandry  
MILDRED WEIGLEY, B.S., Professor of Home Economics  
MARION WELLER, B.A., Assistant Professor of Textiles  
HALL B. WHITE, B.S. in Agr., Assistant Professor of Farm Buildings  
ARTHUR L. ANDERSON, B.S., Instructor in Animal Husbandry  
JOHN V. ANKENY, B.S., Instructor in Agricultural Education  
CARLOTTA BROWN, Instructor in Millinery  
ROBERT C. DAHLBERG, B.S. in Agr., Instructor in Agricultural Botany  
HALLY J. FISHER, R.N., Instructor in Home Nursing  
VETTA GOLDSTEIN, Instructor in Drawing and Design  
ALLEN D. JOHNSTON, Instructor in Blacksmithing  
RUTH M. LINDQUIST, B.S., Instructor in Foods-Management  
MABEL MCDOWELL, B.S., Instructor in Foods-Management  
FORREST W. MCGINNIS, M.S., Instructor in Farm Crops  
ETHEL L. PHELPS, B.S., Instructor in Textiles and Clothing  
LENORE RICHARDS, B.A., Instructor in Institutional Management  
LAVINIA STINSON, B.A., Instructor in Foods and Cookery  
LESLIE V. WILSON, B.S., Instructor in Dairy Husbandry

## 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 Law School, 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.

For the summer quarter the Art Section of the Division of Home Economics offers courses in Related Art for Smith-Hughes schools.

These courses aim to show the relationship of art principles to everyday life, and to train teachers to a practical working knowledge of these principles so that they may lead their students to realize the place of design in everything they handle. Courses covering the following subject-matter will be given:



Drawing and Design  
Costume and Interior Design  
Art Appreciation and History  
House Planning and Furnishing  
Decorative Needlework and Other Crafts  
Textiles  
Clothing Construction Courses  
Millinery

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 21, and Monday, June 23, 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 24. After Monday, June 23, students may register by special permission only. No student will be permitted to register after Monday, June 30. To complete registration, fees must be paid the same day.

## SUMMER SESSION

Those who desire to enroll in Arts, Education, Engineering, Dentistry, Law, 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 23, 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.

## CREDITS

A course that recites ten hours a week for six weeks will carry five quarter credits. A course that recites eight hours a week for six weeks will carry four quarter credits, etc. The plan is shown by the following table:

$$5Q = 2 (5 \times 6) = 60 \text{ recitation hours}$$

$$4Q = 8 \times 6 = 48 \text{ recitation hours}$$

$$3Q = 6 \times 6 = 36 \text{ recitation hours}$$

$$2Q = 4 \times 6 = 24 \text{ recitation hours}$$

$$1Q = 2 \times 6 = 12 \text{ recitation hours}$$

No student may secure more than nine quarter credits in the six weeks period except by special permission.

## DAILY PROGRAM

The hour schedule will be as follows:

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

## GENERAL LECTURES

A series of popular lectures open to the students, Faculty, and the general public will be announced in the daily bulletins.

## GENERAL INFORMATION

II

### 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.

#### FEEES

Students are required to pay fees as follows:

Registration fee .....	\$5.00
Tuition fee per credit hour.....	2.00
Additional fee for each laboratory course....	1.50
Deposit fee .....	5.00
Health fee .....	1.00

Every student will be required to pay at least \$10, including the registration fee of \$5. The unused balance of the deposit fee will be returned at the close of the Summer Session. All of the courses in Medicine, Dentistry, and Law, and a few courses in other colleges require special fees.

#### REFUNDS

The \$5 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 to \$10 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.

## SUMMER SESSION

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 (to apply on Residence Fee) is received. A rate of \$2.25 per week is charged for each single room, and \$1.50 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 both men and women of the Summer Session of 1919. 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, and special rest rooms, with a matron in charge, will be set aside for the women students.

## 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; WGm, 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 one hundred and thirty-five quarter 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.*

AMERICANIZATION TRAINING AND ANTHROPOLOGY

Professor ALBERT E. JENKS; Assistant Professor OSCAR W. JUNEK; Instructor BERTHA W. CLARK; Assistant BRUCE LEE MELVIN; Special Lecturers WILLIAM BALL, HARRIET DOW, ANNE M. NICHOLSON, ERNEST P. WILES, N. A. YOUNG.

The object of the extended Americanization Training Course in the University of Minnesota is to equip its students thoroly, both theoretically and practically, for specialized Americanization work with adults, primarily with immigrants.

But during the Summer Session courses are offered to meet the needs of special students who desire to pursue short courses of study. In these courses workers or teachers of experience may secure the knowledge and practical training needed to meet particular phases of Americanization work. Special practical courses are also offered for volunteer workers who desire to undertake local Americanization service.

COURSES

No.	Quarter	credits	Title	Offered to	Prerequisite courses
2su	3	General Anthropology....		Soph., jr., sr.	None
		II	MTWThFS	9F	Melvin
5su	3	General Immigration ....		Soph., jr., sr.	I
		III	MTWThFS	9F	Melvin
114su	3	The Newer Immigrants..		Jr., sr., grad.	113
115su	3	Americanisms .....		15F	Jenks
		IV	MTWThFS	Jr., sr., grad.	113 and 114
125su	3	Methods of Americaniza- tion .....		15F	Jenks
		II	MTWThFS	Jr., sr., grad.	113 and 114
....	0	Alien's Viewpoint .....		Ar	Jenks, Ball, Clark, Junek
		Ar	Ar	All	None
131su	Ar	Supervised Practical Americanization Work..		Ar	Race Leaders
		Ar	Ar	Jr., sr., grad.	113 and 114
137su	3	Race Leaders and Pro- grams .....		Ar	Clark, Junek
		I	MTWThFS	Jr., sr., grad.	113 and 114
150su	1½	Americanizing a Mining Town .....		15F	Clark
		VI	MTWThF	Jr., sr., grad.	.....
151su	3	California State American- ization Plan and Meth- ods .....		9F	Dow
		IV	MTWThFS	(July 14 to Aug. 2)	
152su	1	County and City-wide Americanization Plan under Board of Educa- tion .....		Jr., sr., grad.	.....
		VI	MTWThFS	9F	Nicholson
153su	1	Technique of Teaching Adults .....		Jr., sr., grad.	.....
		VII	MTWThFS	9F	Wiles
		(June 30 to July 12)			

- 2SU. GENERAL ANTHROPOLOGY. Theories, facts, and factors in the origin of man and human races. Early world migrations. Cultural origins and early development. MELVIN.
- 5SU. GENERAL IMMIGRATION. A survey of the facts of recent world migrations. The chief causes of emigration from Europe, and of immigration to the United States, together with Federal and State problems of immigrant legislation, control, and distribution. MELVIN.
- 114SU. THE NEWER IMMIGRANTS. The characteristics and contributions of the newer immigrant peoples now in America, their modification and importance to us. JENKS.
- 115SU. AMERICANISMS. Essential and unique historical Americanisms, and their value and virility for the future in America. JENKS.
- 125SU. METHODS OF AMERICANIZATION. The practical methods of Americanization in use in the United States, together with the facts and conditions of their success and failure. JENKS, BALL, CLARK, JUNEK.
- .....ALIEN'S VIEWPOINT. Special lectures by Race Leaders.
- 131SU. SUPERVISED PRACTICAL AMERICANIZATION WORK. Laboratory work among foreign peoples in our vicinity. Arrange hours and credits. CLARK, JUNEK.
- 137SU. RACE LEADERS AND PROGRAMS. Studies of racial or national leaders. The preparation of programs, in English, from racial data as a means of mutual understanding between Americans and various racial groups in America. CLARK.
- 150SU. AMERICANIZING A MINING TOWN. The problems, methods, and results of a successful mining-town Americanization work—by the worker. (July 14 to August 2.) DOW.
- 151SU. CALIFORNIA STATE AMERICANIZATION PLAN AND METHODS. NICHOLSON.
- 152SU. COUNTY AND CITY AMERICANIZATION PLAN UNDER BOARD OF EDUCATION. (June 23 to July 12.) YOUNG, WILES.
- 153SU. TECHNIQUE OF TEACHING ADULTS. (June 30 to July 12.) WILES.

## ANATOMY

For courses in Anatomy, see pages 56-57.

## ANIMAL BIOLOGY

Professor HAL DOWNEY.

## COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
1SU	5	General Zoology (first half) .....	All	None
		I-IV MTWThF	101AB	Downey
2SU	5	General Zoology (second half) .....	All	None
		I-IV MTWThF	101AB	Downey



GENERAL ZOOLOGY. A survey of the animal kingdom, emphasizing the principles of structure, physiology, embryology, classification, and evolution of animals. Textbook, lectures, and quizzes.

ASTRONOMY

Assistant Astronomer WILLIAM O. BEAL.

COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
1su	4	Descriptive Astronomy .. III MTWThF V MWF	Soph., jr., sr. 124F	None Beal
25su	3	Stellar Astronomy ..... IV MTWThFS	Soph., jr., sr. 124F	1 Beal
*21su	3	Elements of Pract. Astr.. Ar Ar	Jr., sr. 124F	1 yr. Math. & 3 cr. in Astr. Beal
213su	3	Celestial Mechanics ..... Ar Ar	Grad. 124F	212 Beal

1SU. 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. BEAL.

25SU. STELLAR ASTRONOMY. Review of present state of knowledge concerning the stars. Positions, proper motions, parallaxes, spectra, radial velocities, group and stream motions, brightness, color, and temperatures of the stars. Binaries. Variables. Clusters. Nebulae. Theories of stellar evolution. BEAL.

\*21SU. ELEMENTS OF PRACTICAL ASTRONOMY. Theory and use of astronomical instruments in determining time, latitude, longitude, azimuth, and positions of heavenly bodies. BEAL.

213SU. CELESTIAL MECHANICS. A general outline of the theory of the perturbations of the moon and planets. BEAL.

BACTERIOLOGY

For courses in Bacteriology, see page 58.

BOTANY

Professors ELIAS J. DURAND, JOSEPHINE E. TILDEN.

COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
1su	3	General Botany ..... Lect. I TWThF Lab. II-III TWThF	All Ar	None Durand
3su	3	General Botany ..... Lect. V TWThF Lab. VI-VII TWThF	All Ar	None Durand

No.	Quarter credits	Title	Offered to	Prerequisite courses
127su	3	Taxonomy and Morphology .....	Jr., sr., grad.	9 cr. in Bot.
		I-II MTWThF	Ar	Tilden
128su	3	Taxonomy and Morphology of Algae.....	Jr., sr., grad.	9 cr. in Bot.
		III-IV MTWThF	Ar	Tilden

15u. GENERAL BOTANY. The general morphology of the flowering plants. DURAND.

35u. GENERAL BOTANY. Comparative morphology. A study of typical representatives of the great groups of plants, and of their evolution. DURAND.

127su. TAXONOMY AND MORPHOLOGY OF THE BROWN ALGAE. Advanced studies in selected groups. Lectures, reports, and discussions of current literature. TILDEN.

128su. TAXONOMY AND MORPHOLOGY OF THE RED ALGAE. Advanced studies in selected groups. Lectures, reports, and discussions of current literature. TILDEN.

## CHEMISTRY

Associate Professor M. CANNON SNEED; Assistant Professor ISAAC W. GEIGER; Instructors ARTHUR R. CADE, FRANK C. WHITMORE, GUY H. WOOLLETT; Assistant J. LEWIS MAYNARD.

### COURSES

No.	Quarter credits	Title	Prerequisite courses
3su	5	General Inorganic Chem. Lect. II MTWThFS Lab. V-VIII MWF	1f and 2w Whitmore
6su	5	Qualitative Analysis .....	General Chemistry
		Lect. II MTWThFS	Sneed
		Lab. V-VIII MWF	
11su	3	Quantitative Analysis .....	General and Qualitative Chemistry
		Lect. V T	Geiger
		Lab. V-VIII MWTh and VI-VIII T	
13su	10	Organic Chemistry .....	General and Qualitative Chemistry
		Lect. I MTWThF	Woollett
		Rec. VI TTh	
		Lab. II-IV MTWThFS	
20su	3	Teachers' Course .....	General Chemistry
		III MTWThFS	Geiger

35u. GENERAL INORGANIC CHEMISTRY. Six hours of lecture and classroom exercises, and twelve hours of laboratory work per week for six weeks. A study of metals and their compounds.

6su. QUALITATIVE ANALYSIS. Laboratory work in systematic qualitative analysis with lectures on solution, ionization, chemical and physical equilibrium, oxidation, and reduction, and other subjects pertinent to qualitative analysis. For students who satisfy the requirements of general chemistry.

- 11SU. QUANTITATIVE ANALYSIS. Introductory course covering the general principles and methods both gravimetric and volumetric. Typical problems will be assigned and attention given to proper laboratory practice. One lecture, fifteen hours laboratory per week.
- 13SU and 14SU. ORGANIC CHEMISTRY. Intended primarily for students who wish to take work corresponding to Chemistry 13 and 14. Five lectures, two recitations, and eighteen hours laboratory work per week for ten weeks. Either course may be taken separately.
- 20SU. TEACHERS' COURSE. A consideration of the fundamental principles of chemistry with particular reference to the teaching of chemistry in the high school. Discussion of such topics as training of the teacher, laboratory equipment, etc. Six lectures per week.

### ECONOMICS

Professors WILLARD E. HOTCHKISS, WILLIAM S. KREBS; Instructor BERT A. WALLACE.

#### COURSES

No.	Quarter credits	Title	Room	Prerequisite courses
3SU	3	Principles of Economics..		None
		Sec. 1, I MTWThFS	202MA	Wallace
		Sec. 2, III MTWThFS	209MA	Wallace
25SU	3	Principles of Accounting.		None
		IV MTWThFS	301MA	Krebs
123SU	2	Business Organization ...		Prin. of Econ.
		II TWThF	202MA	Hotchkiss
144SU	3	Principles of Banking....		Prin. of Econ.
		III MTWThFS	202MA	Krebs

- 3SU. PRINCIPLES OF ECONOMICS. Principles that underlie the present industrial order. Application of principles to economic problems such as labor, insurance, finance, transportation, industrial combination, government control. WALLACE.
- 25SU. PRINCIPLES OF ACCOUNTING. The purpose and principles of account classification; capital and revenue; accruals; valuation; depreciation; preparation and interpretation of balance sheets, income accounts, and other statements; corporation accounts. KREBS.
- 123SU. BUSINESS ORGANIZATION. Organization: principles applying to business in general and to particular concerns; evolution, objects, adjustments, limits, functional division; specialization—functional and other forms; standardization. HOTCHKISS.
- 144SU. PRINCIPLES OF BANKING. Contemporary banking institutions, their organization and operation; loans, reserves, note issues, clearing

houses, domestic and foreign exchange; the banking systems of foreign countries; and the Federal Reserve banks of the United States. KREBS.

### ENGLISH, RHETORIC, AND PUBLIC SPEAKING

Professors CARLETON BROWN, JOSEPH M. THOMAS; Professorial Lecturer CECIL A. MOORE; Associate Professor FRANK M. RARIG; Assistant Professors DANIEL FORD, GEORGE N. NORTHROP; Instructors CYRIL A. HERRICK, CHARLES F. LINDSLEY.

#### COURSES IN ENGLISH

No.	Quarter	credits	Title	Room	Instructor
3su	3		Survey (3rd Qr.) ..... III MTWThFS	204F	Brown
6su	3		Chaucer ..... II MTWThFS	204F	Brown
8su	3		Shakespeare ..... IV MTWThFS	204F	Northrop
*54su	3		American Literature .... I MTWThFS	205F	Moore
*109su	3		Beginning Novel ..... III MTWThFS	205F	Moore
*129su	3		Modern Drama ..... II MTWThFS	205F	Northrop

3su. GENERAL SURVEY OF ENGLISH LITERATURE from Dr. Johnson through the Romantic Poets. Lectures, recitations, and assigned readings. BROWN.

6su. CHAUCER. The grammar and literary forms of fourteenth-century English, with selected readings from *The Canterbury Tales*. BROWN.

8su. SHAKESPEARE. A study of the middle period in Shakespeare's development, covering his most brilliant comedies and the first two of his great tragedies. The reading will include the plays from *Henry IV* to *Othello* and the *Sonnets*. NORTHROP.

\*54su. AMERICAN LITERATURE. Lectures on American literature, with extensive readings from the principal poets and prose writers of the United States. MOORE.

\*109su. BEGINNINGS OF THE NOVEL. The lectures and recitations will deal chiefly with Richardson, Fielding, Smollett, Sterne, and Fanny Burney; but some attention will be given also to minor writers of the eighteenth century whose works illustrate various tendencies of the new *genre*. MOORE.

\*129su. MODERN DRAMA. Contemporary drama from 1870 to the present; the new impulse in dramatic literature under the stimulus of latter-day thought. NORTHROP.

COURSES IN RHETORIC

No.	Quarter	credits	Title	Room	Instructor
1su	3		Composition and Rhetoric IV MTWThFS	305F	Herrick
2su	3		Composition and Rhetoric III MTWThFS	303F	Ford
3su	3		Composition and Rhetoric IV MTWThFS	303F	Ford
13su	3		Narration ..... III MTWThFS	305F	Herrick
8osu	3		Teachers' Course in Eng- lish ..... I MTWThFS	306F	Thomas
*115su	3		Studies in the Theory of Style ..... II MTWThFS	306F	Thomas

1su. 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 the first quarter of Rhetoric 1, 2, 3. HERRICK.

2su. COMPOSITION AND RHETORIC. This course is a continuation of 1su. It carries university credit for the second quarter of Rhetoric 1, 2, 3. FORD.

3su. COMPOSITION AND RHETORIC. This course is a continuation of 2su. It carries university credit for the third quarter of Rhetoric 1, 2, 3. FORD.

13su. NARRATION. The study and imitation of selected specimens of the simpler forms of narrative writing with original work in the form of short themes and longer essays. Open to those who have credit in Rhetoric 1, 2, 3. This course carries university credit for the third quarter of Rhetoric 11, 12, 13. HERRICK.

8osu. 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 1, 2, 3, and Rhetoric 11, 12, 13, or 15, 16, 17. THOMAS.

\*115su. STUDIES IN THE THEORY OF STYLE. An analysis of representative essays on the theory of style, accompanied by their application to the works of selected authors and individual reports on special problems. Open to juniors, seniors, and graduates, who have credit for English 1, 2, and Rhetoric 11, 12, 13, or 15, 16, 17. THOMAS.

COURSES IN PUBLIC SPEAKING

No.	Quarter	credits	Title	Room	Instructor
41su	3		Public Speaking ..... III MTWThFS	308F	Rarig
43su	3		Public Speaking ..... II MTWThFS	308F	Lindsley
81su	3		Interpretative Reading ... IV MTWThFS	308F	Rarig

- 41su. 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. Open to those who have credit for Rhetoric 1, 2, 3. This course carries university credit for the first quarter of Public Speaking 41, 42, 43. RARIG.
- 43su. PUBLIC SPEAKING. This course is a continuation of 41-42. Open only to those who have had the equivalent of the first two quarters of 41, 42, 43. It carries university credit for the third quarter of Public Speaking 41, 42, 43. LINDSLEY.
- 81su. 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. Open to juniors and seniors who have credit in Rhetoric 1, 2, 3, and Public Speaking 41, 42, 43, or their equivalent. This course carries university credit for the first quarter of Public Speaking 81, 82, 83. RARIG.

## GEOLOGY

Assistant Professor CHESSLEY J. POSEY.

## COURSES

No.	Quarter	credits	Title	Offered to	Prerequisite courses
29su	3		Physiography .....	All	None
			I MTWThFS	210P	Posey
37su	3		Economic and Commercial Geography .....	All	None
			IV MTWThFS	210P	Posey

- 29su. PHYSIOGRAPHY. Principles of earth sculptures; physiographic changes in progress, and agencies causing them; planetary relations; climatology; field excursions. Adapted to teachers desiring detailed study of subject and to those wishing to pursue further courses in geology. Carries university credit. POSEY.
- 37su. ECONOMIC AND COMMERCIAL GEOGRAPHY. A study of the world production of food stuffs and of the methods used in manufacture; the factors of environment influencing production and trade; and the more important trade routes. Carries university credit. POSEY.

## GERMAN

Professor CARL SCHLENKER; Assistant Professors OSCAR BURKHARD, JAMES DAVIES, SAMUEL KROESCH, WALTER R. MYERS.

COURSES

No.	Quarter credits	Title	Prerequisite courses	
4su	3	Beginning German . . . . . III & V MWF	209F	None Myers
2su	5	Beginning Intermediate... I & V MTWThF	207F	1 or 5 or 1 yr. prep. German Kroesch
3su	5	Beginning Advanced . . . . . III & V MTWThF	209½F	2 or 6 or 2 yrs. prep. German Davies
21su	3	Scientific Intermediate... II MTWThFS	209½F	2 or 2 yrs. prep. German Burkhard
23su	2	Scientific Advanced . . . . . II MTWTh	209F	9 or 22 or 3 yrs. prep. German Myers
*6osu	3	Teachers' Course . . . . . IV MTWThFS	209½F	30-1-2 & 33-4-5 or 53-4-5 Schlenker
*125su	Ar	Literary Problems . . . . . Ar Ar	211F	Graduates

- 4. BEGINNING. Pronunciation, conversation, composition, grammar, based upon selected readings in simple prose and verse. MYERS.
- 2. BEGINNING INTERMEDIATE. Reading, conversation, drill in acquiring correct usage of simple German. KROESCH.
- 3. BEGINNING ADVANCED. Rapid reading, conversation, drill in correct grammatical usage. DAVIES.
- 21. SCIENTIFIC INTERMEDIATE. This course aims to make the student familiar with the more common vocabulary and the sentence structure peculiar to scientific articles in German. BURKHARD.
- 23. SCIENTIFIC ADVANCED. Reading of general works on physiology, anatomy, and bacteriology. MYERS.
- 60. TEACHERS' COURSE. Lectures, readings, and reports. Methodology, elementary phonetics, observation of classes. SCHLENKER.

125su. LITERARY PROBLEMS.

GREEK

Professor CHARLES A. SAVAGE.

COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
59-60su	2	Greek Art (Architecture and Sculpture) . . . . . II MTWTh	All 114F	None Savage
62su	2	Greek Literature and Life III MTWTh	All 114F	None Savage
63-64su	2	Greek Mythology . . . . . IV MTWTh	All 114F	None Savage

Courses open to all. No knowledge of Greek required.

59su. GREEK ARCHITECTURE. Textbook work and illustrated lectures dealing with Greek architecture from earliest times; stereopticon views of

temples, theaters, houses, altars, tombs, and other monuments; discussion of such topics as decoration, principles of proportion, and architectural style.

60su. GREEK SCULPTURE. The development of Greek sculpture from its beginnings will be traced; the famous statues, friezes, and reliefs will be shown and described; the personalities of the great sculptors, and their special contributions to art, will be considered.

62su. GREEK LITERATURE AND LIFE. Lectures, textbook work, illustrative and assigned readings. The character and influence of Greek culture, especially in literature, philosophy, and art, will be discussed; the whole course will be richly illustrated with the stereopticon.

63-64su. GREEK MYTHOLOGY. Lectures, readings, and textbook work dealing with the legends which appear in the literature and art of ancient Greece; stereopticon illustrations. The myth will be presented and interpreted; its origin, evolution, and influence will be discussed.

## HISTORY

Professor NORMAN S. B. GRAS; Associate Professor AUGUST C. KREY;  
Assistant Professor LESTER B. SHIPPEE; Instructor GEORGE M. STEPHENSON.

### COURSES

No.	Quarter	credits	Title	Offered to	Prerequisite courses
3su	3		Modern Europe .....	All	None
			I MTWThFS	111Lib	Krey
5su	3		Modern England .....	All	None
			I MTWThFS	113F	Stephenson
6su	3		Modern England .....	All	None
			II MTWThFS	113F	Stephenson
9su	3		U. S. since Civil War....	Soph., jr., sr.	6 sem. cr., 9 term cr.
			II MTWThFS	111Lib	Shippee
10su	3		Introd. to Econ. Hist....	Soph., jr., sr.	6 sem. or 9 term cr.
			III MTWThFS	112Lib	Gras
*56su	3		Teachers' Course .....	Jr., sr.	See statement
			III MTWThFS	111Lib	Krey
*115su	3		Econ. Hist. Europe.....	Jr., sr., grad.	9 sem. or 15 term cr.
			II MTWThFS	111Lib	Gras
*145su	3		American Colonies, 1660-		
			1763 .....	Jr., sr., grad.	9 sem. or 15 term cr.
			IV MTWThFS	111Lib	Shippee
*165su	3		Select. Topics in Econ.		
			History .....	Sr., grad.	See statement
			Ar Ar	Ar	Gras
*187su	3		Select. Topics in American Colonial History...		
			Ar Ar	Sr., grad.	See statement
				Ar	Shippee
Pol. Sci.					
*118su	2		World Politics .....	Jr., sr., grad.	.....
			III TWThS	Ar	Allin



- 3su. MODERN EUROPE. Europe from 1789 to the present. KREY.
- 5su-6su. MODERN ENGLAND. The social, political, and institutional development of England since 1485. STEPHENSON.
- 9su. UNITED STATES SINCE THE CIVIL WAR. A general survey of the period from 1865 to the present. SHIPPEE.
- 10su. INTRODUCTION TO ECONOMIC HISTORY, with special emphasis upon the United States. A general survey of the history of economic development: agriculture, manufacturing, transportation, storage, exchange of goods, economic policy. Designed in part for teachers of industrial history. GRAS.
- \*56su. TEACHERS' COURSE. A course dealing chiefly with the practical problems of teaching history and government in the secondary schools. Open to students who have eighteen credits in History including one starred course. KREY.
- \*115su. ECONOMIC HISTORY OF EUROPE, 1300-1550. Chief interests are the manor, the town, the metropolis; the development of agriculture, commerce, and manufacturing. GRAS.
- \*145su. AMERICAN COLONIES, 1660-1763. A study of colonial institutions after the earlier period of settlement. SHIPPEE.
- \*165su. SELECT TOPICS IN ECONOMIC HISTORY. An intensive course open to advanced students who will be guided through conferences and criticism in the investigation of assigned topics. Students will be required to attend meeting of History \*115su. Prerequisite 12 semester or 18 term credits in History. GRAS.
- \*187su. SELECT TOPICS IN AMERICAN COLONIAL HISTORY. An intensive course open to advanced students who will be guided through conferences and criticism in the investigation of assigned topics. Students will be required to attend meeting of History \*145su. Prerequisite 12 semester or 18 term credits in History. SHIPPEE.

## LATIN

Instructor MARIE B. DENNEEN.

### COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
1su	3	The Teaching of High-School Rec. II Lab. II	Latin 10:Ed MTWThF S	Denneen
2su	3	The Background of High-School Rec. III Lab. III	Latin 10:Ed MTWThF S	Denneen

- 1su. THE TEACHING OF HIGH-SCHOOL LATIN. Methods of presenting difficult points in syntax. Reports on supervised study, direct method. Special work on derivatives. Comparison of Caesar's Gallic War and the modern war. Making of Latin scrap-book. Three credits for Teacher's Course (Latin 101) provided that the prerequisite courses have been taken.
- 2su. THE BACKGROUND OF HIGH-SCHOOL LATIN. Lectures, laboratory, and recitation work. Oral reports and filing cards on topics such as Roman life, ancient and modern warfare, mythology, fiction for high-school students.

### MANUAL TRAINING

For courses in Manual Training see pages 42 and 52.

### MATHEMATICS

Associate Professor WILLIAM H. BUSSEY; Assistant Professors RALPH M. BARTON, RAYMOND W. BRINK; Instructors WILLIAM D. REEVE, CHESTER H. YEATON.

#### COURSES

No.	Quarter credits	Title	Room	Prerequisite courses
1su	4	Higher Algebra .....		1 year elem. algebra
		IV MTWThF	125F	Barton
		VI MWF		
5su	4	College Algebra .....		High-school higher algebra
		IV MTWThF	104F	Brink
		VI MWF		
7su	4	Plane Trigonometry .....		College algebra
		IV MTWThF	102F	Yeaton
		VI MWF		
8su	4	Analytic Geometry .....		Trigonometry
		III, VII TWThF	125F	Barton, Brink
10su	4	Differential Calculus .....		Analytic geometry
		VI, VII TWThF	101F	Bussey
*54su	3	Teachers' Course .....		Differential calculus
		II MTWThFS	204Ed	Reeve
*70su	2	The History of Elem. Mathematics .....		Analytic geometry
		II TWThF	101F	Bussey
*80su	2	Advanced Plane Geom....		Analytic geometry
		I TWThF	104F	Yeaton
6su		Solid Geometry (see statement of this course under Engineering Mathematics).		

- 1su. HIGHER ALGEBRA. The fundamental rules, factoring, fractions, involution, evolution, surds, simple equations with one, two, or several unknown quantities, ratio and proportion, arithmetic and geometric progressions, quadratic equations and numerous problems involving linear and quadratic equations. This course may be counted for entrance credit or for university credit in higher algebra. BARTON.

- 5su. COLLEGE ALGEBRA. Quadratic equations, equations in quadratic form, simultaneous quadratic equations, graphical representation, progressions, mathematical induction, the binomial theorem, permutations, combinations, probability, simple determinants and the theory of equations with special reference to graphic methods. BRINK.
- 7su. TRIGONOMETRY. Logarithms and plane trigonometry. This course may be taken by students who are taking Course 5su or have had its equivalent. YEATON.
- 8su. PLANE ANALYTIC GEOMETRY. Rectilinear and polar coördinates, loci and their equations, transformation of coördinates, the straight line, the conic sections, higher plane curves. Students who finish this course are eligible for differential calculus. BARTON, BRINK.
- 10su. DIFFERENTIAL CALCULUS. Differentiation of algebraic and transcendental functions, the development of functions in infinite series, indeterminate forms, maxima and minima, tangents, subtangents, normals, subnormals, asymptotes, curvature, evolutes, envelopes, singular points. BUSSEY.
- \*54su. TEACHERS' COURSE IN SECONDARY MATHEMATICS. Mathematical curriculum of secondary schools and methods of teaching subjects. Current high-school courses examined in light of modern educational aims and principles. Methods discussed and practice given through exercises and problems to illustrate methods. REEVE.
- \*70su. THE HISTORY OF ELEMENTARY MATHEMATICS. A brief course in the history of arithmetic, algebra, and geometry intended primarily for those who are now teaching or preparing to teach high-school mathematics. BUSSEY.
- \*80su. ADVANCED PLANE GEOMETRY. A sequel to elementary geometry intended primarily for those now teaching or preparing to teach high-school mathematics. Construction problems; points, lines, and circles related to the triangle; symmetry; maxima and minima; etc. YEATON.
- 6su. SOLID GEOMETRY (see statement of this course under Engineering Mathematics). KIRCHNER.

## MUSIC

Professor CARLYLE M. SCOTT; Assistant Professor DONALD N. FERGUSON;  
Instructors GEORGE FAIRCLOUGH, GERTRUDE HULL, GERTRUDE REEVES,  
CARL SCHEURER.

## COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
2su	3	Harmony .....		if or 1w
		III, IV MWF	Mu	Scott
81su	3	Normal Piano .....		
		III, IV TThS	Mu	Reeves
75su	3	Public School Music.....		
		III, IV TThS	Mu	.....
39su	2	Piano .....		
		Ar Ar	Mu	Ferguson
63su	2	Voice .....		
		Ar Ar	Mu	Hull
51su	2	Violin .....		
		Ar Ar	Mu	Scheurer
100su	2	Organ .....		
		Ar Ar	Mu	Fairclough

1su. HARMONY. The study of chords, beginning with the dominant seventh, their construction, relations, and progressions. Written exercises on basses, the harmonization of given melodies. SCOTT.

81su. NORMAL PIANO. Special course offered to students desiring to teach pianoforte as a profession. REEVES.

75su. PUBLIC SCHOOL MUSIC. See statement of Public School Music under Education.

39su. PIANO. Open to those who have mastered technical difficulties of the degree of Czerny's *School of Velocity* and the easier Haydn and Mozart sonatas. (Two lessons a week.) (Fee, \$24.) FERGUSON.

63su. VOICE. Thoro training in relaxation and breath control, the foundation 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. (Two lessons a week.) (Fee, \$24.) HULL.

51su. VIOLIN. Open to students who are qualified to play the first ten of Kreutzer's *Forty Etudes*, and the easier Handel and Mozart sonatas. (Two lessons a week.) (Fee, \$24.) SCHEURER.

100su. ORGAN. Open to students who play piano music of an intermediate grade. (Two lessons a week.) (Fee, \$24.) FAIRCLOUGH.

All courses offered in the Music Department are open to juniors and seniors, who are not registered as regular music students.

## PHILOSOPHY

Assistant Professor RUPERT C. LODGE.

## COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
20su	3	Present-Day Philosophy..	Jr., sr.	6 cr. in Phil. or Psychology 1-2-3
		I MTWThF	322F	Lodge
		V MWF		

20su. 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. LONGE.

PHYSICAL EDUCATION FOR WOMEN

Instructors GERTRUDE B. SCHILL, EVELYN VOSS.

COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
1su	1	Physical Training for Elementary Children . . . . I MTWThFS	All WGm	None Schill
2su	1	Physical Training for Secondary Children . . . . . II MTWThFS	All WGm	None Schill
3su	0	Beginning and Advanced Swimming . . . . . VI TTh	All WGm	None Voss
4su	0	General Swimming . . . . . VII MWF Ar TTh	All WGm	None .....

1su. GYMNASIICS, GAMES, AND FOLK DANCING FOR ELEMENTARY CHILDREN. Suitable for school rooms, halls, and play grounds. Methods of teaching. Gymnasium shoes required, gymnasium costumes recommended. SCHILL.

2su. GYMNASIICS, GAMES, AND FOLK DANCING FOR SECONDARY CHILDREN. Suitable for school rooms, halls, and play grounds. Methods of teaching. Gymnasium suits and shoes required. SCHILL.

3su. BEGINNING AND ADVANCED SWIMMING. Technique of various simple strokes and dives. Fee \$3, including towels and bath sheets. Voss.

4su. GENERAL SWIMMING. Fee, one ticket for fifteen cents, seven tickets for \$1, including towels and bath sheets.

PHYSICS

Professors HENRY A. ERIKSON, JOHN T. TATE; Professorial Lecturer LOUALLEN F. MILLER; Instructor JAMES F. MACKELL.

COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
21su	3	Elements of Mechanics.. Lect. I WF Rec. I-II TThS	30Ph 17Ph	Pl. Trigonometry Tate Tate
22su	1	Mechanics Laboratory Practice . . . . . Lab. III-IV WF	23Ph	21 or reg. in 21 Tate

No.	Quarter credits	Title	Offered to	Prerequisite courses
61su	3	Magnetism and Electricity .....		21
		Lect. V TTh	30Ph	Erikson
		Rec. I-II MWF	17Ph	Erikson
		Rec. I-II MWF	16Ph	Miller
		Rec. III-IV MWF	16Ph	Miller
62su	1	Magnetism and Electricity Laboratory .....		22, 61, or reg. in 61
		Lab. III-IV TTh	32Ph	Miller
		Lab. III-IV WF	32Ph	Erikson
		Lab. VI-VII TTh	32Ph	Miller
91su	3†	Teachers' Course .....		
		V-VI MWF		Mackell
181su	3	Advanced Physical Measurements .....		12 cr. in Physics
		VI-VIII TTh		Erikson
		VI-VIII WF		Tate

† See Education.

21su. ELEMENTS OF MECHANICS. The mechanics of solids, liquids, and wave motion. Study of the simple fundamental principles. The first part of the general Course 21, 41, 51, 61. Course 22 should be taken in conjunction with this course. This course is a part of the required work in Physics in the Pre-Medical and Engineering courses. TATE.

22su. MECHANICS LABORATORY PRACTICE. Measurements in the mechanics of solids, liquids, and wave motion. The laboratory part supplementing Course 21. TATE.

61su. MAGNETISM AND ELECTRICITY. A study of the principles underlying mechanical and electrical phenomena. Course 62 should be taken in conjunction with this course. This course is a part of the required work in Physics in the Pre-Medical and Engineering courses. ERIKSON, MILLER.

62su. ELECTRICAL MEASUREMENTS. The laboratory part supplementing Course 61. ERIKSON, MILLER.

181su. ADVANCED PHYSICAL MEASUREMENTS. Individual work in the laboratory on topics specially chosen to serve the best needs and capacity of each student. ERIKSON, TATE.

### PHYSIOLOGY

For courses in Physiology, see pages 61-62.

### POLITICAL SCIENCE

Professors CEPHAS D. ALLIN, JEREMIAH S. YOUNG.

COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
1su	4	American Government ...	Soph., jr., sr.	None
		I MTWThF	102MA	Young
51su	2	V MWF	102MA	Young
		Business Law .....	Jr., sr.	6 cr. in Pol. Sci.
111su	4	II TWThF	102MA	Young
		Comparative Government.	Jr., sr., grad.	6 cr.
		I TWThFS	213MA	Allin
118su	2	V TWF	213MA	Allin
		World Politics .....	Jr., sr., grad.	6 cr.
		III TWThS	213MA	Allin

1su. AMERICAN GOVERNMENT. Nature and origin of the American governmental system; organization and actual workings of the national government. If possible, History 5-6 should accompany this course. YOUNG.

51su. BUSINESS LAW. Principles governing ordinary business transactions. As much law taught as an educated man ought to know for guidance in every-day business affairs. General principles of contracts—formation, operation, interpretation, breach, and discharge; agency and service. YOUNG.

111su. COMPARATIVE GOVERNMENT. The politics and government of the great European powers of to-day. ALLIN.

118su. 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, Asiatic complications, and the problems of African colonization. ALLIN.

PSYCHOLOGY

Instructor FRANCES E. LOWELL.

COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
1su	4	General Psychology .....	Soph., jr., sr.	Psychology 1
		II MTWThF	321F	Lowell
		V MWF		
18su	2	Child Development .....	Soph., jr., sr.	Psychology 1
		III MTWTh	321F	Lowell

1su. GENERAL PSYCHOLOGY. A study of human nature. One-half credit toward the University Teacher's Certificate. LOWELL.

18su. 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. LOWELL.

## ROMANCE LANGUAGES

Professors EVERETT W. OLMSTED, COLBERT SEARLES; Assistant Professor FRANCIS B. BARTON.

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 1919-20, 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.	Quarter	credits	Title	Offered to	Prerequisite courses
4su	4		Beginning Course in French .....	Beginners 202F	None Searles
			III MTWThF		
			V MWF		
13su	4		French Survey .....	226F	Inter. French Barton
			III MTWThF		
			V MWF		
10su	2		Intermed. Course in French .....		1 or equiv. (except as stated above)
			II MTWTh	202F	Searles
			(In case of conflict this hour may be		changed)
16su	2		Elementary Conversation and Composition .....		Begin. and Inter. Fr. Barton
			IV MTWTh	202F	
111su	Ar		Research in Romance Languages .....	Grad. 201F	Adv. preparation Olmsted, Searles
			Ar Ar		
31su	4		Beginning Course in Spanish .....	Beginners 201F	None Olmsted
			III MTWThF		
			V MWF		
40su	2		Intermed. Course in Spanish .....		31 or equiv. (except as stated above)
			II TWThF	201F	Olmsted
			(In case of conflict this hour may be		changed)

## FRENCH

4su. BEGINNING COURSE. For beginners in French. Attention given to teaching of pronunciation by aid of phonetic symbols, to systematic



presentation of grammar, to conversation, to reading, and to methods of teaching. Modified direct method used throughout course. SEARLES.

10SU. INTERMEDIATE COURSE. Reading and discussion in French, of representative modern authors, and composition. This course gives one and one-half credits toward university Course 10. OLMSTED, SEARLES.

13SU. GENERAL SURVEY OF FRENCH LITERATURE. This course will cover in historical outline the period from 1600 to the present day. Representative texts will be read. BARTON.

16SU. ELEMENTARY FRENCH CONVERSATION AND COMPOSITION. Practical training in speaking and writing French. Open to those who have had or are taking Intermediate French. BARTON.

111SU. RESEARCH IN ROMANCE LANGUAGES. Graduate students with necessary preparation may undertake research in some selected field. OLMSTED, SEARLES.

SPANISH

31SU. 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 course. OLMSTED.

40SU. INTERMEDIATE COURSE. Nineteenth-century Spanish and Spanish-American authors. Spanish conversation and commercial correspondence. One and one-half credits toward university Course 40. OLMSTED, SEARLES.

SOCIOLOGY AND SOCIAL WORK

"The Social Service Plattsburg"

Professor ARTHUR J. TODD; Associate Professor LUTHER L. BERNARD; Special Lecturers FRANK J. BRUNO, JOHN COLLIER, HASTINGS H. HART, AMELIA SEARS, JOHN SUNDWALL; Supervisors of Field Work CAROLINE BEDFORD, MARION TEBBETS.

COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
1su	3	Introduction to Sociology. I MTWThFS	Soph., jr., sr. 9F	None Bernard
6su	2	Modern Social Reform Movements ..... III MTWTh	Soph., jr., sr. 5F	I Todd
14su	3	Rural Sociology ..... II MTWThFS	Jr., sr. 5F	I Bernard
51su	3	Treatment of Dependents and Defectives ..... I-II MWF	Jr., sr. 25F	I Bruno

No.	Quarter credits	Title	Offered to	Prerequisite courses
*54su	1	Special Institute on Child Welfare .....	Jr., sr., grad.	Consent of instructor
		I TTh	5F	Hart, Sundwall
		VI WF (Two additional hours by arrangement)		
		(June 23 to July 12)		
*57su	1	Special Institute on Community Organization and Community Centers....	Jr., sr., grad.	Consent of instructor
		V MTWThF	9F	Collier
		(July 14 to Aug. 1)		
*119su	3	The Family in Evolution and Reconstruction ....	Jr., sr., grad.	9 hours
		IV MTWTh	9F	Todd
*130su	1	Special Institute on Social Case Work.....	Jr., sr., grad.	Consent of instructor
		I TTh	25F	Sears
		VI WF (Two additional hours by arrangement)		
		(July 14 to Aug. 1)		
*133su	1	Field Work in Hospital Social Service .....	Sr., grad.	Consent of instructor
		Hours by arrangement		Tebbetts
*200su	Ar	Research Seminar		
		Individual problems of investigation under joint direction of instructors in this department. Time, place, and credit arranged by consultation. Open to qualified graduate students only.		

151u. INTRODUCTION TO SOCIOLOGY. 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. BERNARD.

6su. MODERN SOCIAL REFORM MOVEMENTS. A review of the causes and trends of a century's movement for social and industrial betterment. TODD.

14su. RURAL SOCIOLOGY. Survey of field of rural sociology, methods and problems; consideration of religious, educational, and social ideals of rural people; rural environment; effects of immigration; rural institutions and their adaptability to current welfare needs; rural progress. BERNARD.

51su. TREATMENT OF DEPENDENTS AND DEFECTIVES. The extent and nature of poverty and mental defectiveness; efforts made for their amelioration and prevention, with special reference to war conditions, the Red Cross, and war insurance. (Twelve hours field work per week required.) BRUNO.

\*54su. SPECIAL INSTITUTE ON CHILD WELFARE. (June 23 to July 12.) Including rural, county, and city problems, infant welfare, health, and institutional care. HART, SUNDWALL.

- \*57su. SPECIAL INSTITUTE ON COMMUNITY ORGANIZATION AND COMMUNITY CENTERS. (July 14 to August 1.) Types of local community organization, their function with regard to public education, recreation, industrial peace, and the foreign born. Organization for leisure time activities. Lectures and demonstrations. COLLIER.
- \*119su. THE FAMILY IN EVOLUTION AND RECONSTRUCTION. Origins of the family, its transformations, its services to human evolution, its problems in the present period of democratic reconstruction. TODD.
- \*130su. SPECIAL INSTITUTE ON SOCIAL CASE WORK. An advanced course for Home Service workers and others who seek to improve their case technique. (July 14 to August 1.) SEARS.
- \*133su. 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.
- \*200su. RESEARCH SEMINAR. Individual research on special problems in Sociology and social work. Open only to 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, BRUNO.

## COLLEGE OF EDUCATION

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 ninety quarter 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 sixty-three credits and are admitted to the College as unclassified students pending the completion of twenty-seven 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 twenty-four quarter credits of all university students who are candidates for the University State Teachers' Certificate, and that they be distributed as follows: History of Education, six credits; Technique of Teaching, three credits; Social Aspects of Education, Its Organization and Administration, six credits; Special Methods totaling at least three credits; Elementary Educational Psychology, three credits; Practice Teaching, three credits. Reference to the courses named below, supplemented by conference with the instructors will make clear how these requirements 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 nine credits each session and must include:

1. Special study from the high-school teachers' viewpoint 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 1su, 2su  
Animal Biology 1su-2su  
Psychology 1su  
Sociology 1su, 14su, 51su, 119  
Physiology 3su  
Education 3su, 11su, 109su

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.

### EDUCATIONAL ADMINISTRATION AND SUPERVISION

Professors LOTUS D. COFFMAN, ALBERT W. RANKIN, RAYMOND W. SIES;  
Assistant Professor WILFORD S. MILLER.

#### COURSES

No.	Quarter	credits	Title	Offered to	Prerequisite courses
3su	3		Social Aspects of Education I MTWThFS	Jr., sr. 205Ed	Psychol. 1-2 Rankin
113su	3		Secondary School Problems III MTWThFS	Jr., sr., grad. Ar Ed	Ed. I or 101-102 Miller
121su	3		School Organization and Administration II MTWThFS	Sr., grad. Ar Ed	Ed. I or 101-102 and 3 Rankin
124su	3		Educational Administration IV MTWThFS	Sr., grad. 202Ed	121 Sies
160su	3		Theory of Supervision III MTWThFS	Sr., grad. Ar Ed	..... Sies
170su	2		Reconstruction Program for Education V MTWTh	Sr., grad. 206Ed	..... Coffman

3su. SOCIAL ASPECTS OF EDUCATION. The school as a community factor; the present peculiar relation of the school to social problems; the function of the school in these relations. RANKIN.

113su. SECONDARY SCHOOL PROBLEMS. Some of the problems considered are: changed concepts of method, reorganization as affecting the grades below the high school and work beyond the four years of high school, supervised study, socialized recitation. MILLER.

121su. 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.

124su. EDUCATIONAL ADMINISTRATION. The interpretation of present tendencies in the administration of state and city school systems. SIES.

160su. THEORY OF SUPERVISION. The problems involved in the training of teachers in service; studies of qualities of merit in teachers. SIES.

170su. RECONSTRUCTION PROGRAM FOR EDUCATION. COFFMAN.

## EDUCATIONAL PSYCHOLOGY

Assistant Professor MARVIN J. VAN WAGENEN.

## COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
109su	3	Educational Diagnosis . . . I MTWThFS	Sr., grad. 202Ed	Psychol. 1-2 Van Wagenen
116su	3	Psychology of Elementary School Subjects . . . . . II MTWThFS	Sr., grad. 202Ed	Psychol. 1-2 Van Wagenen

109su. EDUCATIONAL DIAGNOSIS. The typical educational problems involving educational scales and standard tests. Nature of the tests, methods of their use, analysis of results obtained, and programs of remedial educational procedure based on the results of the test. VAN WAGENEN.

116su. PSYCHOLOGY OF ELEMENTARY SCHOOL SUBJECTS. Review of experimental results dealing with elementary school subject-matter; a discussion of the direct bearing of these findings upon selection and method of presentation of the content of various subjects of the elementary school curriculum. VAN WAGENEN.

## HISTORY AND PHILOSOPHY OF EDUCATION

Instructor JEAN H. ALEXANDER.

## COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
101su	3	History of Education to the Renaissance . . . . . II MTWThFS	Jr., sr., grad. 205Ed	Psychol. 1-2 Alexander
129su	2	Educational Classics . . . V MTWTh	Jr., sr., grad. 205Ed	Ed. 101-102 Alexander
132su	1	Survey of Existing School Systems in Two Foreign Countries . . . . . VI TTh	205Ed	Alexander

101su. HISTORY OF EDUCATION TO THE RENAISSANCE. Elements and problems in modern education in the light of their historical development; emphasis upon secondary school problems.

129su. EDUCATIONAL CLASSICS. A study of selected writings of educational leaders in modern times. Rousseau, Pestalozzi, Herbart, Froebel, and Dewey.

132su. SURVEY OF EXISTING SCHOOL SYSTEMS IN TWO FOREIGN COUNTRIES. France and England or Germany will be studied according to the interests and preparation of the students.

## THEORY AND PRACTICE OF TEACHING

Professors CARL SCHLENKER, JOSEPH M. THOMAS; Associate Professor AUGUST C. KREY; Assistant Professors ISAAC M. GEIGER, WILFORD S. MILLER; Instructors MARIE B. DENNEEN, JAMES F. MACKELL, WILLIAM D. REEVE; Special Lecturer ERNEST P. WILES.

## COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
11su	3	Technique of Teaching... IV MTWThFS	Jr., sr. 205Ed	Psychol. 1-2 Miller
15su	3	Practice Teaching ..... Ar Ar Ar (2 hours a day, four days a week) <i>Special Methods</i>	Sr., grad. Ar	..... Reeve
Americanization				
153su	1	Technique of Teaching Adults (June 30 to July 12)..... VII MTWThFS	9F	Wiles
Chemistry				
20su	3	Teachers' Course ..... III TWThFS	C	Gen. Chem. Geiger
English				
80su	3	Teachers' Course ..... I MTWThFS	306F	See statement Thomas
German				
60su	3	Teachers' Course ..... IV MTWThFS	209½F	30-1-2 and 33-4-5 or 53-4-5 Schlenker
History				
56su	3	Teachers' Course ..... III MTWThFS	Jr., sr. 111Lib	See statement Krey
Latin				
1su	3	Teaching of High-School Latin ..... Rec. II MTWThF Lab. II S (For Teachers' Courses in Manual Training see statement of courses in Manual Training below)	101Ed	Denneen
Mathematics				
54su	3	Teachers' Course ..... II MTWThFS	204Ed	Diff. Calculus Reeve
Music				
75su	3	Public School Music..... III, IV TThS	Mu	.....
Physics				
91su	3	Teachers' Course ..... V, VI MWF	Ph	Mackell

11su. TECHNIQUE OF TEACHING. Types of classroom exercises; preparation of teaching plans; hygiene of instruction; classroom management; the professional ethics of teaching; observation of high-school work.  
MILLER.



15su. PRACTICE TEACHING. Teaching under supervision in the University High School in all subjects which are offered in the High School, during the six weeks summer session. The course calls for two hours a day, four days a week. REEVE.

## SPECIAL METHODS

Americanization 153su. TECHNIQUE OF TEACHING ADULTS. (June 30 to July 12.) WILES.

Chemistry 20su. TEACHERS' COURSE. For those interested in the teaching of elementary chemistry and for those who have had Chemistry 1, 2, and 3, or their equivalent. Carries university credit for Chemistry 20. Laws and theories of chemistry; training of teacher; functions of science teacher; factors of study; relation of elementary chemistry to general science; laboratory, museum, and library equipment; order of presentation of subject-matter; etc. GEIGER.

English 80su. 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 1, 2, 3, and Rhetoric 11, 12, 13, or 15, 16, 17. THOMAS.

German 60su. TEACHERS' COURSE IN GERMAN. Lectures, readings, and reports. Methodology, elementary phonetics, observation of classes. SCHLENKER.

History 56su. TEACHERS' COURSE IN HISTORY. A course dealing chiefly with the practical problems of teaching history and government in the secondary schools. Open to students who have eighteen credits in History including one starred course. KREY.

Latin 1su. TEACHING OF HIGH-SCHOOL LATIN. Methods of presenting difficult points in syntax. Reports on supervised study, direct method. Special work on derivatives. Comparison of Caesar's Gallic War and the modern war. Making of Latin scrap-book. Three credits for Teachers' Course (Latin 101) provided that the prerequisite courses have been taken. DENNEEN.

Mathematics 54su. TEACHERS' COURSE IN SECONDARY MATHEMATICS. Mathematical curriculum of secondary schools and methods of teaching the several subjects; high-school courses examined in light of modern educational aims and principles; methods discussed; sufficient practice given through exercises and problems to illustrate methods. REEVE.

Music 75su. PUBLIC SCHOOL MUSIC. For supervisors of music, students wishing to become supervisors, teachers specializing in music. Work in grades and high school taken up with reference to material used, presentation, and results. Testing voices in upper grades demonstrated.

Physics 91su. **TEACHERS' COURSE IN PHYSICS.** Intended to embrace fundamental conceptions of methods of teaching high-school physics. Special emphasis put upon laboratory side of subject, as it is taken for granted that student is fairly well versed in the theory side. At least one year of college physics will be considered as a prerequisite for this course. MACKELL.

### MANUAL TRAINING

Instructor LYNNE E. STOCKWELL.

#### COURSES

No.	Quarter	credits	Title	Offered to	Prerequisite courses
MT11su	2		Organization and Supervision of Manual Training .....		
			V	MTWTh	115Ed
					Stockwell
MT12su	2		Teachers' Course in Elementary Wood Work..		
			II, III	MTWTh	24Ed
					Stockwell
MT13su	2		Advanced Wood Work...		
			Ar	MTWTh	24Ed
					Stockwell
MT14su	1		Teachers' Course in Wood Finishing .....		
			IV	MTW	24Ed
					Stockwell

MT11su. **ORGANIZATION AND SUPERVISION OF MANUAL TRAINING.** History and aims of Manual Training, selection of equipment and supplies, courses of study, methods of presenting manual training to grade and high-school students. A brief discussion of vocational education taken up during course.

MT12su. **TEACHERS' COURSE IN ELEMENTARY WOOD WORK.** Uses and care of tools, tool processes and uses and care of wood-working machinery. In this course special emphasis is laid upon methods of presenting the work to pupils.

MT13su. **ADVANCED WOOD WORK.** The course consists of a review of joinery and the making of some large project involving the following tool processes; mortise and tenon joint, squaring stock to dimensions, drawer construction, and paneling.

MT14su. **TEACHERS' COURSE IN WOOD FINISHING.** Staining, filling, shellac-ing, varnishing, waxing, and polishing. This course is given to meet the needs of teachers wishing a short, elementary course in wood finishing.

NOTE: See College of Engineering for courses in wood and metal work open to teachers.

For courses in Trade and Industrial Education see special announcement to be issued later.

## THE UNIVERSITY HIGH SCHOOL

The University High School will conduct a Summer Session this year of six weeks duration, beginning and ending at the same time as the University Summer Session.

The character of the work to be done will be on the same level as that of the work regularly done through the year and all of the general regulations of the School as set forth in the Handbook of the High School hold good for the Summer Session.

Each subject taught will be given two hours daily for five days of each week, except in the case of the laboratory subjects, where extra time must be given. The daily sessions begin at the same time as the University sessions and close at noon after two class periods.

The High School reserves the right to discontinue a course if less than six students are registered for it, and all classes will be limited to twenty students.

One half of a year's credit will be given in each subject successfully carried.

Practice teaching will be permitted in the Summer Session of the High School.

No auditors in the High School courses will be permitted except by permission of the Principal.

The tuition fee for each student in the Summer Session will be \$12 for the six weeks or \$6 per subject.

### MATHEMATICS

**MATHEMATICS I.** Second semester work. This course will be largely algebra with the function and the equation the unifying principle. Abundant applications and graphic methods to illustrate the algebra will be furnished.

**MATHEMATICS II.** This course is designed to cover the last part of the year's work in plane geometry. Emphasis will be placed upon practical applications and some simple work in trigonometry will be offered. Algebra will be used wherever it is necessary.

**SOLID GEOMETRY.** This course is open to all students who have had freshman algebra and plane geometry. It will cover the work on lines and planes in space, and the measurement of geometric solids.

### LATIN

**FRESHMAN LATIN.** Second semester work. Smith's *Latin Lessons* beginning page 108. Special emphasis will be placed on infinitives, subjunctives, participles, deponent verbs and ablative absolutes.

CAESAR. First semester work. Brief review of Latin grammar. Study of gerunds, gerundives, periphrastic conjugations, conditional sentences in Smith's *Latin Lessons*. Introduction and life of Caesar in Latin in D'ooge and Eastman.

### HOME ECONOMICS

FOOD PREPARATION AND MEAL PLANNING. Discussion of kinds of foods included in a meal. Actual preparation of such dishes. Emphasis on method of combination, number served, etc. Grouping of foods and actual serving of meals final problem of the course.

CLOTHING. Content to depend on class. Making of underwear and a tailored wash dress, or textiles and the construction of one simple garment, or textiles and millinery, or making one garment and millinery.

### SCIENCE

PHYSICS. Elementary considerations of sound, light, electricity and magnetism, half the time in electricity and magnetism will be given to theory and half to practice with motors, dynamos, lighting and heating, batteries, telegraph, telephone, etc.

EVERY DAY CHEMISTRY. Open only to those who have had high-school chemistry. Subjects considered will be laundry, foods, food adulterants and tests, and industrial chemistry as used in Twin City industrial plants.

GENERAL SCIENCE. For sophomores, juniors, and seniors who have not had the regular General Science course. The work will include lighting, heating, and ventilating of the home and public buildings.

### HISTORY

1. UNITED STATES HISTORY. General survey from 1787 to 1918. Prerequisite, thoro mastery of eighth grade history or its equivalent.
2. ANCIENT HISTORY. The most important facts about Egypt, Mesopotamia, Palestine, Greece, and Rome. Course for beginners.

### ART

COMMERCIAL DESIGN. Cut out: letters, landscape (conventional), gray values, posters, abstract design. Color work: cut out design, opaque color. Pen technique.

COSTUME DESIGN. Life sketch. Abstract design: lines, values. Design of lingerie, embroidery, dresses, suits. Color theory: harmonious colors,

becoming colors. Work includes pencil and water color work. Good taste in dress. Good values.

### MECHANICAL DRAWING AND MANUAL TRAINING

ELEMENTARY MECHANICAL DRAWING. Lettering; conventions; free-hand sketching (a) perspective, (b) orthographic; working drawings; tracing; blue printing.

ELEMENTARY CABINET MAKING. Review of common joints; small project involving mortise and tenon and cross lap joints.

ADVANCED CABINETMAKING. Making larger projects involving the tool processes: mortise and tenon joint, paneling and drawer construction.

### MUSIC

MUSIC. A course including the essentials of musicianship—ear training, sight reading, rhythm, technic, keyboard harmony, memory training, and pieces for recreation. Planned for the needs of the average student who has had no training.

### ENGLISH

ENGLISH I. Composition, oral and written. Special work on grammar, punctuation, and spelling. Literature: Study of narrative poems, short stories, collateral reading.

ENGLISH II. Composition, oral and written. Emphasis on unity and coherence. Literature: *Silas Marner*, *Vision of Sir Launfal*, and *Rime of the Ancient Mariner*. Collateral reading.

ENGLISH III. Public speaking. Principles of effective speaking. Open to juniors and seniors.

FRENCH I. Beginning French. For students who have had no work in the subject.

### FRENCH

FRENCH I. The last quarter of the regular course in French I. Reading of some easy French play, conversation, simple composition work in French. Drill on application of the elements of French grammar. Prerequisite: Six months of high-school French.

### GERMAN

BEGINNING GERMAN. Vocabulary and sentence structure. Synthetic German. Oral and written composition. Principles of grammar gradually introduced. Chief aim of course to give facility in understanding and handling of elementary constructions and proper pronunciation. No text.

THIRD-YEAR GERMAN. This course consists of intensive reading of one classic and supplementary reading of a number of short stories. The aim of the course is to secure a wide contact with the language through more extensive reading and constant use in the classroom.

## 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.	Quarter credits	Title	Offered to	Prerequisite courses
1su	1	Dental Anatomy .....	Fr.	None
2su	2	*Dental Anatomy .....	Fr.	1
3su	3	Dental Anatomy .....	Soph.	2

\* Time will be extended beyond the regular summer session to complete this course.

1su. DENTAL ANATOMY. A course of lectures and recitations on the anatomy and nomenclature of the teeth. Fee, 1 and 2 combined, \$20.

2su. 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.

3su. DENTAL ANATOMY. Continuation of Course 1 as outlined above. Fee, \$15.

## DENTAL PROTHESIS

Associate Professors GEORGE M. DAMON, WILLIAM F. LASBY.

## COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
1su	4	Prosthetic Technique ....	Fr.	None
2su	2	*Prosthetic Technique ....	Fr.	1
3su	3	Prosthetic Technique ....	Soph.	2
4su	2	Prosthetic Practice .....	Soph.	3
5su	2	Prosthetic Practice .....	Jr.	4
6su	1	Prosthetic Practice .....	Jr.	5
7su	1	Prosthetic Practice .....	Sr.	6
8su	1	Prosthetic Practice .....	Sr.	7

\*Time will be extended beyond the regular summer session to complete this course.

- 1su. 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.
- 2su. PROSTHETIC TECHNIQUE.\* Continuation of Course 1 as outlined above. Fee, Courses 1 and 2 combined, \$30.
- 3su. 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.
- 4su. PROSTHETIC PRACTICE. A course of lectures, recitations, and clinical work covering the simpler forms of prosthetic practice. Fee, half time, \$15; full time, \$30.
- 5su. 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.
- 6su. PROSTHETIC PRACTICE. Continuation of Course 5su as outlined above. Fee, half time, \$15; full time, \$30.
- 7su. PROSTHETIC PRACTICE. A course in general practice of prosthetics. Fee, half time, \$15; full time, \$30.
- 8su. PROSTHETIC PRACTICE. A continuation of Course 7su as outlined above. Fee, half time, \$15; full time, \$30.

## ORTHODONTIA

Associate Professor WILLIAM F. LASBY.

## COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
2su	2	Orthodontia Technique ..	Jr.	Pros. Tech. 4
3su	1	Orthodontia Practice ....	Jr.	1
4su	1	Orthodontia Practice ....	Sr.	2



- 2su. **ORTHODONTIA TECHNIQUE.** A course of lectures, recitations, and laboratory work in the technique of steel and the making of regulating appliances. Fee, full time, \$30.
- 3su. **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.
- 4su. **ORTHODONTIA PRACTICE.** A continuation of Course 3su as outlined above. Fee, half time, \$15; full time, \$30.

### CROWN AND BRIDGE WORK

Associate Professor ALFRED A. PAGENKOPF.

#### COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
1su	4	Crown and Bridge Technique	Jr.	Dent. Anat. 3
2su	3	Crown and Bridge Technique	Jr.	1
3su	4	Crown and Bridge Practice..	Sr.	2
4su	4	Crown and Bridge Practice..	Sr.	3

- 1su. **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.
- 2su. **CROWN AND BRIDGE TECHNIQUE.** Continuation of Course 1su as outlined above. Fee, half time, \$15; full time, \$30.
- 3su. **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.
- 4su. **CROWN AND BRIDGE PRACTICE.** Continuation of Course 3su as outlined above. Fee, half time, \$15; full time, \$30.

### OPERATIVE DENTISTRY

Assistant Professor JOSEPH F. SHELLMAN.

#### COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
2su	4	Operative Technique ....	Soph.	Dent. Anat. 3
3su	3	Operative Practice .....	Jr.	1
4su	4	Operative Practice .....	Jr.	2
5su	4	Operative Practice .....	Sr.	3
6su	4	Operative Practice .....	Sr.	4

- 2su. **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.

- 3su. OPERATIVE PRACTICE. This course consists of lectures, recitations, and clinical practice. Fee, half time, \$15; full time, \$30.
- 4su. 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.
- 5su. OPERATIVE PRACTICE. Continuation of Course 3su as outlined above. Fee, half time, \$15; full time, \$30.
- 6su. 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.	Quarter credits	Title	Offered to	Prerequisite courses
1su	1	Oral Surgery Practice....	Jr.	Path., Ther.
2su	2	Oral Surgery .....	Sr.	1

- 1su. 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.
- 2su. ORAL SURGERY. Continuation of Course 1su as outlined above. Fee, half time, \$15; full time, \$30.

# 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 12.

## DRAWING AND DESCRIPTIVE GEOMETRY

Professor WILLIAM H. KIRCHNER; Assistant Professor ROBERT W. FRENCH.

### COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
1su	3	Engineering Drawing . . . .	All	None
		10-12 MTWThF	201ME	Kirchner
		1-3 TWTh	201ME	Kirchner
3su	3	Engineering Drawing . . . .	All	1
		10-12 MTWThF	201ME	Kirchner
		1-3 TWTh	201ME	Kirchner
4su	3	Descriptive Geometry . . .	All	3
		10-12 MTWThF	201ME	Kirchner
		1-3 TWTh	201ME	Kirchner
5su	2	Drafting . . . . .	Soph. C.E.	4
		10-12 MTWThF	225ME	French
		1-3 W	225ME	French
7su	2	Drafting . . . . .	Soph. E.E. & M.E.	4
		10-12 MTWThF	225ME	Kirchner, French
		1-3 W	225ME	Kirchner, French
		Drafting . . . . .	Soph. C.E.	5
		1-5 MF	225ME	French
6su	2	Drafting . . . . .	Soph. C.E.	5
		4:00 W	225ME	French
		8-11 S	225ME	French
		Drafting . . . . .	Soph. E.E. & M.E.	7
8su	2	Drafting . . . . .	Soph. E.E. & M.E.	7
		1-5 MF	225ME	French
		4:00 W	225ME	French
		8-11 S	225ME	French

1su. ENGINEERING DRAWING. The elements of drafting including an introductory course in the science of representation and constructive geometry. Sketching, lettering, projections, working drawings, conventions, standards, tracing, and blue printing. KIRCHNER.

- 3su. ENGINEERING DRAWING. A continuation of Course 1. KIRCHNER.
- 4su. DESCRIPTIVE GEOMETRY. An elementary course in the methods of representation, correlated in part with analytical geometry. Lectures, demonstrations, and drawing-room exercises. KIRCHNER.
- 5su. DRAFTING. (For Civil Engineers.) Drawing of structures and machines. Detail, assembly, and construction drawings. The solution of problems of simple structures. KIRCHNER, FRENCH.
- 7su. DRAFTING. (For Electrical and Mechanical Engineers.) The application of descriptive geometry to drafting room problems in sheet metal work, belting, conveyors, and connections. Working drawings and tracings. KIRCHNER, FRENCH.
- 6su. DRAFTING. A continuation of Course 5. FRENCH.
- 8su. DRAFTING. A continuation of Course 7. FRENCH.

### ENGINEERING SHOP AND MANUAL TRAINING

Assistant Professor S. CARL SHIPLEY; Instructor WILLIAM H. RICHARDS.

#### COURSES

No.	Quarter	credits	Title	Offered to	Prerequisite courses
1su	2-5		Engineering Shop Work. 8-1 MTWThFS	Fr., soph., teachers Mech.E.	Shipley, Richards
2a-su	2		Teachers' Course in Wood Work ..... 8-1 MTWThFS	All Mech.E.	Richards
2b-su	2		Teachers' Course in Wood Work ..... 8-1 MTWThFS	All Mech.E.	Richards
3su	2-5		Machine Work ..... 8-1 MTWThFS	Soph., jr., teachers Mech.E.	Shipley
4su	3		Teachers' Course in Metal Work ..... 8-1 MTWThFS	All Mech.E.	Shipley

1su. ENGINEERING SHOP WORK. Pattern making, joinery, wood working, (use of tools, lathe, and bench work). SHIPLEY, RICHARDS.

2a-su. TEACHERS' COURSE IN WOOD WORK. Manual training, joinery, wood carving, and wood turning. Care and adjustment of tools and wood-working machines. RICHARDS.

2b-su. TEACHERS' COURSE IN WOOD WORK. Wood finishing, staining, filling, varnishing, and polishing. RICHARDS.

NOTE: Courses 2a-su and 2b-su are designed with special reference to the needs of teachers of manual training.

3su. MACHINE WORK. Machine and bench work with tool and machine construction. Engineering sophomores and juniors or teachers of

manual training with previous experience in machine shop work, may select required work to a maximum of five credits. SHIPLEY.

4SU. TEACHERS' COURSE IN METAL WORK. Elementary machine and bench work—soldering, brazing, autogenous welding, to meet needs of manual-training teachers. Bench and vise work in metal shipping, filling, scraping, fitting; machine tool work in metals—turning, planing, threading, drilling, milling. SHIPLEY.

NOTE: Each of the above subjects will require thirty-six 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 thirty-six hours specified. SHIPLEY.

MATHEMATICS AND MECHANICS

Professor WILLIAM H. KIRCHNER; Assistant Professors HANS H. DALAKER, WILLIAM F. HOLMAN, GEORGE C. PRIESTER.

COURSES

No.	Quarter	credits	Title	Offered to	Prerequisite courses
6su	..		Solid Geometry .....	All	Plane Geometry
			11-12 TWThF	205ME	Kirchner
71su	5		Freshman Mathematics ..	....	.....
			8-10 TWThF	106ME	Holman
			1-4 MF	106ME	Holman
71su	5		Freshman Mathematics...	....	.....
			8-10 TWThF	104ME	Priester
			1-4 MF	104ME	Priester
74su	5		Integral Calculus .....	....	.....
			8-10 MTWThF	203ME	Dalaker

6SU. SOLID GEOMETRY. Subject-matter of Books VI-IX of American texts in solid geometry. Points and lines in space, polyhedrons, cylinders, cones, sphere. For those preparing for examination towards State Professional Certificate. Meets entrance requirements of University. KIRCHNER.

71SU. FRESHMAN MATHEMATICS. As given in the third quarter of 1918-19 including laboratory exercises. HOLMAN, PRIESTER.

74SU. INTEGRAL CALCULUS. Definite integrals, integration as a process of summation, areas, lengths, volume, center of gravity, moments of inertia, expansion of functions by Maclaurin's and Taylor's series, partial derivatives, simple differential equations. DALAKER.

NOTE: As given in the third quarter of 1918-19 supplemented by part of the work of the second quarter.

## THE LAW SCHOOL

The Law School announces a six weeks' course in Law. The course is arranged primarily to afford persons an opportunity to make up their work who for any cause were unable to attend the Law School during the first term of 1918-19. The courses, however, will be broad enough to permit any person who is delinquent in the first semester's work in Contracts, Torts, Criminal Law, Personal Property, Real Property II, and Equity to make up such deficiency. Complete courses are offered in the following: Insurance, Quasi Contracts, and Trusts. The tuition fee is \$25.

*Admission requirements.*—Candidates for admission to the Law School must have completed at least two years of work in the College of Science, Literature, and the Arts of the University of Minnesota or some other college or university of equal grade. Such candidates may be admitted upon presenting their diplomas or other credentials showing the completion of such college work, to the Registrar of the University.

Applicants who are twenty-one years of age and have preliminary education sufficient at least to entitle them to admission to the College of Science, Literature, and the Arts, may be admitted to the Law School as special students. Such special students are not candidates for a degree, but in case a special student succeeds in maintaining throughout his course an average grade of B or better, the Faculty may by special action recommend him for graduation.

Special students entering with fifty-two academic credits may become regular students by complying with the requirements for admission before the beginning of their second year in the Law School, provided they have passed all the subjects required of the first-year law class.

Following is the summer schedule:

Contracts .....	8:30	TWThS
Criminal Law .....	9:30	MW
	10:30	F
Personal Property .....	9:30	F
	10:30	TThS
Torts .....	11:30	MTWTh
II Property .....	8:30	TWThF
Trusts .....	9:30	MTWThF
Quasi Contracts .....	10:30	TWThS
Insurance .....	9:30	S
	10:30	MF
	11:30	W
Equity .....	11:30	MTThF

## THE MEDICAL SCHOOL

The Medical School announces six weeks' and eleven weeks' courses in Anatomy, Pharmacology, Pathology, Bacteriology, Physiology, and in the clinical branches. These courses may be taken for subject credit by any qualified students, but those who desire time credit (legal credit toward the M.D. degree) must register in the Medical School. For detailed information regarding such registration consult the bulletin of the Medical School.

*Regular Medical schedules.*—A full quarter's (eleven weeks) work is offered respectively in the sophomore, junior, and senior medical years. For such courses the regular tuition fee of \$50 per quarter will be charged. The quarter begins June 23 and ends September 6.

### SOPHOMORE MEDICAL YEAR

(First quarter's work), Fee, \$50

FIRST TERM (JUNE 23 TO AUGUST 2)

Physiology 103-Isu, (See Department program).....	4 quarter credits
Anatomy 111su, Neurology (See Department program).....	5 quarter credits
Electives .....	2 quarter credits

SECOND TERM (AUGUST 4 TO SEPTEMBER 6)

Physiology 103-IIsu, (See Department program).....	4 quarter credits
Bacteriology 105su, Special Bact. (See Department program).....	4½ quarter credits
Electives .....	2 quarter credits

The following schedules of required subjects are approximate. Final programs will be printed later.

### JUNIOR MEDICAL YEAR

(First quarter's work), Fee, \$50

Pharmacology 103su, General Pharmacology.....	22 hours	Hirschfelder or Brown
Pathology 103su, Clinical Pathology.....	55 hours	Warwick
Medicine 51su, Principles and Practice....	33 hours	.....
Medicine 53su, Physical Diagnosis.....	50 hours	Schneider, et al.
Medicine, 57su, Clinic in Medicine.....	11 hours	White, et al.
Medicine 69su, Nervous Diseases.....	22 hours	.....
Medicine 79su, Dermatology.....	11 hours	.....
Surgery 53su, Principles of Surgery.....	33 hours	.....
Surgery 59su, Diagnostic Clinic.....	11 hours	Johnson
Pediatrics 101su, Diseases of Children....	33 hours	Sedgwick, et al.
Obstetrics 51su, Lectures and Recitations..	33 hours	.....
Obstetrics 53su, Gynecology.....	11 hours	.....
Section Work; clinics and cadaver surgery.	44 hours	.....
Elective .....	66 hours	.....

### SENIOR MEDICAL YEAR

(First quarter's work), Fee, \$50

Medicine 63su, Medical Clinic.....	22 hours	White, et al.
Ophthalmology 79su, Ophthalm. and Otol...	22 hours	Murray, et al.
Obstetrics 57su, Obstetrics and Gyn.....	22 hours	.....
Clerkships and Section Work (Div. A)....	275 hours	.....
Student Internship (Div. B).....	275 hours	.....
Thesis or Elective.....	66 hours	.....

A program of clinics and clinical electives will be published later.

Students from other institutions will be admitted to the junior and senior classes as regular members and candidates for the M.D. degree only to the extent to which student internships can be provided. Medical students from other schools desiring to work for the summer only may enter as special students.

*Opportunities for physicians.*—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.

For work in other departments, including graduate work, see announcements of the other colleges.

## ANATOMY

Professors CLARENCE M. JACKSON, THOMAS G. LEE, RICHARD E. SCAMMON; Associate Professor CHARLES A. ERDMANN; Assistant Professor ANDREW T. RASMUSSEN; Instructors GUSTAVE J. NOBACK, HJALMAR L. OSTERUD; Assistants (to be appointed).

The laboratories are open from 8 a.m. to 5 p.m.

### COURSES

		FIRST TERM			
No.	Quarter credits	Title	Offered to	Prerequisite courses	
5su	8	Human Gross Anatomy...	3rd yr. med., 2nd yr. dent.	An. Biol. 1-2-3	
		Lect. I	304IA	Erdmann and Assistant	
		Lab. II, III, IV	306IA		
		V, VI, VII	306IA		
14su	8	Histology and Embryology	2nd yr. dent.	An. Biol. 1-2-3	
		Lect. I	104IA	Jackson, Noback,	
		Lab. II, III, IV	106IA	and Assistant	
103su	8	Human Histology .....	3rd yr. med.	An. Biol. 1-2-3	
		Lect. I	101IA	Jackson, Noback,	
		Lab. II, III, IV	107IA	and Assistant	
		V	107IA		
111su	5	Human Neurology .....	4th yr. med.	Anat. 103, 107	
		Lect. V, MW, and I, TTh	104IA	Rasmussen and Asst.	
		Lab. VI, VII, MW; V, VI, VII, F; II, III, T; and II, III, IV, Th	214-215IA		
145su	1½	Special Dissections .....	4th, 5th, 6th yr. med.	Anat. 5-6	
		Lab. V, VI, VII	307IA	Erdmann	
134su	2	Fetal Anatomy .....	4th, 5th, 6th yr. med.	Anat. 107	
		Lect. V	14IA	Scammon	
		Lab. VI, VII	14IA		



No.	Quarter	credits	Title	Offered to	Prerequisite courses
137su	1		Physical Development of Children .....	Educ. and 4th, 5th, 6th yr. med.	
			Ar	Ar	Scammon
156su	Ar		Advanced Anatomy .....	Grad. and 4th, 5th, 6th yr. med.	
			Ar	Ar	Permission by Jackson, Lee, Scammon, or Rasmussen
208su	Ar		Anatomy Research .....	Grad. and 4th, 5th, 6th yr. med.	
			Ar	Ar	Permission by Jackson, Lee, Scammon, or Rasmussen

SECOND TERM

No.	Quarter	credits	Title	Offered to	Prerequisite courses
6su	8		Human Gross Anatomy..	3rd yr. med. 2nd yr. dent.	Anat. 5
			Lect. I, MTWThFS	304IA	Osterud and Assistant
			Lab. II, III, IV MTWThFS	306IA	
			V, VI, VII TTh	306IA	
107su	5		Human Embryology .....	3rd yr. med.	Anat. 103
			Lect. I MTWThFS	104IA	Scammon, Osterud, and Assistant
			Lab. II, III MTWThF	106IA	
121su	2		Anatomical Technique....	3rd, 4th, 5th, 6th yr. med.	An. Biol. 1-2-3
			Lect. V TTh	113IA	Permission by Lee
			Lab. VI, VII TTh	113IA	
126su	1½		Advanced Histology .....	4th, 5th, 6th yr. med.	Anat. 103
			Lab. V, VI, VII TTh	113IA	Permission by Lee
			or Ar		
138su	Ar		Implantation and Placentation .....	Grad. and 4th, 5th, 6th yr. med.	
			Ar	Ar	Permission by Lee
156su	Ar		Advanced Anatomy .....	Grad. and 4th, 5th, 6th yr. med.	
			Ar	Ar	Permission by Lee or Scammon
208su	Ar		Anatomy Research .....	Grad. and 4th, 5th, 6th yr. med.	
			Ar	Ar	Permission by Jackson, Lee, or Scammon

5su. GROSS HUMAN ANATOMY. Dissection, including osteology. A dissected skeleton loaned to every two students. Every student required to dissect. Fee, \$35.

6su. Continuation of 5su. Fee, \$35.

14su. HISTOLOGY AND EMBRYOLOGY. Minute structure and development of the tissues and organs. Fee, \$30.

103su. HUMAN HISTOLOGY. Microscopic study of the various tissues and organs. Fee, \$30.

107su. HUMAN EMBRYOLOGY. Development of the human body. Fee, \$20.

111su. HUMAN NEUROLOGY. A study of the central nervous system and sense organs. Fee, \$20.

- 121su. ANATOMICAL TECHNIQUE. Microtechnique, reconstruction, and museum methods, etc. Fee, \$7.50.
- 126su. ADVANCED HISTOLOGY. A study of special preparations, including practice in the identification of unknown specimens. Fee, \$7.50.
- 134su. IMPLANTATION AND PLACENTATION. A study of the implantation of the ovum, and the formation of the placenta, and the earlier stages of embryonic development in man and mammals. Ar. credits and fee.
- 145su. SPECIAL DISSECTIONS. Dissections of special regions, including preparation of museum specimens. Fee, \$7.50.
- 156su. ADVANCED ANATOMY. Largely individual work in Gross Anatomy, Histology, Embryology, or Neurology. Ar. hours and fee.
- 201su. RESEARCH IN ANATOMY. Fee, \$5.

## BACTERIOLOGY

Professor WINFORD P. LARSON; Assistant Professor ARTHUR T. HENRICI;  
Instructor ANNE BENTON.

## COURSES

No.	Quarter	credits	Title	Offered to	Prerequisite courses
104su*	6		General Bacteriology . . . .	All	Gen. Chem. and Bot. or Zool.
			V, VI, VII	MTWThF	Benton and Assistant
103su†	4½		Special Bacteriology . . . .	4th yr. med., and others	Gen. Bact.
			I, II, III	TTh	Henrici
			V, VI, VII	MWF	
114su‡	2 or Ar		Advanced Bact. (10 students) . . . . .	Med. or grad. PH&P	Gen. and Spec. Bact. Henrici
			VI, VII, VIII, TTh or Ar		
201su‡	Ar		Research in Bact. . . . .	Med. or grad. PH&P	Gen. and Spec. Bact. Larson, Henrici
			Ar hours and days		

\* First term.

† Second term.

‡ Either or both terms.

- 104su. 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. Fee, \$10.
- 105su. SPECIAL BACTERIOLOGY. The study of pathogenic bacteria, especially in relation to definite diseases; bacteriological methods in clinical diagnosis; principles of infection and immunity, with practical application of serum reactions. Fee, \$10.
- 114su. ADVANCED BACTERIOLOGY. Fee, each term, \$7.50.
- 201su. RESEARCH IN BACTERIOLOGY. Fee, \$5.

PATHOLOGY

Professor HAROLD E. ROBERTSON; Associate Professor ELEXIÓUS T. BELL;  
Instructor MARGARET WARWICK.

COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
103*su	55 hrs.	Clin. Pathology . . . . .	5th yr. med., and others	Spec. Bact., Physiol. Chem.
		II, III, IV	W	
		III, IV	F	Warwick
110*su	33 cr. 66 hrs. 2 or 4 qr. cr.	Histopathology . . . . .	Med. and grad.	Path. 101, 2
		VI, VII, VIII	TTh	PH&P
111†su	Ar	Autopsies . . . . .	Med. and grad.	Path. 101, 2
		Hrs. on call	PH&P	Staff
113*su	Ar	Advanced Path. . . . .	Med. and grad.	Path. 101, 2
		Ar hrs. and days	PH&P	Robertson or Bell
117*su	33 cr. 66 hrs. 2 or 4 qr. cr.	Diagnosis of Tumors.	Med. and grad.	Path. 101, 2
		VI, VII, VIII	TTh	PH&P
119*su	11 hrs.	Clin. Path. Confer. . . . .	Med. and grad.	Path. 101, 2
		VIII	F	PH&P
121*su	50 hrs.	Clin. Lab. Course. . . . .	Med. and grad.	Path. 103
		1-2:30	MWF	UD
121*sux	50 hrs.	Same as 121su. . . . .	Med. and grad.	Path. 103
		1-2:30	TThS	UD
201su	Ar	Research in Path. . . . .	Med. and grad.	Path. 101, 2
		Ar hrs. and days	PH&P	Robertson or Bell

\* Through both terms, or 11 weeks.

† Four autopsies required of each candidate for M.D.

103su. 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. Fee, \$15.

110su. HISTOPATHOLOGY. Fee, each term, \$7.50.

111su. AUTOPSIES. Ar. hours and fee.

113su. ADVANCED PATHOLOGY. Individual problems. Ar. hours and fee.

117su. DIAGNOSIS OF TUMORS. Fee, \$7.50 each term.

119su. CLINICAL PATHOLOGICAL CONFERENCE. Fee, \$2.50.

121su. CLINICAL LABORATORY COURSE. Fee, \$7.50.

121sux. CLINICAL LABORATORY COURSE. Fee, \$7.50.

201su. RESEARCH IN PATHOLOGY. Fee, \$5.

## PHARMACOLOGY

Professor ARTHUR D. HIRSCHFELDER; Associate Professor EDGAR D. BROWN.

## COURSES

No.	Quarter credits	Title	Offered to	Prerequisite courses
104su	48 hrs. 2 qr. cr.	Pharmacology . . . . . I, II, III MWF First term (not given for less than 5 students)	4th yr. med., and others 201MH	Physiol. 103, 4 Brown
105su	22 hrs.	Gen. Pharmacology. . . . . Ar hrs., both terms	5th yr. med.	Pharm. 102 Hirschfelder, Brown
109su	66 hrs. 2 qr. cr. or Ar	Exp. Pharm. Problems VI, VII, VIII or Ar TTh Either or both terms	5th, 6th yr. med.	Pharm. 102, 4 Hirschfelder, Brown
110su	66 hrs. 2 qr. cr. or Ar	Poisons . . . . . VI, VII, VIII or Ar TTh Either or both terms	5th, 6th yr. med.	Pharm. 102, 4 Hirschfelder, Brown
111su	11 hrs.	Prescription Writing. . . Ar hours	5th, 6th yr. med.	Pharm. 102 Brown
203su	Ar	Research in Pharm. . . . . Ar hours and days	5th, 6th yr. med. and grad.	Permission of Hirschfelder, Brown

104su. EXPERIMENTAL PHARMACOLOGY. Exercises illustrating the preparation and action of medicines, their relation to chemical structure, and their mode of administration. Fee, \$10.

105su. GENERAL PHARMACOLOGY AND THERAPEUTICS. A more detailed study of drugs important in clinical practice, covering the relations of chemical structure to physiologic and therapeutic action and modes of application in clinical medicine. Fee, \$5.

109su. EXPERIMENTAL PHARMACOLOGY. Special investigation and experimental study of one or more subjects in pharmacology, in which the student is given an opportunity of choice of topics. Fee, each term, \$7.50.

110su. POISONS. Their detection, action, and antidotes. Fee, each term, \$7.50.

111su. PRESCRIPTION WRITING. The principles of prescription writing; study of the flavoring, coloring, and incompatibilities of drugs. Fee, \$2.50.

203su. RESEARCH IN PHARMACOLOGY. Fee, \$5.

PHYSIOLOGY

Professor FREDERICK H. SCOTT; Assistant Professor CHAUNCEY J. V. PETTIBONE; Instructors ESTHER GREISHYMER, CHARLES C. GAULT.

Laboratories open 8 a.m. to 5 p.m., Saturday, 8 a.m. to 12 m.

COURSES

FIRST TERM

No.	Quarter credits	Title	Offered to	Prerequisite courses
3su or 4su	5	Human Physiology....	Collegiate and dental	*Chem. and Biol.
		Lec. I MTWThF		
		Lab. II, III, IV MWF	315MH	Gault
		Rec. II TTh		
6su	3	Physiologic Chem. ...	Collegiate and dental	Organic Chem. Greishymer
		III, IV MTWThF	310MH	
102su	8	Physiologic Chem. ...	3rd med. and others	Organ. Chem. and Biology
		II, III, IV MTWThF	310MH	Pettibone, Greishymer
103-Isu	3	†Gen. Physiol. Cells, Muscles, Nerves .....	4th yr. med. and others	Biol. and Org. Chem.
		Lec. I MWF		
113-Isu	1½ or Ar	Lab. & Rec. II, III, IV Problems in Physiol...	301MH Med., grad.	Scott, Gault Physiol. 103, 4
		V, VI, VII, TTh or Ar		Scott
153su	Ar	Adv. Physiol. Chem...	Med., grad., and others	Physiol. 102 Pettibone (Spec. permission)
		Ar Ar		
161su or 162su	1½	‡Urinalysis or Blood Analysis .....	Med., grad., and others	Physiol. 102 Pettibone
		Lec. and Lab. V, VI, VII TTh		
203su	Ar	Research in Physiol.. Ar hours and days	Med., grad.	Physiol. 103, 4 Scott (Spec. permission)
205su	Ar	Research in Ph. Chem. Ar hours and days	Med., grad.	Physiol. 102 Pettibone (Spec. permission)

SECOND TERM

No.	Quarter credits	Title	Offered to	Prerequisite courses
102su	8	Physiol. Chem. (cont.)	3rd yr. med., and others	Organic Chem. Pettibone, Salt
		Ar Ar		
103-IIsu	3	Physiol. of Blood, Circulation, Respiration, Digestion ....	3rd yr. med., and others	Biol. and Org. Chem. Scott, Gault
		I, II, III, IV MWF	301MH	

\* Prerequisites waived for public school teachers.

† Continues as 103-IIsu in second term; either part may be taken separately. Together 103-I and 103-II are equal to 103. Continues through 11 weeks.

‡ Choice of course will be made to suit largest number of applicants.

No.	Quarter credits	Title	Offered to	Prerequisite courses
113-IIsu	1½ or Ar	Problems in Physiol.. V, VI, VII TTh or Ar	3rd yr. med., and others 301MH	Physiol. 103, 4 Scott
153su	Ar	Adv. Physiol. Chem... Ar Ar	Med., grad., and others 310MH	Physiol. 102 Pettibone (Spec. per- mission)
163su	2	Metabolism .....	Med., grad., and others 310MH	Physiol. 102 Pettibone
203su	Ar	V, VI, VII TTh Research in Physiol.. Ar hours and days	Med., grad.	Physiol. 103, 4 Scott (Spec. per- mission)
205su	Ar	Research in Ph. Chem. Ar hours and days	Med., grad.	Physiol. 102 Pettibone (Spec. per- mission)

3su. HUMAN PHYSIOLOGY. Home economics and collegiate students, nurses, and others. Fee, \$10.

4su. ELEMENTARY PHYSIOLOGY. Sophomore dental students. Fee, \$10.

6su. PHYSIOLOGIC CHEMISTRY. For any students desiring a short course. Fee, \$10.

102su. PHYSIOLOGIC CHEMISTRY. The components of the animal body; foods, digestion, the excreta, and metabolism. Fee, \$30.

103-Isu. PHYSIOLOGY OF CELLS, MUSCLE, NERVE. Fee, \$12.50.

103-IIsu. PHYSIOLOGY OF BLOOD, CIRCULATION, RESPIRATION, DIGESTION. Fee, \$12.50.

113-Isu. PROBLEMS IN PHYSIOLOGY. Each student will be assigned a topic for special laboratory study, leading in some cases to original investigation. Fee, \$7.50.

113-IIsu. Same as 113-Isu. Second term. Fee, \$7.50.

153su. ADVANCED PHYSIOLOGIC CHEMISTRY. Course arranged by instructors with qualified students for special work. Ar. hours and fee.

161su.\* URINALYSIS. Advanced methods. Fee, \$7.50.

162su.\* BLOOD ANALYSIS. New methods. Fee, \$7.50.

163su. METABOLISM. Lectures and laboratory work on special phases of metabolism. Fee, \$7.50.

203su. RESEARCH IN PHYSIOLOGY. Fee, \$5.

205su. RESEARCH IN PHYSIOLOGIC CHEMISTRY. Fee, \$5.

\* Only one of these courses offered as the class may select.

# 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 half the length of a regular college quarter (twelve weeks), the number of recitations and amount of work per week for each credit hour will be approximately *twice that required each week during the college year*. Nine quarter-hour credits constitute standard work.

## 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.

*Agr. Biochem.*

- 3, Types of Carbon Compounds

*Agr. Educ.*

- 11, Principles of Vocational Education
- 69, Home and School Gardening II. Same as Hort. 95
- 131, Methods in Teaching High-school Agriculture
- 151-152, Organization and Management
- 161, Fundamentals of Agriculture
- 162, Fundamentals of Agriculture
- 171, Extension Work
- 175, Visual Presentation

*Agron. and F. Mgt.*

- 1, Farm Crops
- 3, Farm Machinery
- 102, Farm Management
- 107, Cereal Crops
- 108, Corn and Potato Crops

*An. Husb.*

- 1, Types and Breeds of Live Stock

*Bee Cult.*

- 1, Elements of Beekeeping
- 3-4, Commercial Production of Comb and Extracted Honey
- 5, Queen Bee Raising

*Dy. Husb.*

- 4, Dairy Stock Judging
- 7, Elements of Dairy Husbandry
- 11, Milk and Its Products

*Drain.*

- 18, Surveying
- 26, Farm Drainage

*Ent. and Econ. Zool.*

- 1, Introductory Entomology
- 3, Animal Parasites

*Farm Eng.*

- 4, Blacksmithing
- 5, Carpentry

*Home Econ.*

- 3, Textiles
- 11, Garment Making
- 13, Dressmaking
- 17, Advanced Clothing Construction



- 18, Commercial Clothing Manufacture
- 19, Millinery
- 21, Foods and Cookery
- 22, Food Economics
- 25, Special Problems in Foods and Cookery
- 35, Home Management Laboratory
- 36, Home Management Lectures
- 37, Home Care of the Sick
- 42, Home Economics Education
- 43, Organization and Methods for Related Art Teaching
- 51, Drawing and Design
- 52, Art History and Appreciation
- 53, Advanced Design
- 61, Large Quantity Cookery and Marketing
- 63, Institutional Experience
- 103, Dietetics
- 107, Nutrition I
- 122, Advanced Textiles
- 123, Clothing Economics

*Hort.*

- 71, Landscape Gardening
- 95, Home and School Gardening II. Same as Agr. Educ. 69

*Pl. Path. and Bot.*

- 1, Plant Pathology
- 9, Weeds and Seed Testing
- 14, Plant Disease Control

*Poult. Husb.*

- 1, Poultry
- 2, Poultry Judging

*Rur. and Agr. Jour.*

- 7, Editorial Administration.
- 13, Reporting

*Vet. Med.*

- 5, Veterinary Bacteriology
- 8, Veterinary Studies
- 12-13, 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.

A health insurance fee of \$1 is charged for which the student receives the privileges offered by the University Health Service.

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 Vice-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 21 and Monday, June 23, 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 24. After Monday, June 23, 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 21.

### 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 65. 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.

### 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.

At the end of the session be sure to leave a forwarding address with the post-master or at the Secretary's office.

#### 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 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. 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 will be offered. 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, volley ball, 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 23 to August 1 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 half as many weeks in the Summer Session as in the regular quarter, each course will require approximately twice as many hours per week as in a regular quarter. One credit hour is equivalent to (1) 12 lecture or recitation periods requiring two hours of preparation each; (2) 24 periods of laboratory work requiring one-half hour of preparation each; or (3) 36 hours of laboratory work with no preparation.

### KEY TO BUILDINGS, UNIVERSITY FARM

Ad—Administration  
 PP—Plant Pathology  
 Ch—Chemistry  
 DB—Dairy Barn  
 DH—Dairy Hall  
 DiH—Dining Hall  
 En—Agricultural Engineering  
 HE—Home Economics  
 Hr—Horticulture  
 St—Stock Pavilion  
 Ve—Veterinary  
 WH—Women's Hall

### AGRICULTURAL BIOCHEMISTRY

#### COURSES

No.	Credits	Title	Offered to	Prerequisite courses
3	6	Types of Carbon Compounds . . . 8:00-9:30 MTWThFS	Soph., jr. 251Ch	Chem. 1 yr. Morrow

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.

### AGRICULTURAL EDUCATION

#### COURSES

No.	Credits	Title	Offered to	Prerequisite courses
11	3	Principles of Vocational Education 11:10-11:50 MTWThFS	Soph., jr., sr. 307Ad	None ¶
69	3	Home and School Gardening II Lect. 1:20-2:05 MTWTh Lab. 2:15-4:00 MTW	Jr., sr. 20Hr	None Brierley, Field, Ankeney
131	3	Methods in Teaching H. S. Agriculture . . . . . 8:00-9:30 MWF	†Jr. 317Ad	11 Field, Ankeney
151-152	6	Organization and Management . . 1:20-3:00 MTWThF	Sr. 317Ad	68-69 Dyer

No.	Credits	Title	Offered to	Prerequisite courses
*161	3	Fundamentals of Agriculture....	Jr., sr.	None
		Lect. 10:20-11:00 MTWTh	317Ad	Mayne, Ankeney
		Lab. 2:15- 3:00 TWTh		
*162	3	Fundamentals of Agriculture....	Jr., sr.	None
		Lect. 10:20-11:00 MTWTh	317Ad	Mayne, Ankeney
		Lab. 2:15- 3:00 TWTh		
171	3	Extension Work.....	Sr.	None
		3:10-4:50 MWF	321Ad	¶
175	3	Visual Presentation.....	Jr., sr.	None
		11:10-11:50 MW	317Ad	Ankeney
		Lab. Sect. 1 3:10-5:30 MWF		
		Sect. 2 Ar. TTh		

\* For the Summer Session of 1919 persons registering for 161 will take the last half of the course only, and as a substitute for the first half will take the last half of Course 162, receiving 1½ credits for each half course taken, but both the last half of 161 and the last half of 162 must be taken before credit will be given for either.

† Registration of juniors must be approved by the Chief of the Division.

11. PRINCIPLES OF VOCATIONAL EDUCATION. The fundamental principles upon which education is based. Emphasis is placed on those phases which are most closely related to industrial education. ....
69. HOME AND SCHOOL GARDENING. See Horticulture 95. FIELD, ANKENEY, BRIERLEY.
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, ANKENEY.
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, ANKENEY.
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, ANKENEY.
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. ....

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. ANKENY.

**AGRONOMY AND FARM MANAGEMENT  
COURSES**

No.	Credits	Title	Offered to	Prerequisite courses
1	3	Farm Crops . . . . . 8:00-9:30 TWThF	All 307Ad	None McGinnis
3	3	Farm Machinery . . . . . 1:20-4:00 TWThF	Sr. Basement Ad	None Bassett
102	3	Farm Management . . . . . II 8:50- 9:30 MTWThFS	Sr. 321Ad	1, Econ. 3, An. Husb: 7 or 13, Soils 2. Boss
*107	3	Cereal Crops . . . . . 10:20-12:40 MTWThFS	Jr., sr. 2Ad	1, Bot. 1 yr. McGinnis
*108	3	Corn and Potato Crops . . . . . 10:20-12:40 MTWThFS	Jr., sr. 2Ad	1, Bot. 1 yr. McGinnis

1. FARM CROPS. An elementary study of the important field crops of the United States with emphasis upon those of local importance; distribution, economic importance, agricultural classifications, cultural methods, and principles of improvement. MCGINNIS.

3. FARM MACHINERY. Lectures, practical discussions, and practice work in the best methods of adjustment, handling, and adapting various kinds of machinery to the soils, weeds, and seasons. BASSETT.

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.

\*107. CEREAL CROPS. Structure, group classification, seed selection and care, adaptation, growing, and utilization. Typical samples and those containing unsoundness are studied. Score-card practice and comparative placing on intrinsic value included. MCGINNIS.

\*108. CORN AND POTATO CROPS. Through lectures, laboratory study, and assigned readings adaptation, production, classification, and utilization are studied. Attention is given to desirable characteristics of unsoundnesses. Score card practice and comparative placing of samples. MCGINNIS.

**ANIMAL HUSBANDRY  
ANIMAL INDUSTRY GROUP  
COURSES**

No.	Credits	Title	Offered to	Prerequisite courses
1	3	Types and Breeds of Livestock . . . 8:00 9:30 MTWThFS	Fr., soph. St.	None Anderson

\* Course 107 or Course 108 will be given but not both. Choice by the class enrolled will be permitted.



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. ANDERSON.

## BEE CULTURE

## COURSES

No.	Credits	Title	Offered to	Prerequisite courses
1	3	Elements of Beekeeping..... 12:00-12:40 MWF Lab. Ar Ar	Jr., sr. 1PP Ar.	None France
3-4	3	Commercial Production of Comb and Extracted Honey..... 10:20-11:50 MWF	Jr., sr. 1PP	1 Jager
5	3	Queen Bee Raising..... Ar Ar	Jr., sr. Ar	1 Jager

1. ELEMENTS OF BEEKEEPING. Fundamentals of bee behavior and bee practice throughout the cycle of the year. FRANCE.
- 3-4. COMMERCIAL PRODUCTION OF COMB AND EXTRACTED HONEY. Theory and practice of commercial management of bees for production of comb and extracted honey. JAGER.
8. QUEEN BEE RAISING. Theory and practice of bee breeding in connection with our queen raising station at Zumbra Heights. JAGER.

## DAIRY HUSBANDRY

## ANIMAL HUSBANDRY GROUP

## COURSES

No.	Credits	Title	Offered to	Prerequisite courses
4	2	Dairy Stock Judging..... 8:00-9:30 TWThF	Soph., jr. DB.	7 Cort, Wilson
7	3	Elements of Dairy Husbandry... 10:20-11:50 MTWThFS	Fr. 39DH	None Washburn, Hanson, Cort
11	3	Milk and Its Products..... 8:00-9:30 MTWThFS	Soph., jr. 39DH	7 Washburn, Hanson

4. DAIRY STOCK JUDGING. Practice work in judging animals of the leading dairy breeds. Herds in the vicinity of the Twin Cities are visited. CORT, WILSON.
7. ELEMENTS OF DAIRY HUSBANDRY. Origin, characteristics, and adaptation of dairy breeds of cows; particular attention is given to feeding, followed by study of the chemical and physical constituents of milk. Practice work in butter making, and milk testing required. Laboratory fee, \$1.50. WASHBURN, HANSON, CORT.
11. MILK AND ITS PRODUCTS. Milk secretion, composition, properties, variation, and testing. Cream separation, testing, care, methods of mar-

keting. Butter, cheese, and ice-cream making. Market milk handling, standardizing, clarifying, pasteurizing, bottling, and marketing. Laboratory fee, \$1.50. WASHBURN, HANSON.

### DRAINAGE

#### COURSES

No.	Credits	Title	Offered to	Prerequisite courses
18	5	Surveying..... (All day TWTh) (8:00-12:00 F)	Soph., jr., sr. 215 En.	F. Eng. 3,11 Roe
26	3	Farm Drainage..... (All day M) (2:15-4:00 F.)	Jr., sr. 215 En	18 or parallel Roe

18. SURVEYING. Plain surveying as applied to farm problems. Mensuration, leveling, simple grade determination, elements of topography, and farm mapping. ROE.

26. FARM DRAINAGE. Principles and practice of farm drainage. Field technique of drainage construction by hand. This course is for students wishing to do special work in drainage. ROE.

### 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. 1 yr. Oestlund
44	3	Animal Parasites..... Lec. and Lab. 2:15-5:15 MTWTh	Jr., sr. 307Ad	An. Biol. 1 yr. 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.

44. 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.

### FARM ENGINEERING

#### COURSES

No.	Credits	Title	Offered to	Prerequisite courses
4	3	Blacksmithing..... 2:15-4:50 MTWThF	All 20En	None Johnston
5	3	Carpentry..... 10:20-12:40 MTWThFS	All 48En	None White

4. 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.

## HOME ECONOMICS

## COURSES

No.	Credits	Title	Offered to	Prerequisite courses
3	5	Textiles..... 8:00-9:30 } 2:15-4:00 }	All 305HE	None Phelps
11	3	Garment Making..... 10:20-12:40	All 304HE	None McDowell
13	5	Dressmaking..... 9:35-12:40	Soph., jr., sr. 305HE	3, 11 ¶
17	3	Advanced Clothing Construction..... 10:20-12:40	Jr., sr. 303HE	13, 52, 53 Weller, Patchin
18	3	Commercial Clothing Manufacture..... 2:15-4:50	Sr. 303HE	17 Patchin
19	1	Millinery..... 8:50-10:15	Jr., sr. 303HE	13, 53 Brown
21	5	Foods and Cookery..... 11:10-12:40 } 2:15- 4:00 }	Soph., jr., sr. 209HE	Chem. 3-4, Physiol. 3 or parallel Stinson
22	5	Food Economics..... 8:00-11:00	Soph., jr., sr. 209HE	21 or 23 Stinson
25	3	Special Problems in Foods and Cookery..... 2:15-4:50	Sr. 207HE	22 Weigley, Stinson
35	6	Home Management Lab..... Ar Ar	Jr., sr. Ar	22, Econ. 3 Lindquist
36	3	Home Management Lect..... 9:35-10:15	Jr., sr. 213HE	22, Econ. 3 Lindquist
37	2	Home Care of the Sick..... 10:20-11:50	Jr., sr. WH	Chem. 3, Bact. 6 Fisher
42	3	Home Economics Education..... 10:20-11:00	Jr., sr. 213HE	22, Psychol. 1. Weigley
43	2	Organization and Methods for Related Art Teaching..... 9:35-10:15	Consent of Instructor 309HE	H. Goldstein
51	3	Drawing and Design..... 2:15-4:50	All 313HE	None V. Goldstein, Bacon
52	3	Art History and Appreciation.... 8:00-8:40	Jr., sr. 313HE	51 H. Goldstein
53	3	Advanced Design..... 10:20-12:40	Jr., sr. 313HE	51 V. Goldstein
61	3	Large Quantity Cookery and Marketing..... 8:00-10:15 } 8:50-9:30 }	Jr., sr. DiH 213HE }	22 Richards
63	3	Institutional Experience I..... Ar Ar	Jr., sr. Ar.	22 Treat
103	5	Dietetics..... 10:20-12:40	Sr. 207HE	108 Biester
107	5	Nutrition I..... 8:00-10:15	Jr., sr. 211HE	22, Bact. 6, Agr. Bio chem. 3 Biester
122	3	Advanced Textiles..... 11:10-12:40	Jr., sr. 211HE	3, 51 Weller
123	3	Clothing Economics..... 10:20-11:00	Jr., sr. 309HE	13, 53, Econ. 3-4 Weller

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. PHELPS.
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. McDOWELL.
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. \_\_\_\_\_.
17. **ADVANCED CLOTHING CONSTRUCTION.** Laboratory problems in costume modeling and construction. WELLER, PATCHIN.
18. **COMMERCIAL CLOTHING MANUFACTURE.** A study of the organization of the clothing trades and industries; of wages and standards of efficiency in workmanship. Laboratory practice upon a commercial basis, measured by trade standards. PATCHIN.
19. **MILLINERY.** A study of the processes and materials used in millinery; designing, making, and trimming hats. BROWN.
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, bacteriology, and their application in typical cookery processes. STINSON.
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. STINSON.
25. **SPECIAL PROBLEMS IN FOODS AND COOKERY.** An advanced course in food preparation in which the problems are undertaken from an experimental point of view. WEIGLEY, STINSON.
35. **HOME MANAGEMENT: OPERATION AND MAINTENANCE, LABORATORY PRACTICE.** (a) Six 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. LINDQUIST.
36. **HOME MANAGEMENT: OPERATION AND MAINTENANCE, LECTURES.** The family budget for varying incomes, and for the "Home Management House"; household accounts. LINDQUIST.
37. **HOME CARE OF THE SICK.** (a) First aid; communicable diseases; their transmission and prevention; hygiene of infancy, maidenhood, ma-

- turity. (b) The care of the sick room; observation and care of the patient; elementary symptomatology. FISHER.
42. HOME ECONOMICS EDUCATION: Curricula, equipment, methods of teaching for Home Economics. WEIGLEY.
  43. ORGANIZATION AND METHODS FOR RELATED ART TEACHING. Organization of a related art course and methods of teaching art principles as applied to familiar objects and processes. H. GOLDSTEIN.
  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. V. GOLDSTEIN.
  52. ART HISTORY AND APPRECIATION. The historical development of art, architecture decoration, furniture and costume studied with special emphasis on design and influence upon modern styles. H. GOLDSTEIN, V. GOLDSTEIN.
  53. ADVANCED DESIGN. Problems in design for costume and for house furnishing. H. GOLDSTEIN, V. GOLDSTEIN.
  61. LARGE QUANTITY COOKERY AND MARKETING. Preparation of food in large amounts such as required in cafeteria and dining hall service; calculation of cost of individual servings; consideration of the problems involved and methods employed in purchasing of supplies. RICHARDS.
  63. INSTITUTIONAL EXPERIENCE I. Actual experience in the cafeteria and dining hall under direction. TREAT.
  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. BIESTER.
  107. NUTRITION I. A study of the chemistry and physiology of metabolism, involving a qualitative examination of the organic food stuffs and of the body tissues. BIESTER.
  122. ADVANCED TEXTILES. A more intensive study of textile fibers and fabrics; organization of laboratory problems leading to the establishment of a basis for standardization by the general consumer and for a demand for pure textiles. WELLER.
  123. CLOTHING ECONOMICS. General consideration of economic function of women with reference to clothing and textiles in the home and in industry; study of clothing budget, hygiene and standardization of dress. WELLER.

## HORTICULTURE

## COURSES

No.	Credits	Title	Offered to	Prerequisite courses
71	3	Landscape Gardening..... 8:00-9:30 MWF	Soph., jr., sr. 20Hr	None Cady
95	3	Home and School Gardening II... Lect. 1:20-2:05 MTWTh Lab. 2:15-4:00 MTW	Jr., sr. 20Hr	None Brierley, Field, Ankeney

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.
95. HOME AND SCHOOL GARDENING II. Lectures and laboratory. A consideration of the elements of horticulture as applied to high-school instruction, plant propagation, fruit-growing, home gardening, school gardening, and the planning of home and school grounds. Same as Agr. Educ. 69. BRIERLEY, FIELD, ANKENEY.

## PLANT PATHOLOGY AND BOTANY

## COURSES

No.	Credits	Title	Offered to	Prerequisite courses
1	3	Plant Pathology..... Lect. 10:20-11:00 TWThF Lab. 11:10-12:40 TWTh	Jr. 2PP 2PP	Bot. 1 yr. Freeman Bisby
9	3	Weeds and Seed Testing..... 10:20-12:40 TWThF	Soph., jr., sr. 3-4PP	Bot. 1 Dahlberg
14	3	Plant Disease Control..... 8:00-9:30 MTWThFS	Jr., sr..... 1, 2 PP	1 Stakman, Bisby

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.
14. PLANT DISEASE CONTROL. A detailed study of methods of controlling diseases of plants of parasitic origin. Spray materials and spray machinery. Practical applications. Not open to those who have completed Course 6. STAKMAN, BISBY.

## POULTRY HUSBANDRY

## ANIMAL INDUSTRY GROUP

## COURSES

No.	Credits	Title	Offered to	Prerequisite courses
1	3	Poultry..... 12:00-12:40 MTWThFS	All 39DH	None Smith
2	3	Poultry Judging..... 1:20- 4:00 MWF	All 39DH	1 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.
2. **POULTRY JUDGING.** The history, standard-requirements, and common defects of the leading commercial, standard breeds and varieties and determination and standard values by the score card and comparison methods. SMITH.

## RURAL AND AGRICULTURAL JOURNALISM

## COURSES

No.	Credits	Title	Offered to	Prerequisite courses
7	5	Editorial Administration..... 8:50-9:30 MTWThF Lab. Ar Ar	All 200Ad Ar	Rhet. 1 ¶
13	3	Reporting..... 8:00-8:40 MTWThF Lab. Ar Ar	All 200Ad Ar	Rhet. 1 ¶

7. **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, or by coöperation with Twin City papers.
13. **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.

## VETERINARY MEDICINE

## COURSES

No.	Credits	Title	Offered to	Prerequisite courses
5	2	Veterinary Bacteriology..... 10:20-11:00 MTWTh	Jr., sr. 9Ve	Bact. 6 Fitch
8	5	Veterinary Studies..... 8:00-9:30 MTWThF	Jr. 9Ve	None Reynolds
12-13	6	Common Diseases of Domestic Animals..... 2:15-4:00 MTWThF	Sr. 9Ve	3-4 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.
8. **VETERINARY STUDIES.** Preparatory work for study of diseases; causes, prevention, etc., of common diseases including lameness and unsound-

ness; common medicines. For students taking only one quarter of veterinary work. Not open to those who have completed Course 12. REYNOLDS.

- 12-13. 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**

*Supplement to Summer Session Bulletin*  
*Announcing*  
*Courses in Vocational Education*  
*and*  
*Changes in Schedule, Rooms*  
*and*  
*Teaching Staff Listed in Regular Bulletin*



*Vol. XXII No. 20 June 17 1919*

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

*Acceptance for mailing at special rate of postage provided for in section 1103,*  
*Act of October 3, 1917, authorized July 12, 1918*

# COURSES IN VOCATIONAL EDUCATION

## SUMMER SESSION, 1919

### ANNOUNCEMENT

There will be offered during the Summer Session of the University of Minnesota (June 23 to August 2) courses in vocational education that should be of special interest to men and women who are either supervising or teaching classes in vocational education or who expect to teach in vocational departments of the public schools the coming year.

### COURSES OPEN TO WHOM

Certain general courses listed in the bulletin are for superintendents, principals, and teachers who expect to have under their supervision some form of vocational education.

Specific methods courses are outlined for the following groups of teachers: teachers of shop subjects; teachers of related technical subjects, as drawing, mathematics, and science; teachers of non-vocational subjects; teachers of part-time schools and classes which include the regular shop and related subjects teachers; teachers of commercial subjects and merchandising.

### COMBINATION WITH SHOP COURSES

It will be possible during the Summer Session for students to arrange for courses in shop subjects and classroom subjects. Certain shop courses will be offered at the College of Engineering and Dunwoody Institute. Consult with the instructors in charge of vocational work in regard to this arrangement.

### FEDERAL BOARD REPRESENTATIVES

Representatives from the Federal Board for Vocational Education will assist the regular instructors in offering the courses in Organization and Supervision of Vocational Education. Members of the Board who are specialists in their particular fields of vocational education will each spend a week at the University during the Summer Session.

### REGISTRATION AND FEES

Saturday, June 21, and Monday, June 23, 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 24. After Monday, June 23, students may register by special permission. No student will be permitted to register after Monday, June 30. To complete registration, fees must be paid the same day.

Students are required to pay fees as follows:

Registration fee .....	\$5.00
Tuition fee per credit hour .....	2.00
Additional fee for each laboratory course....	1.50
Deposit fee .....	5.00
Health fee .....	1.00

Every student will be required to pay at least \$10, including the registration fee of \$5. The unused balance of the deposit fee will be returned at the close of the Summer Session.

Students registering in Vocational Education should secure their registration blanks in the entrance lobby of the Library Building.

### CREDIT

A course that recites six hours a week for six weeks will carry three quarter credits.

In all shop courses a double period counts as one hour.

All the courses offered are of college grade and carry university credit and are the same as courses offered in residence and at extension centers during the regular college year. Students meeting the entrance requirements of the College of Education will be given credit in that College for the work completed during the Summer Session.

### CERTIFICATION OF VOCATIONAL TEACHERS

The State Board for Vocational Education has the authority for granting certificates to properly qualified vocational teachers. Credit will be given toward teacher's certificates for work done during the Summer Session. Consult the instructors in charge of vocational courses in regard to necessary qualifications of vocational teachers.

### DAILY PROGRAM

The hour schedule will be as follows:

I	8:30- 9:20	VI	2:30- 3:20
II	9:30-10:20	VII	3:30- 4:20
III	10:30-11:20	VIII	4:30- 5:20
IV	11:30-12:20	IX	7:30- 8:20
V	1:30- 2:20	X	8:30- 9:20

To accommodate shop men and others who can not attend the regular day sessions certain courses are offered at the IX and X hours.

### VOCATIONAL EDUCATION

Assistant Professor ARTHUR F. PAYNE; Instructors KATHERINE F. BALL, JOHN O. CEDERBERG, Jr., JAMES C. REED. The following lecturers are from the staff of the Federal Board for Vocational Education, KENNETH G. SMITH, MRS. ANNA BURDICK, LEWIS H. CARRIS, ADELAIDE STEELE BAYLOR, F. G. NICHOLS; the following are from the State Board for Vocational Education, MILDRED WEIGLEY, BUEFORD M. GILE, GEORGE A. MCGARVEY.

## COURSES

No.	Quarter credits	Title	Room	Instructors
V25su Sec. I	2	Organization and Supervision of Vocational Education ..... VIII MTWTh	111Ed	Members of State and Federal Boards for Vocational Education
*V25su Sec. II	2	Organization and Supervision of Vocational Education ..... IX-X MT	111Ed	Members of State and Federal Boards for Vocational Education
V49su Sec. I	3	Methods of Analysing and Classifying Trade Knowledge ..... V MTWThFS	102Ed	Payne
*V49su Sec. II	3	Methods of Analysing and Classifying Trade Knowledge ..... IX-X MWF	102Ed	Payne
V53su	2	Drawing for the Building Trades ..... I-II TWThF	ME	Cederberg
V61su	2	Vocational and Educational Guidance ..... III TWThF	111Ed	Ball
V51su	2	Methods of Establishing and Conducting Part-Time Schools and Classes ..... VII MTWTh	111Ed	Ball, Payne
V63su	2	Methods of Teaching Commercial Subjects ..... II TWThF	111Ed	Reed
V65su	2	Teaching of Related Subjects ..... II TWThF	Ar	Payne
V67su	2	Retail Selling ..... IV TWThF	206Ed	Reed
V45su	..	Trade courses. Special units in Machine Shop, Sheet Metal, Automobile Repairing, Printing, Carpentry, Electrical Work.		

\* Course will be given if enrollment is large enough.

### DESCRIPTION OF COURSES

V25su. Sec. I. ORGANIZATION AND SUPERVISION OF VOCATIONAL EDUCATION. This course is organized to meet the needs of persons who hold or expect to hold responsible positions in connection with the development of vocational education. Among them are school superintendents, high-school and grade-school principals, manual training and vocational teachers, members of school boards, shop workers, and members of labor organizations. Among the topics to be discussed are: the organization of vocational work under the Smith-Hughes Act; the State Board for Vocational Education and its relation to the local school boards; the organization of all-day, part-time, and evening trade and industrial schools and classes; the organization of vocational agriculture classes; and the organization of voca-

tional home economics classes. The course will be conducted by specialists from the Federal and State Boards for Vocational Education. PAYNE.

V25su. Sec. II. IX and X, Monday and Tuesday. ORGANIZATION AND SUPERVISION OF VOCATIONAL EDUCATION. (For description of course see above.)

V49su. Sec. I. METHODS OF ANALYSING AND CLASSIFYING TRADE KNOWLEDGE. A course for men and women with trade experience who wish to prepare for the teaching of shop work in day, part-time, and evening schools. Among the subjects treated will be the analysis and classification of trade knowledge; how to outline lessons; methods of teaching; and the organization of teaching material. It is not intended in this course to take up subject matter, presupposing that those enrolled in the class have had sufficient trade experience to enable them to qualify as shop teachers. PAYNE.

V49su. Sec. II. IX and X. Monday, Wednesday, and Friday. METHODS OF ANALYSING AND CLASSIFYING TRADE KNOWLEDGE. (For description of course see above.) PAYNE.

V53su. DRAWING FOR THE BUILDING TRADES. The course will take up the methods of teaching drawing to learners and apprentices in the building trades. Emphasis will be placed on the reading of blue prints, making of shop sketches, and the planning of drafting-room work so that it will correlate with the various shop problems. Much of the time will be devoted to the outlining of lessons and the developing of courses of study for the various building trades. CEDERBERG.

V61su. VOCATIONAL AND EDUCATIONAL GUIDANCE. The relation of vocational guidance to education and to employment, vocational surveys and their use, juvenile employments, methods of vocational guidance in various cities. Opportunities for supervised field work will be given to each member of the class. BALL.

V51su. METHODS OF ESTABLISHING AND CONDUCTING PART-TIME SCHOOLS AND CLASSES. This course consists of three distinct units all of which must be taken to secure credit for the course. These three units are the industrial survey, vocational guidance and placement, and the organization of subject matter for part-time schools. The course is designed for public school teachers who are interested in the problem of the part-time school and are looking forward to a teaching position of this kind. BALL, PAYNE.

V63su. METHODS OF TEACHING COMMERCIAL SUBJECTS. This course will take up the organization, supervision, and subject-matter of the part-time commercial classes as conducted in our public schools and the method of organizing coöperative courses with business concerns. Among the topics discussed will be the form of contract with the

business concern; the rotation of coöperative pupils in the various departments of the store and office; methods of making reports; and the duties of the coördinator. Those enrolled for this course should have had teaching experience in commercial classes, or be preparing to take up the teaching of commercial subjects, or have had practical commercial experience. REED.

V65su. TEACHING OF RELATED SUBJECTS. The purpose of this course is to meet the needs of teachers of related subjects, as science, mathematics, and drawing, who expect to teach these subjects. The organization of teaching units, related subject-matter, trade analysis, testing and checking results, discipline and records will be taken up in this course. Opportunities will be given to afford students to present and work out their own particular problems for immediate needs. PAYNE.

V67su. RETAIL SELLING. Among the general topics into which this course is divided are the following: store organization, merchandising, employment and labor conditions, teaching, business hygiene, and observation and practice work in stores. Those enrolled for this course should have had some retail selling experience and should be preparing to take up the work of organizing and conducting coöperative retail selling courses in connection with the public schools. REED.

V45su. TRADE COURSES. SPECIAL UNITS IN MACHINE SHOP, SHEET METAL, AUTOMOBILE REPAIRING, PRINTING, CARPENTRY, AND ELECTRICAL WORK. Certain unit courses in machine shop practice may be taken at the College of Engineering of the University and at Dunwoody Institute, by teachers of shop subjects who wish to improve themselves in their particular trades. The hours will be arranged with instructors. Two hours of shop work will count as one hour of classroom work.

## SUPPLEMENT TO SUMMER SESSION BULLETIN

Attention is called to the following changes in schedule, rooms, and teaching staff listed in the regular bulletin:

### ENGLISH

Professor C. W. Nichols of the Department of Rhetoric will take the place of Professor G. N. Northrop, resigned.

The withdrawal of Professor Northrop necessitates the following changes in the schedule of courses:

3su, Survey, will be offered by Mr. Nichols.

8su, Shakespeare, will be offered by Mr. Brown.

129su, Modern Drama, will be dropped and the following course will be substituted:

No.	Credits	Title			
*68su	3	Victorian Poetry of Faith and Doubt	II	MTWThFS	205F Nichols

## LATIN

All the courses in Latin will recite in Room 107, Folwell Hall, instead of in Room 101, Education Building, as previously announced.

## MATHEMATICS

Course 70su, History of Elementary Mathematics, will recite at the IV hour TWThF, instead of at the II hour, as previously announced.

## MUSIC

Course in Public School Music will be offered by Mr. Earle Baker of the Minneapolis Public Schools.

A course in pianoforte offered by Mr. H. W. Johnson of the School of Music will be added to the list of Summer Session courses in Music. Fee, \$24.

## PHYSICS

Course 61su, Magnetism and Electricity, lecture hour changed from V hour on Tuesday and Thursday to the I hour on these days; recitation at III, IV hours on MWF will be changed to the V, VI hours on MWF.

## PSYCHOLOGY

No prerequisite will be required for Psychology 1su, General Psychology.

## POLITICAL SCIENCE

Course 111su, Comparative Government, will recite at the IV hour TWThFS, instead of at the I hour on these days. The afternoon hours will remain the same—V TWF.

Courses 51su, 111su, and 118su should be starred courses.

## RHETORIC

Courses 1su and 13su will be offered by Miss Jackson instead of Mr. Herrick.

## EDUCATION

Classrooms previously scheduled as "arranged" have been assigned as follows:

113su, Secondary School Problems, will recite in Room 205, Education Building.

121su, School Organ. and Admin., will recite in Room 206, Education Building.

160su, Theory of Supervision, will recite in Room 206, Education Building.

## DENTISTRY

Work in Oral Surgery will be offered by Dr. B. G. Anderson instead of by Dr. Griffith.

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

*Teachers' Training School*

*Department of Agriculture and*

*State Department of Education*

*University Farm, St. Paul*

*June 23 to August 1, 1919*

*James M. McConnell, Superintendent of Education, St. Paul,*

*R. W. Thatcher, Dean of the Department of Agriculture, University*  
*Farm,*

*W. P. Dyer, Professor of Agricultural Education, University Farm*  
*Conductor.*

*Vol. XXII No. 7, March 1, 1919*

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



## TEACHERS' TRAINING SCHOOLS, SUMMER OF 1919.

Sessions of six weeks each well be held at the State Normal Schools in:

Winona  
Mankato  
St. Cloud  
Moorhead  
Duluth  
Bemidji

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 six normal schools as "The Normal Group," and the schools at University Farm, Crookston, and Morris, as "The University Group."

Time of beginning: Monday, June 23.

Time of closing: Friday, August 1.

Sessions will be held five days each week, excepting that July 4th will be a holiday.

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. In the University schools 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 in the normal schools 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 1: All professional training required for the completion, renewal or extension of first-class certificates (with exceptions, Note 2 below) will be provided only in the State Normal Schools, and in classes and courses designed to train teachers for rural school service.

NOTE 2: The following professional courses will be offered in both the Normal Schools and the three institution schools of the University: Drawing Methods and Primary Handwork, Playground Methods, Foods and Cookery, Garment Making, Hygiene and Sanitation Methods.

## 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.

### ACADEMIC AND PROFESSIONAL CREDIT.

Credits in connection with the issuance of first-class certificates must be earned under two general divisions: **academic credit** through definite and systematic academic work, as provided for in Group I, page 5; **professional credit** through method courses in subjects listed under Groups II and III, page 5. (See notes, page 3.)

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.

NOTE 1: Persons seeking to earn a second-class certificate must limit the choice of subjects to those under Group I, page 5. An exception is made in case of Playground Methods or Hygiene and Sanitation Methods, one of which may be elected in addition to the academic work.

NOTE 2: No professional training is required for the issuance, renewal, or extension of a second-class certificate.

Subjects starred under Groups II and III, page 5, 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 conductor.

NOTE 1: Students will not be registered for credit in any course after Wednesday, June 25. No person will be permitted to register for any purpose after Friday, June 27.

NOTE 2: Students in elementary and secondary school 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.

Academic subjects required for the issuance of second and first-class certificates will be offered (a) in the Normal Schools, and (b) in the Institution Schools of the University.

#### b. Professional.

All professional training required for the completion, renewal or extension of first-class certificates (with exceptions, Note 1 below) will be provided only in the State Normal Schools, and in classes and courses designated to train teachers for rural school service.

NOTE 1: The following professional courses will be offered in both the Normal Schools and the three Institution Schools of the University: Drawing Methods and Primary Handwork, Playground Methods, Foods and Cookery, Garment Making, Hygiene and Sanitation Methods.

NOTE 2: Persons seeking to earn a second-class certificate must limit the choice of subjects to those under Group I, page 5. An exception is made in the case of Playground Methods or Hygiene and Sanitation Methods, one of which may be elected in addition to the academic work.

**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 TRAINING.**

Beginning with the summer term 1919, all professional courses required for the completion, extension or renewal of first-class certificates (exceptions, page 3, notes 1 and 2) will be offered only in the State Normal Schools, as stated elsewhere in this bulletin. (See notes 1 and 2 on page 3.) Such professional credits earned at the normal schools will be credited as stated below toward the completion of the normal course.

A full professional course in the normal schools will consist of six (6) credits, four (4) including Reading and Primary Methods, chosen from Group II; and two (2), including Rural School Methods and Administration, chosen from Group III. Four of these credits will be applied by the normal

schools toward the completion of the advanced course. Three of these credits may be earned in a normal school during one summer session.

**NOTE:** Heretofore a full course in professional training, earned in any one of the three University Schools, has required the completion of eight professional credits. The earning of six professional credits in the Normal Schools is considered the equivalent of the eight professional credits earned in the University schools for certification.

The **RENEWAL** of any first-class certificate, excepting the first renewal of normal training department certificates, will require the completion of three (3) additional professional credits in a Normal School.

The first renewal of a first-class normal training department certificate may be secured by making application to the State Superintendent. Subsequent renewals must be earned as stated above.

In 1919 a teacher who in addition to academic requirements 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.

**NOTE:** A **SPECIAL** first-class certificate valid for one year may be issued to an examinee who lacks but one-half credit in any one of the following academic subjects in meeting all of the requirements for a regular first-class certificate:

ALGEBRA  
GEOMETRY  
PHYSICS  
PHYSICAL GEOGRAPHY  
AGRICULTURE  
GENERAL HISTORY

This is a further 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, 1919, will require the applicant to have completed the full professional course as required by the standards of the Normal Schools.

### **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 7, 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 7.

### 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 1919 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 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 principles 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, August 4, 5, and 6, 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 21, or Monday, June 23, and be in attendance throughout the six weeks.

Students will not be registered for credit in any course after Wednesday, June 25. No person will be permitted to register for any purpose after Friday, June 27.

## **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 21.

## EXPENSES IN DORMITORIES

Room rent, use of bedding, and laundry of same.....	\$7.50
Health fee.....	1.00
Postoffice box.....	.10
Total expense.....	\$8.60
Deposit.....	5.00
Entire amount to be paid in advance.....	\$13.60

NOTE: If you are required to pay a registration fee of \$5 (see page 8), the total to pay cashier at the time of registration will be \$18.60.

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.